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Penyusun: Sri Wulan
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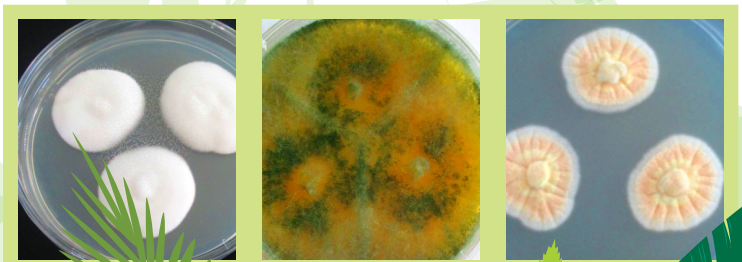
Publikasi Ilmiah

PENELITI PUSAT PENELITIAN BIOLOGI
Lembaga Ilmu Pengetahuan Indonesia

Abstrak 2010-2014



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DAFTAR ISI

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Buku *Publikasi Ilmiah Peneliti Pusat Penelitian Biologi Lembaga Ilmu Pengetahuan Indonesia, Abstrak 2010–2014* berisi kumpulan abstrak penelitian yang dilakukan oleh staf peneliti di Pusat Penelitian Biologi-LIPI selama kurun waktu lima tahun terakhir (2010–2014). Data abstrak berasal dari kumpulan karya tulis ilmiah yang dimuat dalam jurnal, buku, dan prosiding yang dilakukan oleh peneliti di Pusat Penelitian Biologi-LIPI, baik di dalam maupun di luar negeri.

Buku ini dilengkapi dengan petunjuk penggunaan yang menguraikan tata letak deskripsi bibliografi dan indeks yang memudahkan pembaca dalam mencari referensi yang diinginkan. Indeks tersebut terdiri dari indeks penulis, indeks subjek, indeks takson, dan indeks geografi yang diikuti dengan nomor urut yang menunjuk pada urutan entri.

Buku kumpulan abstrak ini telah melalui proses penyuntingan bahasa guna memenuhi standar penerbitan buku sehingga akan ditemukan beberapa isi abstrak yang tidak persis sama dengan abstrak aslinya.

Semoga buku ini bermanfaat bagi masyarakat dan para peneliti sebagai referensi dalam melakukan penelitian di bidang ilmu biologi.

Akhir kata, kami mengucapkan terima kasih kepada semua pihak yang telah membantu proses penerbitan buku ini.

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PRAKATA

Terbitan yang berjudul Publikasi Ilmiah Peneliti Pusat Penelitian Biologi: Abstrak 2010–2014 ini memuat 913 judul abstrak dari karya tulis ilmiah staf peneliti Pusat Penelitian (Puslit) Biologi, yang terangkum dalam kurun waktu selama lima tahun terakhir (2010–2014). Penyusunan abstrak dalam buku ini dilakukan menurut abjad penulis pertama diikuti dengan kronologis tahun terbit. Perlu diinformasikan bahwa sebagian abstrak merupakan koleksi bahan pustaka dari Pangkalan Data Bibliografi Pusat Penelitian Biologi-LIPI dan koleksi staf peneliti sendiri. Datanya dikumpulkan dari karya tulis ilmiah peneliti Puslit Biologi-LIPI yang dimuat dalam jurnal/majalah ilmiah baik dalam negeri maupun luar negeri, buku, prosiding yang diselenggarakan baik di dalam maupun di luar negeri.

Besar kemungkinan masih banyak karya tulis ilmiah yang belum dimuat dalam terbitan kali ini. Keterbatasan waktu pengumpulan, kesulitan mendapatkan data dari staf peneliti karena kesibukannya, dan pengolahan data merupakan kendala utama dalam penyusunan abstrak edisi kali ini. Kami mengharapkan karya ini dapat ditindaklanjuti setiap lima tahun sekali. Tanggapan untuk perbaikan dan penyempurnaan penerbitan selanjutnya sangat kami harapkan.

Untuk membantu para pengguna, kami sertakan petunjuk penggunaan yang menguraikan tata letak deskripsi bibliografi. Di samping itu, publikasi ilmiah ini juga dilengkapi dengan indeks sebagai pengacu untuk memperolah informasi topik yang dikehendaki. Indeks tersebut terdiri dari indeks penulis, indeks subjek, indeks takson, dan indeks geografi yang diikuti dengan nomor urut yang menunjuk pada urutan entri.

Kepada semua pihak yang membantu terlaksananya usaha penerbitan ini, kami mengucapkan terima kasih.

Cibinong, Mei 2015

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PETUNJUK PENGGUNAAN

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0001. Sutrisno, H. 2014. Molecular Phylogeny of Indonesian *Lymantria* Tussock Moths (Lepidoptera: Erebidae) based on CO I gene sequence. Journal of Species Research 3(1): 7–16.

Abstract

Many species of *Lymantria* are important forestry pests, including *L. dispar* which is well-known distributed from Asia to North America as an invasive species. Like most of other genera of moths, the systematic of this genus is still in dispute, especially on the monophyly and the relationship within this genus due to the fact that genus is very large and varied. This genus was morphologically defined only by a single aphomorphy. To clarify the monophyly of the genus *Lymantria*, to reveal the phylogenetic relationship among the Indonesian species, and to establish the genetic characters of Indonesian *Lymantria*, we analyzed 9 species of Indonesian *Lymantria* involving 33 other species distributed around the world based on nucleotide sequence variation across a 516-bp region in the CO I gene. The results showed that the base composition of this region was a high A+T biased (C: 0.3333). The results also showed that the monophyly of *Lymantria* was not supported by bootstrap tests at any tree building methods. Indonesian species was distributed into four different groups but the relationship among them was still in dispute. It indicates that relationships among the basal nodes (groups) proposed here were least valid due to the fact that the number of species may not be enough to represent the real number of species in the nature. Moreover, CO I gene sequences alone were not able to resolve their relationships at the basal nodes. More investigations were needed by including more species and other genes that were more conserved.

ISI ABSTRAK

0001. **Abdulhadi, R.,** R.A. Fuadi & **Suhardjono. 2011.** Populasi biji di lantai hutan pamah Pasir Piring, Sukabumi, Jawa Barat (Seed population on forest floor of Pasir Piring remnant forest, Sukabumi, West Java). *Dalam:* Didik Widyatmoko dkk. (Penelaah). *Prosiding Seminar Nasional "Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan"*, Cibodas, 7 April 2011: 324–331.

Abstract

Analysis of the seed populations beneath the lowland rain forest canopy in Pasir Piring, Sukabumi was carried out by germinating soil sample in green house germination tray methods. Soil samples were collected from 19 plots of 25 x 50 cm^2 along 450 m transect with 25 m interval. Based on 19 weeks observation, a total of 4,970 viable seeds (2093 per m^2) were recorded, belong to 76 species, 65 genera and 31 families, with Shanon-Wiener diversity index of 1.67 evenness index 0.85. Species composirion and distribution of seed bank was futher dicussed.

0002. **Achmadi, A.S. 2010.** Taxonomic Status of Spiny Rats (*Maxomys* JENTINK, Rodentia) from Indonesia and Malaysia based on Morphological Study. *Treubia* 37: 49–82.

Abstract

The morphological study was focused on the analysis of morphometric variations of the spiny rats (*Maxomys* Jentink) across their Indonesian and Malaysian ranges in order to clarify the taxonomic status of this genus. The genus was

widespread throughout South Asia, and many taxa (species and subspecies) have been described. Univariate and multivariate analyses (Principal Component Analyses and Discriminant Function Analyses) were carried out based on 24 craniometric characters in 187 skulls. Results indicated that *Maxomys* consist of 13 species: *M. whiteheadi, M. surifer, M.rajah, M. ochraceiventer, M. baeodon, M. alticola, M. musschenbroekii, M. hellwaldii, M. wattsi, M. pagensis, M. bartelsii, M. inas* and one distinct population of *M.whiteheadi* from 16 known species of *Maxomys* in Malaysia and Indonesian archipelago. The multiple regression analyses showed no sexual dimorphism in relation to the characters used; however, all characters were geographically significant in some species.

0003. **Achmadi, A.S** & **S. Wiantoro. 2011.** Keanekaragaman mamalia kecil di Pulau Moti. *Dalam*: Maryanto, I. & H. Sutrisno. *Ekologi Ternate* 55–69. Jakarta: LIPI Press.

Abstract

A study of small mammal in Moti Island has been conducted on May 2nd until 15th 2010 using mist nets, hand nets, harp traps, cage traps and dead traps. A total of 16 species comprising 12 species of bats, three species of rodent, and one species of insectivor were recorded. Based on this study, we found one species of bat, *Pteropus* sp., one species of rodent, *Rattus* sp. which are probably as new species. On the other hand, *Hipposideros cineraceus* was the new distributional record for Moluccas Islands and Eastern Indonesia region.

0004. **Achmadi, A.S. 2012**. Bab 4. Tikus dan Cecurut. *Dalam*: Suhardjono Y. R. & R. Ubaidillah (*eds*.). *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Puslit Biologi-
LIPI, Cibinong. Jakarta: LIPI Press. 77–87.

Abstrak

Tidak ada abstrak

0005. **Achmadi, A.S, I. Maryanto & Maharadatunkamsi. 2012.** Systematic and Descriptions of New Species within genus *Maxomys* from East Kalimantan, Borneo Island. *Treubia* 39: 1–28.

Abstract

We review the murid rodents of the genus *Maxomys* from Borneo, and recognize one new species, *Maxomys tajuddinii* **sp. nov**. The type locality is Empakuq village (119'8.11" S, 120°6'8" E), Melak District, Kutai, East Kalimantan, Indonesia. Descriptive and multivariate analyses were used to reveal the variation and distinctive characters of the new species from its closest relatives. Results depicted that the morphology of new spesies *M. tajuddinii* sp.nov resembles that of *M. whiteheadi* Thomas, 1894, which occurs throughout the Borneo island. Nine characters distinguish the new species: (1) sharp demarcation on the flanks between the dorsal and ventral pelage;

(2) tail slightly similar to longer than head and body length, tapered and bicoloured, brownish black on dorsal surface and creamy white on ventral surface; (3) individual hairs covering head and body long, thick, and spinous, resulting in a dense pelage; (4) brownish orange buff dorsal pelage, with long, dense, spinous, black tipped guard hairs and creamy white ventral pelage; (5) rostrum long and narrow relative to overall skull size; (6) incisive foramina narrow relative to length, with posterior margins located slightly anterior to first molar; (7) first upper molar with three roots; (8) cusp t^4 complete on first and second molars; and (9) 10–12 scales per cm on tail. Morphologically, *M. tajuddinii* sp. nov is unlike any other described species of Maxomys known to occur on Borneo. *M. tajuddinii* is the net species occurs in sympatry with M. whiteheadi Thomas, 1894 in peat swamp forests, logged mixed dipterocarp forests or waterlogged and periodically inundated sandy clay soil dominated by kerangas vegetation.

0006. **Achmadi, A.S, J.A. Esselstyn, K.C. Rowe, I. Maryanto** & M.T. Abdullah. **2013.** Phylogeny, Diversity, and Biogeography of the Southeast Asian Endemic Spiny Rats. *Journal of Mammalogy* 94(6): 1412–1423.

Abstract

Knowledge of the diversity and relationships of species in many groups of plants and animals in Southeast Asia is severely limited, preventing an integrative understanding of evolutionary and ecological processes in island archipelagos. We generated a 3-locus DNA sequence data set to estimate phylogenetic relationships among species and populations of Maxomys, a genus of rodents endemic to Southeast Asia. Our inclusion of *Crunomys* as a potential outgroup supported the monophyly of *Crunomys*, but the genus was deeply nested within *Maxomys*. Because of the relatively ancient divergences (mean uncorrected p-distances up to 0.15 in cytochrome-b sequences) among species of *Maxomys* and short branch lengths among basal lineages of the phylogeny, we obtained little support for the oldest relationships in *Maxomys* + *Crunomys*. However, our analyses revealed unrecognized diversity in the form of divergent populations both between and within island and the presence of 2 potentially undescribed species from Sulawesi. The *Maxomys* and *Crunomys* of Sulawesi belonged to 4 clades sister to extralimital species, suggesting that repeated overwater dispersal between Sundaland–Philippines and Sulawesi was an important isolating mechanism in the history of this group.

0007. **Agusta, A., Y. Jamal, Praptiwi** & **A. Fathoni. 2010**. Biooxidation of Berberine by the Endophytic Fungus *Coelomycetes* AFKR-1 Isolated from Kayu Kuning [*Archangelisia flava* (L.) Merr.: Menispermaceae]. *Proceeding International Seminar Biotechnology for Enhancement the Tropical Biodiversity.* Bandung, 18–20 Oktober 2010.

Abstract

Totaly eighteen kinds of endophytic fungi have been isolated from the young stems of kayu kuning [*Archangelisia flava* (L.) Merr.] collected from Bogor Botanic Garden. All of isolated fungi have been screened for their capability to transform the host plant alkaloid berberine in two kinds of liquid mediums, potato dextrose broth (PDB) and glucose-yeast extract-peptone (GYP) respectively. Biotransformation reactions were monitored and analyzed by a normal phase thin layer chromatography technique. The screening process revealed that the fungus *Coelomycetes* AFKR-1 could be able to transform berberine into a biotransformed product in PDB medium. Scaling-up biotransformation reactions (5 x 200 ml medium in 500 ml size Erlenmeyer) which were incubated at room temperature with agitation at 120 rpm yielded 20% conversion rate of substrate into a product in 48 hrs. The chemical structure of biotransformed product was proposed as a 7-*N*-oxide-berberine based on their spectroscopic data.

0008. **Agustiyani, D. & N. Sulistinah. 2012**. Studi Bioremediasi Sianida pada Media Pasir Menggunakan Tanaman Akumulator Sianida *Centrocema pubescens* dan Inokulan Mikroba. *Prosiding Seminar Nasional Biologi XX* dan Kongres Perhimpunan Biologi Indonesia XIV. UIN Maulana Malik Ibrahim, Malang, pp: 100–107

Abstrak

Studi bioremediasi sianida pada media pasir dilakukan dengan menggunakan tanaman akumulator sianida *Centrocema pubescens* dan inokulan mikroba. Empat macam inokulan mikroba: 1) bakteri penambat nitrogen resisten sianida (N), 2) bakteri *Rhizobium leguminosorum* (R), 3)bakteri pendegradasi sianida (CN), dan 4) biak gabungan dari ketiga jenis bakteri (Gab), diujikan dalam penelitian ini. Dosis sianida (KCN) yang dimasukkan dalam media pasir sebesar 20 ppm, dengan 2 kali pemberian selama 3 bulan pertumbuhan tanaman. Hasil penelitian menunjukkan bahwa secara umum tidak ada perbedaan yang signifikan antar perlakuan inokulan mikroba terhadap pertumbuhan tanaman, namun ada kecenderungan pemberian biak gabungan (Gab) lebih baik dibandingkan dengan perlakuan inokulan mikroba lainnya. Serapan sianida pada tanaman, paling tinggi pada perlakuan pemberian bakteri Rhizobium (2 ppm), diikuti oleh tanaman kontrol, tanpa inokulan mikroba (1,2 ppm) dan perlakuan pemberian bakteri penambat N (0,8 ppm). Pada tanaman yang diberi perlakuan bakteri pendegradasi sianida (CN) dan biak gabungan (Gab), tidak terdeteksi adanya sianida. Sebaliknya, eliminasi sianida pada media tanam paling tinggi pada perlakuan CN, diikuti oleh perlakuan N, Gab, R, dan kontrol (K). Hasil pengamatan perubahan konsentrasi nitrogen (NH_4^+ dan NO_3^-) pada media tanam selama pertumbuhan, memperlihatkan kecenderungan lebih stabil pada perlakuan pemberian inokulan mikroba dibandingkan dengan tanaman kontrol. Dari hasil penelitian dapat disimpulkan bahwa pemberian inokulan mikroba yang diujikan berpengaruh positip terhadap remediasi sianida dengan mem-

percepat proses penyerapan sianida pada tanaman atau mendegradasi/mengurangi sianida pada media tanam.

0009. **Agustiyani, D.** & T. Yamagishi. **2010.** Nitrogen Removal by an Activated Sludge Process with Cross-Flow Filtration. *Berita Biologi* 10(1) April 2010. pp. 43–49

Abstract

The simultaneous nitrification and denitrification in a single reactor using an activated sludge with cross-flow filtration was investigated. The reactor was a Sequencing Batch Reactor (SBR), operated on three phase conditions, phase I was continuous aeration, phase II was intermittent aeration, and phase III was intermittent aeration with methanol addition. The microbial properties on the nitrogen removal processes were monitored by measuring the ammonia decreasing and nitrate production rate. The denitrification rate was also calculated from N_2O gas production by acetylene inhibition method. The experiment results show that the nitrification was occurred during the aeration condition, both in the phase I and II. The denitrification was occurred in the anoxic stage (phase III). The nitrate decreasing rate in the anoxic stage (phase IIIA) increased gradually reach the value of 0.19 mg-N/l/min. on the 8^{th} day operation. The nitrate decreasing rate increased to be 0.45 mg/l/min in the phase IIIB and reach up to 0.70 mg/l/min in the phase IIIC in which the methanol concentrations was increased from 762 mg/L to 1016 mg/L in the phase IIIB and phase IIIC, respectively. The increasing activity of denitrification resulted in decreasing the concentration of TOC in the reactor. More than 80% nitrogen removal occurred in phase III and TOC removal efficiency in phase III reach more than 90%.

0010. **Agustiyani, D.,** R.M. Kayadoe, & **H. Imamuddin. 2010.** Pola Pertumbuhan dan Reaksi Oksidasi Nitrit pada Proses Nitrifikasi dari Isolat Bakteri Heterotropik. *Jurnal Biologi Indonesia* 6(2): 265–275.

Abstract

Eight kinds of heterotrophic bacteria (NOB H1, H2, H3, H4, H5, H6, H7, H8) were isolated from agriculture soil, Lampung. All of those heterotrophic bacterias have ability to oxidize nitrite with different level. NOB H1 showed the highest nitrate production (4,45 mg.ℓ^{-1} N-NO_3), while isolate of NOB H8 showed the highest nitrite reduction (49,60 mg.ℓ^{-1} N-NO_2). Growth pathway of both isolate NOB H1 and NOB H8 were sigmoid with generation time of 1.69 hour and 2.19 hour, respectively. Nitrite oxidations of both isolates were conducted on stationer phase through dead phase. Nitrite reduction of isolate NOB H8 partly caused by reduction through the denitrification processes.

0011. **Agustiyani, D. 2011.** Potensi Bakteri Denitrifikasi dalam Biodegradasi Carbaryl pada Kondisi Anaerobik. *Jurnal Teknologi Lingkungan* 12(3): 259–267.

Abstract

Potency of denitrifying bacteria on carbaryl degradation under anaerobic condition was studied. Firstly, we acclimated and isolated denitrifying bacteria from the pesticide polluted-agriculture soil at Lembang and Dieng. Three microbial culture of denitrifying (C.L, C.D and D3) were obtained and all of the cultures indicated having growth capability on media containing 1000 ppm of carbaryl. Ten isolate of denitrifying bacteria were obtained from those three microbe cultures. Furthermore, the denitrifying activity and capability of carbaryl degradation of six isolate of denitrifying bacteria (CL1, CL2, CD1, CD2, D3.1, D3.2) were tested under anaerobic condition. The result shows that the denitrifying reaction and carbaryl degradation were carried out simultaneously. The experiment found that there were two kind pathway of carbaryl degradation. The first pathway was carbaryl to 1-Naphtol, the second was carbaryl to 1-Naphtol, and 1-Naphtol to certain compound (was not detected yet).

0012. **Agustiyani, D., N. Laili, H. Imamuddin** & **N. Sulistinah. 2011.** Populasi dan Aktivitas Denitrifikasi serta Emisi Gas N_2o pada Lahan Pertanian Organik, Pertanian Intensif dan Hutan. *Berkala Penelitian Hayati* 17: 15–19.

Abstract

We investigate the population and potentials denitrification activity from three different soils, organically farmed soil, intensive farmed soil and forest soil. Our objectives were to explore spatial gradients in denitrifier populations, examine whether populations density and its potential activity was related to soil chemical properties (C and N content), and determine the potential emission of gas N_2O. Results indicated biological functional differences between these three different soil ecosystems. Forest soil had the highest population density of denitrifying bacteria and also had significant potential denitrifying activities. The highest potentials denitrifying activity in the soil affected to the lowest emission of N_2O gas. The lowest population and potential denitrifying activity were measured in the intensive farmed soil. Those conditions might be promoted by the potentials emission of N_2O.

0013. **Agustiyani, D., T.K. Dewi,** A. Anggraeni & **S. Antonius. 2012**. Pembuatan Biang Induk (*Starter*), Pemeliharaan Mikroba dalam Starter, Pemantauan Viabilitas dan Aktivitas Mikroba dalam Pupuk Organik Hayati Cair sebagai Upaya Mempertahankan Kualitas. *Prosiding Seminar Nasional Biologi.* Hlm. 416–424

Abtract

Laboratory studies were conducted to study the beneficial properties of plant growth-promoting rhizobacterial (PGPR) strains in relation to the qualities of

liquid organic biofertilizer (LOB). Firstly, PGPR strains were grown on fermentor as starter, then it has been used for production of LOB. The viabilities of PGPR strains were also tested under freeze drying method, and under refrigerator. Finally, the Indol Acetic Acid containing LOB was measured by HPLC. The results showed that the viabilities of pure cultures under different preservation method were in general very good. After 1 year preservation under freeze drying, the viabilities were about 10^8 CFU and under refrigerator (4–10°C), after 5 months were above 10^8 CFU. The concentration of IAA produced in LOB ranged from 3–55 ppm. The highest IAA concentration was in the LOB after 5 months preservation, followed by 1 year, 1 week, and fresh LOB.

0014. **Agustiyani, D.,** B. Martono & **M. Rahmansyah. 2012.** Sistem Kultivasi Organik pada Kacang Tanah (*Arachis hypogea* L.) dengan Memanfaatkan Tingkat Kematangan Kompos. *Jurnal Teknologi Lingkungan* 13(2): 203–211

Abstrak

Untuk mendukung suatu sistem pertanian yang berkelanjutan, praktek pertanian organik dilakukan pada kultivasi kacang tanah. Pada penelitian ini, kombinasi antara penggunaan bakteri pelarut fosfat (*Pseudomonas* sp.), bakteri penambat N (*Rhizobium* spp.) dan fungi pendegradasi selulosa (*Trichoderma* sp. dan *Aspergillus* sp.) digunakan untuk inokulan. Kompos berupa bahan hijauan daun dan limbah kotoran ternak kemudian diformulasikan dengan inokulan untuk digunakan sebagai pupuk hayati. Kompos matang dan setengah matang digunakan untuk pengayaan hara tanah. Penggunaan kompos setengah matang merupakan praktek *semi on-site composting* dalam upaya menstimulasi pertumbuhan tanaman. Pada penelitian ini, pengaruh perlakuan dievaluasi melalui pertumbuhan tanaman dan hasil polong. Hasil penelitian menunjukkan tidak ada perbedaan yang signifikan antar perlakuan pemupukan, namun antara perlakuan pemberian pupuk hayati sangat berbeda nyata dengan kontrol. Hasil penelitian ini juga menunjukkan bahwa penggunaan kompos setengah matang dapat mempersingkat persiapan tanam dan dapat dipraktekkan dalam pengembangan teknik kultivasi kacang tanah.

0015. **Agustiyani, D., N. Laili, H. Imamuddin, N. Sulistinah** & **S. Antonius. 2012.** Pengaruh Penggunaan Lahan yang Berbeda terhadap Populasi dan Aktivitas Denitrifikasi serta Emisi Gas N_2O (The Impact of Different Land Use on Denitrifying Populations and Their Activities Including N2O Emission). *Berita Biologi* 11(1-a)–April 2012: 37–44

Abstract

Partial denitrification is a significant contributor to emission of N_2O, which is involved in destruction of the stratospheric ozone layer and in global warming. Furthermore, it is important to study the correlation between population of denitrifying and its potential activity with the biochemical properties (C/N ratio) and the potential emission of gas N_2O. We investigated three different

soils, organically farmed soil, intensive farmed soil, and forest soil. Results indicated that organically farmed soil had the highest population density of denitrifying bacteria and also had significant potential denitrifying activities. The highest potentials denitrifying activity in the soil affected to the lowest emission of N_2O gas. The lowest potential denitrifying activity was measured in the intensive farmed soil. Surprisingly, population of denitrifying bacteria in the forest soil was low, but population of nitrate respiring bacteria was high. Those conditions resulted in low potentials denitrification and might be promoted the potentials emission of N_2O.

0016. **Agustiyani, D., A. Nditasari, N. Laili,** & **S. Antonius. 2013**. Penapisan Mikroba Agen Biokontrol Penyakit Layu Fusarium Hasil Isolasi dari Tanah Perakaran Tanaman Pisang. *Prosiding Seminar Nasional Dan Kongres XXII Perhimpunan Fitopatologi Indonesia*. Pangeran Beach Hotel, Padang. 8–10 Oktober 2013

Abstrak

Penyakit layu pada tanaman pisang yang diakibatkan oleh *Fusarium oxysporum* f.sp. *cubense* (Foc) merupakan salah satu penyakit yang sangat destruktif menyerang tanaman pisang di daerah tropis. Pengendalian penyakit layu secara biologi (biokontrol) menjadi salah satu solusi yang menjanjikan karena selain aman secara ekologi dan spesifik terhadap patogen, *biological control agents* (BCAs) mampu hidup di tanah dalam jangka waktu lama. Penelitian ini bertujuan untuk mendapatkan agen biokontrol yang potensial dengan melakukan isolasi bakteri dan aktinomisetes dari tanah perakaran tanaman pisang dari kebun Natural Tropical Fruit (NTF), Lampung dan perkebunan pisang di desa Cugenang, Cianjur, Jawa Barat. Hasil isolasi dari kedua lokasi tersebut diperoleh 64 isolat aktinomisetes dan 142 isolat bakteri. Semua isolat (206 isolat) kemudian diuji antagonistik terhadap Foc, dengan menumbuhkan bersama pada cawan petri pada media *Potato Dextrose Agar* (PDA). Hasil pengujian memperlihatkan 21 isolat bakteri dan 10 isolat aktinomisetes positip menghambat Foc dengan tingkat hambatan rendah (+), sedang (++), dan tinggi (+++). Isolat aktinomisetes memperlihatkan kemampuan menghambat jamur Foc relatif lebih tinggi dibandingkan dengan bakteri. Isolat-isolat yang positip antagonis terhadap Foc kemudian diuji aktivitas enzim protease, kitinase, dan selulase secara kualitatif pada media spesifik. Hampir semua isolat aktinomisetes mempunyai aktivitas enzim kitinase, sedangkan sebagian besar isolat bakteri mempunyai aktivitas enzim protease. Dua isolat bakteri (L.II.4.ND dan L.A.I-5. DW) dan 3 isolat aktinomisetes (L.A.I.DW, L.3.1.DW dan Ci.I.A5.DW) yang memperlihatkan kemampuan menghambat Foc cukup tinggi dan mempunyai aktivitas enzim lisis kemudian diidentifikasi secara molekuler berdasarkan 16s rDNA. Isolat-isolat tersebut teridentifikasi sebagai *Klebsiella pneumonia* L.II.4.ND, *Burkholderia* sp. L.A.I-5.DW, *Streptomyces* sp. L.A.I.DW, *Streptomyces* sp. L. 3.1.DW dan *Streptomyces* sp. Ci.I.A5.DW.

0017. **Ahmad, F.** & **Poerba, Y.S. 2010.** Penampilan Random Amplified Polymorphic DNA pada *Azadirachta indica* A. Juss dari Taman Nasional Baluran. *Jurnal Teknologi Lingkungan* 11 (1): 53–59

Abstract

Azadirachta indica A. Juss (Apocinaceae) is a large tree of the lowland tropical rain forest of Southeast Asia that occurs in Thailand, the Malay Peninsula, on the island of Java (East Java), and Lesser Sunda islands. Its economic value was in its wood (timber), and as medicinal plant. The information on genetic diversity of the species is very limited. Studies were initiated and genetic diversity estimated using RAPD markers in 27 accessions of *A. Indica* procured from three geographical regions of *T.N.* Baluran and *Balai Litbang Kehutanan*. Seven selected Operation primers (10 mer) generated a total of 133 consistent amplification products ranging from 132 bp to 5.6 kb. The cluster analysis separated the 27 individuals into 2 clusters. The range of genetic dissimilarity value among samples was from 0.07 to 0.33, while genetic distance among populations was from 0.04 to 0.10. These values showed that *A. Indica* from T.N. Baluran was not genetically diverse population.

0018. **Alhamd, L.** & **R. Polosakan. 2011.** Komposisi Jenis dan Struktur Vegetasi di Hutan Kawasan Taman Nasional Gunung Halimun Salak, Sukabumi. *Jurnal Berkala Penelitian Hayati* 5(A): 1–4.

Abstrak

High conversion of forest directly decreased biodiversity. It is the principal cause of global warming around the area. There were little information of vegetation data in the low forest of gunung Salak. The research could be the base for rehabilitation or area conversion. The research aimed to know the structure and tree composition using permanent plot methode 1 Ha (50x200 m) at GBH (Girth at Breast Height) ≥ 15 cm. The results of observation showed that the density reached 691 trees/ha. The forest had good regeneration with domination of young tree 44.57 % from total individual, number of tree decreased in fungtion of diameter class (J shaped curse). According to Important Value Index (INP), composition were dominated by puspa (*Schima wallichii*: 64.3), kironyok (*Castanopsis acuminatissima*: 19.0), rasamala (*Altingia excelsa*: 17.3), pasang batarua (*Quercus gemelliflora*: 17.0), and kisireum gede (*Syzygium gracilis*: 15.6-INP). High distribution of puspa, kironyok and rasamala indicated that the forest still raltively conserved.

0019. Allen, G.R. & **R.K. Hadiaty. 2011.** A New Species of Rainbowfish (Melanotaeniidae) from western New Guinea (West papua Province, Indonesia). *Jurnal of the Australian New Guinea Fishes Association*, ANGFA, Fishes of Sahul Vo. 25 (1): 601–607.

Abstract

A new species of rainbowfish, *Melanotaenia mairasi*, is described on the basis of 22 specimens, 12.1–54.2 mm SL, collected in November 2010 at Lake Furnusu in the Bird's Neck region of Kaimana Regency, West Papua Province, Indonesia. It is closely allied to *M. ogilbyi* from central-southern New Guinea (southeastern Papua Province, Indonesia). The two species share similar meristic and morphological features as well as general colour patterns. They differ most notably in the number of gill rakers on the lower limb of the first gill arch, 15–17 for *M. mairasi* and 10 or 11 for *M. ogilbyi*. The count for *M. mairasi* is the highest among the "*maccullochi*" group of species.

0020. Allen, G.R. & **R.K. Hadiaty. 2013.** *Melanotaenia sneideri,* a New Species of Rainbowfish (Melanotaeniidae) from West Papua Province, Indonesia. *Aqua, International Journal of Ichthyology* 19(3): 137–146.

Abstract

A new species of melanotaeniid rainbowfish, *Melanotaenia sneideri*, is described from the Bomberai Peninsula in the southwestern Bird's Head region of western New Guinea (West Papua Province, Indonesia). The new taxon is described on the basis of 25 specimens, 15.9–80.1 mm SL, collected from a karst spring-fed creek in a small ephemeral lake basin at an altitude of 1,050 m in the Kumawa Mountains. It is distinguished from congeners by a combination of the bright red body colour, dark brown to blackish dorsal, anal, and pelvic fins, and relatively deep body (to at least 42.3 % of SL) of adult males. Additional features include 18–20 gill rakers on the first branchial arch, 15–16 circumpeduncular scales, and an absence of vomerine teeth or a small, inconspicuous patch of rudimentary vomerine teeth.

0021. Allen, G.R. & **R.K. Hadiaty. 2014**. Two New Species of Freshwater Gudgeons (Eleotridae: *Mogurnda*) from the Arguni Bay Region of West Papua, Indonesia. *Aqua, International Journal of Ichthyology* 20(2): 97–110.

Abstract

Two new species of *Mogurnda* are described from the Arguni Bay region of West Papua, Indonesia. *Mogurnda arguni*, new species is described from 80 specimens, 17.5–92.1 mm SL, collected from a small tributary of the Togarni River in the northeastern reaches of the Arguni Bay drainage. It is most similar to *M. magna* from the Triton Lakes (lying about 80 km southeast) and *M. mbuta*, from the Etna Bay region (about 120 km southeast). The main differences lie on a smaller head, longer pelvic fins, longer caudal fin, fewer predorsal scales and a much smaller size in *M. arguni* in comparison with *M. magna*. Most of these differences are also shared with *M. mbuta*, which exhibits pronounced modal differences in number of pectoral-fin rays (78% with 16 rays vs. 48% in *M. arguni*) and slightly higher number of rakers on the lower limb of the first gill arch. *Mogurnda kaimana*, new species is described from 38 specimens, 11.5–110.2 mm SL, collected from Lake Furnusu, a small

mountain lake 15 km northeast of Kaimana. It is most similar to *M. pardalis* from the Triton Lakes but differs in lateral and predorsal scale counts, body depth, head length, interorbital width, pelvic-fin length, and caudal-peduncle length. In addition, preserved specimens of *M. kaimana* are uniformly dark compared to the lighter mottled pattern of *M. pardalis*.

0022. Allen, G.R., **R.K. Hadiaty** & P.K. Unmark. **2014**. *Melanotaenia flavipinnis*, a New Species of Rainbowfish (Melanotaeniidae) from Misool Island, West Papua Province, Indonesia. *Aqua, International Journal of Ichthyology* 20(1): 35–52.

Abstract

A new species of melanotaeniid rainbowfish, *Melanotaenia flavipinnis*, is described from Misool Island in the Birds Head region of western New Guinea (West Papua Province, Indonesia). The new taxon is described from 20 specimens, 38.5–77.2 mm SL, collected from two creekson southeastern Misool. It is the second rainbowfish known from this island, which lies about 67 km south of the New Guinea mainland. It is distinguished from congeners, and especially from *M. misoolensis*, by a combination of features that include a distinctive colour pattern with yellow dorsal, anal, and pelvic fins, usually 18–19 rakers on the first gill arch, 11–16 cheek scales, 12–13 circum-peduncular scales, first dorsal fin situated well behind analfin origin, presence of both vomerine and palatine teeth, conspicuously rounded anal fin with relatively elongaterays on the anterior half, and relatively slender body inboth sexes (greatest depth usually less than 35% SL).

0023. Allen, G.R., P.J. Unmack & **R.K. Hadiaty. 2014**. Three New Species of Rainbowfishes (Melanoteniidae) from the Birds Head Peninsula, West Papua Province, Indonesia. *Aqua, International Journal of Ichthyology* 20(3): 139–158.

Abstract

Three new species of melanotaeniid rainbowfishes are described from fresh waters of the Birds Head Peninsula, West Papua Province, Indonesia. *Melanotaenia ericrobertsi* is described from 41 specimens, 18.4–52.1 mm SL, from the upper Kladuk River system. It was first collected in 1982 and included among the type series of *M. irianjaya*. However, recent genetic evidence reveals it as a distinct species, closely related to *Melanotaenia* from nearby drainages including *M. ajamaruensis*, *M. boesemani, M. fasinensis*, and two additional new species described in this paper, *M. laticlavia* and *M. multiradiata*. *Melanotaenia laticlavia* is described on the basis of 6 specimens, 33.7–69.6 mm SL from Aifuf Creek, and *M. multiradiata* from 23 specimens, 37.4–122.5 mm SL from Sisiah Creek. These Birds Head species are primarily distinguished on the basis of distinctive adult male colour patterns and cytochrome *b* genetic analysis. However, *M. laticlavia* exhibits two separate patches of vomerine teeth, an unusual melanotaeniid feature, and *M. multiradiata* has a relatively high pectoral-fin ray count (> 90 % with 15 rays or more).

0024. **Antonius**, **S., D. Agustyani**, E. Sutisna & Koswara. **2010**. Effect of Phosphate Solubilization Microorganism (PSM) and Plant Growth Promoting Rhizobacteria (PGPR) on Yiels and Yield Component of Soybeans (*Glycinemax*) *in* Soesanto, L; Mugiastuti, E; Rahmayuniati, R.E.; Manan, A (eds). *Prosiding Seminar Nasional Pengelolaan Organisme Pengganggu Tanaman Ramah Lingkungan*. UNSOED, Purwokerto, 10–11 November 2010. p.174–180.

Abstract

In order to study the effect of *Rhizobium*, vesicular Arbuscular Mycorrhiza (VAM) and plant growth promoting rhizobacteria (PGPR) on soil enzymatic activities, yield and yield components of soybean (*Glycine max L.)* an experiment was conducted at Malinau-East Kalimantan during dry season 2010. Experiment laid out as split plot based on randomized complete block design with five replications. Application of *Rhizobium* and check or without Rhizobium) were as main plots and four biofertilizers (Vesicular Arburcular Mycorrhiza (T1); *Pseudomonas sp.*, *Bacillus sp*. and *Streptomyces sp* (T2); combination of T1 &T2 and and check or without any biofertilizer were as sub plots treatments. Results showed that treatments of biofertilizer (Rhizobium and VAM), liquid organic biofertilizer and both combination increased ratio of filled pod to empty one and soil enzymatic activities and subsequently reduce the intensity of leaf spot diseases. The correlation of biofertilizer with soil biochemical properties will be discussed more detail in this paper.

0025. **Antonius, S., D. Agustyani, H. Imamuddin** & N. **Laili. 2010**. Study on Soil Enzymatic Activities and Soil Microbial Population of Different Plantations. *Proceeding of National Seminar on management of pest and diseases environmentally friendly*. Jenderal Soedirman-National University, Purwokerto, 10–11 November 2010. p.181–187. in Lampung (*in* Soesanto, L; Mugiastuti, E; Rahmayuniati, R.E.; Manan, A (eds)

Abstract

Soil microbial population, microbial respiration and soil enzyme activity were estimated from three different plantations in Lampung: a) banana plantation (NTF), Pineapple plantation (GGP) and sugarcane plantation (GM). The experimental results showed that the population of N-fixing bacteria, microbial respiration and urease activity in GM were significantly higher than NTF and GGPC. However, fosfomoesterase activity showed no significant different among those three plantations. The population of N-fixing bacteria, respiration rate and urease activity followed the order NTF<GGP<GM. These results were correlated with the containing of C in the soil and might be correlated with other environmental properties and soil management. Correlation between soil chemical properties with N-fixing bacteria and microbial respiration rate were significantly observed. Therefore, size and activities of microbial and enzyme activities could reflect condition of soil fertility and should be considered as important bio-indicators of changes in soil quality.

0026. **Antonius, S.** & **D. Agustyani. 2011**. Pengaruh Pupuk Organik Hayati yang Mengandung Mikroba Bermanfaat terhadap Pertumbuhan dan Hasil Panen Tanaman Semangka serta Sifat Biokimia Tanahnya pada Percobaan Lapangan di Malinau-Kalimantan Timur. *Berkala Penelitian Hayati* 16: 203–206.

Abstract

In field experiments during dry season 2010, the effects of biofertilization on growth of fruit yield water melon (*Citrullus lanatus*) and of biochemical properties of soil were investigated. The experimental design was Randomly Block Design (RBD) with four treatments and five replications. The treatments were biofertilizer only; chemical fertilizer only; biofertilizer plus a half dose of chemical fertilizer, and control. The application of biofertilizer which was a mixture of *Pseudomonas sp*., *Bacillus sp*. and *Streptomyces sp* and chemical fertilizers (only 50% of the recommended dosage of NPK) increased vegetative growth (plant height, number of branches) compared to chemical fertilizer treatments only. An addition of biofertilizer with the chemical fertilizer also increased the biochemical properties as well as the yield of *C. lanatus* compared to other treatments. The possible role of biofertilizer on improving soil enzymatic activities, vegetative growths and yield will be discussed more detail in the paper.

0027. **Antonius, S.** & **D. Agustyani. 2011.** Effects of Biofertilizer Containing Microbial of P solubilizer and Plant Growth Factor Producer on Cabbage (*Brassica oleraceae* var. Capitata) Growth and Soil Enzymatic Activities: a Green House Trial). *Berkala Penelitian Hayati* 16:149–153

Abstract

Biofertilizer has been identified as an alternative to chemical fertilizer to increase soil fertility and crop production in sustainable farming. The objective of this greenhouse study was to evaluate the effects of four different concentrations of biofertilizers containing *Pseudomonas sp*., *Bacillus sp*. and *Streptomyces sp*. on soil properties and to evaluate the growth of *Brassica oleraceae var. capitata*. The application treatments included control (no fertilizer) and four concentration of diluted biofertilizer per pot (20 ml, 40 ml, 60 ml and 80 ml). The application of biofertilizer containing beneficial bacteria significantly increased the growth of *B. oleraceae*. The use of biofertilizer resulted higher biomass weight and length as well as root length. This greenhouse study also indicated that different amount of biofertilizer application had almost similar effects. Microbial inoculum not only increased plant harvest, but also improved soil properties, such as number of microorganisms, respiration and urease activities.

0028. **Antonius, S., N. Laili** & **D. Agustyani. 2011.** Great Potential of Microbial Isolates from Forest Ecosystem in Malianu-East Kalimantan as Bio-fertilizer and Bio-control Agents. *In* P Phartama, A F Mas'ud, N Mindawati, G Pari, H Krisnawati, Krisdianto, A Subiakto, R Maryani, T Setyawati, B Leksono, M

Turjaman, Y Yovy, L Sundawati, R Nurruchmat (Eds). *Proceeding Inafor 2011, International conference of Indonesia Forest researchers* 5–7 December 2011 "Strengthening Forest Science and technology for Better Forestry Development", Ministry of Forestry, Forestry Research and Development Agency. Page: 169–175, ISBN: 978-979-8452-45-1

Abstract

Forest ecosystem is well known as the best environments for preserving biodiversities. Microorganisms play very important role on managing nutrient cycling as well as on controlling plant pathogens. The purposes of this works were to study the availability of beneficial soil microorganisms of different ecosystem and their potential for developing bio-fertilizer as well as bio-control. The results showed that great number of N-fixing bacteria, Phosphate-solubulizing bacteria, and plant hormones producing bacteria were found in the forest ecosystem. The same result was also obtained in the greatest numbers or Actinomycetes of forest ecosystem that showed a good potential for developing bio-fertilizer as well as bio-controls agents of fungal plant pathogen. Therefore, preserving natural forest ecosystem is very important to protect the lost of great biodiversity including beneficial agricultural microorganisms. More detail of potential of the bio-fertilizer as well as bio-control activities will be discussed in the paper.

0029. **Antonius**, **S., N. Laili, H. Imamuddin** & **D. Agustiyani. 2012**. Development of Sustainable Agriculture: The Role of Beyonic-StarTmik LIPI Biofertilizer on Yield Improvement of Various Crops and Conservation of Soil Biochemical Properties of various Ecosystem in Indonesia. *In* Abdulhadi, R., Tjahjono, B.S.E., Waluyo, E.B., Delinom, R.M., Prijono, S.N., Fizzanty, T., Lesmana, T. (eds). *Proceedings "Mobilizing Science Toward Green Economy"*, The 12th Sciences Council of Asia (SCA) Conference and International Symposisum 10–12 July, 2012-Bogor, Indonesia.p.119–126.

Abstract

Negative effects of intensive farming, which are treated with high concentration of agrochemical, are well known. It harms to human health as well as increases environmental pollution. Therefore, organic farming is the best choice for developing sustainable agriculture, soil enzymatic activity, and it may serve as biological indicator of soil fertility.

The results showed that in general application of *Beyonic-LIPI Biofertilizer* combined with agricultural wastes produced better yield crops as well as soil biochemical properties than other treatments. Increasing yield about 25–30% on the treated crops in various ecosystems was observed. It was also indicated on increasing of urease, phosphomonoesterase and respiration activity of the soil. Treatments of *Beyonic-LIPI Biofertilizer* containing *Pseudomonas, Bacillus, Azotobacter* and *actinomycetes* were also successfully improved the chemical soil properties subsequently not only increased vegetables yield but also reduced green house gas (GHG) emission. The specific role of *Beyonic-LIPI Biofertilizer*

on improving of crops resistance countering effect of climate changes will be further discussed in this paper.

0030. **Antonius, S.,** J. Sugarjanto & R. Krisno. **2013**. Production of Renewable Energy: Waste Water Treatment with Biogas Re-Use. *in* Samadi, Rosyid, A.O., Khatir, R., Moulana, R. (eds). *Proceeding of National Seminar* on Renewable Energy as Future Sustainable Energy Sources: Potency, prospect and Challange in Indonesia. Colaboration PAJ Aceh with DAAD, September 21, 2013. P.49–52.

Abstract

Energy is strongly linked to the environment. Many energy sources are drawn directly from the environment requiring sound management for these sources to be sustainable. Energy extraction, production, processing and distribution have environmental impacts including air emissions, pollution, water quality and use, land use issues, soil degradation, as well as the disruption of ecosystems. As a company, PT Great Giant Pineapple (GGP) dealing with plantation and agricultural product processing produces wastes that potentially can be generated as bio-energy. The waste water treatment with biogas re-use in GGP will be reported in this paper. Two different wastewater treatments from pineapple factory and cassava factory were used to produce biogas. The wastewater produced from the factories was processed in the Anaerobic Wastewater Treatment (UASB) in the Biogas Plant which produces biogas (60–70% of methane content) as renewable energy. This kind of bio-energy was very beneficial to support the running program of sustainable development.

0031. Aplin, K.P., H. Suzuki, A.A. Chinen, R.T. Chesser, J.T. Have, S.C. Donnellan, J. Austin, A. Frost, J.P. Gonzalez, V. Herbreteau, F. Catzeflis, J. Soubrier, Y.-P. Fang, J. Robins, E. Matisoo-Smith, A.D.S. Bastos, **I. Maryanto**, M.H. Sinaga, C. Denys, R.A. van Den Bussche, C. Conroy, K. Rowe & A. Cooper. **2011.** Multiple Geographic Origins of Commensalism and Complex Dispersal History of Black Rats. *PLoS One* 6(11): e26357

Abstract

The Black Rat (*Rattus rattus*) spread out of Asia to become one of the world's worst agricultural and urban pests, and a reservoir or vector of numerous zoonotic diseases, including the devastating plague. Despite the global scale and inestimable cost of their impacts on both human livelihoods and natural ecosystems, little is known about the global genetic diversity of Black Rats, the timing and directions of their historical dispersals, and the risks associated with contemporary movements. We surveyed mitochondrial DNA of Black Rats collected across their global range as a first step towards obtaining an historical genetic perspective on this socioeconomically important group of rodents. We found a strong phylogeographic pattern with well-differentiated lineages of Black Rats native to South Asia, the Himalayan region, southern Indochina, and northern Indochina to East Asia, and a diversification that

probably commenced in the early Middle Pleistocene. We also identified two other currently recognised species of *Rattus* as potential derivatives of a paraphyletic *R. rattus*. Three of the four phylogenetic lineage units within *R. rattus* show clear genetic signatures of major population expansion in prehistoric times, and the distribution of particular haplogroups mirrors archaeologically and historically documented patterns of human dispersal and trade. Commensalism clearly arose multiple times in *R. rattus* and in widely separated geographic regions, and this may account for apparent regionalism in their associated pathogens. Our findings represent an important step towards deeper understanding the complex and influential relationship that has developed between Black Rats and humans, and invite a thorough re-examination of host-pathogen associations among Black Rats.

0032. Ardi, W.H., I.M. Ardhaka, M. Hughes, N.K.E. Undaharta, **D. Girmansyah** & S. Hidayat. **2013**. Two New Spesies of *Begonia* (Begoniaceae) from Bali and Lombok. *Gardens' Bulletin Singapore* 65(2): 135–142.

Abstract

Two new species of *Begonia*, *B. lugrae* Ardhaka & Undaharta and *B. sendangensis* Ardi are described from Bali and Lombok, respectively. The species belong to *Begonia* section *Reichenheimea.* A checklist and identification key to the Bali and Lombok species of *Begonia* are provided.

0033. **Ardiyani, M. 2010.** *Zingiberaceae* in Ternate Island: Almost a Hundred Year after Beguin's Collection. *Jurnal Biologi Indonesia* 6(3): 293–312.

Abstrak

Ditemukan sepuluh jenis Zingiberaceae yang mewakili lima marga (*Alpinia, Etlingera, Hornstedtia, Globba, Boesenbergia*) di Pulau Ternate. *Alpinia novaepommeraniae* K. Schum. dan *A. pubiflora* (Benth.) K. Schum. merupakan catatan baru untuk Maluku. Pengkoleksian kembali *Alpinia regia* dari lokasi tipe memberikan tambahan informasi baru di mana specimen tipe (*Beguin* 1234 di herbarium L) tidak lengkap.

0034. **Ardiyani, M.,** A.D. Poulsen, P. Suksathan. & F. Borchsenius. **2010.** Notes on Marantaceae in Sulawesi. *Reinwardtia* 13(2): 213–220.

Abstract

Six species of *Marantaceae* occur in Sulawesi. We present a key to the species together with a taxonomic treatment with notes on species delimitation, distribution, habitat and ecology, vernacular names and uses. One species endemic to Sulawesi and not covered by any contemporary publication, *Phrynium longispicum* (Warb. ex K. Schum.) Suksathan & Borchs. is described and neotypified. *Donax canniformis* (G. Forst.) K. Schum., *Phrynium pubinerve* Blume, *Phrynium robinsonii* (Valeton) Suksathan & Borchs, *Stachyphrynium latifolium* (Blume) K. Schum. and *Stachyphrynium repens* (Körn.) Suksathan

& Borchs. are also reported from Sulawesi and characterized. For the two last species these occurrences represents an extension of their previously known range across Wallace's line.

0035. **Ardiyani, M.,** A. Anggara & J. Leong-Škorničková. **2011.** Rediscovery of *Curcuma sumatrana* (Zingiberaceae) endemic to West Sumatra. *Blumea* 56: 6–9.

Abstract

A recent exploration of Sumatra resulted in the re-collection of *Curcuma sumatrana*, an endemic Zingiberaceae species of unclear identity that was first described by Miquel nearly 150 years ago. The history of this species is discussed, a detailed description with a colour plate is provided and a lectotype is designated. *Curcuma sumatrana* currently qualifies under IUCN assessment as vulnerable, but due to the decline of its habitat, it is likely to fulfil the criteria as endangered in near future. As there is no comprehensive revision of the family Zingiberaceae for Sumatra in progress, it is meanwhile important to make accessible the characteristics of this endemic species to facilitate its proper identification and conservation management.

0036. **Ardiyani, M., Y. Santika**, J.H. Paik, A. Maruzy & A.D. Poulsen. **2012**. Gingers of Lombok. *Floribunda* 4(5): 113–120.

Abstract

The ginger flora of the Lesser Sunda Islands is very poorly known. A preliminary survey of Lombok in 2011 documented five wild species (*Etlingera rubroloba*, *E. calophrys*, *Amomum maximum*, *A. gracile*, *Alpinia* sp. and *Globba marantina*). The species of *Alpinia* cannot immediately be identified and may be new. A key to the genera and species is included in this account as well as photographs.

0037. **Arida, E.** & W. Böhme. **2010.** The Origin of Varanus: When Fossils, Morphology, and Molecules Alone Are Never Enough. *Biawak* 4(4): 117–124.

Abstract

One of the many interesting questions in evolutionary studies of varanid lizards is the origin of the genus *Varanus*. The fossil record indicates the earliest emergence of this genus on Gondwana, although the remains of early varanid lizards have been discovered in Laurasia. The relationships among extant *Varanus* can generally be inferred using molecular phylogenetic techniques, although several attempts to generate a phylogeny of *Varanus* have used morphological characters. We identify two key-regions of global dispersal for varanid lizards that may be used to test hypotheses on the origin of this genus in a phylogeographic framework. The landmass currently connecting Africa and Asia as well as the Lesser Sunda Islands in southern Wallacea may have facilitated intercontinental radiation of varanid lizards, which are distributed in Africa, Asia, and Australia. We consider that an integrated approach such

as phylogeography might better explain the origin of this charismatic lizard group than any single analytical method.

0038. **Arifiani, D. 2010.** Newly Recorded *Endiandra* R. Br. (Lauraceae) from Waigeo Island, Raja Ampat, Papua, Indonesia. *Gardens Bulletin Singapore* 62(1): 23–30.

Abstract

Endiandra trees are not frequently encountered in the forest in Indonesia. Recent exploration in Waigeo Island resulted in the collection of three species of *Endiandra*. All three species were collected for the first time from Waigeo Island. The three species are restricted in distribution to eastern part of Indonesia (Papua Province) and Papua New Guinea. Key to the species and species description are provided.

0039. **Arifiani, D.,** A. Basukriadi & T. Chikmawati. **2012**. *Endiandra kassamensis* (Lauraceae), a new species of from New Guinea. *Biotropia* 19(2): 59–63.

Abstract

A new species of *Endiandra* (*Lauraceae*) is described from New Guinea. *Endiandra kassamensis* is described based on specimens collected over four decades ago. Unlike most *Endiandra* which grow in lowland forest, *E. kassamensis* is found in high altitude forest. The species is characterized by the presence of staminodia with the absence of staminal glands.

0040. **Arifiani, D**., A. Basukriadi & T. Chikmawati. **2012**. The Phylogenetic Study of New Guinean Species of *Endiandra (Lauraceae)* and Its Relationships with *Beilschmiedia* Based on Morphological Characters. *Floribunda* 4(4): 93–102.

Abstract

Endiandra species from New Guinea consist of species which vary in vegetative and reproductive characters. Staminal glands are present in 34 species out of 46 species of *Endiandra* in New Guinea, in contrast to the Bornean and Malay Peninsular species that lack of staminal glands. *Beilschmiedia* is a genus that often confused with *Endiandra* vegetatively, only flower characters can differentiate the two genera. This study was aimed to understand relationships of *Endiandra* species in New Guinea and to know the importance of staminal glands in grouping the New Guinean species of *Endiandra*. The relationships between *Endiandra* and *Beilschmiedia* based on the morphological characters will also be discussed. A phylogenetic analysis was performed to 47 morphological characters from 50 taxa, consisted of 41 species of *Endiandra* and 6 species of *Beilschmiedia* (as in-groups) with 3 species of *Cryptocarya* (as outgroups). Phylogenetic tree was constructed using Maximum Parsimony method. Phylogenetic tree showed that 47 in-groups taxa were grouped into five clades however with low bootstrap support. The species with and without glands are not separated from each other. Therefore, because of low bootstrap

support, the monophyly of *Endiandra* and *Beilschmiedia* and the importance of staminal glands cannot be confirmed.

0041. **Arifiani, D**., A. Basukriadi & T. Chikmawati. 2012. Newly described species of *Endiandra* (Lauraceae) from New Guinea. *Reinwardtia* 13(4): 341–346.

Abstract

Two new species of *Endiandra* (Lauraceae), i.e. *Endiandra areolata* Arifiani and *Endiandra lanata* Arifiani are described from New Guinea. Both species have staminal glands, but their form is different in the two species. Moreover, *E. areolata* Arifiani is characterized by its prominent areolation formed by the minor venation, and *E. lanata* Arifiani is easily recognized by the presence of a dense curly indument on its twig, leaves, inflorescences and flowers.

0042. **Arifiani, D.** & **R. Mahyuni. 2012**. Keanekaragaman Flora di Taman Nasional Bukit Barisan Selatan, Provinsi Lampung. *Berita Biologi* 11(2): 149–160.

Abstrak

Studi keanekaragaman tumbuhan dengan eksplorasi dan koleksi telah dilakukan di Taman Nasional Bukit Barisan Selatan, Provinsi Lampung. Lokasi penelitian difokuskan pada hutan dataran rendah sekunder Way Canguk dan Sukaraja Atas. Penelitian ini bertujuan untuk memperoleh informasi keanekaragaman flora dari kedua kawasan tersebut di mana data floristik kedua kawasan tersebut belum pernah direkam. Keanekaragaman flora di kawasan Way Canguk dan Sukaraja Atas relatif tinggi dengan diwakili oleh 183 jenis (spesies) tumbuhan dari 124 marga (genus) dan 60 suku (famili) tumbuhan. Selain itu, terdapat 3 jenis tumbuhan yang merupakan rekaman baru bagi flora Sumatra.

0043. **Astuti, D.** & **S. Sulandari. 2010.** DNA Sequence Performances of COI Gene of White Cockatoos (*Cacatua*, Psittaciformes). *Treubia* 37: 1–14.

Abstract

Performance of nucleotide sequencing of 807-bp segments of mitochondrial *c* cytochrome oxidase I (COI) was analyzed to study the relationship and grouping of six species of white cockatoos (genus *Cacatua*): *Cacatua galerita, C. sulphurea, C. alba, C. moluccensis, C. sanguinea*, and *C. goffini*. Two species (*Aprosmictus erythropterus* and *Prioniturus platurnus*) were used as outgroups in this study. The sequences contained a mean composition of 25.9 % tymine, 30.8 % cytosine, 26.0 % adenine, and 17.4 % guanine. The transition: transverse (si/sv) ratio was 6.7, with transition more abundant than transverse substitution. Based on Kimura 2-parameter analysis, the genetic distance between individuals within a species (intraspecific) ranged from 0.0000 (*C. alba*) to 0.0026 ± 0.0012 (*C. galerita*) and the genetic distance between individuals of different species ranged from 0.0299 ± 0.0057 (*C. sulphurea* vs *C. galerita*) to 0.0991 ± 0.0120 (*C. moluccensis vs C. sanguinea*). Sequence variations and haplotypes were found in *Cacatua*. In total, 196 (%) variable sites were identified with 189 sites

being parsimony informative. Neighbor-joining (NJ) and maximum parsimony (MP) analysis showed two main groups in *Cacatua*: (*C. sanguinea* + *C. goffini*), and (*C. alba* + *C. moluccensis*) + (*C. galerita* + *C. sulphurea*). The findings indicate that *C. sanguinea* is a sister group of *C. goffini*, *C. alba* is in the same group as *C. moluccensis,* and *C. galerita* is closely related to *C. sulphurea*. The phylogenetic tree confirms that *C. alba* and *C. moluccensis* are closer to *C. galerita* and *C. sulphurea*than *C. sanguinea* and *C. goffini*, by 100 % bootstrap values in both NJ and MP trees.

0044. **Astuti, D.** & **H. Kurniati. 2010.** Keragaman Genetik Ampfibia Kodok (*Rana nicobariensis*) di Ecology Park, Cibinong Berdasarkan Sekuen DNA dari Mitokondria dloop. *Jurnal Biologi Indonesia* 6(3): 405–414.

Abstract

The 397-base pairs from seventeen nucleotide sequences of mitochondrial d-loop region were determined and analyzed in object to study the genetic diversity of frog *Rana nicobariensis* at Ecology Park, Cibinong West Java. They were then compared to its population at Halimun and Sibolga Areas. From 17 individuals collected, there were 13 nucleotide haplotypes which consisted of six haplotypes from 10 individuals collected from Ecology Park, 4 haplotypes from 4 individuals collected from Halimun, and 3 haplotypes from 3 individuals collected from Sibolga Areas. Haplotype diversity in Ecology Park was 0.964 reltively lower compared to its in Halimun, Sibolga and overall counted of 1.000, 1.000, and 0.985 respectively. Nucleotide or amino acid diversity was 0,0144 overall, while within population were 0.0064, 0.1114, and 0.0067 at Ecology Park, Halimun, and Sibolga respectively. Sequent divergences were 0.65 %, 1.06 %, and 0.68 % for Eco Park, Halimun, Sibolga respectively. NJ tree based on K2P showed that population at Ecology Park Cibinong appeared to be clustered together dan relatively closer to Halimun than to Sibolga.

0045. **Astuti, D. 2011.** Variasi Gen Mitokondria *Cytochrome* b pada Dua Jenis Burung Kakatua (*Cacatua alba* dan *Cacatua goffini*). *Jurnal Biologi Indonesia* 7(2): 263–276.

Abstract

DNA sequence variation and differentiation of 791-bp of mitochondrial cytocrome b gene in the two cockatoo species (*C. alba* and *C. moluccensis*) were analyzed in this study. Two pairs of internal primers used to amplify two fragments of cytochrome b from 30 individuals cockatoo. The results show that there were genetic variations among individuals of *C. alba* and *C. moluccensis.* Twenthy eight haplotypes occured in 30 individuals studied; 14 haplotypes (Hca1-Hca14) in 16 individuals of *C. alba, and* 14 haplotypes (Hcm1-Hcm14)in 14 individuals of *C. moluccensis*. Hca5 was dominant and owned by 3 individuals (H37, KBS62, 28, BBP88). Within *C. alba* there were 18 variable sites, 0.00701 of nucleotide diversity (Pi), 0.975 ± 0.035 of haplotype diversity (Hd), and 0.005 ± 0.002 of mean genetic distance. Whilts 18 variable

sites, 0.00830 of Pi, and 0.999 ± 0.028 of Hd, and 0,010 ± 0.002 (0.001–0.010) mean genetic distance. Divergence between *C. alba* and *C. moluccensis* was 0.064 ± 0.088 %. Neigbor-joining (NJ) analysis showed two main clusters consisted of: *C. alba* and *C. moluccensis* separately, and indicated that although there were some variations in the DNA sequences, but the individuals within a species remain clustered in the same cluster.

0046. **Astuti, D. 2011.** Phylogenetic Relationships of Cockatoos (Aves: Psittaciformes) of Cockatoos based on DNA Sequences of Seventh Intron of β-fibrinogen Gene. *Jurnal Biologi Indonesia* 7 (1): 1–11.

Absract

Some previous authors have made grouping and evolutionary relationships of cockatoos based on morphological characters, isozyme, and mitochondrial DNA. However, their relationships are still controversial, especially concerning the position of *Nymphycus hollandicus*. Since the nuclear β-fibrinogen gene has been recognized useful for phylogenetic studies of some birds, this study employed the DNA sequence of seventh intron of this gene (fibint7) to construct phylogenetic relationships of cockatoos based on neighbor-joining (NJ) and maximum-parsimony (MP) methods. The results indicated that several indels were found in the sequence data of fibint7 in cockatoos. Due to the presence of indels, the sequence length varied among taxa. Transitions substitution seemed to be unsaturated over transversions and transversions did not appear to be saturated over genetic distances. The tribe Cacatuini composed of three genera *Cacatua*, *Eolophu*s and *Callocephalon* was monophyletic. Although the relationships between species of the genus *Cacatua* were not resolved well, *C. alba, C. galerita, C. goffini, C. sanguinea, C. moluccensis* and *C. sulphurea* were grouped together and *C. leadbeateri* was relatively distant from other congeneric species. The tribe Calyptorhynciniconsisting of *Probosiger* and *Calyptorhynchus* was paraphyletic and genus *Calyptorhynchus* was likely diverged earlier than *Probosciger*. *Calyptorhynchus* seemed monophyletic. *Nymphicus* (tribe *Calopsittacini*) seemed to be a basal clade of cockatoos.

0047. **Astuti, D. 2011.** Hubungan Kekerabatan Burung Nuri-Perkici (Loriinae, Psittacidae) Ditinjau dari Perspeksi Gen β-fibrinogen Intron 7. *Zoo Indonesia*, 2011

Abstrak

Sebanyak 12 individu yang termasuk dalam 7 marga (*Charmosyna, Glossopsitta, Pseudeos, Chalcopsitta, Lorius, Trichoglossus, and Eos*) dianalisis berdasarkan sekuen DNA dari intron tujuh pada gen fibrinogen intron tujuh (**β**-*fibint7).* Analisis *neighbor-joining* (NJ) dan maximum parsimony (MP) dilakukan pada 790-bp (810 situs) untuk mengkonstruksi pohon filogeni. Dari semua data sekuen, terdapat 68 situs yang bervariasi dan 43 di antaranya mengandung nilai parsimoni. Terdapat indel (insersi dan dilesi) sepanjang 16–20 basa. Kedua phon filogeni (NJ) dan MP) mendemonstrasikan bahwa *Charmosyna* dan

Glossopsita terpisah jauh dari lima marga lainnya, didukung dengan nilai bootstrap 100%. Hubungan kekerabatan di antara 7 marga ini adalah: *Charmosyna* (((*Glossopsitta* ((Pseudeos–Chalcopsitta)–Lorius (*Trichoglossus* dan *Eos*))).

0048. **Astuti, D**. **2012.** Genetic diversity of Goffin's Cockatoo bird (*Cacatua goffini*) inferred from Mitochondrial Cytochrome b Gene sequences. *Proceeding of the International Conference on Bioscience and Biotechnology (ICBB) 2011*. Department of Biology UIN Sunan Kalijaga, Indonesia, Society for Indonesian Biodiversity, National University of Malaysia and Universiti Teknologi Mara. 11–12 October 2011 in Yogyakarta, Indonesia

Abstract

Genetic variability among 18 individuals of Goffin's cockatoo bird (*Cacatua goffini)* was investigated using DNA sequences of cytochrome b gene. Two DNA fragments were amplified using two nucleotide primer pairs in the PCR. Eight hundred base pairs of cytochrome b gene were used in this analysis. The results showed that within the birds, there were 20 variable sites and 18 haplotypes (Hcg1–Hcg18). There were no identical DNA sequence and no dominant haplotype. Nucleotide (Pi) and Haplotype (Hd) diversities were 0.005437 and 1.0000, respectively.

0049. **Astuti, D.** & **S.N. Prijono. 2013.** Eggs production trait of Indonesian domestic ducks inferred from analysis of a SNP (single nucleotide analysis) genotypes in the 5th-intron of prolactin gene. *Proceeding The 7th ASIAHORCs General Meeting and the 5th Joint Symposium Bali, Indonesia, 26–28 November 2013.*

Abstract

Various approaches to increase eggs production of Indonesian domestic ducks are very essential things. Superior duck sthat have high eggs productivity are needed in supporting food security in Indonesia. Thus, this study genetically informs the presence of an SNP in the 5th exon of prolactin (PRL exon 5) gene to determine egg production trait of 4 Indonesian domestic ducks. This study applied the SNP (C5961) that was found by previous authors. The DNA was extracted from blood taken from each individual of 93 ducks consisted of 24 Tegal ducks, 25 Magelang ducks, and 22 Mojosari ducks, and 22 Boyolali ducks. A single DNA fragment PRL exon 5 was amplified by PCR, and sequenced. DNA sequences aligment showed that SNP (C5961T) was equal with SNP (C97T) of our sequenece data. Therefore, this genotypes study analysis was focused on the SNP (C97T). Sequence genotypes informed that majority of the examined ducks had TT genotype that exhibited low egg weight and production traits. Only three ducks have the CC genotype and 25 ducks have CT genotype. The CC and CT genotypes were exhibited high egg production and big egg weight. This study might be used forfurther breeding strategy program to improve the quality of Indonesian domestic ducks.

0050. **Astuti, D. 2013.** Genetic Diversity and Climate Change: Implication for Cockatoo Birds Conservation in Indonesia. *Proceeding The 4th International Workshop on "Wild Fire and carbon management in Peat-Forest in Indonesia"*.

Abstract

Indonesia has seven species of cockatoo birds and all are listed in the CITES Appendix. The bird's population in the nature is declining. Therefore, several studies have been and are being made as a contribution to the conservation programs to increase the bird population. Genetic diversity is the basis for population changes through options for genetic changes in the future, and this may increase the chance for the birds to adapt to climate change. This research informs the genetic diversity of Sulfur Creasted Cockatoo (*Cacatua galerita*) based on mitochondrial DNA sequence data. This information can be used as a basis for these birds conservation action in the climate change Era.

0051. **Astuti, D., S.N. Prijono**, & Yunianta. **2013.** Qarcass Quality Trait of Indonesian Domestic Ducks Based on Analysis of a SNP (Single Nucleotipe Polymorphism) in the Second Intron of Growth Hormon Gene. *Proceeding 2nd APIS, University of Brawijaya, Malang 29th August–1st Sepetember 2013*. In press

Abstract

Superior ducks are needed in supporting food safety in Indonesia. Carcass quality is one of the important traits of domestic duck. Geneticaly, superior carcass quality of domestic ducks could be determined by the presence of a SNP (C172T) marker in the second intron of Growth Hormon (GHint2) gene founded by previous authors. This study used and applied the SNP (C172T) marker to determine carcass quality trait of some Indonesian domestic ducks. Totally 100 ducks consisted of 24 Tegal ducks, 26 Magelang ducks, 20 Mojosari ducks, and 30 Boyolali ducks were examined. DNA was extracted from each individual duck and single fragment of GHint2 was amplified by PCR and sequenced. Alignment analysis shows that the posistion of SNP (C172T) was equal with SNP (C136T) of our sequence data. The SNP C136T informed that the majority of the examined ducks have TT (79.16%) and TC (18.16%) genotypes that exhibited superior carcass quality trait. Mojosari ducks have highest TT genotype (95.00%), followed by Tegal ducks (91.20%), Boyolali ducks (76.66%), Magelang ducks (73.00%), respectively.

0052. Astuti, I.P., **Rugayah**, R. Susandarini & Purnomo. **2011**. The Genus *Murraya* (*Rutaceae*) in Java. *Floribunda,* 4(3): 65–69.

Abstract

The genus *Murraya* consists of 11 species in the world. Based on herbarium specimens and living collections from Bogor, Cibodas and Purwodadi Botanical Garden, Yogyakarta, and Malang, there are 4 species *Murraya* in Java, namely *M. crenulata, M. exotica*, *M. koenigii* and *M. paniculata*. Key to species and other informations of the species were presented.

0053. Astuti, I.P., **E.F. Tihurua** & S. Budiharta. **2011**. Keanekaragaman Jenis dan Ekologi Sirih-Sirihan Liar Anggota Suku *Piperaceae* di Kawasan Hutan Lindung BKPH Gunung Slamet Barat dan BKPH Moga. *Prosiding Seminar Nasional HUT Kebun Raya Cibodas Ke 159*: 205–211.

Abstract

Piperaceae is a families plant which has habitus herb, woody climber and creeping and shrubs. In the World, these families have a member about 8 genera and 3000 species. The information about diversity and distribution of Piperaceae in Indonesia is still very limited. In Java, there were reportedly four genera and 27 species. Connecting with the member of Piperaceae, the activities of exploration in protected forest area of BKPH Gunung Slamet Barat and BKPH Moga have conducted research on the diversity and ecology of wild Piper. In this research, the collecting of Piper have conducted randomly follow the existing route, then all the species are recorded and completely with ecological data such as habitat, temperature, humidity, pH and plant association. Overall, there are 3 genera and 12 species of Piperaceae. The genera are *Heckeria, Peperomia* and *Piper*. The species that are *Heckeria peltata* (L.) Kth (*Pothomorphe peltata* (L.) Miq.), *Peperomia laevifolia* (L.) Miq., *Piper aduncum* L., *Piper arcuatum* Bl., *Piper blumei* (Miq.) Back., *Piper caninum* Bl., *Piper chaba* Bl., *Piper flavomarginatum* Bl., *Piper nigrescens* L., *Piper phyllostictum* (DC.) Bl., *Piper sulcatum* Bl. and *Piper* sp. The species most commonly found in all study sites are *Piper blumei*, *P. flavomarginatum* and *P. caninum*. All the wild Piper grow at an altitude 700–1500 above sea level.

0054. Azrifitria, A., Syaikhul & **Chairul. 2010.** Aktivitas Antibakteri Ekstrak Etanolik Daun dan Umbi *Crinum asiaticum* L. terhadap Bakteri Penyebab Jerawat. *Majalah Farmasi Indonesia* 21(4): 249–254.

Abstrak

Telah diuji aktivitas antibakteri dari ekstrak etanolik daun dan umbi *Crinum asiaticum* L. Terhadap *Propionibacterium acnes*, *Staphylococcus aureus* dan *Staphylococcus epidermidis*, bakteri patogen yang menyebabkan jerawat. Konsentrasi Hambat Minimum (KHM) dan Konsentrasi Bunuh Minimum (KBM) ditentukan dnegan metode dilusi. KHM dan KBM ekstrak etanol daun untuk *P. Acnes* (1,25 dan 2,5 mg/ml), *S. Aureus* (5 dan 10 mg/ml) dan *S. Epidermidis* (2,5 dan 5 mg/ml). Sedangkan KHM dan KBM ekstrak etanol umbi untuk *P. Acnes* (7,5 dan 15 mg/ml), *S. Aureus* (7,5 dan 15 mg/ml) dan *S. Epidermidis* (3,75 dan 7,5 mg/ml). Studi lebih lanjut dilakukan pada ekstrak etanol daun terhadap *P. Acnes* untuk menganalisis kebocoran sel (asam nukleat dan protein) dengan spektrofotometri ultraviolet, ion logam (K^+ dan Ca^{2+}) dengan spektrometri serapan atom, dan mengamati perubahan dinding sel dengan pemindai mikroskop elektron (SEM). Hasil menunjukkan bahwa ekstrak etanol daun bakung putih dapat merusak dinding sel dan memengaruhi permeabilitas membran sel yang ditandai dengan keluarnya asam nukleat (absorbansi 0,3307–0,4299), protein (absorbansi 0,0616–0,101), ion K^+ (8,167–15,757 mg/L),

ion Ca^{2+} (5,47–13,74 mg/L) dari sel, dan mengubah morfologi dinding sel *P. Acnes*.

0055. Balke, M., S. Schmidt, A. Hausmann, E.F.A. Toussaint, J. Bergsten, M. Buffington, C.L. Häuser, A. Kroupa, G. Hagedorn, A. Riedel, A. Polaszek, **R. Ubaidillah**, L. Krogmann, A. Zwick, M. Fikáček, J. Hájek, M.C. Michat, C. Dietrich, J. La Salle, B. Mantle, P.K.L. Ng, & D. Hobern. **2013.** Biodiversity into Your Hands-A Call for a Virtual Global Natural History 'Metacollection'. *Front Zool*, 2013; 10: 55.

Abstract

Our proposal suggests creating virtual, high-resolution image resources that will, for the first time in history, provide access for expert scientists as well as students and the general public to the enormous wealth of the world's natural history collections. We foresee that this will contribute to a better understanding, appreciation and increased use of biodiversity resources and the natural history collections serving this cause.

0056. Beehler, B.M. & **D.M. Prawiradilaga. 2010.** New Taxa and New Records of Birds from the North Coastal Ranges of New Guinea. *Bulletin British Ornithologists Club* 130 (4): 277–285.

Abstract

We report the ornithological results of field trips in 2005 and 2007 to the Foja Mountains of Indonesian New Guinea. Our subsequent analysis of the avifauna of this little-studied and isolated mountain group in the context of the biogeography of New Guinea's north coastal ranges produced the following results: (1) a new subspecies of the mouse-warbler *Cratoscelis robusta* from the Foja Mountains; (2) evidence that *C. robusta* exhibits sufficient geographic variation to warrant subdivision into two or more allospecies; (3) a distinctive new subspecies of the Goldenface *Pachycare flavogriserieum* from the northern ranges of Papua New Guinea; (4) conclusive evidence that the 'lost' bird of paradise, *Parotia berlepschi*, inhabits the Foja Mountains, and (5) several additional taxonomic and distributional records for the Foja Mountains.

0057. Berton, J., C. Harris, D.D. Putra, S.D. Gregory, B.W. Brook, **D.M. Prawiradilaga,** N.S. Sodhi, D. Wei & D.A. Fordham. **2014**. Rapid Deforestation Threatens Mid-Elevational Endemic Birds but Climate Change is Most Important at Higher Elevations. *Diversity and Distributions* 20(7): 773–785.

Abstract

Deforestation and climate change are two of the most serious threats to tropical birds. Here, we combine fine-scale climatic and dynamic land cover models to forecast species vulnerability in rain forest habitats. We sampled bird communities on four mountains across three seasons in Lore Lindu National Park, Sulawesi, Indonesia (a globally important hotspot of avian endemism),

to characterize relationships between elevation and abundance. Deforestation from 2000 to 2010 was quantified, and predictors of deforestation were identified. Future forest area was projected under two land use change scenarios–one assuming current deforestation rates and another assuming a 50% reduction in deforestation. A digital elevation model and an adiabatic lapse rate were used to create a fine-scale map of temperature in the national park. Then, the effects of climate change were projected by fitting statistical models of species abundance as a function of current temperature and forecasting future abundance based on warming from low-and high emissions climate change. The national park lost 11.8% of its forest from 2000 to 2010. Model-based projections indicate that high-elevation species (white-eared myza *Myza sarasinorum* and Sulawesi leaf-warbler *Phylloscopus sarasinorum*) might be buffered from deforestation because their ranges are isolated from human settlement, but these species may face steep population declines from climate change (by as much as 61%). The middle-elevation sulphur-bellied whistler *Pachycephala sulfuriventer* is predicted to undergo minor declines from climate change (8–11% reduction), while deforestation is predicted to cause larger declines of 13–19%. The biological richness and rapid deforestation now occurring inside the national park emphasize the need for increased enforcement, while our modelling suggests that climate change is most threatening to high elevation endemics. These findings are likely applicable to other highland tropical sites where deforestation is encroaching from below and climate change is stressing high-elevation species from above.

0058. Brahmantiyo, B., **Wirdateti, T. Nugraha** & A. Trasidiharta. **2011.** Peningkatan Bobot Badan Dewasa Rusa Sambar melalui Seleksi di Penangkaran. *Buletin Plasma Nutfah* 17 (1): 68–72.

Abstract

Selection on Adult Weight of Sambar Deer (*Rusa unicolor*). Deer are animals that have potential as producers of meat, through the exploitation of captive deer. Morphometric information and selection to improve the performance of Sambar deer has been done in Technical Implementation Unit of Animal Breeding and Artificial Insemination Institute, Village Api-api, District of Penajam Paser Utara, East Kalimantan. A number of 174 heads from a total population of Sambar deer recorded body weight, body length, width and chest circumference, length and width of head, also length and width of the ear. Results of selection of female and male based on body weight, were 52 females (60%, the intensity of selection 1:40) and six males (10%, the intensity of selection 1.74). Differential selection on males and females were 18.42 kg and 7.73 kg, respectively. Prediction of selection response of Sambar deer was 7845 kg with heritability estimatin value (h2) was 0.60.

0059. Brahmantiyo, B., **Wirdateti** & **G. Semiadi. 2014.** Karakteristik Karkas, Sifat Fisik dan Kimia Daging Rusa Sambar (*Rusa unicolor). Buletin Plasma Nutfah* 19(1): 45–52.

Abstrak

Venison is known as qualified meat because of its softness and fineness of fiber, protein and iron are very high, as well as fat, cholesterol and energy are low. Today, consumers are likely to eat meat with low fat. Venison will be able to meet the needs of the market. This study aimed to evaluate carcass production, physical and chemical properties of venison of captive sambar deer (*Rusa unicolor*). Three heads of adult sambar deer from the Regional Technical Implementation Unit Breeding and Artificial Insemination Center, East Kalimantan were used. Deers were fasted for 24 hours and slaughtered with cutting jugular veins, esophagus and throat. Observations were made on the carcass, commercial cuts, physical properties and chemical properties of venison. Averages of carcass precentage, meat to bone ratio, and major commercial cuts were 50.17, 3.35, and 56.01%, respectively. The physical properties of the venison was very good and was not influenced by commercial cuts. Loin were higher on fat content (0.65±0.18g/100g) and cholesterol (48.33±11.59 mg/kg) than the filled and leg cuts.

0060. Bruce, N.L. & **C.M. Sidabalok. 2011.** The Genus *Lanocira* Hansen, 1890 (Corallanidae: Isopoda: Crustacea) in Tropical Australian Waters. *Zootaxa* 2793: 23–34.

Abstract

The genus *Lanocira* Hansen, 1890 is recorded from the southwestern Pacific for the first time. *Lanocira grebarree* **sp.nov.** from the Great Barrier Reef is described, and *Lanocira gardineri* Stebbing, 1904 and *Lanocira* sp. cf. *anasicula* Jones, 1982 are recorded from the Great Barrier Reef and Hibernia Reef, in the Timor Sea off Western Australia, respectively. *Lanocira grebarree* **sp.nov.** can be identified by the anteriorly rounded, upturned and short rostral process in males in combination with the lack of stiff setae on the dorsal surface of the pleotelson. The similar *L. gardineri* Stebbing, 1904 is distinguished from *L. grebarree* **sp.nov.** by the presence of stiff hyaline setae on the dorsal surface of the pleotelson. A key is provided to the Australian species of *Lanocira*.

0061. de Bruyn, M., L. Rüber, S. Nylinder, B. Stelbrink, N.R. Lovejoy, S. Lavoué, H.H. Tan, E. Nugroho, **D. Wowor**, P.K.L. Ng, M.N.S. Azizah, T. von Rintelen, R. Hall & G.R. Carvalho. **2013.** Paleo-drainage Basin Connectivity Predicts Evolutionary Relationships across Three Southeast Asian Biodiversity Hotspots. *Systematic Biology* 62(3): 398–410.

Abstract

Understanding factors driving diversity across biodiversity hotspots is critical for formulating conservation priorities in the face of ongoing and escalating

environmental deterioration. On the other hand, biodiversity hotspots encompass a small fraction of Earth's land surface, more than half the world's plants and two-thirds of terrestrial vertebrate species are endemic to these hotspots. Tropical Southeast (SE) Asia displays extraordinary species richness, encompassing four biodiversity hotspots, though disentangling multiple potential drivers of species richness is confounded by the region's dynamic geological and climatic history. Here, we use multilocus molecular genetic data from dense multispecies sampling of freshwater fishes across three biodiversity hotspots, to test the effect of Quaternary climate change and resulting drainage rearrangements on aquatic faunal diversification. On the other hand, Cenozoic geological processes have clearly shaped evolutionary history in SE Asian halfbeak fishes, we show that paleo-drainage re-arrangements resulting from Quaternary climate change played a significant role in the spatiotemporal evolution of lowland aquatic taxa, and provide priorities for conservation efforts.

0062. Castelin, M., P. Feutry, M. Hautecoeur, G. Marquet, **D. Wowor**, G. Zimmermann & P. Keith. **2013.** New Insight on Population Genetic Connectivity of Widespread Amphidromous Prawn *Macrobrachium lar* (Fabricius, 1798) (Crustacea: Decapoda: Palaemonidae. *Marine Biology* 160: 1395–1406.

Abstract

Due to the sparse and unstable nature of insular freshwater habitats, marine larval dispersal of amphidromous species is considered a critical element of population persistence. We assessed population genetic structure of freshwater prawn *Macrobrachium lar* across its range that encompasses two biogeographic barriers: the vast open ocean separating Western and Central Pacific regions and the Indo-Malay archipelago separating Indian and Pacific oceans. A total of 173 samples collected from 21 islands throughout the Indo-Pacific were sequenced at 16S and 28S rDNA. We observed distinct genetic isolation of populations located at the eastern and southwestern edge of the species range but no evidence of an effect of the Indo-Pacific barrier. Differentiation patterns are consistent with a stepping-stone model of dispersal. Genetic differences of Central Pacific populations may reflect founder events associated with colonization of isolated islands, or be a signature of a past bottleneck after population depletion caused by drastic climatic events.

0063. Cerwenka, A.F., J.D. Wedekind, **R.K. Hadiaty**, U.K. Schliewen & F. Herder. **2012.** Alternative Eff-Feeding Tactics in *Telmatherina sarasinorum,* a Trophic Specialist of Lake Matano's Evolving Sailfin Silwersides Fish Radiation**.** *Hidrobiologia* 693: 131–139.

Abstract

Telmatherina sarasinorum, a sailfin silverside (Atheriniformes: Telmatherinidae) of the "sharpfin" radiation endemic to Lake Matano, an ancient graben lake in Central Sulawesi, has been reported to feed on eggs of con-and heterospecific

members of the species-flock. Evaluation of stomach contents revealed fish eggs as the dominant food item in male *T. sarasinorum*. Focal observations on *T. sarasinorum* males were used to quantify oophagous behaviour on spawning sites of roundfined *T. antoniae*. *Telmatherina sarasinorum* males exclusively fed on eggs of *T. antoniae* and used different behavioural tactics. Amongst others, male *T. sarasinorum* followed single courting pairs. This following behaviour was positively related to egg consumption and competitive behaviour suggesting that males monopolize courting pairs of *T. antoniae*. Egg-feeding behaviours support and extend previous findings of fine 34 scaled trophic specialisation in this evolving lacustrine fish radiation.

0064. Ciofi C., A.C. Tzika, C. Natali, P.C. Watts, **S. Sulandari**, **M.S.A. Zein** & M.C. Milinkovitch. **2011.** Development of a Multiplex PCR Assay for Fine-Scale Population Genetic Analysis of the Komodo Monitor *Varanus komodoensis* Based on 18 Polymorphic Microsatellite Loci. *International Jurnal Molecular Ecology resources* 11(3): 550–556.

Abstract

Multiplex PCR assays for the coamplification of microsatellite loci allow rapid and cost-effective genetic analyses and the production of efficient screening protocols for international breeding programs. We constructed a partial genomic library enriched for di-nucleotide repeats and characterized 14 new microsatellite loci for the Komodo monitor (or Komodo dragon, Varanus komodoensis). Using these novel microsatellites and four previously described loci, we developed multiplex PCR assays that may be loaded on a genetic analyser in three separate panels.We tested the novel set of microsatellites for polymorphism using 69 individuals from three island populations and evaluated the resolving power of the entire panel of 18 loci by conducting (i) a preliminary assignment test to determine population(s) of origin and (ii) a parentage analysis for 43 captive Komodo monitors. This panel of polymorphic loci proved useful for both purposes and thus can be exploited for fine-scale population genetic analyses and as part of international captive breeding programs directed at maintaining genetically viable ex situ populations and reintroductions.

0065. Clark, L.G., G. Cortés, S. Dransfield, T.S. Filgueiras, A. Fisher, T. Hodkinson, E. Judziewicz, S. Kelchner, M. Kumar, D.-Z. Li, X. Londoño, M. Teresa Mejía-Saulés, R.P. de Oliveira, A.P. Santos-Gonçalves, C. Stapleton, S. Sungkaew, J.K. Triplett, **E. Widjaja**, K.M. Wong, N.-H. Xia. 2012. *An Updated Tribal and Subtribal Classification of the Bamboos (Poaceae: Bambusoideae).* Bamboo Science and Culture. *The Journal of the American Bamboo Society* 24(1):1–10.

Abstract

The Bambusoideae (bamboos), comprising 1,439 described species in 116 genera, is one of 12 subfamilies of Poaceae (grass family), and it is the only major lineage of the family to diversify in forests. In this paper, reprinted in

part from the Proceedings of the 9th World Bamboo Congress, a compilation of described bamboo diversity by tribe and subtribe is presented and the basis for the revised classification presented here is discussed, with putative synapomorphies indicated in the text and descriptions. The taxonomic treatment includes descriptions of the subfamily, the three tribes, and all accepted subtribes, and included genera are listed as appropriate.

0066. Cruaud, A., R. Jabbour-Zahab, G. Genson, F. Kjellberg, N. Kobmoo, S. van Noort, Y. Da-Rong, P. Yan-Qiong, **R. Ubaidillah**, P. E. Hanson, O. Santos-Mattos, F.H.A Farache, R.A.S. Pereira, C. Kerdelhué & J.-Y. Rasplus. **2011.** Phylogeny and Evolution of Life-History Strategies in the Sycophaginae Non-Pollinating Fig Wasps (Hymenoptera, Chalcidoidea). *BMC Evol Biol*. 11: 178.

Abstract

Non-pollinating Sycophaginae (Hymenoptera, Chalcidoidea) form small communities within *Urostigma* and *Sycomorus* fig trees. The species show differences in galling habits and exhibit apterous, winged or dimorphic males. The large gall inducers oviposit early in syconium development and lay few eggs; the small gall inducers lay more eggs soon after pollination; the ostiolar gall-inducers enter the syconium to oviposit and the cleptoparasites oviposit in galls induced by other fig wasps. The systematics of the group remains unclear and only one phylogeny based on limited sampling has been published to date. Here we present an expanded phylogeny for sycophagine fig wasps including about 1.5 times the number of described species. We sequenced mitochondrial and nuclear markers (4.2 kb) on 73 species and 145 individuals and conducted maximum likelihood and Bayesian phylogenetic analyses. We then used this phylogeny to reconstruct the evolution of Sycophaginae life-history strategies and test if the presence of winged males and small brood size may be correlated.

0067. Csorba, G., C-H. Chou, M. Ruedi, T. Görföl, M. Motokawa, **S. Wiantoro**, V.D. Thong, N.T. Son, L-K. Lin, N. Furey. **2014**. The Reds and the Yellows: A Review of Asian *Chrysopteron* Jentink, 1910 (*Myotis*: Vespertilionidae: Chiroptera). *Journal of Mammalogy* 95 (4): 663–678.

Abstract

Chrysopteron Jentink, 1910 is 1 of the 7 subgenera of *Myotis* Kaup, 1829 recognized by Tate that traditionally comprises Asian and African species characterized by conspicuously parti-colored wing membranes. Definition of Myotis subgenera has long challenged taxonomists and prior to the present study the systematic status of numerous forms within *Chrysopteron* remained unclear. Following examination of material (including available type specimens) in 21 European, North American, and Asian collections, and using morphological (external, cranial, and dental characters) and genetic data, we evaluate the validity of the *Chrysopteron* subgenus, revise the taxonomy of the named Asian forms, and review their distinguishing characters, distribution, and

taxonomic history. We argue that *Chrysopteron* is an available name for a monophyletic "Ethiopian clade" recovered with high support in our analyses, which comprises species characterized by striking reddish or yellowish dorsal fur that strongly differentiates them from congeners. We also determine that *M. formosus* sensu lato contains several morphologically distinct forms, some of which occur in sympatry and some in widely separated localities. A morphological key is provided for all Asian species of Chrysopteron revealed by our study: *M. bartelsi* Jentink, 1910 (Java and Bali), *M. formosus* (Hodgson, 1835) (Afghanistan, India, Nepal, China, Taiwan, and Vietnam*), M. hermani* Thomas, 1923 (Sumatra, Thailand, and Malaysia*), M. rufoniger* (Tomes, 1858) (Korea, Japan, China, Taiwan, Laos, and Vietnam), *M. rufopictus* (Waterhouse, 1845) (Philippines), and *M. weberi* (Jentink, 1890) (Sulawesi).

0068. Deharveng, L., J. Lips & **C. Rahmadi**. **2011**. Focus on Guano. *in* Bouchet P., Le guyader H. & pascal O. (Eds), *The Natural History of Santo*. MNHN, Paris; IRD, Marseille; PNI, Paris. 572 p. (Patrimoines naturels; 70). 300–306.

Abstrak

No abstract available

0069. Damayanti, F., **M. Mansur** & I. Rostika. **2011.** Diversity of *Nepenthes* spp. in West Kalimantan. *International Journal of Biodiversity and Conservation* 3(13): 705–708.

Abstract

The paper is describing the result of survey of pitcher plants (*Nepenthes spp*) diversity at six habitats in West Kalimantan. The research was conducted by investigation of specimens at Herbarium Bogoriense and *Nepenthes* nurseries in Pontianak. Besides, the research was also supported by personal communication with *Nepenthes* hobbies in Pontianak and related literature. The study found 12 *Nepenthes* species and 16 natural hybrids in the peat-swamp forest and heath forest as the common habitat of *Nepenthes* in lowland areas. The result shows that the habitat and the heath forest were destructed by human activities.

0070. Davies, K.T.J., **I. Maryanto** & S.J. Rossiter. **2013.** Evolutionary origins of ultrasonic hearing and laryngeal echolocation in bats inferred from morphological analyses of the inner ear. *Frontiers in Zoology* 2013, 10: 2–15

Abstract

Introduction: Many mammals have evolved highly adapted hearing associated with ecological specialisation. Of these, bats possess the widest frequency range of vocalisations and associated hearing sensitivities, with frequencies of above 200 kHz in some lineages that use laryngeal echolocation. High frequency hearing in bats appears to have evolved via structural modifications of the inner ear, however, studying these minute features presents considerable

challenges and hitherto few such attempts have been made. To understand these adaptations more fully, as well as gain insights into the evolutionary origins of ultrasonic hearing and echolocation in bats, we undertook micro-computed tomography (μCT) scans of the cochleae of representative bat species from 16 families, encompassing their broad range of ecological diversity. To characterise cochlear gross morphology, we measured the relative basilar membrane length and number of turns, and compared these values between echolocating and non-echolocating bats, as well as other mammals.

Results: We found that hearing and echolocation call frequencies in bats correlated with both measures of cochlear morphology. In particular, relative basilar membrane length was typically longer in echolocating species, and also correlated positively with the number of cochlear turns. Ancestral reconstructions of these parameters suggested that the common ancestor of all extant bats was probably capable of ultrasonic hearing; however, we also found evidence of a significant decrease in the rate of morphological evolution of the basilar membrane in multiple ancestral branches within the Yangochiroptera suborder. Within the echolocating inpterochiroptera, there was some evidence of an increase in the rate of basilar membrane evolution in some tips of the tree, possibly associated with reported shifts in call frequency associated with recent speciation events.

Conclusions: The two main groups of echolocating bat were found to display highly variable inner earmorphologies. Ancestral reconstructions and rate shift analyses of ear morphology point to a complex evolutionary history, with the former supporting ultrasonic hearing in the common bat ancestor but the latter suggesting that morphological changes associated with echolocation might have occurred later. These findings are consistent with theories that sophisticated laryngeal echolocation, as seen in modern lineages, evolved following the divergence of the two main suborders.

0071. Davies, K.T.J., P.J.J. Bates, **I. Maryanto**, J.A. Cotton, & S.J. Rossiter. **2013.** The Evolution of Bat Vestibular Systems in the Face of Potential Antagonistic Selection Pressures for Flight and Echolocation. *PLOS ONE* 8(4): e61998

Abstract

The vestibular system maintains the body's sense of balance and, therefore, was probably subject to strong selection during evolutionary transitions in locomotion. Among mammals, bats possess unique traits that place unusual demands on their vestibular systems. First, bats are capable of powered flight, which in birds is associated with enlarged semicircular canals. Second, many bats have enlarged cochleae associated with echolocation, and both cochleae and semicircular canals share a space within the petrosal bone. To determine how bat vestibular systems have evolved in the face of these ressures, we used micro-CT scans to compare canal morphology across species with contrasting flight and echolocation capabilities. We found no increase in canal radius in bats associated with the acquisition of powered flight, but canal radius did

correlate with body mass in bat species from the suborder Yangochiroptera, and also in non-echolocating Old World fruit bats from the suborder Mincrochiroptera. No such trend was seen in members of the Yinpterochiroptera that use aryngeal echolocation, although canal radius was associated with wing-tip roundedness in this group. We also found that the vestibular system scaled with cochlea size, although the relationship differed in species that use constant frequency echolocation. Across all bats, the shape of the anterior and lateral canals was associated with large cochlea size and small body size respectively, suggesting differential spatial constraints on each canal depending on its orientation within the skull. Thus in many echolocating bats, it seems that the combination of small body size and enlarged cochlea together act as a principal force on the vestibular system. The two main groups of echolocating bats displayed different canal morphologies, in terms of size and shape in relation to body mass and cochlear size, thus suggesting independent evolutionary pathways and offering tentative support for multiple acquisitions of echolocation.

0072. **Dewi, K**. & L. Zhang. **2010.** Two New Species of Spiruroid Nematodes in Birds from Kangean Island, Indonesia. *Journal of Helminthology* 84: 242–252.

Abstract

Two new species of spiruroid nematodes in birds from Kangean Island, Indonesia are reported: *Diplotriaena anthreptis* **sp. nov**. is found from the abdominal cavity of Anthreptes malacensis malacensis. The new species is similar to *D. ozouxi, D. bargusinica, D. delta, D. isabellina* and *D. obtusa* in the size of tridents and the length of spicules. However, it differs from the five similar species in the structure of the tridents, in the morphology of the right spicule, in the spicule ratio and in the size of the eggs. *Acuaria irhami* **sp. nov**. is described based on two male specimens from under the gizzard lining of *Dicrurus hottentottus jentincki*. The new species can be distinguished easily from all congeners except from *A. microecae*, in having equal rather than subequal or dissimilar spicules. However, the new species can be differentiated from *A. microecae* in the number of postanal papillae, in the median preanal papilla and in the length of the cordons.

0073. **Dewi, K. 2010**. The Taxonomic Status of *Pterygodermatites* spp. and the Scanning Electron Microscopy Study of *Pterygodermatites whartoni* (Tubangui, 1931) (Nematoda: Rictulariidae) from Indonesian Murids. *Zoo Indonesia* 19(1): 31–36

Abstract

Species of genus *Pterygodermatites* which had been reported from Indonesian murids were *P. tani* and *P. whartoni*. The females of both of species could not be disthingushed morphologically, so the taxonomic status between *P. tani* and *P. whartoni* confused many researhers. The difference of the both worms was placed at the genital morphology of male specimen. In this study, *P. whartoni* was described at the first time from Indonesian specimens using light and

scaning electron microscope. Observation on morphology of *P. whartoni* using SEM gave addition data which could not be recorded by ligth microscope. This research also provided some new knowledge about distribution and hosts of *Pterygodermatities* spp. in Indonesia.

0074. **Dewi, K.** & H. Hasegawa. **2010**. A New *Syphacia* Species (Nematoda: Oxyuridae) Collected from *Bunomys* spp. (Rodentia: Muridae) in Central Sulawesi, Indonesia. *Journal of Parasitology* 96(1):125–128.

Abstract

Syphacia (Syphacia) rifaii sp. n. (Nematoda: Oxyuridae) is described from endemic *Bunomys chrysocomus* and *Bunomys prolatus* (Rodentia: Muridae) on Sulawesi Island, Indonesia. The new species is closest morphologically to *Syphacia (Syphacia) sulawesiensis*, parasitic in *Rattus xanthurus* from Sulawesi Island, by having large vesicular lateral alae in males, but is readily distinguished by having a smaller body, a round cephalic plate in both sexes, the absence of lateral alae in females, a longer relative distance between excretory pore and vulva, and smaller eggs. *Syphacia (S.) rifaii* is surmised to be a specific parasite of *Bunomys* spp. and has evolved from a common ancestor with *S. (S.) sulawesiensis* on Sulawesi Island.

0075. **Dewi, K.**, Y. Apriyanti & N. Supriyatna. **2010.** Catatan Baru Lokasi dan Inang untuk *Cervonemella reardoni* Beveridge, 2001 dan *Cloacina* spp. di Indonesia. *Jurnal Widyariset* 13(3): 1–8.

Abstrak

Papua dan pulau-pulau kecil di sekitarnya mempunyai kekayaan fauna yang kaya. Empat jenis Cloacininae dilaporkan dari Pulau Salawati, pulau kecil di dekat Papua. Jenis tersebut adalah *Cervonemella reardoni* Beveridge, 2001, *Cloacina syphax* Beveridge & Speare, 1999, *Cloacina polymela* Beveridge, 2002 and *Cloacina procris* Beveridge, 2002 yang ditemukan pada *Dorcopsis muelleri* (Schlegel, 1866). Pada tulisan ini nematoda tersebut dilaporkan dengan deskripsi dan gambarnya.

0076. **Dewi, K. 2011.** Nematoda Parasit pada Tikus di Desa Pakuli, Kec. Gumbara, Kab. Donggala, Sulawesi Tengah. *Jurnal Ekologi Kesehatan* 10(1): 38–43.

Abstract

A survey of nematodes paraziting rats was conducted in the Pakuli village in July 2008. A total of 35 rats consisted of 23 Rattus tanezumi and 12 Bunomys chrysocomus were trapped alive in house, mixed plantations, rice fields and secondary forest. As the results, 25 (71.43%) of the trapped rats were parasitized with one or more of nematodes, and the rest were free. The obtained nematodes were *Subulura andersoni, Pterygodermatites whartoni, Heterakis spumosa, Syphacia rifaii* and *Gongylonema neoplasticum*. Some of those nematodes had zoonotic potential.

0077. **Dewi, K.** & **E. Purwaningsih. 2013**. Checklist of the Nematode Parasites of Indonesian Murids. *Zootaxa* 3608 (7): 531–546.

Abstract

A checklist of nematode parasites from Indonesian murids with their geographic distribution is presented. This checklist is compiled from three sources: the catalogue of nematode parasites of Museum Zoologicum Bogoriense (unpublished specimens in the collection), data from our previous research, and articles on nematodes of Indonesian murids. This checklist is presented as a list of nematode parasites with host information, and a host list with information on their nematodes. This paper reports 38 nominal species of nematodes and 13 species identified to the generic level only. The nematodes reported comprise 32 genera and 17 families parasitizing 32 species of Indonesian murids.

0078. **Dewi, K.** &. Y. Apriyanti. **2013.** *Meloidogyne incognita* pada Kentang Hitam (*Solenostemon rotundifolius*). *Fauna Indonesia* 12(1): 22–28.

Abstrak

Meloidogyne incognita is a worldwide distributed parasitic nematode on plants. This species causes damages on various range of plants, including hausa potato (*Solenostemon rotundifolius*). The nematodes infect the potato's tubers and cause ulcers which eventually decrease the harvest rate and even on the worse infection can make crop failure. This paper will discuss the infection of *M. incognita* on hausa potato in Cibinong Science Center's farm.

0079. **Dewi, K.** & **E. Purwaningsih. 2013**. Cacing Parasit pada tikus di Perkebunan Karet di Desa Bogorejo, Kecamatan Gedongtataan, Kabupaten Pesawaran, Lampung dan Tinjauan Zoonosisnya. *Zoo Indonesia* 22(2): 1–7.

Abstract

Rats have significant important impact in the economy and health areas so they are often used as research object. The study of parasitic worms of rats was carried out in rubber plantations in Lampung. A total of 17 rats consisting of 5 species were caught and then examined for helminth parasites. The result showed that 11 rats (64.71%) were infected nematodes and/or cestode and the rest were free. We found 6 species of nematodes and one species of cestode.

0080. **Dewi, K.** & H.W. Palm. **2013.** Two New Species of Philometrid Nematodes (Nematoda: Philometridae) in *Epinephelus coioides* (Hamilton, 1822) from the South Bali Sea, Indonesia. *Zootaxa* 3609 (1): 049–059.

Abstract

Based on light and scanning electron microscopy, two new species of philometrid nematodes, *Spirophilometra endangae* **sp.nov.** and *Philometra epinepheli* **sp.nov.** (Nematoda: Dracunculoidea: Philometridae) are described from *Epinephelus coioides* (Hamilton, 1822) (Perciformes: Serranidae) from the South Bali Sea,

Indonesia. *Spirophilometra endangae* **sp.nov**. was isolated from the fins of *E. coioides.* The new species can be distinguished from the most closely related *S. eichleri* Parukhin, 1971 by a larger total body length and the site of infection in the host. The new species differs from *S. centropomi* (Caballero, 1974) also in the larger body size of the gravid females and the site of infection in the host. *S. endangae* sp. nov. differs from *S. pacifica* (Moravec, Santana-Pineros, Gonzales-Solis & Torres-Huerta, 2007) in the structure and arrangement of the spines on the middle part of the body, the infection site of the worm, the type host and the zoogeographical host distribution. *Philometra epinepheli* sp. nov. differs from all other *Philometra* spp. congeners so far recorded from *Ephinepelus* groupers in the total body length and the site of infection. This is the first opercula-infecting species of *Philometra* described from the fish family Serranidae.

0081. **Dewi, K**., M. Asakawa & **Y.S. Fitria. 2014**. *Syphacia (Syphacia) semiadii* **n.sp.** (Nematoda: Oxyuridae) from *Halmaheramys bokimekot* Fabre et al., 2013 (Rodentia: Muridae) on Halmahera Island, Indonesia and a Key to the Species Present in Sulawesi and the Australian Bioregion. *Transactions of The Royal Society of South Australia* 138(1): 98–104.

Abstract

Syphacia (Syphacia) semiadii n.sp. is described from *Halmaheramys bokimekot* Fabre et al., 2013, an endemic murine of halmahera island, Maluku, Indonesia. among the new Guinea/australian congeners, *S. (S.) semiadii* n. sp. most closely resembles *S. (S.) mamelonitenuis* and *S. (S.) longaecauda* in having a circular cephalic plate without dorsoventral constriction laterally and lacking lateral alae in both sexes. however, this species differs from *S. (S.) mamelonitenuis*, which has a shorter tail in both sexes and larger eggs, and from *S. (S.) longaecauda*, which has a longer tail in both sexes. to aid identification, we also provide a dichotomous key to the species of *Syphacia* in sulawesi and the australian bioregion.

0082. **Dewi, K**. & H. Hasegawa. **2014**. Two New Species of *Syphacia* (Nematoda: Oxyuridae) in Endemic Murid Rodents from Sulawesi, Indonesia. *Journal of Helminthology* 88: 41–49.

Abstract

Two new species of *Syphacia* (Nematoda: Oxyuridae) are described from endemic murids of Sulawesi, Indonesia: *Syphacia (Syphacia) taeromyos* **sp.n**. and *S. (S.) paruromyos* **sp.n.** parasitic in the caecum of *Taeromys celebensis* and *Paruromys dominator*, respectively. They are readily distinguished from all of the congeners recorded from Indonesian–Australian regions by having a round cephalic plate, vesicular lateral alae in the male, posteriorly positioned excretory pore in the male, and/or lacking cervical alae. *Syphacia (S.) paruromyos* differs from *S. (S.) taeromyos* by having a whip-like tail appendage in the male, longer relative distance between excretory pore and vulva, and larger eggs. The

round cephalic plate in both sexes and developed vesicular lateral alae in the male are morphological traits common in endemic *Syphacia* species hitherto known from Sulawesi murids, suggesting that they have derived from a common ancestor and evolved with their hosts in the isolated insular environment.

0083. **Dewi, K.,** H. Hasegawa & M. Asakawa**. 2014.** Description of Two New Species of *Syphacia* (Nematoda: Oxyuridae) Collected from *Eropeplus canus* (Rodentia: Muridae), an Endemic Rat of Sulawesi, Indonesia, with proposal of new subgenera. *Raffles Bulletin of Zoology* 62: 647–654.

Abstract

Two new subgenera of the genus *Syphacia* (Nematoda: Oxyuridae) are proposed for two new species collected from the caecum of *Eropeplus canus*, an endemic murid of Sulawesi, Indonesia. *Syphacia* (*Rumbaisyphacia*) *kumis*, new subgenus and new species has setiferous apical margin of pharynx in both sexes, and *Syphacia* (*Segienamsyphacia*) *yuniae*, new subgenus and new species has a hexagonal oral opening in female and an egg with an operculum located closer to equator, being readily distinguished from other congeners hitherto known. The peculiar morphology of these species suggests that they belong to different lineages from that of *Syphacia* spp. recorded so far from Sulawesi. They might have been introduced with an ancestral murid linking *Eropeplus* and *Lenothrix*, one of the most primitive rats on Sundaland, and coevolved in Sulawesi.

0084. Dina, R., **D. Wowor** & A. Hamdani, **2013.** Lobster Air Tawar (*Cherax quadricarinatus*), Spesies Asing Baru di Perairan Danau Maninjau, Sumatera Barat. *Limnotek* 20(2): 159–168.

Abstract

Lobster air tawar (LAT) merupakan jenis krustasea asing baru di Danau Maninjau. Penelitian ini bertujuan untuk mengetahui jenis LAT dan beberapa informasi awal tentang LAT yang ada di Danau Maninjau, serta potensi dampaknya terhadap ekosistem danau. Penelitian dilakukan di tiga lokasi yaitu Sigiran, Batu Nanggai, dan Bayur pada bulan Maret 2011. Lobster air tawar ditangkap menggunakan alat tangkap rago (perangkap) yang dipasang pada sore dan diangkat pada pagi keesokan harinya. Rago dilengkapi dengan umpan yang terdiri dari campuran kelapa, pelet, dan ikan mati. Hasil identifikasi menunjukkan bahwa jenis LAT yang ada di Danau Maninjau adalah *Cherax quadricarinatus*. Lobster yang tertangkap memiliki ukuran beragam, dengan rerata panjang karapas untuk lobster jantan 50,93 (6,68–80,36) mm, sedangkan lobster betina 54,35 (39,33–73,37) mm. Rerata berat basah total lobster jantan 38,75 (10,9–125,6) gram dan lobster betina 37,49 (12,5–82,4) gram. Selain itu juga ditemukan lobster betina yang membawa juvenil pada kaki renangnya sebanyak 2,36% dari tangkapan total. Beberapa hasil tersebut menunjukkan bahwa sebagai jenis asing baru, populasi lobster air tawar, *Cherax quadricarinatus* telah berkembang mantap di Danau Maninjau. Hal ini berdampak positif secara ekonomi, namun juga berpotensi akan berdampak negatif sebagai jenis invasif.

0085. **Djarwaningsih, T. 2010**. Jenis-Jenis Flora di Cagar Alam Gunung Tukung Gede Barat, Serang, Banten. *Prosiding Seminar Nasional Biologi. Peran Biosistimatika dalam Pengelolaan Sumber Daya Hayati Indonesia*. Fakultas Biologi, UNSUD. Purwokerto, 16 Februari 2010. ISBN 978-979-16109-2-6; Hlm. 646–649.

Abstract

Kawasan Cagar Alam Gunung Tukung Gede (CAGTG) ditetapkan berdasarkan SK Menteri Pertanian No. 395/Kpts/Um/6/1979 tgl. 23 Juni 1979 seluas ± 1700 ha. CAGTG merupakan kawasan konservasi yang diduga memiliki potensi keanekaragaman hayati yang tinggi. Informasi di kawasan tersebut tentang keanekaragaman floranya masih sangat sedikit. Dengan terjadinya pengurasan dan penyusutan sumber daya keanekaragaman hayati untuk perdagangan ilegal, konversi habitat alami, tekanan penduduk dan kemiskinan, tidak adanya eksplorasi yang intensif yang bertujuan untuk menggali dan mengungkapkan keanekaragaman hayati dan potensinya di kawasan tersebut, maka dikhawatirkan tumbuhan liar yang berpotensi obat dan plasma nutfah sebagai sumber pemuliaan tanaman akan punah sebelum dilakukan pendataan. Oleh karena itu, untuk meningkatkan pengetahuan yang berkaitan dengan keanekaragaman hayati tersebut, perlu dilakukan studi eksplorasi yang intensif. Kegiatan penelitian ini dilakukan dengan menggunakan metode Balgooy (1987) serta Rugayah dkk. (2004). Dalam eksplorasi ini telah berhasil dikumpulkan jenis-jenis flora yang dikategorikan sebagai pohon 70 jenis, perdu 50 jenis, terna 40 jenis, tumbuhan merayap 18 jenis, tumbuhan merambat 17 jenis dan 16 jenis paku-pakuan. Di antaranya terdapat jenis tumbuhan yang sudah langka dan belum terdaftar dalam Flora of Java.

0086. **Djarwaningsih, T. 2010**. Rekaman Baru Beberapa Jenis Tumbuhan di Jawa. *Floribunda* 4(1): 15–17.

Abstrak

Sebanyak tujuh jenis tumbuhan tinggi yang dikoleksi dari Cagar Alam Gunung Tukung Gede dilaporkan sebagai rekaman baru untuk Jawa. Jenis-jenis tersebut belum pernah dikoleksi sebelumnya di Jawa, tetapi koleksinya ditemukan dari kawasan Malesia dan tersimpan di "Herbarium Bogoriense" Bidang Botani, Pusat Penelitian Biologi, Cibinong Science Center-LIPI.

0087. **Djarwaningsih, T. 2011.** Keragaman Flora di Wilayah Desa Cikolelet-Cagar alam Gunung Tukung Gede, Serang Banten. *Berkala Penelitian Hayati* No. 5A: 15–20.

Abstract

Cikolelet village of Cinangka district, Serang Regency-Province of Banten is located on the slope area of 30°–60°, and it is in 125–750 m above sea level. In this a small mountain or hills, it is divided in to blocks, namely: Curug Lawang, Cibunar and Cibangkong. The diversity of flora on those locations

has not been recorded and there has no collections deposited in the Herbarium Bogoriense (BO). Consequently, the flora data is still needed. Currently, illegal loging has been occurred rapidly, as a result, the biodiversity in this nature reserved has been decreased. This project is aimed to explore the diversity of flora and to yield new informations on new species, new record, or the current status of taxa (rare or endemic). The method employed in this research follows Balgooy (1987) and Rugayah et al. (2004). The result of this study produced 212 number of collections which consist of 167 and 16 species of them is new record for Flora of Java. It is noticed that the majorities of collections are Spermatophyta and Pteridophyta.

0088. **Djarwaningsih, T. 2011.** Pengajaran Biodiversitas Tumbuhan dan Sarana Pendukungnya di Perguruan Tinggi Indonesia. *Berkala Penelitian Hayati* No. 5A: 125–129.

Abstract

Biodiversity education in university is mainly delivered as in class-lecture summarized from related textbooks. Due to this conventional teaching, the course delivery is usually unattractive and students can easily be bored. In order to cope with this problem, new concepts and ideas are necessary to be introduced to the students. The aim of this study is to improve the student interest on biodiversity by creating its delivery method which is not boring and frightening. This study was based on surveys, records and investigation of textbooks used in the university and its facilities to support biodiverstity courses such as laboratorium inside campus and appropriate herbaria, museum, parks outside campus. To support these effort, it will be discussed some education tools which are interesting for students. Concepts and ideas are proposed which are combination between in class-lecture using selected textbooks and fieldworks. The result of this study will improve the motivation of students to learn plant diversity.

0089. **Djarwaningsih, T. 2012.** Species Diversity of Euphorbiaceae in Karimunjawa Islands and New Record for Java. *Jurnal Teknologi Lingkungan*: Edisi Khusus "Hari Bumi", April 2012: 75–88.

Abstract

Diversity information on *Euphorbiaceae* family in the small Indonesian Islands is lacking. Species diversity of *Euphor-biaceae* in the Karimunjawa Island (Districts of Legon Lele, Legon Moto, Legon Goprak, Kemloko, Nyamplungan); Islands of Parang, Kembar, Nyamuk, Kumbang, Bengkoang, Menyawakan, Sintok, Sambangan and Genting consist of 41 species and four varieties in 20 genera. The common species in the whole studied areas, i.e. *Antidesma montanum, Breynia cernua, Excoecaria agallocha, Glochidion zeylanicum* var. *malayanum, Jatropha curcas, Phyllanthus niruri* and *Suregada glomerulata. Endospermum diadenum* and *Sapium baccatum* are identified as new plant records for the Flora of Java.

0090. **Djarwaningsih, T.** & Susiarti, S. 2013. Pendataan Flora di Beberapa Lokasi di Flores–Nusa Tenggara Timur. *Prosiding Seminar Nasional Biodiversitas*. Vol. 2/Februari/2013. Kelompok Studi Biodiversitas Jurusan Biologi FMIPA, Universitas Sebelas Maret Surakarta, Hlm. 137–141.

Abstract

Pendataan flora di Provinsi Nusa Tenggara Timur telah dirintis antara lain oleh Hildebrand dan Dress, sedangkan di P. Flores oleh Verheijen, Simbolon, dan Wiriadinata. Topografi sebagian besar daerah di Flores sangat unik, berbukit-bukit terdiri dari batu karang dengan lereng-lereng terjal dan lembah yang sangat dalam. Vegetasinya tidak begitu hijau, kesannya merupakan daerah kering dan kurang subur. Temperaturnya juga berubah-ubah dari panas atau kering berubah dingin tetapi jarang sekali hujan. Sarana jalan menuju ke Kabupaten atau Kecamatan lain sangatlah bagus, walaupun berliku-liku di sepanjang tepi tebing yang curam dan bibir pantai. Penelitian di P. Flores ini dilakukan pada tanggal 26 Juli–10 Agustus 2009 di beberapa lokasi. Pendataan flora dilakukan dengan menggunakan metode Balgooy dan Rugayah dkk. Adapun tujuan penelitian adalah untuk memperoleh data dasar mengenai keanekaragaman jenis flora terutama dari jenis-jenis berpotensi yang diharapkan dapat dipakai sebagai dasar pemahaman untuk pengembangan penelitian lanjutan seperti fisiologi, fitokimia, fitomarkologi, dan pertanian serta sebagai bahan acuan untuk kebijakan pelestariannya. Hasil pendataan jenis-jenis tumbuhan selama perjalanan lapang ini sebanyak 158 nomor koleksi, yang terdiri dari 22 nomor koleksi pandan dan sisanya merupakan koleksi tumbuhan selain pandan. Pandan tersebut teridentifikasi sebagai *Pandanus amaryllifolius, P. tectorius, Pandanus kaernbachii* (pandan waku), mbojo (*Pandanus* sp.), *Freycinetia insignis*. *P. kaernbachii* merupakan rekaman baru untuk Nusa Tenggara Timur. Ada 27 jenis tumbuhan yang berpotensi antara lain sebagai obat tradisional, bahan makanan, sayuran, dan lain-lain.

0091. **Dwibadra, D.** 2010. Tungau Macrochelidae (Acari) di kawasan karst Pegunungan Sewu. *Zoo Indonesia* 18(2): 1–8.

Abstract

Research on phoretic mites in karst area, Pegunungan Sewu, had been done. Mite specimens were collected from ventral surfaces of scarabaeid dung beetles trapped by human dung traps. Some mites detached from beetles were also collected from residue in vials in which scarabaeid were fixed and preserved. Six species of two genera were found i. e. *Macrocheles dispar* (Berlese, 1910), *M. entetiensis* Hartini & Takaku, 2005, *M. persimilis* Hartini, Dwibadra & Takaku, 2007, *M. simulans* Hartini, Dwibadra & Takaku, 2007, *Macrocheles* sp. and *Holostaspella pulchella* Mašán, 2003. *M. simulans* and *M. persimilis* were new record for Java. All of them were new record for Pegunungan Sewu karst area.

0092. **Dwibadra, D.,** G. Takaku, M. Ohara, & A. Ueda. **2014.** Mites of the Family Macrochelidae (Acari: Gamasida) from Sungai Wain, East Kalimantan, Indonesia. *Species Diversity* 19: 43–57.

Abstract

Twenty-two mite species of four genera belonging to the family Macrochelidae were collected from the body surface of dung beetles (Scarabaeidae) in Sungai Wain, East Kalimantan, Indonesia. Three species, *Macrocheles dayaci* **sp.nov.,** *M. riparius* **sp.nov.**, and *M. wainensis* **sp.nov.,** are described as new to science. Another eight species are recorded from Kalimantan for the first time.

0093. **Erlinawati, I. 2010.** The Diversity of Terrestrial *Araceae* in Mt. Watuwila Complex, South-East of Sulawesi. *Berkala Penelitian Hayati* 15: 129–135.

Abstract

The arums comprise the family of Araceae, including the numerous aroids subfamily, monocotyledonous flowering plants, in which flowers are borne on a type of inflorescence called a spadix. The diversity of terrestrial Araceae in Sulawesi is very poorly documented and understood and remains critically threatened. The aims of this study are to understand the diversity of terrestrial Araceae on Mount Watuwila Complex and to add the number specimen collection in Herbarium Bogoriense. The exploration was conducted by used exploring method, including collection, identification and description. The exploration on Mount Watuwila Complex (170–800 m alt.), May 7–29, 2008 was got 22 number collections of Araceae, consist of 12 numbers of terrestrial Araceae, 10 species, those are *Aglaonema simplex* Bl., *Alocasia macrorrhizos* (L.) G. Don, *Alocasia suhirmaniana* Yuzammi & A. Hay, *Colocasia esculenta* (L.) Schott, **Homalomena** spp. (3 species), *Schismatoglottis calyptrata* (Roxb.) Zoll. & Moritzi, *S. plurivenia* Alderw and *Spathiphyllum commutatum* Schott. *Schismatoglottis calyptrata* (Roxb.) Zoll. & Moritzi is dominant species and *Alocasia suhirmaniana* Yuzammi & A. Hay is endemic species. The descriptions of each species were made.

0094. **Erlinawati, I. 2010.** Keragaman *Araceae* di Sekitar Gunung Wilis, Jawa Timur. *Berkala Penelitian Hayati Edisi Khusus:* 4A (13–17).

Abstract

The Araceae or aroids are plants which are very familiar to everyone, such as for food plants, medicinal, toxic and magical uses, fibers and for ornamental uses. A study on diversity of Araceae has been carried out in surrounding Mt. Wilis, East Java (1000–1500 m alt). Result of the study indicated that there were recorded 5 species of Araceae, 3 species are terrestrial i.e *Colocasia esculenta* (L.) Schott., *Schismatoglottis javanica* Engl. and *Aglaonema simplex* Blume and the others are climbing species i.e *Pothos* sp. and *Raphidophora korthalsii* Schott. and identification key were made.

0095. **Erlinawati, I. 2014.** Studi Populasi *Tacca leontopetaloides* (Mure) sebagai Pangan Alternatif di Kabupaten Gunung Kidul, Kulon Progo dan Bantul Yogyakarta. *Prosiding Widyakarya Nasional Pangan dan Gizi X*.

Abstract

The increasing of Indonesia's population from year to year requiring that food availability is increasing as well. On the other hand, food-producing region has been turned into residential areas, offices, factories and roads so that over the years the area of food production decreases resulting in a decrease in the national food stocks. This condition is made worse as a result of the loss of diversification habit that became the culture of Indonesia turned into monoculture food, especially rice. Dependence on rice as a major carbohydrate source in Indonesian society, could be dangerous to national food security. Therefore, the use of an alternative carbohydrate perceived urgency for the Indonesian government to support national food security. This must also be coupled with the dissemination to the public of the importance of diversification of food so that food security can be truly realized. Research on these tubers can provide the one solution to future food security. Tubers are generally known by the people of Indonesia, but it has not been commercially developed. One of the tubers that have been targeted in this integrated research is *Tacca leontopetaloides*. *T. leontopetaloides* is a plant which tubers can be used as an alternative food source and has been used by some of the residents in the area, like Sukabumi, Karimunjawa, Madura and the Pacific Islands as a snack and a variety of traditional snacks like *serpot*, *eped-eped*, cakes etc. In the area of Yogyakarta, *T. leontopetaloides* have the name "Mure" and the leaves are used as animal feed ingredients. Study on *T. leontopetaloides* in Yogyakarta is a part of the National Program (PN9) and LIPI commitment to support the national program. This study aims to reveal information distribution and population ecology of *T. leontopetaloides* following regeneration and its potential in nature. The population studyof *T. leontopetaloides* have been conducted in three districts in Yogyakarta, namely Gunung Kidul (Siung Beach and Mount Batur), Kulonprogo (Glagah Beach) and Bantul (Baru Beach and Pandan Simo). Ecological study population was calculated using the square plot sized 250 m2. Based on data analysis, it is known that the highest density of *T. leontopetaloides* was in Mount Batur, Gunung Kidul that is 1,100 individuals/ha and the lowest was in Glagah Beach, Kulonprogo, amounting to 200 individuals/ha. Although *T. leontopetaloides* found in Glagah Beach is more slightly, but the growth of flowers, fruits and tubers are very good and the growth of the stem is also very high. This is because of the media for growth containing the sand up to 95% and the absence of stones in the soil so absorption of nutrients in the soil by the roots becomes optimal. This makes the growth of organs other plants on it like stems, flowers and fruit are also a maximum, compared to the other three locations, where there are lots of rocks. In Bantul, there is not found any individual *T. leontopetaloides*. This is because the coastal areas have been opened up massively, so the natural vegetation along the coast has a lot of damage. *T. leontopetaloides* grows well

in shaded areas and black sandy soil (95% sand content), pH 5.5 to 6.3, the content of C/N 12–13, with a temperature of 31–34 0C and humidity above 60%. Follow-up activities that must be done is the socialization of the benefits of T. leontopetaloides so that people in Yogyakarta has the willingness to grow crops as well as for the conservation of coastal areas in order to minimize the damage of beach.

0096. **Erlinawati, I.** & **E.F. Tihurua. 2013.** Leaf Surface Comparison of Three Genera Araceae in Indonesia *Buletin Kebun Raya* 16(2): 131–145.

Abstract

Alocasia, *Colocasia* and *Remusatia* are the genera of Araceae family which have high economic value, such as food and ornamental plants. Those three genera were previously treated as Colocasieae tribe. Study on leaf anatomy of Araceae is still poorly known. Comparison of three genera of Araceae indicates a difference in the epidermis. *Alocasia* and *Colocasia* have stomata on both surfaces (amphistomatic) but *Remusatia* has stomata only limited on the lower surface. The three genera can be distinguished from epidermal cell shape, stomata complex and the presence of stomata.

0097. **Erniwati** & **S. Kahono. 2011.** Keragaman Serangga Pengunjung Bunga pada Lima Jenis Tanaman Buah Pohon (*Fruit Tree*) di Jawa Timur. *Zoo Indonesia,* 20(1): 9–23.

Abstrak

Tujuan penelitian ini adalah mengetahui jenis-jenis serangga yang mengunjungi bunga pada lima jenis tanaman buah di Jawa Timur. Penelitian dilakukan terhadap lima jenis bunga tanaman buah-buahan dengan mengamati dan menghitung serangga yang mengunjungi bunga dan mengamati perilaku masing-masing serangga tersebut. Lokasi penelitian di Jawa Timur dari tahun 2004 sampai dengan 2005. Selama penelitian, 90 jenis serangga (374 individu) pengunjung bunga berhasil diamati. Serangga tersebut terdiri dari 5 ordo: Diptera, Coleoptera, Hymenoptera, Heteroptera, dan Lepidoptera. Keragaman serangga pengunjung bunga berbeda tergantung jenis tanaman buahnya. Keragaman tertinggi ditemukan pada bunga mangga dengan jumlah jenis/indeks keragaman Shanon-Wiener sebesar 52/3,49; diikuti oleh mengkudu sebesar 36/3,30; jeruk sebesar 20/2,83; belimbing sebesar 19/2,64; dan yang paling kecil apel dengan jumlah/indeks sebesar 18/2,37. Berdasarkan fungsinya, kelompok yang paling tinggi adalah penyerbuk (61,1%). Sedangkan yang paling rendah adalah predator (5%), dan parasit (5,5%). Dari hasil penelitian ini, serangga penyerbuk yang paling potensial adalah *Apis cerana*, *A. mellifera*, *Trigona laeviceps*, *Xylocopa confusa*, *X. latipes*, *Amegilla borneensi*, *A. cyrtandrae*, *Ceratina bryanti*, dan *Nomia punctata*.

0098. **Erniwati** & **R. Ubaidillah. 2011**. Hymenopteran parasitoids associated with the banana-skipper *Erionota thrax* L. (Insecta: Lepidoptera, Hesperiidae) in Java, Indonesia. *Biodiversitas,* 12(2): 76–85.

Abstract

Hymenopteran parasitoids of banana-skipper *Erionota thrax* L. (Insecta: Lepidoptera, Hesperiidae) from Java, Indonesia are reviewed and an illustrated key to 12 species is presented to include *Theronia zebra zebra, Xanthopimpla gamsura, Casinaria* sp., *Charops* sp., *Cotesia (Apanteles) erionotae, Brachymeria lasus*, *B. thracis, Ooencyrtus pallidipes, Anastatus* sp., *Pediobius erionotae*, *Agiommatus sumatraensis* and *Sympiesis* sp. The surveys of the natural enemies of the banana-skipper were conducted in 1990–2006 in several localities in Java. The aim of this study was to assess the native natural enemies of *E. thrax*, especially the parasitic Hymenoptera. Infested eggs, larvae and pupae of *E. thrax* were collected and reared in the laboratory. Emerging parasitoids were preserved in both dry mounting and in 80% alcohol for the species identification. Members of families Braconidae, Ichneumonidae, Encyrtidae, Pteromalidae, Chalcididae, Eupelmidae and Eulophidae were recorded as parasitoids of the banana skipper *E. thrax* from Java, Indonesia. Species distribution and alternative hosts of the parasitoids are presented.

0099. **Erniwati** & **S. Kahono. 2012.** Keanekaragaman dan Potensi Musuh Alam dari Kumbang *Elaeidobius kamerunicus* Faust (Coleoptera: Curculionidae) di Perkebunan Kelapa Sawit Kabupaten Penajam Paser Utara-Kalimantan Timur. *Zoo Indonesia* 21(2): 9–15.

Abstract

Elaeidobius kamerunicus (oil palm weevil) is the primary pollinator for oil palm flower. The population of oil palm weevil in the plantation determines the success level of fruit production. A part from internal factors of oil palm weevil, other factors which influence the population of oil palm population are plant varieties, plantation system, fertilization, and integrated pest management, there to physical and biotic environmental conditions. The biotic factor is the natural enemies such as predator and parasitoid. The resesrch of the role of biotic environment to oil palm weevil was done during the rainy and dry seasons in oil palm plantation in Kabupaten Penajam Paser Utara, East Kalimantan. We found 7 predators which are 2 bird species, 5 species of insects (ant *Odontoponera denticulate* (Formicidae), earwig *Chelisoches morio* (Chelisochidae), assassin bug *Velinus nigrigenu* (Reduviidae), dan wasps *Vespa affinis, V. bellicose* (Vespidae)). Moreover, 10 species of parasitoid wasps were also found (Evaniidae 1 species, Braconidae 2, Scelionidae 2, Eulophidae 2, Chalcididae 1, Mymaridae 1, and Ormyridae 1). However, their potency as natural enemy of oil palm pollinator need further observation. The behaviour ecology of all natural enemies are described to know their potency as an oil palm control.

0100. **Erniwati. 2012.** Evaluasi dan Karakterisasi Serangga yang Berasosiasi dengan Ekosistem Mangrove di Segara Anakan, Cilacap, Jawa Tengah. *Prosiding Seminar Nasional Biodiversitas* Vol. 1, Hlm. 122–129

Abstrak

Penelitian tentang evaluasi dan karakterisasi serangga yang berasosiasi dengan ekosistem mangrove telah dilakukan di Segara Anakan, Cilacap Jawa Tengah. Sebanyak 123 spesies yang terdiri dari 9 ordo dan 19 famili serta 417 individu serangga, berhasil diidentifikasi dari sampel yang diambil di kawasan mangrove Bojong langkap dan Ciperet pada bulan Mei dan Nopember 2009. Dari jumlah tersebut 53 spesies ditemukan di Bojong Langkap Desa Kutowaru, 105 spesies di Ciperet, desa Kutowaru ditemukan. Indek keragaman jenis serangga di Ciperet lebih tinggi daripada di Bojong Langkap (Shanon-Wiener). Lalat hijau *Chrysomya megacephala*, *Apis cerana*, *Gryllus mitratus* dan *Brachyplatyssubaeneus* ditemukan melimpah di kedua lokasi. *Sessinia sp*., *Strachia aspersa*. dan *Ryparida depressa* hanya dapat ditemukan di Ciperet, ketiga jenis serangga tersebut merupakan hama dari tumbuhan mangrove jenis kayu apiapi. Berdasarkan fungsi serangga dalam ekosistem mangrove telah diperoleh serangga penyerbuk paling banyak (47,54%) kemudian serangga hama (31,15%), predator (11,48%), perombak (6,56)%, parasitoid dan vektor sama nilainya (1,64%).

0101. **Erniwati. 2012.** Biologi Jangkrik (Orthoptera: Gryllidae) dan Peranannya. *Fauna Indonesia* 11(2): 10–14.

Abstrak

Animal diversity in Indonesia is one of national commodities that should be conserved, including insect race. One of the insects that has been cultivated is cricket (*Gryllus* spp.). The species of cricket that have been cultivated by breeders are necklare cricket (*Gryllus bimaculatus*), clearing cricket (*G. mitratus*) and cendawang cricket (*G. testacis*). Cricket is one of hoping insect that has a capability as a pet and a feed stock, and food source. Cricket has been known by public as a pet by its unique sound and as a food source for other pets such as bird, arwana fish, and insect eater. Cricket has a short lifespan, easy to maintain, adaptable to its food, and low cost for breeding. Moreover, they have a potential value as an alternative animal protein source since it has amino acid, fat acid, and protein. These sources are essential in Glutation Stimulation Hormone (GSH) formation that is a natural antioxidant in human body. The contents of cricket are used as raw materials in pharmacy industry; human food and breeding diet which has been substituted as a flour. The raise of productivity of cricket reproduction has to be done in order to maximize breed so the supply can meet the high demand of consumer needs. Considering the importance of cricket as one of the sources to increase income, its comprehensive study on biology and ecology could benefit those who interested in cricket breeding. This paper reviews the biology and ecology of the crickets.

0102. **Erniwati, P. Lupiyaningdyah**, & **W. Tantowijoyo. 2013.** Parasitoid Serangga Pengorok Daun *Liriomyza*: Intensitas Parasitisasi, Perubahan, Sebaran dan Komposisinya. *Zoo Indonesia* 22(1): 39–43.

Abstrak

Serangga invasif lalat pengorok daun merupakan hama penting berbagai tanaman sayuran. Serangga ini berasosiasi dengan berbagai musuh alami sebagai agen pengendali populasinya. Penelitian ini bertujuan mengetahui potensi, perubahan sebaran, dan komposisinya. Komposisi dan populasi musuh alami diamati dengan metode sampling daun yang terserang. Di masing-masing titik sampling, koleksi daun yang terserang dilakukan pada semua jenis tanaman dan gulma. Parasitoid serangga pengorok daun *Liriomyza* lebih menyukai untuk memarasit inang yang menyerang tanaman kacang buncis (50%), ceisin (55%), kentang (57%), kacang babi (70%), dan kacang merah (75%). Intensitas parasitoid meningkat (10,4%–74,5%) menurut ketinggian tempatnya mulai dari 200–2200 m dpl. Sebaran dan komposisi *parasitoid* berubah di mana *Opius chromatomy-iae* ditemukan di dataran rendah dan lebih dominan dibanding *Hemiptarsenus varicornis. Opius chromatomyiae* di dataran rendah mempunyai ukuran toraks yang lebih kecil.

0103. **Erniwati. 2013.** Evaluasi dan Karakterisasi Serangga yang Berasosiasi dengan Ekosistem Mangrove di Segara Anakan Cilacap Jawa Tengah. *Dalam:* Sugiyarto dkk. (editors). *Prosiding Seminar Nasional Biodiversitas*. Kelompok Studi Biodiversitas Jurusan Biologi FMIPA UNS dan Prodi Biosain PPS UNS. 10 November 2012. Hlm. 122–129.

Abstrak

Penelitian tentang evaluasi dan karakterisasi serangga yang berasosiasi dengan ekosistem mangrove telah dilakukan di Segara Anakan, Cilacap, Jawa Tengah. Sebanyak 123 species yang terdiri dari 9 ordo dan 19 famili serta 417 individu serangga, berhasil diidentifikasi dari sampel yang ada diambil di kawasan mangrove Bojong langkap dan Cipete pada bulan Mei dan November 2009. Dari jumlah tersebut 53 spesies ditemukan di Bojong Langkap Desa Kutowaru, 105 spesies di Ciperet, Desa Kutowaru ditemukan. Indeks keragaman jenis serangga di Ciperet lebih tinggi daripada di Bojong Langkap (Shannon-Wiener). Lalat hijau *Chrysomya megacephala, Apis cerana, Gryllus mitratus* dan *Brachyplatys subaeneus* di Ciperet, ketiga jenis serangga tersebut merupakan hama dari tumbuhan mangrove jenis kayu api. Berdasarkan fungsi serangga dalam ekosistem mangrove telah diperoleh serangga penyerbuk paling banyak (47,54%), kemudian serangga hama (31,15%), predator (11,48%), permbak (6,56%), parasitoid dan vector sama nilainya (1,64%).

0104. **Erniwati. 2013.** Kajian Biologi Lebah Tak Bersengat (Apidae: Trigona) di Indonesia. *Fauna Indonesia* 12(1): 29–34.

Abstract

Stingless bees are small bees with many benefits, but is not familiar to most people. There are only few researches been done on the bees. Stingless bees are distributed in both subtropic and tropic regions, with 50 species occur in Southeast Asia. One common species is *Trigona laeviceps* Smith. They lay nest on the woods and some even in the residents at 0–1000 m asl. They eat pollen and flower's honey and use resin as their nest material. This paper will discuss the general information about this interesting stingless bee and also revealing their behavior and way of life.

0105. **Erniwati. 2014**. Keanekaragaman Jenis Belalang (Insecta: Orthoptera) dan Peranannya di Taman Nasional Gunung Halimun, Jawa Barat. *Dalam:* M. Ridwan dkk. (editors). *Prosiding Seminar Nasional Biodiversitas* "Studi, Pemanfaatan dan Konservasi Keanekaragaman Hayati Nusantara dalam Bidang Kesehatan Vol. 3(2): 184–187.

Abstrak

Belalang merupakan serangga klasik yang sebagian jenisnya unik dan antik. Belalang dapat dijumpai di hutan, di padang rumput, persawahan, perkebunan, dan kadang-kadang di sekitar permukiman. Penelitian keaneragaman jenis belalang dan kerabatnya telah dilakukan di TN Gunung Halimun di tiga lokasi, Cikaniki, Gn. Kendeng dan Gn. Botol. Koleksi belalang dilakukan dengan metode perangkap lampu, perangkap lubang, dan dengan jaring serangga. Waktu pengambilan contoh serangga 2 kali pertahun mulai tahun 1997–2002. Belalang yang tertangkap diidentifikasi dengan spesimen acuan dan literatur kunci. Tujuan dari penelitian ini adalah mengungkap kekayaan jenis belalang yang terdapat di TN gunung Halimun dan peranannya. Jumlah jenis belalang yang ditemukan 116 jenis dari 18 famili. Keragaman jenis tertinggi terdapat di lokasi Cikaniki dengan dengan indeks keragaman menurut Shanon-Wiener (3,9), Gn. Kendeng (3,4) dan yang paling rendah di Gunung Botol (2,9). Ekologi dan peranan serta jenis yang berpotensi akan didiskusikan lebih rinci dalam paper ini.

0106. **Erniwati** & **S. Kahono. 2014.** Kajian Biologi Bunga pada Beberapa Tanaman Sayuran untuk Mendukung Manajemen Penyerbukannya. Editor: Kartika, J.G. *et al. Dalam:* Membangun Sistem Baru Agribisnis Hortikultura Indonesia pada Era Pasar Global. *Prosiding Seminar Ilmiah PERHORTI*. 9 Oktober 2013. Hlm. 477–489.

Abstrak

Biology reproduction is one of the most important concepts in agriculture management. Inside biology reproduction of crops, flower is not only an essential pat for continuing generation but also for crop productions. Pollination process of crops in an important subject can be revealed by understanding morphology of the flower and their biology reproductions. A flowering biology of crops was studied to understand their morphology and reproduction biology.

The study was conducted at the highland of Lembang, Bandung, and the lowland of Darmaga, Bogor from July to September 2009. Fourteen selected species of crops namely chillie (*Capsicum annuum* L.), egg-plant (*Solanum melongena* L.), tomato (*Lycopersicon esculentum* Miller), potato (*Solanum tubersum* L.), pumkin [*Cucurbita moschata* (Duchesne ex Lamk) Duschesne ex Poiret], zucchini (*Cucurbita pepo* L. cv. Zucchini), cucumber (*Cuumis sativus* L.), bitter gourd (*Momordica charantia* L.), Chinese cabbage (Brassica rapa L. cv. Group Caisin); sweet potato [*Ipomea batats* (L.) Lamk], haricot bean (*Phaseolus vulgaris*), cowpea [*Vigna unguiculata* (L.) Walp.], winged bean [*Psophocarpus tetragonolobus* (L.) DC.], and yam bean [*Pachyrrhizus erosus* (L.) Urban] crops were studied. All selected flowers were morning to day time pollinated flowers. Morphology of the selected flowers was counterpart attracting to the pollinator's bees. Pollen grain of each pecies showed differences in morphology that could be transvered by bees to their pollination success. Period of anthesis of total fourteen selected species were occurred in the morning to late afternoon. Four species (29%) was anthesis in the morning time only, two species (14%) from morning to day time, and eight species (57%) from morning to late afternoon. Although anthesis occurs at whole dat time, however the pollination effectiveness may mainly be in the morning time due to the highest intensity of visiting of the pollinator's bee.

0107. Esselstyn, J.A., **A.S. Achmadi** & K.C. Rowe. **2012.** Evolutionary Novelty in a Rat with No Molars. *Biology Letters* 1–4.

Abstract

Rodents are important ecological components of virtually every terrestrial ecosystem. Their success is a result of their gnawing incisors, battery of grinding molars and diastema that spatially and functionally separates the incisors from the molars. Until now these traits defined all rodents. Here, we describe a new species and genus of shrew-rat from Sulawesi Island, Indonesia that is distinguished from all other rodents by the absence of cheek teeth. Moreover, rather than gnawing incisors, this animal has bicuspid upper incisors which is also unique among the more than 2200 species of rodents. Stomach contents from a single specimen suggest that the species consumes only earthworms. We posit that by specializing on soft-bodied prey, this species has had no need to process food by chewing, allowing its dentition to evolve for the sole purpose of procuring food. Thus, the removal of functional constraints, often considered a source of evolutionary innovations, may also lead to the loss of the very same traits that fuelled evolutionary diversification in the past.

0108. Esselstyn, J.A., **Maharadatunkamsi, A.S. Achmadi**, C.D. Siler & B.J. Evans. **2013.** Carving out turf in a Biodiversity Hotspot: Multiple, Previously Unrecognized Shrew Species Co-occur on Java Island, Indonesia. *Molecular Ecology* 22: 4972–4987.

Abstract

In theory, competition among species in a shared habitat results in niche separation. In the case of small recondite mammals such as shrews, little is known about their autecologies, leaving open questions regarding the degree to which closely related species co-occur and how or whether ecological niches are partitioned. The extent to which species are able to coexist may depend on the degree to which they exploit different features of their habitat, which may in turn influence our ability to recognize them as species. We explored these issues in a biodiversity hotspot, by surveying shrew (genus *Crocidura*) diversity on the Indonesian island of Java. We sequenced portions of nine unlinked genes in 100–117 specimens of Javan shrews and incorporated homologous data from most known *Crocidura* species from other parts of island South-East Asia. Current taxonomy recognizes four *Crocidura* species on Java, including two endemics. However, our phylogenetic, population genetic and species delimitation analyses identify five species on the island, and all are endemic to Java. While the individual ranges of these species may not overlap in their entirety, we found up to four species living syntopically and all five species co-occurring on one mountain. Differences in species' body size, use of above ground-level habitats by one species and habitat partitioning along ecological gradients may have facilitated species diversification and co-existence.

0109. Esselstyn, J.A., **A.S. Achmadi** & **Maharadatunkamsi**. **2014**. A New Species of Shrew (Soricomorpha: *Crocidura*) from West Java, Indonesia**.** *Journal of Mammalogy* 95(2): 216–224.

Abstract

We document the existence of a new species of shrew (Soricomorpha, Soricidae, *Crocidura*) in West Java, Indonesia, using both morphological and genetic data. Relative to other Southeast Asian Crocidura, the newspecies is medium-sized with a slender body and long tail, which together readily distinguish it from all other Javan shrews. Morphological differences between the new species and *Crocidura paradoxura*, another longtailed shrew that is endemic to Sumatra, are subtle, but genetic differences suggest a long, independent evolutionary history. This description brings to 5 the total number of species of *Crocidura* recognized from Java.

All 5 species are endemic to the island and as many as 4 occur in syntopy. Further investigation is needed to document geographical ranges of shrew species on Java, especially along the island's east–west climatic gradient, where previously proposed subspecies boundaries may be coincident with transitions in precipitation patterns.

0110. Esthi, Y.N. & **Rugayah**. **2012**. Variasi Morfologi *Pandanus polycephalus* Lam. di Kebun Raya Bogor. *Floribunda* 4(4): 83–87.

Abstrak

Pandanus polycephalus dipertelakan pertama kali oleh Lamarck pada tahun 1785, kemudian Warburg tahun 1900 mempertelakan *P. polycephalus* mengacu pada *P. humilis* Rumphius (1743) dan *P. humilis* Lour (1790). Beberapa pertelaan terdahulu menunjukkan adanya variasi jumlah sefalia dalam satu tandan yaitu 3–8, 4–6, dan 5–8. Pengamatan terhadap koleksi hidup di Kebun Raya Bogor memperlihatkan adanya tiga variasi yaitu, varian pertama memiliki helaian daun tumbuh menggerombol di ujung, perbuahan di ujung, jumlah sefalia 6–8 dalam satu tandan, braktea putih kehijauan dan varian kedua mempunyai helaian daun menyebar, perbuahan di samping, jumlah sefalia dalam satu tanda 4–7, braktea jingga kehijauan, sedangkan varian ketiga memiliki karakter kombinasi kedua varia lainnya dengan daun tersebar, perbuahan di ujung, jumlah sefalia 5–8, braktea lingkaran luar hijau keputihan dan braktea lingkaran dalam cenderung jingga kehijauan. Daerah persebaran *P. polycephalus* Lam. Di Indonesia adalah di Jawa, Sumatra, Sulawesi, Maluku, New Guinea, dan Papua.

0111. Fabre, P.H., M. Irestedt, J. Fjeldsa, R. Bristol, J.J. Groombridge, **M. Irham,** & K.A. Jonsson. **2012.** Dynamic Colonization Exchanges between Continents and Islands Drive Diversification in Paradise-flycatchers (Terpsiphone, Monarchidae). *Journal of Biogeography* (39)10: 1900–1918.

Abstract

Aim We use parametric biogeographical reconstruction based on an extensive DNA sequence dataset to characterize the spatio-temporal pattern of colonization of the Old World monarch flycatchers (Monarchidae). We then use this framework to examine the role of dispersal and colonization in their evolutionary diversification and to compare plumages between island and continental Terpsiphone species.

Location Africa, Asia and the Indian Ocean.

Methods We generate a DNA sequence dataset of 2,300 bp comprising one nuclear and three mitochondrial markers for 89% (17/19) of the Old World Monarchidae species and 70% of the Terpsiphone subspecies. By applying maximum likelihood and Bayesian phylogenetic methods and implementing a Bayesian molecular clock to provide a temporal framework, we reveal the evolutionary history of the group. Furthermore, we employ both Lagrange and Bayes-Lagrange analyses to assess ancestral areas at each node of the phylogeny. By combining the ancestral area reconstruction with information on plumage traits we are able to compare patterns of plumage evolution on islands and continents.

Results We provide the first comprehensive molecular phylogenetic reconstruction for the Old World Monarchidae. Our phylogenetic results reveal a relatively recent diversification associated with several dispersal events within this group. Moreover, ancestral area analyses reveal an Asian origin of the Indian Ocean and African clades. Ancestral state reconstruction analyses of plumage charac-

ters provide an interpretation of the plumage differentiation on islands and continents. Ancestral plumage traits are inferred to be close to those of the Asian paradise-flycatcher (Terpsiphone paradisi), and island species display a high degree of plumage autapomorphy compared with continental species.

Main conclusions *Terpsiphone paradisi* is polyphyletic and comprises populations that have retained the ancestral plumage of the widespread *Terpsiphone* genus. The genus appears to have colonized south-west Asia, the Indian Ocean and Africa from eastern Asia. The phylogeny and divergence time estimates indicate multiple simultaneous colonizations of the western Old World by Terpsiphone. These results reinforce a hypothesis of range expansions of a Terpsiphone paradisi-like ancestor into eastern Asia and the western Old World.

0112. Fabre, P., M. Pages, G.G. Musse, **Y.S. Fitriana**, J. Fjeldsa, A. Jennings, K.A. Jonsson, J. Kennedy, J. Michaux, **G. Semiadi**, N. Supriatna, & K.M. Helgen. **2013.** A New Genus of Rodent from Wallacea (Rodentia: Muridae: Murinae: Rattini), and Its Implication for Biogeography and Indo-Pacific Rattini Systematics. *Zoological Journal of the Linnean Society* 169(2): 408–447.

Abstract

We describe *Halmaheramys bokimekot* Fabre, Pagès, Musser, Fitriana, Semiadi & Helgen **gen. et sp. nov.**, a new genus and species of murine rodent from the North Moluccas, and study its phylogenetic placement using both molecular and morphological data. We generated a densely sampled mitochondrial and nuclear DNA data set that included most genera of Indo-Pacific Murinae, and used probabilistic methodologies to infer their phylogenetic relationships. To reconstruct their biogeographical history, we first dated the topology and then used a Lagrange analysis to infer ancestral geographic areas. Finally, we combined the ancestral area reconstructions with temporal information to compare patterns of murine colonization among Indo-Pacific archipelagos. We provide a new and comprehensive molecular phylogenetic reconstruction for Indo-Pacific Murinae, with a focus on the Rattus division. Using previous results and those presented in this study, we define a new Indo-Pacific group within the Rattus division, composed of *Bullimus, Bunomys*, *Paruromys*, *Halmaheramys*, *Sundamys*, and *Taeromys*. Our phylogenetic reconstructions revealed a relatively recent diversification from the Middle Miocene to Plio-Pleistocene associated with several major dispersal events. We identified two independent Indo-Pacific dispersal events from both western and eastern Indo-Pacific archipelagos to the isolated island of Halmahera, which led to the speciations of H. bokimekot **gen. et sp. nov.** and Rattus morotaiensis Kellogg, 1945. We propose that a Middle Miocene collision between the Halmahera and Sangihe arcs may have been responsible for the arrival of the ancestor of *Halmaheramys* to eastern Wallacea. *Halmaheramys bokimekot* **gen. et sp. nov.** is described in detail, and its systematics and biogeography are documented and illustrated.

0113. **Farida, W.R. 2010.** Trenggiling (*Manis javanica* Desmarest, 1822), Mamalia Bersisik yang Semakin Terancam. *Fauna Indonesia* 9 (1): 5–9.

Abstract

The pangolin which is also called scaly anteater is a unique mammal of the order Pholidota covered with large keratin scales. They are found in tropical regions of Africa and Southeast Asia. There is only one extant family Manidae and one genus Manis of Pangolins, comprising eight species. Sunda pangolin (*Manis javanica*) is classified as Lower Risk: near threatened by the IUCN and in Appendix II of CITES. However, pangolin is still hunted and eaten, and also in great demand in China. According to hunters in Southeast Asia, pangolin is getting scarce. This animal will face a high risk of extinction in the near future.

0114. **Farida, W.R. 2010.** Analysis of Nutrient Requirement and Feed Efficiency Ratio of Maroon Leaf Monkey (*Presbytis rubicunda* Mueller, 1838). *Jurnal Biologi Indonesia* 6 (2): 255–263.

Abstract

Analisis Kebutuhan Nutrien dan Efisiensi Penggunaan Pakan pada Lutung Merah (Maroon Leaf Monkey Mueller, 1838). Penelitian ini bertujuan untuk mempelajari kebutuhan nutrien dan efisiensi penggunaan pakan pada lutung merah (*Presbytis rubicunda*). Penelitian telah dilakukan di Penangkaran Mamalia Kecil Bidang Zoologi, Pusat Penelitian Biologi–LIPI selama 38 hari yang terdiri dari 10 hari masa adaptasi pakan dan 28 hari (4 minggu) masa pengumpulan data. Materi yang digunakan adalah dua ekor lutung merah terdiri dari satu ekor jantan dan satu ekor betina. Pakan alternatif yang diberikan selama penelitian adalah daun beringin (*Ficus benyamina*), daun selada (*Lactuca sativa*), kangkung (*Ipomoea aquatica*), buncis (*Phaseolus vulgaris*), markisa **(***Passiflora quadrangularis***),** ubi jalar (*Ipomoea batatas*), dan pisang lampung (*Musa* sp.). Parameter yang diamati adalah konsumsi pakan, pendugaan kebutuhan nutrien, dan efisiensi penggunaan pakan. Jenis pakan yang paling palatabel bagi lutung merah jantan adalah ubi jalar sedangkan bagi lutung merah betina adalah buncis. Rataan konsumsi pakan berdasarkan bahan kering adalah 78,09 gram/ekor/hari. Rataan konsumsi nutrien adalah abu 4,60 gram/ekor/hari, protein kasar 7,87 gram/ekor/hari, lemak kasar 3,05 gram/ekor/hari, serat kasar 10,56 gram/ekor/hari, bahan ekstrak tanpa nitrogen 51,40 gram/ekor/hari, dan bruto energi 2948,50 kal/ekor/hari. Rataan pertambahan bobot badan lutung merah selama penelitian adalah 6,25 gram/ekor/hari dengan efisiensi penggunaan pakan 15,84%. Data konsumsi nutrien tersebut dapat digunakan sebagai dasar penyusunan ransum dan pakan bagi lutung merah di penangkaran.

0115. **Farida, W.R.** & T.H. Handayani. **2010.** Bioprospecting Study of Porcupine (*Hystrix* sp.) and Domestication Effort for sustainable utilization. *Abstracts on Association for Tropical Biology & Conservation 2010 Meeting*. 19–23 July 2010, Bali Indonesia. p. 102–103.

Abstract

In some areas in Indonesia, the meat of porcupine is used as foodstuff, while its spine, blood, and liver are believed as containing special quality or virtue as medicine and also as the material in making some souvenir. This fact has driven the increasing of hunting activities to this animal. Besides, the extent of land clearing caused the damage of porcupine's habitat. The uncontrollable illegal hunting and locally using without conservation motives to this animal also threatened the existence of porcupine. Based on the facts describing above, and also to preserve the existence of porcupine, it is important to do the monitoring of hunting activities to this animal, especially in the areas with the high rate of the using of porcupine. To reach the accurate understanding of the value of bioprospection contained in porcupine, it is urgent to do observation activities in the laboratory. The using of animal with the status of protected, especially for the commercial purposes, could give begin at F2 generation. The result showed the meat of porcupine contains 59.91% protein, higher than that of other animals. The same fact also happened for porcupine's liver, spine, brain, and tail. The fat and cholesterol contents of porcupine's meat are lower than those of beef. Fatty acid omega DHA of porcupine's meat is higher than that of salmon and herring. Spine and liver contain aspartate acid, glutamat acid, hystidin, leusin, and phenilalanin which are higher than those contained in the meat of calf, duck, and tuna, and also in chicken's liver. Isolation activities shows that from 100 g spine can be produced 34.60 g chitin. Test aphrodisiac activities of porcupine's tail extract towards the libido of male white mouse with the dose of 10,000 ppm shows high activities of that animal in the effort to approach its female.

0116. **Farida, W.R.** & Roni Ridwan. **2011.** Application of Formulated Pellet on Javan Porcupine (*Hystrix javanica* F. Cuvier, 1823): Effects on Feed Intake, Feed Conversion, and Digestibility in Pre-Domestication Condition. *Jurnal Biologi Inddonesia* 7(1): 157–170.

Abstract

Pemberian pelet formula pada landak Jawa (*Hystrix javanica* F. Cuvier, 1823): pengaruhnya terhadap konsumsi, konversi pakan, dan kecernaan pada kondisi pra budi daya.Penelitian telah dilakukan untuk mengetahui pengaruh pemberian pelet formula pada landak Jawa terhadap konsumsi, konversi pakan, dan kemampuan cerna. Penelitian berlangsung selama 40 hari (12 hari *preliminary* dan 28 hari masa pengumpulan data) di Penangkaran Mamalia Kecil, Bidang Zoologi, Pusat Penelitian Biologi–LIPI, Cibinong. Selama penelitian, delapan ekor landak masing-masing ditempatkan di dalam kandang metabolik berukuran 1,4 m x 1,2 m x 1,0 m (panjang x lebar x tinggi). Rancangan penelitian

adalah rancangan acak lengkap terdiri dari 4 perlakuan ransum dan dua ulangan yaitu ransum kontrol (T0), ransum diberi pelet formula 50 g/ekor/hari (T1), ransum diberi pelet formula 100 g/ekor/hari (T2), dan ransum diberi pelet formula 150 g/ekor/hari (T3). Hasil penelitian menunjukkan tingkat kesukaan landak Jawa terhadap jenis pakan penelitian berturut-turut adalah bengkuang, ketimun, talas belitung, pelet formula, kangkung, jagung manis, daun kitengis, kelapa, ubi jalar, dan kunyit. Konsumsi nutrien, kecuali lemak pada perlakuan pemberian pelet formula (T1, T2, T3), lebih tinggi dibanding perlakuan kontrol (T0). Konversi pakan pada landak T0 lebih tinggi dibandingkan pada landak T1, T2, dan T3, masing-masing 12,45%; 8,15%; 6,98%;, dan 5,58%. Kecernaan bahan kering adalah 94,44% (T0); 95,79% (T1), 95,08% (T2); dan 97,16% (T3), sedangkan kecernaan bahan organik adalah 94,55% (T0), 96,16% (T1); 95,64% (T2); dan 97,45% (T3). *Total digestible nutrien*(TDN) tinggi pada semua perlakuan, yaitu 90,40% (T0); 92,69% (T1); 92,03% (T2); dan 94,25% (T3) yang menggambarkan landak mampu mencerna semua nutrien pakan dengan baik.

0117. **Farida, W.R**. **2011.** Perilaku Harian Induk Landak Raya (*Hystrix brachyura* Linnaeus, 1758) pada Masa Menyusui. *Fauna Indonesia* 10(1): 9–12.

Abstract

This experiment was conducted to study daily behaviour of female porcupine (*Hystrix brachyura*) in the lactation period in captivity. The animals were kept in the individual cages of 2.13 m x 1.86 m. The observed parameters were activity of suckling, activity of cleaning the body of its young, activity of teaching/training its young to eat, activity of teaching/training its young to groom (cleaning itself body), acitivity of teaching/training its young to open door of cage using its mouth, activity of agonistic (self defence). The results showed the order of daily activities of female porcupine: suckle (49.26%), cleaning its young body (36.16%), teaching/training to groom (5.71%), teaching/training to open door of cage (4.10%), teaching/training to eat (2.89%), and agonistic (1.88%). The most activities carried out by female porcupine in the morning was cleaning its young body and then suckling, while in the afternoon and evening was suckling and then cleaning its young body.

0118. **Farida, W.R. 2012.** Kualitas Daging dan Bagian Tubuh Lain Trenggiling (*Manis javanica* Desmarest, 1822). *Jurnal Biologi Indonesia* 8(1): 141–154.

Abstract

Sunda pangolin (*Manis javanica* Desmarest, 1982) is a scaly mammal protected and endangered due to illegal hunting and uncontrolled trade. Because this animal's biological information has not been widely known, it is necessary to study its various aspects. This study aims to determine the quality of meat and its other body parts of sunda pangolin. Research material used are meat and

its other body parts of two male pangolins. The observed chemical composition includes water content, ash, protein, fat, energy, amino acids, fatty acids, cholesterol, EPA, and DHA. Physical quality includes pH and cooking loss. The results showed pangolin meat contains 73.99% water, 0.98% ash, 22.87% protein, 1.63% carbohydrate, 1027.70 cal/g gross energy, and cholesterol 18.89 mg/100 g. The concentrations of essential amino acids of pangolin which are high compared to other wildlife are arginine (1.63%), treonine (1.04%), isolusine (1.03%), and leusine (1.88%). The content of fatty acids of pangolin meat are lauric (0.30%), myristic (1.20%), palmitic (24.90%), stearic (5.76%), oleic (24.25%), linoleic (2.99%), and linolenic (0.31%). Total EPA and DHA are 9.16 mg/100 g and 16.64 mg/100 g, respectively. Pangolin scales contain protein, gross energy, calcium, phosphorus, 14 kinds of amino acids, EPA and DHA higher than those of its meat. Protein content of pangolin's body parts from the highest to the lowest is scales > tongue > meat > liver. The pH value of pangolin meat is 6.17 and its cooking loss is 35.12%.

0119. **Farida, W.R.**, A.S. Tjakradidjaja & **A.P. Sari**. **2012.** Pengaruh Suplementasi Konsentrat dalam Ransum terhadap Performa, Bobot Karkas dan Non Karkas Landak Jawa (*Hystrix javanica* F. Cuvier, 1823). *Jurnal Biologi Indonesia* 8(2): 381–397

Abstract

The Effect of Concentrate Supplementation in the Ration on Performance, Carcass and Non-Carcass Weight of Javan Porcupine (*Hystrix javanica* F. Cuvier, 1823).This study was conducted at Small Mammal Captivity, Zoology Division, Research Center for Biology, Indonesian Institute of Sciences, Cibinong, Bogor Regency. Eight porcupines consisted of 6 females and 2 males were used to know the effect of concentrate supplementation in the ration on performance, carcass and non carcass weight of javan porcupine. Ration treatment consisted of control ration (PI) and control ration plus concentrate comersial such as koi fish pellet (PII). Four porcupines (3 female and 1 male) were given control ration (PI) and three porcupines (3 female and 1 male) were given ration PII. A completely randomized design was used in this research. Data collected were nutrient consumption, average daily gain, feed conversion, slaughter weight, weight of cascass and non-carcass. The data were analyzed by analysis of variance. The result showed supplementation of koi fish pellet in the ration didn't significantly influence ($P>0.05$) performance of javan porcupine, but significantly ($P<0.05$) increase consumption on calcium and phosphor. Weight and percentage of carcass and non-carcass of javan porcupine were not affected by ration treatment. Average of weight and percentage of porcupine's carcass of PI were 4,505.08 g and 59.67% and those of PII were 3,957.55 g and 56.54%, while average of weight and percentage of porcupine's non-carcass of PI were 2,979.05 g and 39.46% and those of PII were 2,774.60 g and 39.64%.

0120. **Farida, W.R. 2013.** Keragaman Jenis Tumbuhan sebagai Sumber Pakan, Habitat, dan Pemanfaatan Landak Jawa (*Hystrix javanica* F. Cuvier, 1823) di Pulau Jawa. *Prosiding Seminar Nasional Biodiversitas*, Universitas Sebelas Maret Surakarta Vol. 2: 167–174.

Abstract

Research on the diversity of forest plants and cultivated crops as feed resources, habitat and utilization of Javan porcupine (*Hystrix javaniva* F. Cuvier, 1823) was conducted in provinces of East Java, Central Java, West Java, and Banten. The results showed that 37 species of plants originated from East Java, 26 species from Central Java, and 32 species from West Java and Banten were used as feed resources by Javan porcupine. Parts of the plants being consumed were roots, tubers, bark, fallen fruit, leaves, tender stems, flowers, buds, rhizomes, and shoot of bamboo. Javan porcupines were found in various types forest habitats as well as nearby agricultural areas. This animal inhabits caves and dens near rocky areas. Their habitat was damaged caused by forest exploitation, meanwhile hunting pressure, illegal trading, and utilization of porcupine to provide meat supply threatens the existence of javan porcupine.

0121. **Farida**, **W.R. 2013.** Keragaman Tumbuhan Hutan sebagai Sumber Pakan dan Habitat Mamalia Dilindungi di Suaka Margasatwa Gumai Pasemah, Kabupaten Lahat, Sumatera Selatan. *Prosiding Seminar Nasional Bidang Ilmu MIPA* 2013. Jilid 2: 447–456

Abstract

The objective of this study is collecting data about diversity of forest plants as feed resources and habitat of protected mammals. The study was conducted in Gumai Pasemah Wildlife Sanctuary, Lahat Regency, South Sumatera. This survey is done by visiting areas where wild mammals seen, observing distribution of habitat, and collecting forest plants selected by wild mammals as their diet. The results showed that 64 species of forest plants grouped in 29 families from Lahat Regency used as feed resources by Malayan tapir (Tapirus indicus), barking deer (*Muntiacus muncak*), mouse deer (*Tragulus javanicus*), greater mouse deer (*Tragulus napu*), common porcupine (*Hystrix brachyura*), black giant squirrel (*Ratufa bicolor*), and sun bear (*Helarctos malayanus*). Parts of the plants being consumed were fruit, seed, bark, leaves, flowers, tubers, shoot of bamboo, tender stem, and twig. Part of their habitat was damaged caused by forest exploitation, meanwhile, hunting pressure and illegal trading threatens the existence of protected mammals.

0122. **Farida, W.R. 2013.** Sifat Fisik dan Kimia Daging Landak Jawa (*Hystrix javanica* F. Cuvier, 1823) yang Diberi Tambahan Pakan konsentrat. *Jurnal Biologi Indonesia* 9 (2), Desember 2013

Abstract

This study is aimed to determine the effect of additional concentrate feed on the physical and chemical characteristics of sunda porcupine meat. The material used is eight sunda porcupines (two males and six females) divided into two groups of ration treatment, namely T0 (control ration) and T1 (T0 + koi fish pellets). Four porcupines (one male and three females) were given control ration (T0) and four porcupines were given rations T1. The experimental design was a completely randomized design. The meat physical characteristics measured were pH, tenderness, cooking loss, water holding capacity (WHC), meat color, and fat color. While meat chemical characteristics analyzed were water content, ash, protein, fat, gross energy, calcium (Ca), phosphorus (P), iron (Fe), the content of fatty acids (EPA, DHA, Omega-3, Omega-6, Omega-9, and cholesterol), as well as the composition of amino acids. Data were analyzed by analysis of variance. The results showed no significant differences (P> 0.05) between male and female porcupine with both ration treatments (T0 and T1) on pH, tenderness, cooking loss, WHC, meat color, and fat color. The addition of koi fish pellets in the ration T1 decreased pH value (65.76) and cooking losses (37.88%), and increased WHC porcupine meat (23.59%). Porcupine meat is quite tender with tenderness values of 3.63 kg / cm^2 (T0) and 3.26 kg / cm2 (T1). The averages of water content, ash, protein, fat, energy, Ca, P, Fe of porcupine meat were not significantly different (P>0.05) in both treatments T0 and T1. The averages of fatty acids contents of porcupine meat with T1 was not significantly different (P>0.01) from that of T0, but there was an increase in the concentration of EPA, DHA, omega-3, omega-6, omega-9, and cholesterol in treatment of T1. Cholesterol content of porcupine meat was lower than that of beef, pork, lamb, sambar deer, and java deer. No significant effect (P> 0.05) on content of amino acids in meat porcupine with T1 compared to that of T0.

0123. **Farida, W.R.** & **S.N. Prijono**. **2013.** Kajian Pemberian Pakan Alternatif terhadap Konsumsi, Kecernaan, dan Efisiensi Penggunaan Pakan pada Jelarang Paha Putih (*Ratufa Affinis* Raffles, 1821). *Jurnal Biologi Indonesia* 9(2): 245–254.

Abstract

Four cream-coloured giant squirrel (*Ratufa affinis*) consisted of one male and three females used in this study to determine the effect of feeding alternatives on consumption, digestibility, and feed efficiency use. During the study, each of the animals was placed in individual cages equipped with sleeping box. Feed given were consisting of Guava (*Psidium guajava*), sweet corn (*Zea mays*), coconut (*Cocos nucifera*), peanut (*Arachis hypogea*), cucumber (*Cucumis sativus*), mung bean sprouts (*Vigna radiata*), and sunflower seed (*Helianthus annuus*). Feedstuffs are given based on this animal preferences on the grain in its natural habitat. Feed given *cafetaria* and drinking water available *ad libitum.* Results showed that the average of dry matter consumed by male was 45.95 g/head/day and by female 39.14 g/head/day; rough protein by male 6.99 g/head/day and by female 5.76 g/head/day; gross energy by male 2.392 cal/

head/day and by female 2.116 cal/head/day. Feed efficiency use of male is 13.99% and female is 12.63%. The average of body weight gain of the male animal is higher than that of the female, namely 6.43 g/head/day and 4.88 g/head/day respectively. The average value of digested organic matter or Total Digestible Nutrient (TDN) was higher in the female animal, namely 95.41%, than that of the male, namely 92.68%; as well as digested energy or Digestible Energy (DE) in the female animal was higher than that in the male, namely 93.60% and 91.17%, respectively.

0124. **Farida**, **W.R.,** A.S. Tjakradidjaja, & **A.P. Sari**. **2013.** Utilisation of Date-Waste and Koi Fish Pellet in Common Porcupine (*Hystrix brachyura*) Ration on Feed Intake, Feed Conversion and Digestibility. *Proceedings International Conference on Biotechnology "Biotechnology–Bridging Biodiversity to Industry*" Bogor, 13–14 November 2012. p. 169–180

Abstract

An experiment is conducted to study the utilisation of date-waste and koi fish pellet in common porcupine ration on feed intake, feed conversion and digestibility. The experiment was conducted for four periods (96 days) with one period consisting of 10 days of preliminary period, and 14 days of data collection period. The experiment was carried out in Small Mammal Captivity, Zoology Division, Research Centre for Biology-Indonesian Institute of Sciences, Cibinong. Each of the eight porcupines was placed in individual metabolic cage (1.4 m length´1.2 m width´1.0 m height). Randomised block design with subsampling was applied with four treatments and two groups of porcupine consisting of four porcupines in each group. The treatments were T1 (control ration), T2 (T1 + date-waste), T3 (T1 + koi fish pellet) and T4 (T1 + date-waste + koi fish pellet). Results showed that the addition of datewaste, koi fish pellet and combination between date-waste and koi fish pellet did not change the rank of preferable feeds, but it alters the amount or proportion of other feeds consumed. Treatment diets affected total fresh feed, dry matter, nutrient and energy intakes, dry matter (DM) and nutrient (organic matter-OM, crude protein-CP and crude fibre-CF) excreted in feces, nutrient (DM, OM, CP, crude lipid-CL, and NFE-nitrogen free extract) and energy digested. However, the effects of treatment diets was not significant on coefficient digestibilities of nutrient, digestible energy and TDN, live weight gain and feed efficiency ratio. In general, T1 and T2 produced lower effects than T3 and T4. It is concluded that utilisation of koi fish pellet without or with combination with date-waste can increase feed and nutrient intakes and digestibilities improving performances of porcupine.

0125. **Farida, W.R. 2014**. Keragaman Tumbuhan Hutan sebagai Sumber Pakan Alami bagi Mamalia Dilindungi di Taman Nasional Ujung Kulon, Propinsi Banten. *Dalam:* M. Ridwan dkk. (editors). *Prosiding Seminar Nasional Biodiversitas* "Studi, Pemanfaatan dan Konservasi Keanekaragaman Hayati Nusantara dalam Bidang Kesehatan. Hlm.160–165.

Abstract

The objective of this study is collecting data about diversity of forest plants as feed resources of protected mammals. The study was conducted in Ujung Kulon National Park, Province of Banten. This survey was done by visiting areas where wild mammals seen, observing distribution of habitat, and collecting forest plants selected by wild mammals as their diet. The results showed that 57 species of forest plants grouped in 32 families from Ujung Kulon National Park used as feed resources by mouse deer (*Tragulus javanicus*), barking deer (*Muntiacus muncak*), Javan deer (*Cervus timorensis*), black giant squirrel (*Ratufa bicolor*), Javan treeshrew (*Tupaia javanica*), and Javan porcupine (*Hystrix javanica*). Parts of the plants being consumed were fruit, young leaves, flower, fungus, tubers, and tender stems. Black giant squirrel nests are found in some trees consist of 12 species of plants and the location of the nest is often near the canopy top.

0126. Fartyal, R.S., J-Jun Gao, M.J Toda, Y-Guang Hu, K.T Takano, **A. Suwito**, T. Katoh, T. Takigahira, J-Tao Yin. **2013.** *Colocasiomyia* (Diptera: Drosophilidae) Revised Phylogenetically, with a New Species Group Having Peculiar Lifecycles on Monsteroid (Araceae) Host Plants. *Systematic Entomology* 38(4): 763-782.

Abstract

The phylogeny of the genus *Colocasiomyia* (Drosophilidae) is re-analysed using data of 70 morphological characters, many of which are re-evaluated from or added to those used in a previous study, for 34 *Colocasiomyia* in-group species expanded in taxon-sampling as well from the previous study. A special focus is put on three species, of which two have remained unresolved for their relationships to other *Colocasiomyia* species in the previous study and the other is a newly discovered species. The analysis results in a single, most parsimonious cladogram, where a clade comprising the three focal species is recognised along with other clades recovered for the known species groups of *Colocasiomyia*. Based on this result, a new species group, the gigantea group, is established, including *Colocasiomyia gigantea* (Okada, 1987), *C. rhaphidophorae* Gao & Toda, **n. sp.** and *C. scindapsae* Fartyal & Toda, **n. sp.** *Colocasiomyia scindapsae* has been known to visit inflorescences of a species (Scindapsus coriaceus Engler) belonging to the subfamily Monsteroideae of Araceae exceptionally among *Colocasiomyia* species, most of which use plants of the subfamily Aroideae as their hosts. In this study, *C. gigantea* and *C. rhaphidophorae* as well are found to breed on inflorescences/infructescences of Monsteroideae species, Epipremnum pinnatum (L.) Engler and Rhaphidophora hookeri Schott, respectively. The host plants of the gigantea group are epiphytes and are quite different in the structure of spadix and the fruiting process from those of the Aroideae. To understand how the species of the gigantea group adapt themselves to properties of their host plants, their reproductive ecology is investigated, most intensively in C. gigantea. The life cycle of C. gigantea in nature is characterised by the relatively slow, embryonic development (taking approximately six days), the very long stay of full-grown first instar within the egg

capsule (for approximately three months) until the dehiscence of host infructescence, and the relatively fast larval and pupal development (taking approximately 11 or 12 days). Some morphological adaptations and the reproductive strategy in terms of "egg size vs. number" trade-off are discussed in relation to their reproductive habits and peculiar life cycles.

0127. Fatimah, E. Cholik & **Y.R. Suhardjono. 2013**. Collembola Permukaan Tanah Kebun Karet, Lampung. *Zoo Indonesia* 21(2): 17–22.

Abstrak

Penelitian Collembola tanah dilakukan di Desa Bogorejo, Kecamatan Gedongtataan, Kabupaten Pesawaran pada bulan April 2012. Penelitian yang dilakukan merupakan langkah awal untuk mengamati Collembola pada lantai perkebunan karet khususnya di Lampung. Lokasi yang diamati terbagi menjadi 6 petak dengan komposisi vegetasi yang beragam. Metode koleksi yang digunakan adalah perangkap sumuran, pengambilan contoh serasah dan tanah. Dari penelitian ini diperoleh Collembola sebanyak 13.170 individu dari 40 famili (suku) dan 4 ordo (bangsa). Terdapat perbedaan keanekaragaman spesies antar petak yang diamati diduga terkait dengan perbedaan komposisi vegetasi yang berpengaruh terhadap kondisi serasah dan humus di bawahnya. Beberapa spesies terperangkap dalam jumlah ratusan sampai ribuan, sepeti *Cerathophysella* sp., *Acrocyrtus* sp 1, *Acrocyrtus* sp 2, *Entomobryidae* sp 1, *Cryptopygus* sp 1 dan *Arrhopalites* sp 1. Beberapa yang terperangkap di perangkap sumuran juga merupakan yang menghuni vegetasi tumbuhan bawah, seperti anggota Paronellidae dan beberapa Entomobryidae. Ditinjau dari spesies yang dominan, ternyata hanya diwakili oleh beberapa yaitu dari ordo Podutomorpha hanya 2 spesies Hypogastruridae, ordo Entomobryomorpha diwakili oleh Entomobryidae (7 spesies), Isoomidae (2 spesies) dan Paronellidae (1 spesies), sedangkan Symphypleona diwakili 3 famili yaitu Arrhopalitidae, Dicyrtomidae, dan Sminthuridae masing-masing satu spesies.

0128. Febria, F.A., Jamsari, N. Nasir & **N. Nurhidayat. 2011**. Identifikasi gen penyandi piren dioksigenase pada isolate bakteri pendegradasi piren. *Berita Biologi* 10(6): 781–786.

Abstract

The pyrene dioxygenase coded by gene is an indocator of bacterial isolates capabilities in pyrene degradation. The encoded gene of pyrene dioxygenase can be amplified and detected in *Pseudomonas* sp. PyrA2 and *Burkholdoria* sp. PyrA4 isolates, using primary specific Diox which designed based on PhdF gene sequence, the coding gene of pyrene dioxygenase in *Mycobacterium vanbalenii* PYR-1. The sequence aligment of pyrene dioxygenase putative gene in both of bacterial isolates with the sequence of pyrene dioxigenase coding gene in *M. vanbalenii* PYR-1 shows the similarity percentage of 41% and 42% with *Pseudomonas* sp. PyrA2 and *Bukholdoria* sp. PyrA4.

0129. Fitzsimmons, J.A., E. Meijaard, I. Hunowu, **D.M. Prawiradilaga**, J.L. Thomas & J.S. Tasirin. **2012.** Diet of the Speckled Boobook *Ninox punctulata* in North Sulawesi, Indonesia. *Forktail* 28: 169–171.

Abstract

The ecology of most of Sulawesi's owl species is poorly known. The Speckled Boobook *Ninox puntulata* is one of four *Ninox* species that are endemic to Sulawesi and its satellite islands, although the recent discovery could bring up this number to five. It occurs throughout the island and inhabits forests and disturbed lowland habitats. Despite being one of the commoner *Ninox* species on Sulawesi, little is known about its diet. We describe components of the diet of the Speckled Boobook based on prey remains and pellets collected at a sheltered roost site in north Sulawesi, with a view to increasing ecological understanding of this species, and possibly helping predict its sensitivity to ecological disturbance. The results of analysis on prey remains and pellets indicated that the species feeds on small mammals (rodents) and insects (beetles or Coleoptera). The identified rodents were Pacific rat (*Rattus exulans*) and Black rat (*Rattus rattus* complex). However, further detailed research is required to obtain better understanding of this species' diet, hunting and habitat preferences.

0130. Fujita, M.S., **M. Irham, Y.S. Fitriana**, H. Samejima, S. Wijayamukti, D.S. Haryadi, & A. Muhammad. **2012.** Mammals and Birds in Bukit Batu Area of Giam Siak Kecil-Bukit Batu Biosphere Reserve, Riau, Indonesia. *Kyoto Working Papers on Area Studies No. 128* (G-COE Series 126).

Abstract

No abstract available

0131. Fujita, M.A., **D.M. Prawiradilaga**, & T. Yoshimura**. 2014**. Roles of Fragmented and Logged Forests for Bird Communities in Industrial Acacia Mangium Plantations in Indonesia. *Ecological Research* 29(4): 741–755, July 2014

Abstract

Industrial timber plantations severely impact biodiversity in Southeast Asia. Forest fragments survive within plantations, but their conservation value in highly deforested landscapes in Southeast Asia is poorly understood. In this study, we compared bird assemblages in acacia plantations and fragmented forests in South Sumatra to evaluate each habitat's potential conservation value. To clarify the impact of habitat change, we also analyzed the response of feeding guild composition. Five habitat types were studied: large logged forest (LLF), burnt logged forest (BLF), remnant logged forest (RLF), 4-year-old acacia plantation (AP4), and 1-year-old acacia plantation (AP1). Estimated species richness (Chao 2) was highest in LLF then AP4 and BLF, while AP1 and RLF had lower estimated species richness. Community composition was roughly divided into two groups by non-metric multidimensional scaling

ordination: acacia plantation and logged forest. Sallying substrate-gleaning insectivores, such as drongos, broadbills, and some flycatchers, were restricted to LLF, whereas acacia plantation hosted many terrestrial frugivores, such as doves. Although fragmented forests in our study site lacked several common tropical forest species, these fragments provided an important habitat for some sallying and terrestrial insectivores. A network of small riparian remnant forests could be a complementary habitat for some species, while the conservation value of burnt forest might be low. In conclusion, the highly fragmented forests in plantations are suboptimal habitats for birds but are still very important, because large primary forest blocks have been nearly lost in the surrounding landscape.

0132. Fujiyama, N, H. Ueno, **S. Kahono**, **S. Hartini**, K.W. Matsubayashi, S. Kikuta & H. Katakura. **2013.** Extent of Use of the Novel Fabaceous Host *Centrosema molle* by *Henosepilachna vigintioctopunctata* (Coleoptera: Coccinellidae) in Nusa Tenggara. *Treubia* 40: 25–38.

Abstract

The herbivorous ladybird beetle *Henosepilachna vigintioctopunctata* depends primarily on solanaceous plants. The utilisation of a novel fabaceous host, centro (*Centrosema molle*), by this beetle has been reported from several regions in Southeastern Asia, but details of the distribution and feeding habits of *H. vigintioctopunctata* in the Nusa Tenggara region of southeastern Indonesia. Field surveys indicated that *H. vigintioctopunctata* did not yet utilize centro in the wild in this region. However, in feeding-choice experiments in the laboratory, all beetle populations tested from this region had some potential to utilize centro, i.e., showed some feeding acceptance of this plant. Based on these result, we discuss the current status of the Nusa Tenggara *H. vigintioctopunctata* population in using centro as a host.

0133. Fujiyama, N., H. Ueno, **S. Kahono, S. Hartini**, K.W. Matsubayashi, N. Kobayashi & H. Katakura. **2013.** Distribution and Differentiation of *Henosepilachna diekei* (Coleoptera: Coccinellidae) on Two Host-Plant Species Across Java, Indonesia. *Annals of the Entomological Society of America* 106(6): 741–752.

Abstract

Divergent natural selection on different host plants may be a crucial factor in promoting the remarkable diversity of phytophagous insects, and might occur in any geographical context. Because the intensity and consequences of divergent selection on different hosts can vary depending on the degree of gene flow between conspecific insect populations, elucidating the geographical context and degree of host specificity in the incipient phase of differential host use is indispensable to understand the diversification process in phytophagous insects. *Henosepilachna diekei* Jadwiszezak & Wegrzynowicz (Coleoptera: Coccinellidae) is a tropical ladybird beetle occuring mainly on two host species from different plant families, Asteraceae and Lamiaceae. We investigated the

geographical distribution of *H. diekei* across Java, Indonesia, in relation to the availability of the two hosts, and examined the host specificity of beetles in the laboratory. We also investigated genetic relationships among local populations of beetles using mitochondrial NADH dehydrogenase subunit 2 gene sequences. Geographic variation in host use by *H. diekei* was largely determined by skewed geographical distributions of the hosts, although there was a synergistic effect with extremely divergent host specificity by the beetles. The molecular analyses suggested that genetic differentiation among the beetle populations has occurrred and has been maintained by the effects of both geographical distance and divergent host specificity. The geographical distribution of *H. diekei* populations differing in host specificity suggests that geographical distance, local host-plant availability, and divergent host specificity contribute synergistically to promote the genetic differentiation and subsequent diversification of phytophagous insects on different hosts.

0134. Gillison, A.N., David E. Bignell, Kenneth R. W. Brewer, Erick C. M. Fernandes, David T. Jones, Douglas Sheil, Peter H. May, Allan D. Watt, Reginaldo Constantino, Eduardo G. Couto, Kurniatun Hairiah, Paul Jepson, Agus P. Kartono, **Ibnu Maryanto**, Germano G. Neto, Meine van Noordwijk, Elton A. Silveira, Francis-Xavier Susilo, Stephen A. Vosti, Paulo C. Nunes. **2013.** Plant Functional Types and Traits as Biodiversity Indicators for Tropical Forests: Two Biogeographically Separated Case Studies Including Birds, Mammals and Termites. Biodivers Conserv DOI 10.1007/s10531-013-0517-1. Published online 12 July 2013

Abstract

Multi-taxon surveys were conducted in species-rich, lowland palaeotropical and neotropical forested landscapes in Sumatra, Indonesia and Mato Grosso, Brazil. Gradient-directed transects (gradsects) were sampled across a range of forested land use mosaics, using a uniform protocol to simultaneously record vegetation (vascular plant species, plant functional types (PFTs) and vegetation structure), vertebrates (birds, mammals) and invertebrates (termites), in addition to measuring site and soil properties, including carbon stocks. At both sites similar correlations were detected between major components of structure (mean canopy height, woody basal area and litter depth) and the diversities of plant species and PFTs. A plant species to PFT ratio [spp.:PFTs] was the best overall predictor of animal diversity, especially termite species richness in Sumatra. A notable extent vegetation structure also correlated with animal diversity. These surrogates demonstrate generic links between habitat structural elements, carbon stocks and biodiversity. They may also offer practical low-cost indicators for rapid assessment in tropical forest landscapes.

0135. **Girmansyah, D. 2010.** Keanekaragaman *Begonia* (Begoniaceae) dari Kawasan Gunung Watuwila dan Mekongga, Sulawesi Tenggara. *Berita Biologi* 10 (1): 33–42.

Abstract

A taxonomic study of the genus *Begonia* Blume (*Begonia*ceae) in S.E. Sulawesi (Mt. Mekongga and Mt. Watuwila) were conducted based on morphological characters. Six species of *Begonia* were discovered. Three previously known species (*Begonia aptera* Blume*., B. flacca* Irmschr. and *B. hispidissima* Warburgh.), two new species and one variety were proposed and on going for publication. Some coloured pictures were displayed and potential uses of each species are presented.

0136. **Girmansyah, D. 2011.** Two New Species of *Begonia* (Begoniaceae) from Bukit Tigapuluh National Park, Riau, Sumatra. *Reinwardtia* 13(3): 229–233.

Abstract

Two new species of *Begonia* (Begoniaceae) from Bukit Tigapuluh National Park, Sumatra, Indonesia are described. Those are *Begonia triginticollium* Girm. belongs to *Begonia* section *Bracteibegonia* and *Begonia dolichocarpa* Girm. belongs to *Begonia* section *Petermannia.*

0137. **Girmansyah, D.** & **S. Sunarti. 2011.** Eksplorasi Tumbuhan di Pulau Moti, Ternate, Maluku Utara. *Dalam*: I. Maryanto & H. Sutrisno (eds.) *Ekologi Ternate.* Pusat Penelitian Biologi-LIPI: 267–282.

Abstract

Exploration of flora in Moti Island has been conducted with focused flora in mount of Tuanane which is located in the center of Moti Island, Ternate, North Maluku. About 328 species of plants have been recorded during this exploration. Among of them, 3 species were endemic: *Begonia holosericea, Asplenium nidus Ivar Imusifolium* and *Musa lolodensis*

0138. **Girmansyah, D. 2012**. Reinstatement of *Begonia lepida* Blume. *Floribunda* 4(4): 88–92.

Abstract

Based on morphological characters analysis, the typical individuals of *B. lepida* and B. *bracteata* are easily distinguished. Consequently, *B. lepida* is reinstated as species level.

0139. **Girmansyah, D. 2012**. Two New Species of *Begonia* (Begoniaceae) from Bukit Tigapuluh National Park, Sumatra, Indonesia. *Reinwardtia*, 13(3): 229–233.

Abstract

Two new species of *Begonia* (Begoniaceae) from Bukit Tigapuluh National Park, Sumatra, Indonesia are described. Those are *Begonia triginticollium* Girm. belongs to Begonia section *Bracteibegonia* and *Begonia dolichocarpa* Girm. belongs to Begonia section *Petermannia*.

0140. **Girmansyah, D. 2013.** *Begonia ranaiensis* (Begoniaceae), a new species from Mt Ranai, Natuna Island, Indonesia. *Kew Bulletin* VOL. 68: 179–182 (2013)

Abstract

Begonia ranaiensis Girm., a new species from Mount Ranai, Natuna Island, is described and illustrated.

0141. **Girmansyah, D., Y. Santika, A. Retnowati, W. Wardhani, I. Haerida**, **E.A. Widjaja** & M.M.J. van Balgooy (editors). **2013**. *Flora of Bali. An Annotated Checklist.* Botany Division, Pusat Penelitian Biologi–LIPI, Cibinong. 158 pp

Abstract

The flora of Bali is poorly known. To remedy the situation, a checklist has been compiled by Herbarium Bogoriense, Kebun Raya Eka Karya and Natural's, Leiden.

The list, based on literature and collections in the above institutes, is certainly incomplete. We focused on indigenous species, but naturalized and commonly cultivated ones are also included. The distinction between naturally occurring and alien species is not always easy. Some species here considered indigenous may actually be aliens, and the other way round. Some records and identifications need to be checked. This is a provisional checklist, which may serve as a first start towards a flora of Bali, but thorough exploration of the island is needed before such a project can be undertaken.

0142. Grismer, L.L., **A. Riyanto**, D.T. Iskandar & J.A. Mcguire. **2014**. A New Species of *Hemiphyllodactylus* Bleeker, 1860 (Squamata: Gekkonidae) from Pulau Enggano, Southwestern Sumatra, Indonesia. *Zootaxa* 3821 (4): 485–495.

Abstract

A new species of gekkonid lizard *Hemiphyllodactylus engganoensis* sp. nov. from Pulau Enggano, southwestern Sumatra, Indonesia is differentiated from all other congeners by having the unique combination of a maximum SVL of 37.3 mm; six chin scales; no enlarged postmentals; five circumnasal scales; three or four scales between the supranasals; 12 supralabials; 24 dorsal scales; 15 ventral scales; a lamellar hand formula of 4554 or 4454; a lamellar foot formula of 4555; four subdigital lamellae on the first finger; four or five subdigital lamellae on the first toe; a continuous, femoroprecloacal pore series of 42; five cloacal spurs in males; no enlarged subcaudal scales; no dark postorbital stripes or striping on body; small dark blotches on dorsum; a yellowish postsacral mark bearing anteriorly projecting arms; and a pigmented caecum and gonads. Hemiphyllodactylus engganoensis sp. nov. is part of the species *H. typus* group.

0143. Gunawan, W., S. Basuni, A. Indrawan, L.B. Prasetyo & **H. Soedjito. 2011.** Karakteristik Rumah Tangga, Persepsi dan Partisipasi Masyarakat Sekitar terhadap Kegiatan Restorasi Kawasan Hutan Taman Nasional Gunung Gede Pangrango. *Jurnal Ilmiah Agropolitan* 4(2): 535–546.

Abstract

Forest conservation area, include Gunung Gede Pangrango National Park has many disturbances that affect degraded forest area. The reserch aims to study households characteristic, perception and participation of local community toward restoration activity of Gunung Gede Pangrango National Park forest area. Research method used in this research was survey research method through interview by using questionaire, field observation and literature study. The results show that Ciputri villagers and Cihanyawar villagers generally have household characteristics at lower class, the good perception of restoration activity at Gunung Gede Pangrango National Park forest area, and they have participated in restoration activity of Gunung Gede Pangrango National Park forest area.

0144. **Hadiaty, R. K** & M. Kottelat**. 2010.** *Nemacheilus marang,* a New Loach (Teleostei: Nemacheilidae) from Sangkulirang Karst, Eastern Borneo. *Zootaxa* 2557: 39–48.

Abstract

Nemacheilus marang, new species, is described from Sungai Marang, Bengalon drainage, in the Sangkulirang peninsula karst formation, Borneo, Indonesia. It is distinguished from all other species of *Nemacheilus* of Borneo among others by its unique colour pattern made of 10–18 dark brown bars on the flank, extending from the dorsal midline to just below the lateral line, continuous across back, not or only slightly wider on back and where crossing the midlateral stripe; and having the bars usually regular, straight, and of width less than half that of the interspaces.

0145. **Hadiaty, R.K. 2011.** Penemuan Ikan Air Tawar Indonesia Jenis Baru Koleksi Museum Zoologicum Bogoriense (MZB) Periode Tahun 1998–2009. *Prosiding seminar nasional ikan VI*: 439-451. Masyarakat Iktiologi Indonesia.

Abstrak

Indonesia dikenal sebagai negara yang memiliki mega *diversity* kedua setelah Brasil. Indonesia juga merupakan sentra keragaman jenis ikan tropis. Sekalipun penelitian taksonomi untuk pengungkapan keanekaragaman jenis di negara ini bukanlah merupakan prioritas utama, selama 12 tahun terakhir telah ditemukan 19 ikan jenis baru. Adapun ke 19 jenis tersebut adalah *Osteochilus jeruk* H & S, 1998; *Osteochilus serokan* H & S, 1998; *Nemacheilus tuberigum* H & S, 2001; *Hemibagrus caveatus* Ng, W &H, 2001; *Kryptopterus piperatus* Ng, W & H, 2004; *Leiocassis aculeatus* Ng & H, 2005; *Mystus alasensis* Ng & H, 2005; *Akysis scorteus* P, H & L, 2007; *Akysis galeatus* P, R & R, 2007;

Nanobagrus torquatus T, L, H & P, 2008; *Glyptothorax plectilis* Ng & H, 2008; *Melanotaenia ammeri* A, U & H, 2008; *M. kokasensis* A, U & H, 2008; *Glyptothorax ketambe* Ng && H, 2009; *Nemacheilus tebo* H & K, 2009; *Pangio lidi,* Hadiaty, H & K, 2009; *Rasbora lacrimula,* H & K, 2009; *Diancistrus typhlops* N, S & H, 2009; *Ompok brevirictus* Ng & Hadiaty, 2009. Jenis-jenis tersebut merupakan hasil dari penelitian di Sumatra, Kalimantan dan Sulawesi (Pulau Muna) dengan sumber dana DIPA dan kerjasama dengan peneliti dari luar negeri.

0146. **Hadiaty, R.K. 2011.** Keragaman Jenis Ikan di Kawasan Karst Gunung Sewu dan Sekitarnya. *Prosiding Workshop Ekosistem Karst "Berbagi Informasi Untuk Meningkatkan Upaya Konservasi Kawasan Karst Gunungsewu Dan Jonggrangan"*. Diselenggarakan oleh Pusat Penelitian Biologi-LIPI, BKSDA Yogyakarta, dan Yayasan Kanopi Indonesia. Hlm. 131–147.

Abstrak

Penelitian keragaman jenis ikan di wilayah karst Gunungsewu dan wilayah sekitarnya merupakan bagian dari proyek eksplorasi fauna yang dilakukan oleh para peneliti fauna dari Bidang Zoologi, Pusat Penelitian Biologi-LIPI. Penelitian lapangan telah dilakukan sebanyak lima kali, dimulai tahun 2006 sampai 2009, tahun 2008 kegiatan lapangan dilakukan dua kali. Total lokasi penelitian yang telah dicuplik datanya ada 41 perairan, yang terdiri dari 18 sungai, 21 gua, 1 waduk, dan 1 daerah muara. Hasil penelitian menunjukkan bahwa di kawasan karst Peg. Sewu dijumpai 35 jenis ikan yang tergolong dalam 19 familia, yang termasuk dalam 5 ordo. Satu jenis ikan yang dilindungi peraturan perundangan Republik Indonesia, yaitu *Puntius microps*. Beberapa di antaranya, diduga merupakan jenis baru, yaitu *Nemacheilus* sp dan *Cyclocheilichthys* sp.

0147. **Hadiaty, R.K. 2011.** Biodiversitas dan Hilangnya Jenis-Jenis Ikan di Sungai Ciliwung dan Sungai Cisadane. *Berita Biologi* 10 (4): 491–504.

Abstract

The fish research in Indonesian waters has been begun since 16th century ago. Most of the research collected fish around Batavia. Many new species were described and the type specimens deposited at the museums in Europe or America. The study of fish diversity and the lost of fish species was conducted at Ciliwung and Cisadane river in 2009. The aim of this study is to describe the recent fish diversity in both river drainages, then make a comparison with the number of species recorded based on the references data. The differences between the two datas show the number of species lost. The result of the study showed a total of 20 species of 13 families collected in Ciliwung river, while from the references data there were about 187 species, so the fish diversity lost in the Ciliwung river about 92.5%. The fish research in Cisadane river were collected 39 fish species of 24 families. There were 135 species of 38 families of the references data, so the fish diversity lost in Cisadane river is about 75.6%.

0148. **Hadiaty, R.K. 2011.** Diversitas dan Kehilangan Jenis Ikan di Danau-Danau Aliran Sungai Cisadane. *Jurnal Iktiologi Indonesia* 12(2): 143–157.

Abstrak

Penelitian diversitas dan kehilangan spesies ikan di danau-danau dari daerah aliran Sungai Cisadane dilakukan pada tahun 2010. Penelitian ini bertujuan untuk mendapatkan gambaran keragaman jenis ikan di danau-danau pada daerah aliran Sungai Cisadane saat ini. Hasil ini kemudian dibandingkan dengan jumlah jenis ikan yang pernah hidup di wilayah perairan ini berdasarkan data pustaka. Selisih jumlah antara kedua data tersebut menunjukkan kehilangan jenis. Hasil penelitian di 34 stasiun mendapatkan 32 jenis ikan dari 19 familia dan 5 ordo. Dua puluh empat jenis atau 75 % di antaranya merupakan jenis asli, sedangkan 8 jenis atau 25% merupakan ikan introduksi. Studi pustaka menunjukkan ada 86 jenis ikan yang dulu hidup di danau-danau daerah aliran Sungai Cisadane, namun saat ini hanya dijumpai 24 jenis, dengan demikian laju kehilangan jenisnya sekitar 72,1 %.

0149. **Hadiaty, R.K.** & G.R. Allen**, 2011.** *Glossamia* nsp., a New Species of Freshwater Cardinalfish (Apogonidae) from West Papua Province, Indonesia). *Aqua, Journal of Ichthyology* 17(3): 173–180.

Abstract

A new species of freshwater cardinalfish, *Glossamia arguni*, is described on the basis of 13 specimens, 12.8-102.3 mm SL, collected in November 2010 from streams in the Arguni Bay area of the Bird's Neck region of Kaimana Regency, West Papua Province, Indonesia. It is most similar to *G. sandei*, which ranges widely in south-central New Guinea from the Purari River of Papua New Guinea to Lake Yamur in Papua Province of Indonesia. Both species are characterised by relatively small scales and a barred colour pattern. However, *G.arguni* has fewer lateral-line scales (43-45 versus 46-50), and five broad bars on the sides compared with 8–12 narrow bars in *G. sandei*. The new species also has nine soft dorsal rays compared to the usual count of 10 for *G. sandei.*

0150. Hadiaty, R.K. 2012. Bab 5. Ikan. *Dalam*: Suhardjono Y.R. & R. Ubaidillah (*eds.*). *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Jakarta: LIPI Press; 89–113.

Abstrak

Tidak ada abstrak

0151. **Hadiaty, R.K.,** G.R. Allen & M.V. Erdmann**. 2012.** Keanekaragaman Jenis Ikan Kaimana, Papua Barat. *Zoo Indonesia* 21(2): 35–42.

Abstrak

Lembaga Ilmu Pengetahuan Indonesia (LIPI) telah melakukan penelitian di wilayah Papua dengan nama ekspedisi Wilayah Nusantara (EWIN). Penelitian

dilakukan selama dua tahun di wilayah Raja Ampat, Papua Barat. Pada tahun 2007 penelitian dilakukan di Pulau Waigeo, sedangkan tahun 2008 di Pulau Batanta. Hasil penelitian di kedua pulau tersebut mengindikasikan tingginya tingkat endemisitas dan beberapa di antaranya merupakan jenis baru. Sekalipun penelitian di wilayah Papua banyak mendapatkan hasil yang menarik, namun sayangnya tidak dapat dilanjutkan.

Beranjak dari hasil tersebut berhasil, menjalin kerjasama penelitian LIPI dengan Conservation International (CI) Indonesia Marine Program. Penelitian dilakukan di 24 stasiun penelitian di wilayah perairan Kaimana, Papua Barat. Hasilnya sangat menarik, diperoleh 55 jenis ikan dari 20 familia, tujuh jenis di antaranya diperkirakan merupakan jenis baru yaitu: *Melanotaenia* sp, *Glossamia* sp, *Pseudomugil* sp1, *Pseudomugil* sp2, *Mogurnda* sp, *Glossogobius* sp dan *Gobiopterus* sp. Dua jenis telah dideskripsi pada tahun 2011 yaitu *Melanotaenia mairasi* Allen and Hadiaty, 2011 dan *Glossamia arguni* Hadiaty dan Allen, 2011. Jenis lainnya masih perlu diteliti lebih lanjut.

0152. **Haerida, I.,** S.R. Gradstein & S.S. Tjitrosoedirdjo. **2010**. *Lejeuneaceae* Subfamily Ptychanthoideae (Hepaticae) in West Java. *Gardens' Bulletin Singapore* 62 (1): 53-103.

Abstact

The subfamily Ptychanthoideae of the family Lejeuneaceae (Hepaticae) in West Java is still poorly known. A study of Ptychanthoideae in this area reveals the occurrence of 26 species, in 8 genera: *Acrolejeunea* (Spruce) Schiffn. (3 species), *Archilejeunea* (Spruce) Schiffn. (1 species), *Lopholejeunea* (Spruce) Schiffn. (10 species), *Mastigolejeunea* (Spruce) Schiffn. (3 species), *Ptychanthus* Nees (1 species), *Schiffneriolejeunea* Verd. (2 species), *Spruceanthus* Verd. (2 species) and *Thysananthus* Lindenb. (4 species). *Mastigolejeunea indica* and *Thysananthus minor* are newly reported for Java. The altitudinal and geographical ranges of the species of Ptychanthoideae from West Java are presented as well as a key to the species and an assessment of their phytogeography. It appears that the species are rather widespread; none of the species are endemic to Java or western Malesia. The widespread distribution of the species is probably due to their dispersal by spores, which may be easily carried by the wind over long distances, and by rather old geological age of the group.

0153. **Haerida, I.** & S.R. Gradstein. **2010**. *Stictolejeunea* (Lejeuneaceae) New to Indonesia. *Hikobia* 15: 473–476.

Abstract

Report *Stictolejeunea balfourii* (Mitt.) E.W. Jones from Gunung Tukung Nature Reserve, Banten province, West Java, Indonesia. The genus and species are new to Indonesia. A brief description and illustration of the Indonesian plants are given.

0154. **Haerida, I.** & S.R. Gradstein**. 2011.** Liverworts and Hornworts of Mt. Slamet, Central Java (Indonesia). *Hikobia* 16: 61–66.

Abstract

This first hepaticological inventory of Mt. Halimun Salak National Park, West Java, reports 102 species of liverworts. The area is richer in species than Mt. Slamet in Central Java and Mt. Patuha in West Java inventoried previously. Epiphyllous liverworts were abundant and included 38 species, most of them members of *Cololejeunea, Drepanolejeunea* and *Leptolejeunea*. The discovery of the rare *Treubia insignis*, described originally from West Java and not found in the island since the 1950's, underlines the importance of Mt. Halimun Salak National Park as an area for conservation.

0155. **Haerida, I.** & S.R. Gradstein. **2012.** Liverworts (Marchantiophyta) of Mt. Halimun Salak National Park, West Java (Indonesia) and the Rediscovery of *Treubia* in Java. *Hikobia* 16: 203–209.

Abstract

This first hepaticological inventory of Mt. Halimun Salak National Park, West Java, reports 102 species of liverworts. The area is richer in species than Mt. Slamet in Central Java and Mt. Patuha in West Java inventoried previously. Epiphyllous liverworts were abundant and included 38 species, most of them members of *Cololejeunea*, *Drepanolejeunea,* and *Leptolejeunea*. The discovery of the rare *Treubia insignis*, described originally from West Java and not found in the island since the 1950's, underlines the importance of Mt. Halimun Salak National Park as an area for conservation.

0156. **Haerida, I. 2013.** Sekumpulan Lumut dari Taman Nasional Karimunjawa, Jawa Tengah. *Floribunda* 4 (4): 83–105.

Abstrak

"Epistolae Botanicae" atau catatan singkat.

0157. **Haerida, I.** & T. Yamaguchi. **2013.** Lejeuneaceae of Bukit Bangkirai, East Kalimantan, a Lowland Rainforest Previously Damaged by the Forest Fires. *Hikobia* 16: 303–305.

Abstract

Sixteen species of Lejeuneaceae were found from Bukit Bangkirai, East Kalimantan. Among them *Cololejeunea trichomanis* (Gottsche) Steph. and *Mastigolejeunea indica* Steph. are new records for Borneo.

0158. **Hamidy, A.** & M. Matsui. **2010.** A New Species of Blue-Eyed *Leptobrachium* (Anura: Megophryidae) from Sumatra, Indonesia. *Zootaxa* 2395: 33–44.

Abstract

A new megophryid species of Leptobrachium is described on the basis of three specimens collected from Kubu Perahu, Lampung Province, Sumatra, Indonesia. The new species, *L. waysepuntiense* sp.nov. is distinguished from all other congeners by the colour of iris, which is totally light bluish in adult and greyish in juvenile stages. It is similar to Bornean endemic species in the absence of dark markings around groin, and particularly to *L. gunungense* in the very small size of femoral gland. It is the fourth species of *Leptobrachium* recorded from Sumatra, and its discovery underscores the underestimated diversity of amphibians on Sumatra. Variation in the pattern of iris colour in *Leptobrachium* is discussed.

0159. **Hamidy, A.**, M. Matsui, K. Nishikawa, D. Belabut, N. Ahmad. **2010.** *Rana picturata* (Yellow-Spotted Frog) Predation. *Herpetological Review* 41, 66–67.

Abstract

No Abstract available

0160. **Hamidy, A.**, M. Matsui, T. Shimada, K. Nishikawa, P. Yambun, A. Sudin, M.D. Kusrini, **H. Kurniati. 2011.** Morphological and Genetic Discordance in Two Species of Bornean *Leptobrachium* (Amphibia, Anura, Megophryidae). *Molecular Phylogenetics and Evolution* 61, 904–913.

Abstract

Recent phylogenetic studies of Southeast Asian megophryid *Leptobrachium*, while clarifying (1) distinct specific status of three Philippine populations and (2) high genetic diversities within Bornean *Leptobrachium montanum*, posed two questions, (1) relationships and divergence histories of two Philippine species and Bornean *Leptobrachium gunungense*, and (2) possible discordance between phylogenetically and morphologically defined lineages. In order to solve these questions, and especially reviewing current taxonomy of Bornean species, we estimated the phylogenetic relationships of endemic Bornean species together with their putative relatives from Philippines and Sumatra, using 2451 bp sequences of the 12S rRNA, tRNAval, and 16S rRNA of mitochondrial DNA genes. With respect to *Leptobrachium hasseltii* and *Leptobrachium chapaense*, lineages from Borneo, Philippines, and Sumatra formed a monophyletic group with Leptobrachium lumadorum from Mindanao as the basal clade, while two other Philippine species from Palawan and Mindoro formed a clade and nested in Bornean lineages. Sister species relationship of the two Philippine species and *L. gunungense* is not supported, rejecting the hypothesis of Philippine origin of *L. gunungense*. Phylogeny does not conform to morphological variation, and the topotypic *L. montanum* and one lineage of *Leptobrachium abbotti* are genetically very close despite their clear difference in ventral color pattern. Furthermore, each of these species forms a paraphyletic group and contains several lineages, each of which is a candidate of good species. These results clearly indicate that current taxonomy of Bornean species

based on several morphological characteristics requires complete revision. Detailed studies on adult and larval morphology, as well as acoustic characteristics, are necessary to evaluate the taxonomic status of all lineages recovered.

0161. **Hamidy, A**., M. Matsui, K. Nishikawa, & D.M. Belabut. **2012.** Detection of Cryptic Taxa in *Leptobrachium nigrops* (Amphibia, Anura, Megophryidae) with Description of Two New Species. *Zootaxa* 3398, 22–39.

Abstract

We evaluated taxonomic relationships among allopatric populations of *Leptobrachium nigrops* Berry & Hendrickson from Malay Peninsula, Singapore, Indonesia (Belitung), and Borneo (Sarawak). Phylogenetic relationships estimated from the sequence data of mitochondrial 12S RNA, $tRNA^{val}$, and 16S rRNA genes, and nuclear NCX1 and SLC8A genes revealed presence of three distinct clades within *L. nigrops*: (1) true *L. nigrops* clade from Singapore and Malay Peninsula, (2) clade from Belitung, Indonesia and coastal area of Sarawak, Borneo, and (3) clade from Kanowit, Sarawak, an inland area of Borneo. Each of these three genetic clades is considered to represent distinct species because they are genetically highly divergent and morphologically distinguishable. We therefore describe the populations from Belitung and coastal area of Sarawak as *L. ingeri* sp. nov and the population from the inland area of Sarawak as *L. kanowitense* sp. nov. Ancestral *L. kanowitense* seems to have invaded Borneo Island much earlier than ancestral *L. ingeri*, whose dispersion occurred during the Pleistocene glacial periods.

0162. **Hamidy, A**. & M. Matsui. **2014.** A New Species of *Leptobrachium* from the Kelabit Highland, Northwestern Borneo (Anura, Megophryidae). *Current Herpetology* 33(1): 57–67.

Abstract

Four species of endemic *Leptobrachium* are known from Borneo, two lowland species *L. kanowitense* and *L. abbotti*, a montane species *L. montanum*, and a highland species *L. gunungense*. Of these, both *L. montanum* and *L. abotti* were found to contain several cryptic species by recent molecular studies. The population from Bario, Kelabit Highland of Sarawak, is one such cryptic species and was once called Lineage 2 of *L. abbotti*. Our morphological survey on this population proved that it has characteristics distinct from all other congeners, and therefore, we describe the Bario population as a new species, *Leptobrachium kantonishikawai* **sp. nov**. The new species is distinguished from putative topotypes of *L. montanum* and *L. abbotti*, as well as from *L. gunungense* by having a grayish brown abdomen, usually vermiculated, although sometimes spotted or blotched with white, and some unique morphometric characteristics.

0163. Harjanto, S. & **C. Rahmadi. 2011.** Keanekaragaman Fauna dan Kondisi Klimat di Gua Anjani, Kawasan Karst Menoreh: Sebuah Catatan Awal. *Fauna Indonesia* 10(2): 32–38.

Abstrak

Tidak ada abstrak

0164. **Hartini, S. &** G. Takaku. **2010.** Mites of the Genus *Holostaspella* (Acari: Gamasida: Macrochelidae) in Indonesia. *Entomological Science* 13(1): 107–115.

Abstract

The genus *Holostaspella* of the family Macrochelidae consists of more than 30 species. Of these, seven species have been recorded from Indonesia. In the present study, we review the genus in Indonesia, record two species (*H. pulchella* and *H. similiornata*) for the first time from Indonesia, and describe two new species (*H. oblonga* n. sp. and *H. villosa* n. sp.) on the basis of the specimens collected in Java and Sulawesi. A key to the spesies of the genus in Indonesia is also provided.

0165. **Hartini, S** & **D. Dwibadra. 2011.** Monograf Macrochelidae (Acari: Mesostigmata) Jawa. LIPI Press, xiii + 95 Hlm. ISBN 978-979-799-621-5

Abstrak

Tiga puluh spesies tungau Macrochelidae: Acari dari Pulau Jawa terdiri dari 4 marga yaitu: *Glyptholaspis* (3 spesies), *Holostaspella* (8 spesies), *Macrocheles* (20 spesies) dan *Neopodocinum* (6 spesies). Dari ke 37 spesies yang ditemukan, 14 spesies merupakan spesies baru yang pernah dideskripsi.Kunci identifikasi marga, morfologi, terminologi, cara koleksi, preservasi spesimen dijelaskan lebih lanjut.

0166. **Hartini, S**. & G. Takaku. **2012.** Macrochelid mite: Acari: Mesostigmata in Sempu Island, East Java, Indonesia. *Journal of the Acarological Society of Japan* 21(1): 7–14.

Abstract

Six species of macrochelid mites were collected from scarabaeid dung beetles in Sempu Island, East Java, Indonesia. Of these, one species, *Macrocheles insulicola* was described as new to science. The ramaining five species were *Glyptholaspis asperrima* (Berlese, 1905), *Neopodocinum subjaspersi* Hartini and Takaku, 2003, *M. dispar* (Berlese, 1910), *M. entetiensis* Hartini and Takaku, 2005, and *M. jabarensis* Hartini and Takaku, 2003.

0167. **Hartini, S**., **D. Dwibadra**& G. Takaku. **2012.** Records of *Macrocheles kraepelini* Species Complex (Acari: Macrochelidae) from Mt. Ijen, East Java, Indonesia with description of a New Species. *International Journal of Acarology* 38(6): 528-532.

Abstract

Three species assignable to the *Macrocheles kraepelini* species complex of the *Macrocheles glaber* species group were recorded from Mount Ijen, East Java, Indonesia. Mites of the complex were collected from trogid beetles for the first time. Of these, one species, *Macrocheles ijenensis*, is new to science and is distinguished from other members of the complex by distinct coarse sternal ornamentation.

0168. Hartini, S. & **I. Erlinawati. 2013.** Kekayaan Anggrek Tanah di Kawasan Gunung Prau, Jawa Tengah yang Berpotensi sebagai Tanaman Hias**.** *Prosiding Seminar Inovasi Florikultura Nasional* 2013. Hlm. 106–116.

Abstrak

Gunung Prau merupakan salah satu kawasam yang dikelola oleh PT perhutani Unit I Jawa Tengah dan terdapat di dataran tinggi Dieng tepat di perbatasan antara Kabupaten Kendal dan Kabupaten Wonosobo. Gunung ini memiliki vegetasi hutan hujan tropis yang masih cukup baik dan masih banyak menyimpan kekayaan tumbuhan berpotensi yang belum dimanfaatkan oleh masyarakat, namun data tentang keragaman tumbuhan di kawasan ini masih sangat sedikit. Tujuan penelitian adalah untuk menginventarisasi keragaman tumbuhan, khususnya jenis-jenis anggrek tanah yang berpotensi sebagai tanaman hias di kawasan ini. Metode yang digunakan dalam penelitian ini adalah metode eksploratif. Hasil penelitian menunjukkan bahwa tidak kurang dari 30 jenis anggrek tanah terdapat di kawasan Gunung Prau. Jenis-jenis yang berpotensi sebagai tanaman hias adalah *Malaxis* spp., *Corymborkis veratrifolia, Tropidia curculigoides, Macodes petola, Calanthe triplicate, Calanthe cecilae, Goodyera colorata, G. reticulata, Cymbidium ensifolium, C. lancifolium, Placoglottis* sp., *Liparis montana, Diglyphosa latifolia, Nephelaphyllum tenuiflorum, Appendicula alba, Cryptostylis javanica, Paphiopedilum javanicum* dan *Corybas acutus*. Jenis-jenis yang menarik pada daunnya adalah *Malaxis* spp., *Tropidia curculigoides, Macodes petola, Liparis montana, Goodyera colorata, G. reticulate, Placoglottis* sp., *Nephelaphyllum tenuiflorum, Paphiopedilum javanicum*, dan *Corybas acutus*. Jenis-jenis yang menarik pada bunganya adalah *Corymborkis veratrifolia, Calanthe cecilae, Goodyera colorata, G. reticulata, Cymbidium ensifolium, C. lancifolium, Placoglottis* sp., *Diglyphosa latifolia, Nephelaphyllum tenuiflorum, Cryptostylis javanica*, dan *Paphiopedilum javanicum*.

0169. **Hartini, S., S. Kahono** & G. Takaku. **2013.** Macrochelid Mite from a Nest of Honey Bee *Apis dorsata dorsata* at Bogor Botanical Garden, Bogor, West Java, Indonesia. *Treubia* 40: 47–59.

Abstract

Thirteen species of macrochelid mites belonging to the genera *Holostaspella*, *Macrocheles*, *Neopodocinum* and *Glyptholaspis* were collected from a nest of honey bee *Apis dorsata dorsata* at Bogor Botanical Garden, West Java, Indonesia. Of these, one species was described as new to science, two species were

recorded from Indonesia for the first time, and all species were recorded from nest of *Apis dorsata dorsata* for the first time. *Macrocheles nidus* **sp. nov**. is similar to some species of *scutatus* subgroup, but it is discernible from the latter by the pilosity of dorsal setae.

0170. **Hartini, S. 2014**. Fauna Tungau Macrochelidae (Mesostigmata: Acari) dan Assosiasinya dengan Kumbang Kotoran di Gunung Sawal, Ciamis, Jawa Barat. *Jurnal Biologi Indonesia* 10(1): 83–92.

Abstract

Study of macrochelid mite: Mesostigmata: Acari has been done in Mt. Sawal Nature Reserve, Ciamis, West Java. Three genera, eight species of family Macrochelidae collected associated with scarabaeid dung beetles. Genera of mites i.e., *Holostaspella* (*H. oblonga* Hartini & Takaku, 2010), *Neopodocinum* [*N. boschai* (Berlese, 1901) and *N. subjaspersi* Hartini & Takaku, 2003) and *Macrocheles* [*M. dispar* (Berlese, 1910); *M. jabarensis* Hartini & Takaku, 2003; *M. kraepelini* (Berlese, 1905); *M. pumilus* Hartini, Dwibadra & Takaku, 2009 and *M. sukabumiensis* Hartini & Takaku, 2003]. Scarabaeid dung beetles associated with macrochelid mite reported three genera and 10 species, i.e., *Catharsius, Copris* and *Onthophagus*. The high value of niche overlap of two dung beetles *O. (O.) orientalis* and *O. (O.) javaecola* (96.97 persen) shows that the two beetle species are able to serve almost equally as transportation mode for the same species of macrochelid mites.

0171. Harvey, M.B., **A. Hamidy**, N. Kurniawan, K. Shaney, E.N. Smith. **2014**. Three New Species of *Pseudocalotes* (Squamata: Agamidae) from Southern Sumatra, Indonesia. *Zootaxa* 3841 (2): 211–238.

Abstract

We describe three new species of *Pseudocalotes* from the Bukit Barisan Range of southern Sumatra, Indonesia. *Pseudocalotes cybelidermus, P. guttalineatus*, and *P. rhammanotus* differ from most congeners in having serrate dorsal crests that extend to the base of the tail and a dorsolateral series of enlarged heavily keeled scales. In these new species, subdigital lamellae of Toe III have prominent preaxial keels and lack or have greatly reduced postaxial keels. In contrast, *P. rhammanotus* resembles *P. tympanistriga* by having bicarinate subdigital lamellae at the base of Toe III. Like most congeners, these new species appear to be restricted to humid forests above 1000 m. We report several new morphological characters for *Pseudocalotes* and discuss their diagnostic value. Future systematic studies of this genus should assess presence/absence of interparietals, four different kinds of modified scales on the neck, a dorsolateral series of heavily keeled scales, and unicarinate lamellae under the distal phalanges of most fingers and toes. Our comparisons among congeners demonstrate the diagnostic value of width of the gap between the nuchal and dorsal crests and frequency data for contact between the nasal and supralabials and between the postmentals and infralabials. Finally, we discuss variation in morphology of subdigital

lamellae at the base of Toe III and describe new conditions intermediate between the serrate fringe of most Indochinese species and the bicarinate lamellae of the *P. tympanistriga*.

0172. **Haryoko, T. 2010.** Komposisi Jenis dan Jumlah Burung Liar yang Diperdagangkan di Jawa Barat. *Berita Biologi* 10(3): 385–391.

Abstract

Composition and Number of Wild bird species traded in West Java. Wildbird trade is a threat to the conservation of birds in Indonesia. The main causes of wildbirds extinction are habitat loss or habitat destruction and poaching for trade. The aim of this study was to identify trade of wildbird species in West Java. The survey was carried out in October–November 2008. A total of 2,080 birds (from 67 species, 29 family) were traded in Bandung, Garut and Tasikmalaya. Bird markets in Bandung, Garut, Tasikmalaya traded 1,051, 496 and 533 birds consequently. The result of one way analysis of variance (anova) using SPSS 13.0 F (2,198, 0.05) = 2,398 < Ftabel =3,042 showed no significant different in three bird markets in West Java.

0173. **Haryoko, T. 2011.** Keanekaragaman Jenis Burung di Bunguran Utara, Pulau Bunguran, Kabupaten Natuna. *ZooIndonesia* 20(2): 17–25.

Abstract

The study of bird diversity in Northern Bunguran, Bunguran Island, Natuna Regency, Riau Archipelago Province was conducted in August 2011. The aims of this research were to get the diversity of bird species re-evaluating and re-inventory of the bird species that exist in the region. The methods used were the line transect survey and capture-release by using mist nets. In total 487 individuals belonging to 50 species, 27 families and 10 orders were identified during the study in the region with the diversity index (H')=2,621, Shannon evenness index (J')= 0,670 and species richness with Margalef's index (DMg)= 7, 918. The species discovery curve shows that an increase in observation time causes an increase in the number of bird species observed.

0174. **Haryono**, **A.H. Tjakrawidjaja**, J. Subagja, S. Asih, & **G. Wahyudewantoro. 2010.** *Teknik Budi Daya Ikan Tambra*. LIPI Press; 52.

Abstrak

Tidak ada abstrak

0175. **Haryono**, J. Subagja & **G. Wahyudewantoro**. **2010.** Kelimpahan dan Habitat Benih Ikan Sidat di Muara Sungai Cimandiri Pelabuhan Ratu-Sukabumi. *Prosiding Seminar Nasional Ikan VI dan Kongres Masyarakat Iktiologi*. Hlm. 251–259.

Abstrak

Budi daya sidat yang berkembang saat ini sebenarnya merupakan tahap pembesaran karena penyediaan benihnya masih mengandalkan hasil tangkapan dari alam. Oleh karena itu, perlu dilakukan penelitian yang mengarah pada proses penyediaan benih untuk mendukung keberhasilan budi daya tersebut. Tujuan penelitian ini untuk mengetahui fluktuasi kelimpahan benih sidat (*glass eel*) yang berupaya memasuki perairan sungai dan kondisi habitat ruayanya. Pengamatan kelimpahan dilakukan setiap dua jam mulai pukul 19.00–05.00, masing-masing 100 angkatan hanco dengan ulangan 3 kali. Hasil pengamatan diketahui bahwa kelimpahan benih sidat berfluktuasi sepanjang malam; terdapat dua puncak musim benih yaitu bulan Mei rata-rata 97 ekor/100 angkatan dan November sebanyak 467 ekor/100 angkatan. Kondisi habitat ruaya secara umum masih baik namun terdapat ancaman yang serius karena sedang dibangun PLTU dan kegiatan penambangan pasir liar.

0176. **Haryono**, J. Subagja & **G. Wahyudewantoro**. **2010.** Kelangsungan Hidup dan Perilaku Benih Sidat (*Anguilla bicolor*) Pada Awal Pemeliharaan. *Prossiding Seminar Nasional Ikan VI dan Kongres Masyarakat Iktiologi*. Hlm. 261–266.

Abstrak

Sidat merupakan ikan konsumsi potensial dengan permintaan pasar dan harga yang tinggi. Jenis sidat dari Indonesia yang sudah mulai dibudidayakan baru *Anguilla bicolor*. Kendala yang dihadapi dalam budi daya sidat adalah tingginya mortalitas pada awal pemeliharaan. Penelitian ini bertujuan untuk mengetahui pengaruh salinitas terhadap tingkat kelangsungan hidup benih sidat. Percobaan menggunakan Rancangan Acak Lengkap dengan empat perlakuan dan dua ulangan, yaitu A: 0 permil, B: 7 permil, C: 14 permil, dan D: 21 permil. Wadah pemeliharaan berupa akuarium yang masing-masing diisi sebanyak 700 ekor benih sidat. Pengamatan dilakukan setiap hari selama enam minggu. Hasil pengamatan pada perlakuan A mortalitasnya sebesar 7,85%, perlakuan B (4,36%), perlakuan C (6%), dan perlakuan D (12,64%). Mortalitas keseluruhan dalam 6 minggu pemeliharaan sebesar 7,71%; tingkat kelangsungan hidup mencapai 92,29% dengan kisaran antara 87,36–95.64%. Perilaku benih sidat banyak berlindung, menyukai tempat yang gelap, dan lebih aktif pada sore hari.

0177. **Haryono. 2010.** *Panduan Lapangan Ikan Perairan Lahan Gambut.* LIPI Press; 97.

Abstrak

Tidak ada abstrak

0178. **Haryono. 2011.** Study on Ichthyofauna Diversity in Tropical Peatland Forest in Indonesia. *In*: Y. Purwanto & K. Mizuno. *Proceeding of The International Workshop on: Sustainable Management of Bio-Resources in Tropical Peat-Swamp Forest": 78–96*

Abstract

Indonesia has peatland forest widest in the world that is potential for fish habitat, but information about fish from their habitat is limited. The aims of study are inventory the diversity of fish species, to know abundant and local distribution, to know species status (endemic, common, introduction, and a new record), also its potency. The locations study in Riau are Siak and Perawang regencies; Jambi is PT. Wira Karya Sakti areas covered four regencies (Tanjung Jabung Timur, Tanjung Jabung Barat, Batanghari, and Muaro Jambi); and Central Kalimantan is PLG areas (One Million Peatland Project) with main river Sebangau, Kahayan, Barito, Kapuas, and Katingan. Survey methods based on catch per unit of effort using electric fishing, cash net, gill net; and completed by hook and line. The results, in Riau were caught 23 species from 11 family and recorded 8 species, totally 31 species. Fish diversity in Jambi recorded 60 species from 17 family. The fish diversity in Central Kalimantan highest than Riau and Jambi with 68 species from 11 family. Cyprinidae is dominant family in three locations. Total number of fish from peatland forest in Sumatera and Kalimantan are 104 species. The most abundant species in Riau is *Belontia hasselti* (5 ind/St.), *Puntius hexazona* in Jambi (14.75 ind/St.), and Central Kalimantan are *Osteochilus spilurus* in rainy season (21 ind./St.) and *Cyclocheilichthys armatus* in dry season (20 ind./St.). The fish widest distributed are *Belontia hasselti* in Riau (83.33%); *Trichogaster leerii, T. trichopterus*, and *Channa striata* (eaches 100%) in Jambi; and Central Kalimantan are *Rasbora cephalotaenia* (83.33%) in rainy and *Pristolepis fasciata* (87.5%) in dray season. The fish potency mainly as consume fish. Many species also potential for ornamental fish based on color pattern. Species status mostly are common species; recorded 14 endemic species (6 endemics of Sumatera and 8 endemics of Kalimantan), also founded 1 species protected that *Chitalla lopis*.

0179. **Haryono. 2012.** Iktiofauna Lahan Gambut pada Musim Hujan di Kalimantan Tengah. *Jurnal Iktiologi Indonesia* 12(1): 83–91.

Abstrak

Aktivitas Proyek Lahan Gambut Sejuta Hektar di Kalimantan Tengah saat ini sudah menurun, namun telah mengubah hutan rawa gambut menjadi persawahan dan mengganggu komunitas ikan di lokasi tersebut. Tujuan penelitian ini mengungkap keragaman jenis ikan, kelimpahan, distribusi, status jenis, potensi, dan aspek budi dayanya. Penelitian ini menggunakan metode survei di enam stasiun. Hasil penelitian ditemukan 39 jenis yang tergolong ke dalam 16 famili, Cyprinidae merupakan famili yang paling dominan dengan 13 jenis. Kisaran jumlah jenis setiap stasiun 8–16 jenis; St.1, St,2, dan St.6 paling tinggi masing-masing 16 jenis; sedangkan yang paling rendah adalah St.3 dengan 8

jenis. Jenis ikan yang paling melimpah adalah *Osteochilus spilurus* sebesar 21 ind./St., dan jenis yang tersebar luas adalah *Rasbora cephalotaenia, Pristolepis fasciata*, dan *Belontia hasseltii* masing-masing 83,33%. Berdasarkan potensinya sebagain besar merupakan ikan konsumsi yaitu sebanyak 46,15%; ditemukan tiga jenis ikan endemik dan dua jenis sebagai catatan baru.

0180. Hasan, A.E.Z.., L. Ambarsari, I.M. Artika, **H. Julistiono** & D. Tarunasari. **2013**. Induction Resistance of *Candida* sp. Y 390 to Ethanol Stress by Kopyor Coconut and Virgin Coconut Oil. *Emir. J. Food Agric.* 25: 790–797

Abstract

Coconut has been known to have many advantageous effects on human health and can be used to prevent and protect human body from oxidative damage. The aim of this research was to determine the effect of kopyor coconut and virgin coconut oil (VCO) on cellular defense mechanism against oxidative damage by ethanol stress 17.5% (v/v). The effect of kopyor coconut and VCO addition was analyzed by observing viability of yeast cells (*Candida* sp. Y 390) that had been given ethanol stress. In addition, acitivity of superoxide dismutase (SOD) was also measured. Results showed that addition of kopyor coconut and VCO into growth medium at early incubation stage increased viability of yeast cells under ethanol stress. SOD activity of yeast cells grown on medium containing kopyor coconut or VCO was found to significantly increase. SOD activity of *Candida* sp. Y 390 that given 0.84 g kopyor coconut, 37 μL VCO and 74 μL VCO was 135.66, 122.26 and 157.97 U/mg protein respectively. It was found that activity of MnSOD was higher compared to CuZnSOD enzyme. These results suggest that addition of kopyor coconut and VCO triggers Candida sp. Y 390 is resistent to ethanol stress by induction of MnSOD activity.

0181. Heinze, J., C.V. Schmidt, **H. Nugroho**, B. Seifert. **2010.** Wingless Fighter Males in the Wallacean Ant *Cardiocondyla nigrocerea* (Insecta: Formicidae). *The Raffles Bulletin of Zoology* 58(2): 323–328.

Abstract

The ant genus *Cardiocondyla* is characterized by a peculiar male polymorphism with winged disperser males and wingless fighter males. Here, we report on the morphology and fighting behaviour of the hitherto unknown wingless male of *Cardiocondyla nigrocerea*, a species as yet known only from the Moluccan islands Ambon and Obi. Males of *C. nigrocerea* have sickle-shaped mandibles, which they use to grab and kill rival males.

0182. Herder, F., **R.K. Hadiaty** & A. Nolte. **2012.** Pelvic-fin Brooding in a New Species of Riverine Ricefish (Atherinomorpha: Beloniformes: Adryanichthyidae) from Tana Toraja, Central Sulawesi, Indonesia. *The Raffless Bulletin of Zoology* 60(2): 267–476.

Abstract

A new species of ricefish is described from a hill stream in Tana Toraja, Sulawesi. *Oryzias eversi*, new species, is distinguished from all other adrianichthyids in Sulawesi by having a low number of fin rays in anal (17–18 (19)) and dorsal (10–12) fi ns, only 33–36 scales in lateral midline, ½14 transverse scale rows at dorsal fi n origin, 30–32 (33) vertebrae, small eyes (28.2–35.5% of head length), a conspicuous blackish male courtship colouration, and pelvic brooding behaviour similar to lacustrine ricefi shes. Female *Oryzias eversi* carry the eggs until the embryos hatch, and show a conspicuous abdominal concavity and extended pelvic fins, accommodating and holding the clutch of eggs. The eggs are connected to the female for the whole time of development by attaching filaments that protrude from the female's urogenital pore. A mitochondrial haplotype phylogeny suggests that the new species is closely related to another "pelvic brooder", the lake-dwelling *O. sarasinorum* from Lake Lindu in Central Sulawesi. However, the haplotype group of *O. eversi* and *O. sarasinorum* is nested within a clade of egg-depositing *Oryzias* from central,southwest, and southeast Sulawesi, whereas another pelvic brooder, *Adrianichthys oophorus* from Lake Poso, forms a distinct, second lineage of Sulawesi's ricefi shes. Accordingly, the pelvic brooding strategy has probably evolved more than once and may be realised in river habitats, which represents a new evolutionary trajectory in the radiation of ricefishes in Sulawesi. The present discovery adds another new ricefish species to Sulawesi's still only partially known ichthyofauna, and highlights the island's role as hotspot of adrianichthyid diversity.

0183. Herder, F., U.K. Schliewen, M.F. Geiger, **R.K. Hadiaty**, S.M. Gray, J.S. McKinnon, R.P. Walter & J. Pfaender. **2012.** Alien Invasion in Wallace‘s Dreamponds: Records of the Hybridogenic „flowerhorn“ cichlid in Lake Matano, with an Annotated Checklist of Fish Species Introduced to the Malili Lakes System in Sulawesi. *Aquatic invasions* 521–535.

Abstract

Invasive fish species can have major impacts on freshwater faunas, particularly in isolated systems harbouring adaptive animal radiations. Here, we report on the occurrence and recent rapid expansion of the hybridogenic "flowerhorn" cichlid in ancient Lake Matano, the hydrological head of the Malili Lakes system in Central Sulawesi, Indonesia. We show that flowerhorns rapidly dispersed along the lake's shoreline, inhabited most of the southern inshore habitats in 2010, and were present all around the lake in mid-2012. In addition, we present stomach content and observational data supporting the hypothesis that this cichlid threatens the local fauna through both predation and competition. We discuss 13 additional alien fish species recorded in the Malili Lakes drainage since 2000, including the recent, first record of the invasive sailfin catfish *Pterygoplichthys pardalis* for Sulawesi, highlighting the multitude of artificial introductions of foreign fish species into these unique and highly isolated freshwater systems. We conclude that alien fish species pose both

serious and diverse threats to the fauna of the Malili Lakes system–an ecosystem of high socio-economic importance and an exceptional natural laboratory for study of evolution, referred to as "Wallace's Dreamponds". Finally, we provide recommendations for minimizing future alien species introductions.

0184. Herdiawan, I., L. Abdullah, D. Sopandie, P.D.M.H. Karti & N. **Hidayati. 2013**. Respon Fisiologis Tanaman Pakan *Indigofera zollingeriana* pada Berbagai Tingkat Cekaman Kekeringan dan Interval Pemangkasan. *JITV* 18(1): 54–62.

Abstract

The objectives of this experiment were to evaluate the effect of drought stress and trimming intervals on physiological responses of *Indigofera zollingeriana*. The experiment was arranged in a completely randomized design (CRD), 3x3 factorial and each treatment had four replications. The first factor consisted of 3 level of drought stress i.e: 100% field capacity (FC) (as a control), 50% FC, and 25% FC. The second factor was comprised of 3 trimming intervals, those were at 60, 90 and 120 days.

The observed variables were leaf water potential, relative water content, proline, and water soluble carbohydrate (WSC) concentrations. Data were analyzed by ANOVA and differences between treatments were tested by LSD. The results showed that there were no interaction (P<0,05) between drought stress and trimming interval on all observed variables. Drought stress treatment significantly (P<0,05) decreased leaf water potensial and relative water content, whereas proline, and water soluble carbohydrate (WSC) contents increased. Trimming interval significantly (P < 0.05) on leaf water potential, and water soluble carbohydrate, whereas the relative water content and proline content were not significantly.

0185. **Heryanto, 2011.** Komunitas Keong Darat di Pulau Moti, Maluku Utara. Ekologi Ternate. *Dalam*: Ibnu Maryanto & Hari Sutrisno (*eds.*). Pusat Penelitian Biologi LIPI. 2011. Pp. 121–129.

Abstract

The research on landsnail of Moti Island in North Maluku was conducted in 1–16 May 2010. It was found 31 species of landsnail, some of them were microsnails. Most of the snails were found at the lowest height (0–100m asl.) due to high humidity and water availability. This condition influenced the Shannon index of diversity. Cluster analysis acquired 5 groups of mollusca.

0186. **Heryanto, 2011.** Landsnails of Java, A Field Guide. Jakarta: LIPI Press; 169.

Abstrak

Tidak Ada Abstrak

0187. **Heryanto. 2011.** *Gulella bicolor*, Si Keong Karnifor. *Fauna Indonesia* 10(2):46–49

Abstract

Gulella bicolor is one of the terrestrial snail carnivore. They prey on other snails *Subulina octona, Microcystina* sp., *Bradybaena miliaris*, and some other species of landsnails. *G. bicolor* is small and looks striking because of their color. These snails can be found under rocks, leaf litter, and rotted log. In Indonesia *G. bicolor* was collected from Kalimantan, Java, Bali.

0188. **Heryanto 2012.** Keanekaragaman Keong Darat (Mollusca: Gastropoda) di Karst dan Hutan Hujan Jawa. *Berita Biologi* 11(1-a): 55–62.

Abstract

Javan karst and rainforest environments were surveyed during 2007–2009 for their landsnails diversity. As many as 114 species of 21 families were recorded, means 66% of previously complete documented. It is suspected that the combination of forest decline, karst alteration and temperature raise caused the decrease. The rain forest and karst environment were not quite unique to each others in term of landsnail diversity because they share 51% species number.

0189. **Heryanto. 2012**. Keanekaragaman Keong Darat di Dua Macam Habitat Makro di Gunung Slamet Jawa Tengah. *Dalam*: I.Maryanto, M. Noerdjito & T. Partomihardjo (*eds.*). *Ekologi Gunung Slamet, Geologi, Klimatologi, Biodiversitas dan Dinamika Sosial*. Pusat Penelitian Biologi LIPI. 2012. Pp. 193–201.

Abstract

Landsnails diversity at two macro-habitats in Slamet Mountain, Central Java. A survey on the landsnails of Slamet Mountain in Central Java was done twice, in Kali Pagu (south, 2009) and Bambangan (east, 2010) respectively. Sampling was conducted by using purposive technique, means by searching the snails in their habitats. The habitats was differentiated into forest and non-forest. By applying a simple analysis, it was found that biodiversity of the landsnails in the forest was higher than those in the non-forest. The landsnails number in the forest was 55 species (88.71%), whereas in the non-forest habitat, the number was only 34 species (56.45%). A 27 species (43.55% of the whole snail number) was found in the both habitats.

0190. **Heryanto. 2013.** Peluang Eksplorasi Keragaman Keong Darat dari Pulau-Pulau Kecil di Indonesia. *Fauna Indonesia* 12(1):17–21.

Abstract

Research on small islands in Indonesia have been carried out but the study of their natural resources is very limited especially terrestrial snails. Research on terrestrial snails have been made since 1919, but the limited number of islands studied, only a thousandth of a number of islands. The number of snails found

are limited to only 100 species, but its potential is huge. This paper also discusses the possibility of the development of small islands in terms of terrestrial snails.

0191. **Heryanto. 2013.** Keanekaragaman Moluska Darat di Kabupaten Parigi-Moutong dan Toli-Toli, Sulawesi Tengah. *Prosiding Seminar Nasional Biologi-IPA 2013*. Universitas Negeri Surabaya, 19 Januari 2013: 75–78.

Abstract

In the District of Parigi-Moutong and Toli-Toli, Central Sulawesi was found 25 species of snails from 8 families. Those snails, inhabit 11 species of trees, 19 species of shrubs and 13 species litter. Large snails generally live in trees, while the small size generally live in the bushes and litter. It is closely related to the physical condition and the purpose of their life in the form of temperature, humidity, food availability and protection. Snails in this study were limited habitats.

0192. **Heryanto. 2013.** Keanekaragaman Keong Darat (Mollusca: Gastropoda) di Tiga Perkebunan di Bogorejo, Kecamatan Gedongtataan, Pesawaran, Lampung. *Zoo Indonesia* 22(1): 22–28.

Abstract

Research on terrestrial gastropods have been conducted in the rubber, cocoa, and oil palm plantations in Bogorejo village, Gedongtataan Subdistrict, Pesawaran Regency of Lampung. The objectives of this study were (1) to determine the diversity of terrestrial gastropods in rubber, cocoa, and palm oil plantations and (2) to determine the density of terrestrial gastropods in those plantations. Sites were selected by "purposive method", then performed by "random sampling". Data were examined for diversity of terrestrial gastropods as well as their densities. Gastropod diversity was calculated by the diversity index of Shannon-Wiener. The results shows that the number of species found were 10–20 whereas their densities ranged from 27.85 to 201.18 ind./m2. Based on Shannon-Wiener, the diversity index (H ') ranged from 1.73 to 2.64. The highest diversity was found in rubber plantation, while the highest density was found in the cacao plantation.

0193. **Hidayat, I**., I. Harahap, & G. Rahayu. **2014**. The First Phylogenetic study of *Kiliophora* (Fungi, Anamorphic, Xylariales). *Mycosphere* 5(1): 78–84.

Abstract

Kiliophora Kuthub. & Nawawi (Type: *K. fusispora* Kuthub. & Nawawi) was first described based on conidiophores bearing spindle-shaped conidia. Only two species have been reported worldwide, viz, *K. fusispora* and *K. ubiensis* Khutub. & Nawawi. During the study of fungal diversity on *Shorea* spp. in Indonesia, the writers found *K. ubiensis* and successfully obtained pure isolate of this fungus through single spore isolation method. Since the taxonomy placement

of this genus in the subphylum Pezizomycotina was unknown, phylogenetic analyses were carried out based on Internal Transcribed Spacer of ribosomal DNA sequence by using Maximum Parsimony method. The phylogenetic tree suggested that genus *Kiliophora* should taxonomically be placed in the family Amphisphaeriaceae (Ordo Xylariales). This report is the first finding of *K. ubiensis* from Indonesia.

0194. **Hidayati, N.,** M. Reza, **T. Juhaeti** & **M. Mansur. 2011.** Serapan Karbondioksida (CO_2) Jenis-jenis Pohon di Taman Buah Mekar Sari Bogor, Kaitannya dengan Potensi Mitigasi Gas Rumah Kaca. *Jurnal Biologi Indonesia* 7(1): 133–145.

Abstract

Carbondioxide (CO_2) Absorption of Trees in "Mekar Sari" Fruit Garden, Bogor, Related to Green House Gases Mitigation. Biological diversity can make a significant contribution to reducing the build-up of greenhouse gases in the atmosphere. A biological diverse tropical forest typically holds 50 times more carbon per unit of area than a monoculture plantation replacing it. Thus, the trees in a forest stand form an essential part in the functioning of the terrestrial biosphere, especially in the carbon cycle. Yet, tree photosynthes is far less studied than crop photosynthesis for several reasons: the large number of species and the difficulty in measuring photosynthesis of entire trees or of forest stands. This research aims to assess the contribution of biological diversity in CO_2 absorption by analyzing the physiological characteristics (photosynthesis, transpiration, stomatal conductance, leaf chlorophyll content) of tree species in "Mekar Sari" fruit garden, Bogor. The results was meant to provide information on carbon sequestration of some tree species suitable for revegetation. Variance in CO_2 assimilation rate is large among trees species. The results showed that there was a wide range of variation of CO_2 assimilation rate between tree species. The overall CO_2 assimilation rate ranged 2.33–3.42 $\mu molm^{-2}s^{-1}$. The highest was Matoa (13.42 $molm^{-2}s^{-1}$), followed by Kacapi (12.50 $\mu molm^{-2}s^{-1}$), Durian (11.00 $\mu molm^{-2}s^{-1}$) and Nangka (11.00 $\mu molm^{-2}s^{-1}$). Transpiration rate was recorded between 4.29–9.50 $molm^{-2}s^{-1}$. The rate of CO_2 assimilation was affected by incident radiation and thus the quantum leaf (Q leaf) as well as leaf chlorophyll content. Correlation between CO_2 assimilation and Q leaf under certain environmental condition was considerably high. Variance in stomatal conductance and transpiration rate varied between tree species and were related to light intensity.

0195. **Hidayati, N., M. Mansur** & **T. Juhaeti. 2012**. Biological Diversity Contribution to reduce CO_2 in the Atmosphere: CO_2 Absorption of the Tree Spesies in Lowland Forest Ecosystem of Pelabuhan Ratu, West Java. *Berita Biologi* 11(1-a): 113–122.

Abstract

This research aims to assess the contribution of biological diversity in CO_2 absorption by analizing the physiological characteristics (e.g. photosynthesis, stomatal conductance, leaf chlorophyll content, transpiration) of spesies in the tropical lowland forest ecosystem of Pelabuhan Ratu, Sukabumi, West Jawa. The results showed that variance in CO_2 assimilation rate is large among trees spesies. There was a wide range of variance in CO_2 absorption between tree spesies of lowland forest ecosystem of Pelabuhan Ratu which was $\mu molm^{-2}s^{-1}$. The overall CO_2 assimilation rate ranged 2.100 (*Xanthophyllum excelsum*)-40.635 (*Ficus* sp.) $\mu molm^{-2}s^{-1}$.

0196. **Hidayati, N., M. Mansur** & **T. Juhaeti. 2013**. Variasi Serapan Karbondioksida (CO_2) Jenis-Jenis Pohon di Ecopark, Cibinong dan Kaitannya dengan Potensi Mitigasi Gas Rumah Kaca. *Buletin Kebun Raya* 16(1): 37–49.

Abstrak

Penelitian ini bertujuan untuk menilai kontribusi keanekaragaman hayati dalam penyerapan CO_2 dengan menganalisis karakteristik fisiologis (serapan CO_2, transpirasi, stomatal conductance, kandungan klorofil daun) dari jenis pohon di daerah konservasi "Ecopark", Cibinong. Hasil penelitian ini dimaksudkan untuk memberikan informasi tentang penyerapan CO_2 dari beberapa jenis pohon yang cocok untuk revegetasi. Hasil penelitian menunjukkan bahwa ada berbagai variasi laju asimilasi CO_2 antara jenis pohon. Laju asimilasi CO_2 keseluruhan berkisar antara 2,86 sampai 16,45 µmol/m2/s. Penyerapan CO_2 tertinggi adalah *Pometia pinnata* (16,45 µmol/m2/s) diikuti oleh *Garcinia xanthochymus* (11,40 µmol/m2/s), *Syzygium polyanthum* (10,99 µmol/m2/s), *Syzygium polycephaloides* (10,89 µmol/m2/s), dan *Palaquium obtusifolium* (10,41 µmol/m2/s). Laju transpirasi tercatat antara 1,29 µmol/m2/s (*Maniltoa grandiflora*) dan 7,85 µmol/m2/s (*Euphoria longan*). Laju asimilasi CO_2 dipengaruhi oleh radiasi matahari, daun kuantum (Q daun), stomatal conductance, dan kandungan klorofil daun. Jenis pohon yang memiliki karakteristik serapan CO_2 yang tinggi dan efisien dalam menjaga keseimbangan air (laju transpirasi yang rendah), adalah yang cocok untuk mitigasi gas rumah kaca.

0197. Hughes, M. & **D. Girmansyah. 2010.** A Revision of Begonia Sect. *Sphenanthera* (Hassk.) Warb. (Begoniaceae) from Sumatra. *Gardens' Bulletin Singapore* 62(2): 239–251.

Abstract

Begonia sect. *Sphenanthera* is characterised by robust herbs with fleshy fruits. Three species are recognised from Sumatra (*Begonia longifolia* Blume, *B. multangula* Blume and *B. scottii* Tebbitt) and three names have been reduced to synonyms (*B. sarcocarpa* Ridl. and *B. turbinata* Ridl. = *B. longifolia* Blume and *B. trigonocarpa* Ridl. = *B. multangula* Blume). All species are considered to belong to the IUCN category Least Concern as they have wide distributions within Sumatra and are known from several localities.

0198. Hughes, M. & **D. Girmansyah. 2011.** Searching for Sumatran Begonia Described by William Jack: Following in the Footsteps of a 19th century Scottish botanist. *Gardens' Bulletin Singapore* 63 (1 &2): 83–96.

Abstract

Eight species of *Begonia* were described from Sumatra in 1822 by the Scottish botanist William Jack. All of the type material associated with these names were destroyed in a fire in 1824, and an expedition was mounted in August 2010 to re-visit Jack's collecting localities in an effort to find material suitable for neotypification. Of the eight species, two (*Begonia bracteata* Jack and *B. racemosa* Jack) could be neotypified with certainty, whilst others required further work. It is possible that some of the species described from Bengkulu province may have become extinct due to the loss of forest habitat.

0199. Huylebrouck, J., **R.K. Hadiaty** & F. Herder. **2012.** *Nomorhamphus rex,* a New Species of Viviparous Halfbeak (Atherinomorpha: Beloniformes: Zenarchopteridae) Endemic to Sulawesi Selatan, Indonesia. *The Raffless Bulletin of Zoology* 60(2): 477–485.

Abstract

Nomorhamphus rex, a new species of viviparous halfbeak, is described from three small rivers in Sulawesi Selatan, Indonesia. The new species differs from all other *Nomorhamphus* in anal-fin morphology of adult males. The third or fourth segment of the second anal-fin ray is composed of two rows of subsegments, giving the third or fourth segment the appearance of being split into two rays. The spicules is curved dorsally and contacts the distal segments of the third anal-fi n ray with its proximal and middle segments; the distal segments are curved ventrally, giving the spiculus a sickle-like shape. Appearance and colouration of *Nomorhamphus rex* are similar to *N. kolonodalensis* and *N. ebrardtii*, from which it is distinguished by the shape of the andropodium and in having a relatively longer lower jaw. This description brings the number of *Nomorhamphus* endemic to Sulawesi to ten.

0200. Huylebrouck, J., **R.K. Hadiaty** & F. Herder. **2014**. Two New Species of Viviparous Halfbeaks (Atherinomorpha: Beloniformes: Zenarchopteridae) Endemic to Sulawesi Tenggara, Indonesia. *The Raffless Bulletin of Zoology* 62: 200–209.

Abstract

Two new viviparous species of the zenarchopterid genus *Nomorhamphus* are described from Sulawesi Tenggara, Indonesia. The two new species are allopatric, share the same anal-fin morphology of adult males, but differ clearly in the length of the lower jaw and by features of fin pigmentation. *Nomorhamphus lanceolatus*, new species, and *N. sagittarius*, new species, are distinguished from all other congeners by a lanceolate, dorsally slightly curved spiculus in the male andropodium and by presence of a distinct black spot on the base of the pectoral fin. *Nomorhamphus lanceolatus*, from the Sampara river basin at the

west coast of south-east Sulawesi, is further distinguished from congeners by its conspicuously short (15.0–25.3 times in SL) lower jaw, and black pigmentation in dorsal and anal fins. *Nomorhamphus sagittarius*, from the Mangolo river basin, has a longer (6.4–15.0 times in SL) jaw, and is further distinguished from all other members of the genus by presence of a few conspicuous teeth on the dorsal surface of the extended portion of the lower jaw. This brings the number of *Nomorhamphus* species endemic to Sulawesi to 12.

0201. **Imamuddin, H. 2010**. Studi Bakteri Heterotropik sebagai Indikator Pencemaran di Perairan Sungai Brantas. *J. Hidrosfir Indonesia* 2010 Vol (2): 265–275.

Abstract

The experiment was carried out to study the level of pollution of organic substances entering Brantas River. The water samples were taken twice in a year from 5 stations (Juni and Agustus 2006). The bacteria were counted by plate count technique. Results showed that 17 species of heterotrophic bacteria were found in the first survey and second survey were almost the same but different from species dominant because the water quality was also slightly changed (table 4 and 7). Bacterial population was composed of various species and varied in each station. The various of the species occurred because every species has different activity for degrading the type of waste.Pollution level is inversely correlated with number of heterotrophic bacteria.

0202. **Imamuddin, H. 2010**. Perombakan Amonium dalam Sistem Anaerobik-Aerobik dengan Beberapa Lumpur Aktif. In.: *Proceeding Book Vol. 4. 7th Basic Science National Seminar Eco-friendly Technology and Policy on Industrial and Regional Planting for Mitigation of Climate Change*. Malang. 20 Februari 2010.

Abstrak

Peran nutrien dalam menstimulasi perkembangan komunitas mikrob yang menentukan keberhasilan penambatan fosfat dan degradasi nitrogen menjadi salah satu parameter yang akan dianalisis. Pengkajian parameter tersebut dilakukan dengan reaktor *sequencing batch reactor* (SBR) skala laboratorium yang dioperasikan pada kondisi anaerobik-aerobik. Pemberian makan dilakukan pada saat akan memasuki periode anaerob. Analisis perubahan amonium, nitrit dan nitrat dilakukan bersamaan dengan analisa glikogen dan pelepasan fosfat oleh komunitas MPG dan MPF. Hasilnya menunjukkan bahwa pemberian nutrien tidak memberikan dampak positif pada perombakan amonium terutama lumpur aktif dari PDAM Bogor dan lumpur aktif Petrosida (Kihara dari Jepang) mempunyai aktivitas perombakan amonium paling rendah dibanding lumpur aktif yang lainnya.

0203. **Imamuddin, H. 2010.** Profil Perubahan Amonium, Nitrit dan Nitrat pada Percobaan Curah dari PDAM Bogor dan Surabaya. *Jurnal Teknologi Lingkungan* 11(3): 443–449

Abstract

Nitrification is often not effective because the characters of nitrifying bacteria are always slow growing and temperature, pH, DO, amonia concentration, nitrite and C/N ratio as the limited factors. Batch experiment was operated for 6 hours, every half an hours ammonium, nitrite and nitrate were measured. The results showed that adding C sourse (glucose) in medium from PDAM Bogor and Surabaya has a significant effect of ammonium degradation, nitrite and nitrate production. Degradation of ammonium in batch reactor from PDAM Bogor showed that both anaerobic and aerobic condition have a different fluctuation. Production of nitrite was stable from the middle of reaction to last of aerobic phase. In aerobic condition nitrate production is reduced to 49.21% (+ glucose) and 60.87% (+ acetate).Batch reactor from PDAM Surabaya differs from PDAM Bogor, particularly on degradation of ammonium. Added glucose as C source causes the concentration of ammonium was increased and acetate as C source showed stable with a slightly fluctuation. Nitrite and nitrate production relatively small in both C source.

0204. **Imamuddin, H. 2010.** Pola Pertumbuhan dan Toksisitas Bakteri Resisten $HgCl_2$ *Ochrobactrum* sp. S79 dari Cikotok, Banten. *Ekosains* 2(01): 26–33.

Abstract

This study was conducted to determine the optimum concentration of $HgCl_2$ and pH on the growth of selected isolates. Resistant isolates obtained by isolating soil samples from Cikotok mining. Isolation of resistant bacteria was carried out with plate count method with the addition of $HgCl_2$ and qualitatively resistance tests was the blank disk method. Toxicity resistant isolates carried out by growing the isolates in media containing of $HgCl_2$, theconcentrations was 10–90 ppm. The isolation of resistant of $HgCl_2$ obtained 17 $HgCl_2$ concentration range of 5–90 ppm. Identification of isolates by 16S rDNA bacteria resistant was done. The results showed that isolates with 16S rDNA partial of bacteria resistant $HgCl_2$ is *Ochrobactrum* spS79 is matched 99%. *Ochrobactrum* spS79 is resistance to mercury ($HgCl_2$) until 70 ppm concentration of $HgCl_2$ and the effect of pH on the growth of Ochrobactrum sp S79 turns at pH <5 inhibits the growth of isolates at a concentration of 10 ppm $HgCl_{2.}$

0205. **Imamuddin, H.** & **D. Agustiyani**. **2010**. Pengujian Potensi Bakteri Resisten Campuran (*Ochrobactrum* sp dan 8 SBY 1) dalam Memacu Pertumbuhan Tanaman *Salvinia molesta. Prosiding Seminar Nasional Biologi. "Peran IPTEK Bidang biologi Dalam Melestarikan Kearifan Masyarakat Untuk Mendukung Pemanfaatan Sumber Daya Alam Berkelanjutan*. Jurusan Biologi FMIPA Universitas Padjadjaran. Jatinangor. 6 Desember 2010.

Abstract

Mercury is one of the major pollutants in enviroment which is highly toxic. Mercury has mutagenic, growth inhibitory and toxic effect to human being, plants, animals and bacteria. The study was carried out in green house Cibinong

at 2.5 months. *Ochrobactrum sp*.S79 and 8 SBY 1, *Salvinia molesta* was as hyperaccumulator were used in the study and the concentration of $HgCl_2$ 0 ppm, 10 ppm, 30 ppm and 50 ppm.The results showed that the concentration of $HgCl_2$ was decreaced from the first sampling untill the end of the experiment. The best result was found in TB treatment, the concentration of $HgCl_2$ decreased untill 90,74 % (50 ppm $HgCl_2$) and bacteria can accelerated growth of *Salvinia molesta* in the end of study.

0206. **Imamuddin, H. 2011**. Uji Resistensi Bakteri yang Diisolasi dari Tanah di Penambangan Emas Pongkor, Jawa Barat terhadap $HgCl_2$. *Berita Biologi* 10(4): 425–430.

Abstract

Pollution of heavy metals mercury (Hg) is a serious problem specially in gold mining areas. This study aims to isolate the bacteria in the gold mining Pongkor and testing bacterial resistance to mercury (Hg). The results showed that of the 5 isolates tested qualitatively only 2 isolates (P3 and P5) that were resistant to $HgCl_2$, each at a concentration of 30 and 40ppm. Furthermore, up to 70 ppm concentration of $HgCl_{2,\ P5}$ bacteria can still grow well even require a longer time *lagphase* in period.

0207. **Imamuddin, H. & N. Sulistinah. 2011.** Pengujian Kompos dan Inokulan Mikroba terhadap Pertumbuhan Tanaman Sengon Buto (*Enterolobium Cyclocarpum,* (Willd) pada Lahan Bekas Tailling Pond di Cikotok. *Hayati* 17(1): 25–31

Abstract

Soil pollution has been attracting a considerable public attentions over the last decades. Phytoremediation is an emerging technology that uses plants to clean up pollutant soils.The study was carried out in Cikotok, Banten. Sengon Buto (Enterolobium cyclocarpum, (Willd) which was used as cyanogenic plant, compost and microbes inoculant is as stimulator for growth this plant. The experiment consist of K0 as control (plant without compost), K1 as plant + compost and K2 as plant+compost + microbe inoculant, 3 replicates. The objectives of this experiment were to investigate the potential for phytoremediation of cyanide contaminated soils using hyperaccumulator/cyanogenic plants and to assess the fate and transport of cyanide compounds in soils. The results indicate that compost and microbe were able to stimulate growth of Sengon Buto after 7 months planting and reduce cyanide until 66 %. Total bacteria in the study relatively stable but NFB bacteria was decline.

0208. **Imamuddin, H., N. Laili** & **M. Rahmansyah. 2012.** Pertumbuhan Bakteri Hasil Isolasi dari Tanah Perkebunan yang Tumbuh pada Media Mengandung Pestisida Propoksur dan Karbaril. *Jurnal Biologi* 8(2): 317–328.

Abstract

Growth Capacity of Soil Bacteria Isolates Obtained from Estate Area from Media Containing Propoxur and Carbaryl. Isolation actions have been carried out with three soil samples derived from soil estate of pine apple, sugar cane, and banana in Lampung area, Southern Sumatra. The isolates were grown in the selected media containing carbaryl insecticide, and herbicide ofdiuron and bromocyl. The highest and vigorous growth isolates have gathered from three different soil samples, and subsequently named GGPC, GM, and NTF isolates. Furthermore, those isolates were studied through the growth rate in the media containing propoxur and carbaryl in the nutrient rich liquid (NB) and compared to limited mineral (MM). All of the isolates grew faster against pesticides in the liquid medium of NB compared to MM. Highcorrelated value among parameters nurtured as due to bacterial population and those processes were not affected by media composition. The GM isolate showed similar pattern during propoxur decrease along with incubation even though the rate of pesticide elimination from the media was higher in the rich nutrient liquid media (NB) compared to MM.

0209. **Irham, M**., F.R. Schram & R. Vonk. **2010.** New Species of *Pygocephalomorpha* (Eumalacostraca: Peracarida) from the Leitchfield formation, Lower Carboniferous (Mississippian) of Grayson County, Kentucky, USA. ***In***: Fransen, C.H.J.M. *et al.* (Ed.) (2010). *Studies on Malacostraca: Lipke Bijdeley Holthuis memorial volume. Crustaceana. Monographs* 14: pp. 343–355.

Abstract

We describe a new species of pygocephalomorph eumalacostracan from the Leitchfield Formation, Mississippian (Lower Carboniferous) of Kentucky, USA. The fossils display a well-developed cephalothorax, pleon, and tail fan, and they show greatest affinity with other species within Tealliocarididae, especially to species of *Pseudotealliocaris*. The new species, *Pseudotealliocaris holthuisi*, is a second taxon of tealliocarid from the American Lower Carboniferous, the other being *P. palinscari* from the Mississippian of Pennsylvania. We compare the new species to other known species in the family and provide an overview of pygocephalomorph evolution.

0210. **Isnaningsih, N.R.** & D.A Listiawan. **2010.** Keong dan Kerang dari Sungai-Sungai di Kawasan Karst Gunung Kidul. *Zoo Indonesia* 20(1): 1–10.

Abstrak

Karakteristik karst Gunung Kidul yang khas memengaruhi keragaman dan cara hidup fauna-fauna yang ada di kawasan tersebut. Salah satu kelompok hewan yang dapat dijumpai di daerah karst Gunung Kidul adalah moluska (keong dan kerang). Kegiatan penelitian di titikberatkan pada pengungkapan jenis-jenis keong dan kerang air tawar. Sungai-sungai di kawasan karst Gunung Kidul memiliki kandungan kalsium karbonat yang relatif tinggi sehingga moluska yang ditemukan rata-rata memiliki cangkang yang tebal dan kuat.

Berdasarkan hasil koleksi, diperoleh 8 jenis keong dari suku Viviparidae, Ampullariidae, Thiaridae, Pachychilidae, Buccinidae, Lymnaeidae, dan 3 jenis kerang anggota suku Unionidae dan Corbiculidae. Masing-masing jenis moluska yang ditemukan di sungai memiliki mikrohabitat tersendiri.

0211. **Isnaningsih, N.R.** & **R.M. Marwoto. 2010.** Redescription of Landsnail *Leptopoma* (Leucoptychia) lamellatum Sykes, 1903 from Raja Ampat West papua (Mollusca, Gastropoda, Cyclophoridae). *Treubia* 37: 83–92.

Abstract

The land snail *Leptopoma (Leucoptychia) lamellatum* Sykes, 1903 was reported from the Raja Ampat Islands, West Papua. The type locality of this snail is Waigeo Island, but it also occurs on Salawati island. Based on specimens collected in 2007 and 2008 from Waigeo, Salawati and Batanta, we present a re-description of the shell including new information on body coloration, radular morphology and habitat. The known range of the species is extended to include Batanta Island.

0212. **Isnaningsih, N.R**. & **R.M. Marwoto. 2011.** Keong Hama Pomacea di Indonesia: Karakter Morfologi dan Sebarannya (Moluska: Gastropoda: Ampullariidae). *Berita Biologi* 10(4): 441–447.

Abstract

The golden apple snail Pomacea is an invasive species not only in Indonesia but mostly in Southeast Asia. The snail caused serious damage on more than thousands hectares of rice-fields. The study was based on the specimens deposited at the Museum Zoologicum Bogoriense (MZB) aimed to evaluate the occurence of Pomacea and its distribution in Indonesia. Based on the shell characters, there are four species recognized which are *P. canaliculata, P. insularum, P. scalaris, P. Paludosa* that found from many places and noted that *P. canaliculata* has wider distribution from Sumatra to Papua. The description of each species was presented in this paper as well as the map of occurrence of Pomacea in Indonesia.

0213. **Isnaningsih, N.R. 2013.** Kajian Fenetik *Pomacea* spp (Moluska: Gastropoda: Ampullariidae) Indonesia Berdasarkan morfologi Cangkang. *Jurnal Biologi Indonesia* 9(1): 13–20.

Abstract

Golden apple snail (*Pomacea*) is an introduce species which becomes invasive alien species in Indonesia because it was a threat to agriculture. The identity and taxonomic status of these snails still leaves many problems, one of which is the high variation in morphology. This study aims to undesrtand the trend of *Pomacea* grouping. Samples of *Pomacea* from 22 locations were used in this study. Phenetic construction were formed from 20 morphological characters using the Clad97 software indicating that there are three major groupings. The

first is the group of specimens which are similar in characters of shape and size, aperture dominance, and thickening of peristome. The second group consists of several sub-groups that have unintended suture, shouldered body-whorl and yellowish-orange shell, while specimens in group 3 are typically large in size and aperture dominance, TC and LC more than 60 mm, LA more than 35 mm, and thickened peristome.

0214. Jakaria, **M.S.A. Zein**, **S. Sulandari,** Subandrio & Muladno. **2012.** The Use of Microsatellite Markers to Study Genetic Diversity in Indonesian Sheep. *J. Indonesian Trop. Anim. Agric* 37(1): 1–9.

Abstract

The purpose of this research was to study genetic diversity in Indonesian sheep population using microsatellite markers. A total of 18 microsatellite loci have been used for genotyping Indonesian sheep. Total sheep blood of 200 samples were extracted from garut sheep of fighting and meat types, purbalingga sheep, batur sheep and jember sheep populations by using a salting out method. Microsatellite loci data were analyzed using POPGENE 3.2 software. This study obtained 180 alleles from 17 microsatellite loci, while average number of alleles was 6.10 alleles (6 to 18 alleles) from five Indonesian sheep populations (garut sheep of fighting type, garut sheep of meat type, purbalingga sheep, batur sheep and jember sheep population). The average of observed heterozygosity (Ho) and expected heterozygosity (He) values were 0.5749 and 0.6896, respectively, while the genetic differentiation for inbreeding among population (FIS), within population (FIT) and average genetic differentiation (FST) were 0.1006, 0.1647, and 0.0712, respectively. Genetic distance and genetic tree showed that Indonesian sheep population was distinct from garut sheep of fighting and meat types, purbalingga sheep, batur sheep and jember sheep population. This research found that strategy is needed for conversation and breeding programs strategy for conservation and breeding programs in each Indonesian sheep population.

0215. **Jamal, Y., Praptiwi,** A. Fathoni & **A. Agusta. 2011**. Bioproduksi Florogusinol oleh Jamur Endofit Coelomycetes AFAS-F3 yang Diisolasi dari Tumbuhan *Archangelisia flava* L.Merr. *Berkala Penelitian Hayati* 16(2): 169–172.

Abstract

Isolation and identification of secondary metabolites of endophytic fungus associated with the plant of *Archangelisia flava* Merr. and antibacterial activity test were done in this study. Extraction of biomass of endophytic fungus culture and its secondary metabolites isolation were done in ethyl acetate and methanol solvent then followed by thin layer and colomn chromatography. The fraction from colomn chromatography were tested for antibacterial activity against *Eschericia coli* by paper disc method. The result showed that the extract composed of 9 fractions. Fraction 4th and 8th had growth inhibition zone, 8 mm and 10 mm respectively against *E.coli* at the concentration of 100 mg/ml.

Isolation and purification process through several chromatography techniques yielded one major metabolite which was identified as phloroglucinol by co-chromarography technique on a GC-MS machine. Phloroglucinol can produce 10 mm clear zone on a disc antibacterial assay against *E.coli*.

0216. Johnson, T.A., J. Sohn, W.D. Inman, S.A. Estee, S.T. Loveridge, H.C. Vervoort, K. Tenney, J. Liu, K.K. Ang, J. Ratnam, W.M. Bray, N.C. Gassner, Y,Y, Shen, R.S. Lokey, J.H. McKerrow, K. Boundy-Mills, **A. Nukanto, A. Kanti, H. Julistiono,** L.B. Kardono, L.F. Bjeldanes & P. Crews. **2011**. Natural Product Libraries to Accelerate the High-Throughput Discovery of Therapeutic Leads. *J Nat Prod.* 74: 2545–55

Abstract

A high-throughput (HT) paradigm generating LC-MS-UV-ELSD-based natural product libraries to discover compounds with new bioactivities and or molecular structures is presented. To validate this methodology, an extract of the Indo-Pacific marine sponge *Cacospongia mycofijiensis* was evaluated using assays involving cytoskeletal profiling, tumor cell lines, and parasites. Twelve known compounds were identified including latrunculins (1–4, 10), fijianolides (5, 8, 9), mycothiazole (11), aignopsanes (6, 7), and sacrotride A (13). Compounds 1–5 and 8–11 exhibited bioactivity not previously reported against the parasite *T. brucei*, while 11 showed selectivity for lymphoma (U937) tumor cell lines. Four new compounds were also discovered including aignopsanoic acid B (13), apo-latrunculin T (14), 20-methoxy-fijianolide A (15), and aignopsane ketal (16). Compounds 13 and 16 represent important derivatives of the aignopsane class, 14 exhibited inhibition of *T. brucei* without disrupting microfilament assembly, and 15 demonstrated modest microtubule-stabilizing effects. The use of removable well plate libraries to avoid false positives from extracts enriched with only one or two major metabolites is also discussed. Overall, these results highlight the advantages of applying modern methods in natural products-based research to accelerate the HT discovery of therapeutic leads and/or new molecular structures using LC-MS-UV-ELSD-based libraries.

0217. Johnson, T.A., J.Sohna, A.E. Wardb, T.L. Cohenb, N.D. Lorig-Roach, H. Chena, R.A. Pilli, **E.A. Widjaja**, M. Hanafie, L.B.S. Kardono; P.D. Lotulun Kyria Boundy-Mills&L.F. Bjeldanesa. **2014**. Altholactone Exhibits Broad Spectrum Immune Modulating Activity by Inhibiting the Activation of Pro-Inflammatory Cytokines in RAW 264.7 Cell Lines. *Bioorganic & Medicinal Chemistry* 21(14): 4358–4364.

Abstract

An evaluation of Indonesian plants to identify compounds with immune modulating activity revealed that the methanolic extract of an *Alphonsea javanica* Scheff specimen possessed selective anti-inflammatory activity in a nuclear factor-kappa B (NF-κB) luciferase and MTT assay using transfected macrophage immune (Raw264.7) cells. A high-throughput LC/MS-ELSD based library

approach of the extract in combination with the NF-κB and MTT assays revealed the styryl lactone (+)-altholactone (2) was responsible for the activity. Compound 2, its acetylated derivate (+)-3-O-*acetyl althoca lactone* (3), and the major compound of this class, (+)-goniothalmin (1), were further evaluated to determine their anti-inflammatory potential in the NF-κB assay. Concentration–response studies of 1–3 indicated that only 2 possessed NF-κB based anti-inflammatory activity. Compound 2 reduced the LPS-induced NO production, phosphorylation of IκBα, and the expression of inducible nitric oxide synthase (iNOS) and cyclooxygenase-2 (COX-2) using Western blot analysis. Further studies using qPCR indicated 2 reduced the expression of eight pro-inflammatory cytokines/enzymes (0.8–5.0 μM) which included: COX-2, iNOS, IP-10, IL-1β, MCP-1, GCS-F, IL-6 and IFN-β. These results indicated that 2 displays broad spectrum immune modulating activity by functioning as an anti-inflammatory agent against LPS-induced NF-κB signaling. Conversely the selective cytotoxicity and in vivo anti-tumor and anti-inflammatory activity previously reported for 1 do not appear to arise from a mechanism that is linked to the NF-κB immune mediated pathway.

0218. Jønsson, K.A., M.K. Poulsen, **T. Haryoko,** A.H. Reeve & P.H. Fabre. **2013.** A New Species of Masked-Owl (Aves: Strigiformes: Tytonidae) from Seram, Indonesia. *Zootaxa* 3635 (1): 051–061.

Abstract

We describe a new species of masked-owl from the lower montane forest of Seram, one of the largest islands in the Moluccas of eastern Indonesia, for which we propose the name *Tyto almae* (Seram Masked-Owl), **sp.nov.** Molecular (mitochondrial cyt-b) differences show that Tyto sororcula of Buru and Tanimbar is closely related to *T. novaehollandiae* of Australia and New Guinea (~1% uncorrected pairwise distance), and that *Tyto almae* of Seram differs by ~3% (uncorrected pairwise distance) from both of them. These differences are further corroborated by morphology and colouration. Although a photograph from Seram published in 1987 had already established the presence of a Tyto owl on the island, this study represents the first specimen of this species. The bird was mist-netted in wet, mossy lower montane forest at an elevation of 1,350 m. No further observations of the owl were made during four weeks of fieldwork in Seram.

0219. **Juhaeti, T., N. Hidayati, F. Syarif** & Hidayat, S. **2010.** Potensi *Salvinia molesta* D. S. Mitchell, *Limnocharis flava* (L.) Buchenau dan *Monocharia vaginalis* (Burm F.) Presl untuk Fitoekstraksi Merkuri di Sawah yang Tercemar Merkuri Akibat Kegiatan Penambangan Emas Tanpa Izin (PETI). *Jurnal Teknologi Lingkungan* 11(2): 197–203.

Abstract

The research were carried out to study the potency of *Salvinia molesta* D. S. Mitcell (Kiambang), *Limnocharis flava* (L.) Buchenau (Genjer) and *Monochoria*

vaginalis (Burn.f.) Presl (Eceng) for Hg phytoextraction on paddy field contaminated with Hg from illegal mining. The plants were grown on contaminated media from paddy field in Pongkor (68.269 ppm Hg) added by NPK fertilizer (0, 3 and 6 g/pot) and ammonium thiosulphate chelating agent (0.20 ppm). The result showed that the growth of kiambang, eceng, genjer and paddy are significantly different. Chelating agent did not significantly affect the plant growth, meanwhile fertilizer significantly affected the plant growth. The treatments resulted in different Hg concentration in the plants. Fertilizer increased plant biomass and so plant Hg content since Hg contents is a function of total biomass and Hg concentration. It can be concluded that based on the criteria of accumulator were followed by genjer and eceng.

0220. **Juhaeti**, **T., L.A. Sukamto** & **N. Hidayati. 2012.** Pengaruh Media Tanam terhadap Pertumbuhan dan Produksi Garut ((*Maranta arundinacea* L.*). Dalam* Melati et al. Oktober 2012. *Prosiding Simposium dan Seminar Bersama PERAGI-PERHORTI-PERIPI-HIGI Mendukung Kedaulatan Pangan dan Energi yang Berkelanjutan*., Bogor, 1–2 Mei 2012. Hlm. 164–168.

Abstrak

Tanaman pangan lokal terutama umbi-umbian potensial dikembangkan untuk mendukung terwujudnya program ketahanan pangan. Dalam upaya meningkatkan keanekaragaman produksi dan konsumsi pangan maka tanaman garut (*Maranta arundinacea* L.) merupakan salah satu jenis umbi lokal yang potensial untuk dikembangkan. Umbinya dikonsumsi masyarakat lokal sebagai penganan setelah direbus, sebagai pengganti terigu untuk pembuatan kue kering atau dibuat emping. Berbagai tantangan harus dihadapi dalam upaya memopulerkan tumbuhan lokal termasuk garut. Persepsi negatif masyarakat pada tumbuhan garut di antaranya produksi umbinya yang rendah serta kurangnya sarana peralatan dan pengetahuan dalam budi daya dan pengolahan hasil panen. Mengingat garut bukan merupakan tanaman pokok maka aspek budi dayanya yang minimal tetapi dapat menghasilkan produksi yang optimal perlu diungkap. Penelitian ini bertujuan untuk mengetahui media tanam yang cocok untuk pertumbuhan dan produksi umbi garut. Perlakuan yang diberikan adalah media tanam masing-masing berupa tanah, tanah:kompos = 2:1, tanah:pupuk kandang = 2:1 dan tanah:kompos:pupuk kandang = 2:1:1. Tanaman ditanam di dalam pot menggunakan Rancangan Acak Lengkap dengan 20 ulangan. Peubah yang diamati tiap minggu sampai umur 6 bulan setelah tanam (BST) adalah pertumbuhan tanaman (tinggi tanaman, jumlah daun dan jumlah anakan). Pada umur 12 BST dilakukan panen untuk mengamati produksi umbi, akar, dan tajuk. Hasilnya menunjukkan bahwa pada umur 6 BST tinggi tanaman yang tertinggi adalah dari perlakuan tanah:pupuk kandang = 2:1 (134.4 cm), jumlah daun yang terbanyak dari perlakuan tanah:kompos:pupuk kandang = 2:1:1 (527.02), sedangkan jumlah anakan terbanyak adalah pada perlakuan tanah: kompos:pupuk kandang = 2:1:1 (8.75). Pada umur 12 BST, bobot akar terbanyak diperoleh pada perlakuan tanah:kompos:pupuk kandang = 2:1:1 (109.15 g), bobot tajuk tertinggi pada perlakuan tanah:kompos = 2:1 (390.2 g), sedangkan

produksi umbi tertinggi pada perlakuan tanah:kompos:pupuk kandang = 2:1:1 yakni 527.02 g berbeda nyata dengan perlakuan tanah yakni 162.63 g. Hasil ini menunjukkan bahwa garut memerlukan tanah yang cukup gembur untuk menghasilkan produksi umbi yang tinggi.

0221. **Juhaeti, T. 2013.** Respon Genjer {*Limnocharis flava* (L) Buchenau} terhadap Pemupukan dan Potensi Gizinya untuk Diversifikasi Konsumsi Sayuran. *Berita Biologi* 12(1): 107–116**.**

Abstrak

Penelitian dilakukan untuk mengetahui pengaruh pemupukan terhadap pertumbuhan (tinggi tanaman, jumlah daun, panjang dan lebar daun, bobot basah) dan produksi bunga genjer (*Limnocharis flava* (L.) Buchenau) serta analisis proksimat dan kandungan asam aminonya. Bibit genjer yang telah berdaun 6 helai ditanam di bak plastik pada media tanam berupa campuran tanah:pupuk kandang:kompos pada perbandingan 2:1:1. Perlakuan pemupukan dilakukan pada umur 1 Minggu Setelah Tanam (MST). Perlakuan pemupukan meliputi Kontrol, NPK2, NPK4, MU2, MU4, POH2 dan POH4. Tanaman ditanam sampai umur 5 Minggu setelah Pemupukan (MSP). Hasilnya menunjukkan bahwa genjer dapat tumbuh dengan baik di bak plastik pada media tanam yang diperkaya dengan pemupukan. Pertumbuhan tanaman dan produksi bunga tertinggi diperoleh dari perlakuan MU4 (NPK Mutiara 27-5-5, 4g/bak plastik). Penggunaan pupuk organik hayati starTmik sebanyak 4cc/50cc air/ bak plastik menunjukkan hasil yang sama baiknya dengan perlakuan MU4, tetapi dosis dan frekuensi penggunaan sebaiknya ditingkatkan. Hasil analisis proksimat menunjukkan bahwa daun dan bunga genjer mengandung serat (1,56% dan 1,42%), protein (2,04% dan 1,98%) dan karbohidrat (3,16% dan 2,98%) dalam jumlah yang cukup tinggi. Hasil analisis asam amino menunjukkan bahwa dalam daun dan bunga genjer terkandung 9 jenis asam amino esensial dan 8 asam amino non-esensial.

0222. **Juhaeti, T.** & **P. Lestari. 2013**. Pengaruh Defoliasi terhadap Pertumbuhan dan Produksi Tunas Muda Basela (*Basella alba* L.). *Dalam* Marwoto et al. 2013. Buku 1. *Prosiding Seminar Nasional Pekan Inovasi Teknologi Hortikultura Nasional*. Lembang, 5 Juli 2012. Hlm. 151–160.

Abstrak

Basela (*Basella alba* L) merupakan jenis sayuran potensial untuk dikembangkan dalam rangka meningkatkan keragaman konsumsi sayuran karena sudah dikenal masyarakat walaupun belum populer, rasanya enak, nilai gizinya pun tidak kalah dengan sayuran yang sudah populer. Cocok untuk ditanam di dataran rendah sebagai tanaman pot maupun untuk dikebunkan, dapat ditanam melalui stek maupun bijinya. Merupakan tanaman melilit tahunan, tetapi dapat dibudidayakan sebagai sayuran semusim (tidak dibiarkan memanjang dan melilit) untuk dipanen pucuk mudanya. Salah satu hal yang menarik dalam budi daya basela semusim adalah apabila pucuknya dipotong maka daun yang

tersisa akan terus membesar dan pertumbuhan tunas yang baru menjadi terhambat. Penelitian ini bertujuan untuk mengetahui pengaruh letak pemotongan pertama pada batang utama (yang menunjukkan jumlah ruas yang dipelihara lebih lanjut) dan pembuangan daun (defoliasi) terhadap pertumbuhan dan produksi tunas muda basela. Basela ditanam dalam bedengan. Perlakuan yang diberikan adalah: 1) Letak pemotongan pertama pada batang utama: pada daun ke 6 (B6), pada daun ke 9 (B9) dan pada daun ke 12 (B12) dan 2) Pembuangan daun: defoliasi (D1), tidak defoliasi (D0), Peubah yang diamati adalah produksi tunas muda tiap minggu sampai umur 5 minggu setelah perlakuan (MSP). Hasilnya menunjukkan bahwa untuk meningkatkan produksi tunas, tanaman lebih baik tidak didefoliasi. Produksi tunas muda pada perlakuan tanpa defoliasi (5,18) lebih banyak dibandingkan pada perlakuan defoliasi (3,57). Begitu pula pada peubah panjang tunas, jumlah daun dan bobot basah daun perlakuan tanpa defoliasi menunjukkan angka yang lebih tinggi. Pemotongan pertama pada batang utama pada daun ke 12 menghasilkan tunas muda yang lebih banyak (7,2).

0223. **Juhaeti, T.** & **P. Lestari. 2013**. Pengaruh Pemupukan dan Naungan terhadap Pertumbuhan dan Produksi Basela Cabut (*Basella alba* L.). *Dalam* Sugiyarto, A. Budiharjo, A. Susilowai dan A.D. Setyawan. 2013. *Prosiding Seminar Nasional Biodiversitas: Konservasi Keanekaragaman Hayati Berbasis Kearifan Lokal Masyarakat Indonesia*. Vol. 2. Surakarta 10 November 2012. Hlm. 94–99.

Abstrak

Telah dilakukan penelitian untuk mengetahui pengaruh pupuk dan naungan terhadap pertumbuhan dan produksi basela cabut (*Basella alba* L.) yang ditanam di polibag. Media tanam yang digunakan adalah campuran tanah:pupuk kandang:kompos = 2:1:1. Pada tiap polibag ditanam 3 benih dan pada umur 24 HST, basela dipanen dengan cara dicabut, kemudian pada polibag yang sama dilakukan kembali penanaman benih dan pada umur 21 HST tanaman dicabut, penanaman dan panen dengan cara dicabut ini diulang sampai 4 kali. Perlakuan yang diberikan adalah tiga tahap naungan yaitu tanpa naungan (N1), naungan dengan kasa putih (N2), dan naungan paranet hitam 50% (N3) serta 3 tahap pemupukan yaitu: kontrol (K1), pupuk organik hayati Starmik (K2) dan NPK 2g/pot (K3). Ulangan dilakukan 6 kali. Rancangan yang digunakan adalah RAK yang disusun secara faktorial. Peubah yang diamati adalah pertumbuhan dan produksi basela cabut meliputi tinggi tanaman, jumlah daun, ukuran daun terpanjang dan terlebar serta bobot basah tajuk dan akar. Hasilnya menunjukkan bahwa naungan berpengaruh nyata terhadap pertumbuhan dan produksi basela cabut, yang terbaik didapat dari perlakuan naungan dengan kasa putih pada hampir semua peubah yang diamati. Perlakuan pupuk tidak menunjukkan pengaruh yang nyata, hal ini diduga karena media tanamnya telah diperkaya dengan pupuk kandang dan kompos. Selama 4 kali tanam dan panen cabut pada polibag yang sama, pertumbuhan dan produksi basela cabut sudah menunjukkan penurunan walaupun masih cukup memuaskan. Hasil selengkapnya akan disampaikan.

0224. **Juhaeti, T., N. Hidayati** & S. Hidayat. **2013**. Fitoremediasi Kontaminasi Merkuri: Studi Kasus Upaya Mengatasi Pencemaran di Lahan Sawah yang Tercemar Merkuri Penambangan Emas Rakyat. *Dalam* Sulaeman *et al.* Desember 2013. *Prosiding Seminar Nasional Pertanian Ramah Lingkungan*. Bogor, 29 Mei 2013. Hlm. 595–608.

Abstrak

Teknologi hijau fitoremediasi potensial digunakan untuk membersihkan tanah dan air di lahan yang terkontaminasi, karena metode ini bersifat sederhana dan murah. Studi kasus penggunaan tanaman akumulator Hg pada lahan sawah yang tercemar merkuri akibat kegiatan penambangan emas tanpa izin (PETI) telah dilakukan di sawah di Kampung Leuwibolang, Desa Bantar Karet, dan Kampung Sipeureup Desa Cisarua, Kecamatan Nanggung, Kabupaten Bogor, Jawa Barat. Jenis tumbuhan yang ditanam adalah *Salvinia molesta*, *Monochoria vaginalis*, *Paspalum conjugatum*, dan *Commelina nudiflora.* Penelitian dilakukan untuk mengetahui pengaruh penanaman tumbuhan akumulator merkuri terhadap pertumbuhan, produksi dan kandungan merkuri pada padi yang ditanam segera setelah tumbuhan akumulator dipanen. Penanaman tumbuhan akumulator dilakukan 2 kali, kemudian segera setelah tumbuhan akumulator tersebut dipanen, sawah tersebut kembali ditanami padi. Hasil pengamatan menunjukkan bahwa setelah penanaman tumbuhan akumulator terjadi penurunan konsentrasi Hg di lumpur sawah. Begitu pula, terjadi penurunan konsentrasi Hg pada beras hasil panen setelah sawah tersebut ditanami tumbuhan akumulator. Untuk aplikasi lebih lanjut, hasil penelitian ini perlu dimantapkan ulang dengan cara penanaman tumbuhan akumulator di berbagai lokasi tercemar pada berbagai waktu tanam.

0225. **Juhaeti**, **T., N. Hidayati,** & **M. Rahmansyah. 2013**. Pertumbuhan dan Produksi Jagung Pulut Lokal Sulawesi Selatan yang Ditanam di Polibag pada Berbagai Kombinasi Perlakuan Pupuk Organik. *Jurnal Biologi Indonesia* 9(2): 219–232.

Abstrak

Penelitian ini dilakukan untuk mengetahui pengaruh berbagai kombinasi pupuk organik LIPI dan pupuk anorganik NPK terhadap pertumbuhan dan produksi jagung pulut lokal Sulawesi Selatan. Penelitian dilakukan di Kebun Percobaan Pusat Penelitian Biologi, Cibinong Science Center. Benih jagung ditanam di polibag pada media tanam berupa campuran 6 bagian tanah:2 bagian kompos. Penelitian menggunakan Rancangan Acak Kelompok yang disusun secara faktorial, dengan 4 langan. Faktor pertama adalah tiga kultivar jagung lokal yaitu A: pulut beras (*Batara Koasa*), B: pulut biji (*Batara Kamu*) dan C: pulut hibrida. Faktor ke dua adalah 14 kombinasi perlakuan pemupukan yang merupakan berbagai kombinasi perlakuan pupuk organik LIPI (Beyonic-StarTmik, BIO-121, EM-121 dan MegaRhizo) dan pupuk anorganik (pupuk anorganik masing-masing mengandung unsur makro N, P dan K). Peubah yang diamati adalah pertumbuhan dan produksi tanaman. Hasilnya menunjukkan bahwa

kultivar hibrida memiliki produktifitas yang lebih tinggi dibandingkan kultivar lokal, walaupun kultivar hibrida ini perawakannya lebih kecil. Kultivar B (pulut bji) menunjukkan peubah bobot tongkol, panjang dan diameter tongkol serta bobot 100 butir bji yang lebih besar dibandingkan Kulivar A (pulut beras). Perlakuan pemupukan berpengaruh nyata terhadap produksi tongkol jagung meliputi bobot serta ukuran panjang dan diameter tongkol. Perlakuan pemupukan EM-121 + (½ dosis of NPK), BIO-121 + (½ dosis of NPK) dan Beyonic + (¼ dosis of NPK) menunjukkan pengaruh terbaik terhadap pertumbuhan tanaman, dan hal ini tidak berbeda nyata dengan perlakuan dosis penuh pupuk anorganik NPK. Masing-masing kultivar jagung menunjukkan respon yang berbeda terhadap perlakuan pemupukan yang diberikan.

0226. **Juhaeti, T.** & **P. Lestari. 2014**. Pengaruh Frekuensi Penyiraman terhadap Pertumbuhan Sayuran Minor Basela (*Basella alba* L.*)*. *Dalam* Kartika JG, WB Suwarno, SW Ardhie, CPE Sanura dan FN Fitriana (Editor). 2014. *Prosiding Seminar Ilmiah Perhorti* 2013. Volume II: Tanaman Sayur. Bogor 9 Oktober 2013. Hal 442–447.

Abstrak

Basela (*Basella alba* L.) merupakan jenis sayuran minor yang potensial untuk dikembangkan dalam rangka diversifikasi konsumsi sayuran. Basela tumbuh cepat, bernilai gizi tinggi, dan juga berkhasiat sebagai tanaman obat. Basela belum biasa dibudidayakan petani untuk tujuan komersial sehingga tehnik budi daya dan pasca panennya belum banyak diungkap. Percobaan bertujuan untuk mengetahui pengaruh frekuensi penyiraman terhadap pertumbuhan *Basella alba*. Bahan tanam berupa biji yang berasal dari Malinau, Kalimantan Timur dan stek asal Bogor, ditanam dalam pot plastik, pada media tanam berupa campuran tanah:kompos (1:1). Percobaan dilakukan menggunakan Rancangan Acak Kelompok yang disusun secara faktorial. Perlakuan frekuensi penyiraman terdiri atas 3 taraf yakni setiap hari (F1), dua hari sekali (F2), dan tiga hari sekali (F3). Perlakuan asal bibit terdiri atas tiga yakni biji (B), stek pucuk (P), dan stek batang (D). Pengamatan meliputi jumlah tunas panen, tinggi tanaman, diameter batang, jumlah daun/tanaman, dan ukuran daun terbesar. Hasil pengamatan menunjukkan bahwa perbedaan perlakuan frekuensi penyiraman tidak berpengaruh terhadap semua peubah pertumbuhan *B. alba* yang diamati, kecuali pada lebar daun. Lebar daun tanaman pada perlakuan penyiraman 3 hari sekali nyata lebih besar dibandingkan penyiraman setiap hari. Dapat disimpulkan bahwa *B.alba* masih dapat tumbuh dengan baik pada penyiraman 3 hari sekali. Tentunya hal ini dapat menghemat penggunaan air dalam budi dayanya.

0227. **Julistiono, H. 2011**. Sifat Proteksi Ekstrak Air Panas Teh Hijau (*Camellia sinensis*) pada khamir *Candida tropicalis* yang diperlakukan dengan paracetamol. *Berita Biologi* 10(6): 763–770.

Abstract

In order to develop yeast *Candida tropicalis*. as a model cell for evaluation of substance having anti-or pro-oxidant activity in cell level, the effect of hot water tea extract on peroxidized lipids, a marker of oxidative stress and cell mortality in the yeast caused by paracetamol has been evaluated. Incubation of yeast cell in the presence of 1.38 % green tea for 2 h decreased cell viability followed with increasing of peroxidized lipids, whereas 0.27 % green tea caused increasing of peroxidized lipids with out causing cell death. Yeast cell was not affected by 0.1 % green tea. Incubation of yeast cell with presence of 0.15 % (g/v) paracetamol for 2 h did not cause cell mortality, however content of peroxidized lipids increased significantly. In the presence of higher dose of paracetamol (0.3 %) cell viability remarkably decreased and followed with increasing of peroxidized lipids significantly. Green tea of 0.1 % increased cell viability of cells treated with 0.3 % paracetamol while peroxidised lipids decreased. The data indicated that high dose of paracetamol caused oxidative stress in yeast cells, while green tea with lower concentration might protect paracetamol toxicity due to its antioxidant property. Although the antioxidant property, high dose of green tea could cause oxidation due to its pro-oxidant activity. In conclusion, yeast *C. tropicalis* could be potentially used as a model cell to evaluate substances having antioxidant property in cell level.

0228. **Julistiono**, **H**. **2012**. Efek Proteksi Ekstrak Air Panas Buah Mahkota Dewa *Phaleriamacrocarpa* (Scheff.) Boerl. Terhadap Stres Oksidasi Akibat Ferri Sitrat Pada Khamir *Candida Tropicalis*. *Berkala Penelitian Hayati* 17: 73–76.

Abstract

Yeast Candida tropiclis had been used as a cell model to investigate effects of drugs in cell level. *Phaleria macrocarpa* (Scheff.) Boerl., is traditionally used in Indonesia as medicinal plant. This study was to evaluate the antioxidant property of *P. macrocarpa* in cell level by using yeast C. tropicalis induced with ferric citrate. Ferric citrate of 1 mM or 5 mM induced oxidative stress in the the yeast, marked with increasing of an oxidative damage marker, malon dialdehyde (MDA). Concentration of 5 mM of Ferric citrate caused cell mortality but concentration of 1 mM did not affect cell viability. Hot water extract of *P. macrocarpa* of 1 mg/ml attenuated MDA level in yeast cell induced with 1 mM ferric citrate. Whereas, 1 mg/ml of *P. macrocarpa* decreased cell mortality of the yeast induced with 5 mM ferric citrate with out decreasing level of MDA. However, 4 mg/ml of *P. macrocarpa* induced oxidative damage in yeast cell. The data may indicate the potential use of Indonesian traditional plant *P. macrocarpa* as herbal medicine for protecting human cell from oxidation damage.

0229. **Julistiono**, **H**. **2012**. Toksisitas Asetaminofen pada Khamir *Candida tropicalis*. *Berkala Penelitian Hayati* 17: 53–56.

Abstract

Use of yeast for cell based method to do a screening substances having anti-oxidant property is considered to be simpler and cheaper. In order to develop yeast *Candida tropicalis* as a tool for evaluation of anti-or pro-oxidant property of substances in cell level, toxicity of an analgesic drug acetaminophen in the yeast have been preliminary studied. Incubation of yeast cell suspension in presence of 0.3% acetaminophen for 2 hours significantly decreased cell viability. Malon dialdehyde, a biochemical marker for cell oxidative damage, increased. Acetaminophen of 0.1% or 0.039% decreased when added in cell yeast suspension or supernatant respectively for 1 hour indicating drug metabolism by cellular and extracellular enzymes. The data indicated that toxicity of the drug in the yeast could be compared to that in mammalian cell where the drug is metabolized by cytochrome P-450 or peroxidase and followed with oxidative stress in cells caused by metabolite byproduct. Toxicity of the drug in the yeast may be in relation with formation of reactive oxygen species. These preliminary data promises use of the yeast for screening antioxidant property of substances against acetaminophen toxicity.

0230. **Julistiono, H. 2012.** Cekaman Oksidasi Sel Khamir *Candida tropicalis* yang diperlakukan dengan Parasetamol dan Antioksidan (+)-Katekhin. *Berita Biologi* 11: 133–140.

Abstract

In order to more understand similarity of yeast *Candida tropicalis* with mammalian cells in analgesic drug paracetamol metabolism and toxicity, ability of yeast in the drug metabolism and oxidative response of cells treated with the drug and (+)-catechin was studied. In mammalian cells, paracetamol toxicity is mainly caused by metabolite byproduct of drug metabolism catalyzed by cytochrome P450, a membrane-bound enzyme and peroxidase and a soluble enzyme. Previously, it has been shown that drug paracetamol induced oxidative stress in the yeast cells; and green tea extract protected the cells from oxidation. In this study, it had been shown that paracetamol could be metabolized by yeast cell suspension or cell free extracellular protein, reflecting possibility of role of enzyme that can not be separated from cell and that is soluble, which is common phenomenon in mammalian cell system. Paracetamol of 3 mg/ml increased lipid peroxidation, a marker of oxidative stress. A green tea polyphenol, (+)-catechin of 0.1 mg/ml did not decrease lipid peroxidation content induced by paracetamol. At higher concentration (2 mg/ml), solely (+)-catechin alone did not increase lipid peroxidation content. Paracetamol or (+)-catechin induced slightly activity of superoxide dismutase enzyme. The data indicated that acetaminophen metabolism or toxicity in the yeast may be similar to that of mammalian cells. In this condition, it suggested that (+)-catechin is one of polyphenol green tea that has weak activity of antioxidant and consequently has weak activity of prooxidant. Mechanism of paracetamol toxicity in C. tropicalis is still to be studied with emphasis on the free radical formation and drug metabolism.

0231. **Julistiono, H**., R.S. Muthmainah & Adam. **2012**. Efek Ferri Sitrat terhadap Kemampuan Khamir *Candida tropicalis* dalam Mereduksi 3-(4,5-Dimethylthiazol-2-yi)-2,5-Diphenyltetrazolium Bromide (MTT). *Berita Biologi* 11: 187–193.

Abstract

Effect of iron (ferric citrate) on 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) reduction in yeast *Candida tropicalis* was investigated. Reduction of MTT in Yeast grown in YMB media containing 5 mM of ferric citrate decreased significantly compare to that of yeast grown containing 0, or 1.25, or 2.5 mM ferric acetate after 24 h incubation. However, there was no difference in cell population among cultures treated with 0 mM, 1.25 mM, and 5 mM ferric citrate. Ferric citrate of 5 mM caused smaller colonies when cells were grown on YPDG media with rate of 3.1 %. Reduction of MTT in smaller colony cells was weaker than that of cells with normal size colony. An antioxidant, Epigallocatechin Gallate (EGCG) of 0.01 % could not remedy weak rate of MTT reduction caused by 5 mM ferric citrate. Since enzymes responsible in MTT reduction are usually located in mitochondrion, the data suggested that, in this condition 5 mM ferric citrate might cause mitochondrion disorder without killing the yeast cells. The data was in concordance with other studies on other yeast or human cells. However, unlike in other studies, this study did not show role of free radicals provoked by high level of iron concentration.

0232. Kadarusman, N. Hubert, R.K. Hadiaty, Sudarto, E. Paradis & L. Pouyaud, 2012. Cryptic Diversity in Indo-Australian Rainbowfihes Revealed by DNA Barcoding Implications for Conservation and Management in a Biodiversity Hotspot Candidate. *Plos One* July 2012, vol.7, issue 7, e40627.

Abstract

The rainbowfishes of the family Melanotaeniidae represent one of the largest radiations of freshwater fishes from the Indo-Australian archipelago. A total of 75 nominal species have been described, among which several have become very popular among tropical fish hobbyists because of their tendency to form large schools of colourful individuals. Facing habitat loss and competition or predation by introduced species, this group has become a priority in the conservation of ornamental fishes in Indonesia. In this context, several expeditions have been conducted between 2007 and 2010 in Indonesian Papua with the aim to initiate a large-scale survey of the genetic resources in this group. We assessed the diversity of the Papua rainbowfishes with DNA barcoding. We sequenced the mitochondrial COI gene for 350 specimens belonging to 53 nominal species throughout the Indo-Australian archipelago. Unexpected levels of cryptic diversity and endemism were detected since additional cryptic lineages were detected in several watersheds from the Vogelkop and the Lengguru massif. DNA barcoding supports the presence of nearly 30 evolutionary lineages among the 15 nominal species sampled in the Vogelkop and all these lineages are endemic to a single lake or watershed. This result high-

lights that the diversity of the family has been largely underestimated and urges for the identification of conservation priorities in Papua.

0233. Kadarusman, R.K Hadiaty, G. Segura, G. Setiawibawa, D. Caruso & L. Pouyaud. 2012. Four New Species of Rainbowfishes (Melanotaeniidae) from Arguni Bay, West Papua, Indonesia. *Cybium* 36(2): 362–382.

Abstract

Four new species of Rainbowfishes are described from the Arguni region. These species are allied to the species already known from the Bomberai Peninsula and the Bird's Neck, namely *Melanotaenia ammeri*, *M. irianjaya*, *M. kokasensis*, *M. parva* and *M. angfa*. The new species *M. urisa* is characterised by a thin and elongated body, a long predorsal length, a short preanal length, a long and thin caudal peduncle, short fins and by relatively large eyes. In contrast, *M. arguni* sp. nov. is distinguished from all of its congeners by small eyes, a thin body, a moderately long predorsal length, a long preanal length, and a short and thin caudal peduncle. *Melanotaenia veoliae* sp. nov. displays an original pattern of colouration, few cheek scales, a large interorbital width and a long spine length on the anal fin. *Melanotaenia wanoma* sp. nov. is recognised by an elongated body with a short and thin caudal peduncle, a short predorsal length with a long total dorsal fin, a long preanal length and a prominent margin stripe present on anal and second dorsal fin.

0234. **Kahono, S**., S. Mursidawati & **Erniwati. 2010**. Komunitas Serangga pada Bunga *Rafflesia patma* Blume (Rafflesiaceae) di luar Habitat Aslinya Kebun Raya Bogor Kota Bogor Provinsi Jawa Barat Indonesia. *Jurnal Biologi Indonesia* 6(3): 429–442.

Abstrak

The study was conducted at the Bogor Botanical Gardens, Bogor, West Java, Indonesia using a blooming female flower of *R. patma*. The insects were directly counted in the morning, noon, and afternoon on both fresh blooming and rotten *R. patma.* Twenty three insect species were collected during that study belonging to the order Coleoptera (2 families, 2 species, 5 individuals), Diptera (9 families, 18 species, 1176 individuals), and Hymenoptera (2 family, 4 species, 13 individuals). Number of individuals of each insect species captured were frequently less than 1.35% from total captured. There were specialization of flies visiting fresh opening flower and *Hemipyrellia tagaliana* (Calliphoridae), *Stegana coleoptrata* (Drosophilidae), *Heteromyza oculata* and *Tephrochlamys rufiventris* (Heleomyzidae) were predicted as important pollinators of *R. patma.*

0235. **Kahono, S**., **P. Lupiyaningdyah**, **Erniwati** & **H. Nugroho. 2012.** Potensi dan pemanfaatan serangga penyerbuk untuk meningkatkan produksi kelapa sawit di Perkebunan Kelapa Sawit Desa Api-api, Kecamatan Waru, Kabupaten Penajam Paser Utara, East Kalimantan. *Zoo Indonesia* 21(2): 23–34.

Abstrak

Bunga kelapa sawit bersifat monoceus. Penyerbukannya dapat terjadi oleh bantuan serangga penyerbuk. Kumbang *Elaeidobius kamerunicus* adalah penyerbuk spesialis, yang bersama dengan jenis-jenis serangga lain melakukan penyerbukan kelapa sawit. Pengelolaan penyerbukan kelapa sawit di setiap perkebunan berbeda karena serangga penyerbuknya pun berbeda sehingga perlu disesuaikan dengan kondisi lingkungan masing-masing. Tidak ada publikasi tentang serangga penyerbuk lokal pada kelapa sawit di Indonesia selain oleh kumbang *E. kamerunicus*. Pada penelitian ini ditemukan serangga penyerbuk kelapa sawit lainnya, di samping *E. kamerunicus*, yaitu enam jenis lebah yang terdiri dari *Apis florea, A. cerana, A. koschevnicovi*, *Trigona laeviceps, T. melina*, dan *T. itama* yang mengunjungi bunga jantan antesis dan betina reseptif. Berdasarkan analisis ukuran dan perilaku kunjungan pada bunga betina, disimpulkan bahwa hanya tiga jenis *A. florea, Trigona laeviceps*, dan *T. melina* yang mempunyai potensi tinggi sebagai penyerbuk bunga kelapa sawit pada bagian permukaan bunga. Sedangkan kumbang *E. kamerunicus* lebih berperan sebagai penyerbuk bagian dalam dari perbungaan. Populasi kumbang *E. kamerunicus* per hektare relatif rendah yang menyebabkan sebanyak 35,1% buah kelapa sawit yang tidak berkembang. Pemanfaatan kumbang *E. kamerunicus* untuk penyerbukan buatan telah dilakukan oleh petani kelapa sawit, namun dilakukan dengan cara yang menimbulkan banyak kematian pada kumbang muda.

0236. Kamitani, S, **R. Ubaidillah, S. Kahono, H. Simbolon, T. Partomihardjo**. **2011.** Two New Species and a New Record of the Genus *Hishimonus* (Hemiptera: Auchenorrhyncha: Cicadellidae) in the Krakatau Isls. and Java, Indonesia. *ESAKIA* (50): 75–80.

Abstract

Althought no species of the genus *Hishimonus* has been recorded from Java, two new species, *H. bilobatus* from West Java and *H. krakatauensis* from the Krakatau, are herein described. Furthermore, an Australian secies, *H. festivus* Knight from Christmas Is., is newly recorded from West Java.

0237. **Kanti, A.,** E. Sukara, L. Kadarusman, & N. Sukarno. **2013**. Indonesian Oleaginous Yeasts Isolated from *Piper betle* L. and *P. nigrum* L. *Mycosphere* 4(3), 1–12., 2013.

Abstract

Isolates were identified using sequence analysis of the D1/D2 region of large 26S ribosomal subunit rDNA. They belong to 25 species in 11 genera. Strains *Cryptococcus luteolus* InaCC Y-265, Candida orthopsilosis InaCC Y-302, and *Candida oleophila* InaCC Y-306 could accumulate more than 40 persen of lipid per g of cell biomass on a dry weight basis. The fatty acids observed were

primarily palmitic acid (C18:1), palmitoleic acid (C16:1), stearic acid (C18:0), oleic acid (C18:1) and linolenic acid (C18:2). The fatty acid profiles suggest that these yeasts may be good candidates for biodiesel production, as they are similar to the fatty acids of plant oils currently used for biodiesel.

0238. **Kanti, A**., N. Sukarno, L.K. Darusman, E. Sukara, **I.M. Sudiana** & K. Boundy-Mills. **2013.** Oleaginous Yeast with Cmc-Ase Activities For Biofuel Production. *Journal of Mathematical and Fundamental Sciences* (ISSN: 2337-5760)

Abstract

The objective of study was to evaluate the possibility of using carboxymethyl cellulose (CMC) as carbon sources for lipid accumulation by oleaginous yeasts: *Candida* sp. (Y09GS34 and Y09GS48) and *Lipomyces* sp. (10381) obtained from InaCC collection, Indonesia. To obtain the effect of nitrogen on lipid accumulation, the growth medium were formulated as 1% CMC and N limited with CMC 2% and the cultures were incubated for 7 days. Lipid accumulation in the cells was determined by Suddan Black method. Its composition was identified by Gas Chromatography Mass Spectrometry (GC-MS). During the incubation, the CMC-ase activities were monitored to determine hydrolyses activities by oleaginous yeasts, obtaining for lipid accumulation. The results of the study showed that cellulase activities of all strains tested (Y09GS34, Y09GS48, and 10381) was higher in Nlimited with 2% CMC, namely 1.193, 0.633 and 1.233 unit per hour, respectively. Y09GS34 showed highest lipid accumulation (63.75% per cell dry weight). We identified that lipid composition of Y09GS34 which were palmitate acid, stearate acid, linolenate acid, and oleic acid implying cellulose could be used as carbon source for lipid accumulation by *Candida* sp. (Y09GS34). Therefore, cellulose can be used as carbon source for lipid accumulation by oleaginous yeasts, and Y09GS34 is expected to be potential microbes for bio-fuel research.

0239. **Kartonegoro, A.** & J.F. Veldkamp**. 2010.** Revision of *Dissochaeta* (*Melastomataceae*) in Java, Indonesia. *Reinwardtia* 13(2): 125–145.

Abstract

There are 12 species of *Dissochaeta* (*Melastomataceae*) in Java, Indonesia: *D. bakhuizenii*, *D. bracteata*, *D. decipiens*, *D. fallax*, *D. gracilis*, *D. inappendiculata*, *D. intermedia*, *D. leprosa*, *D. monticola*, *D. reticulata*, *D. sagittata* and *D. vacillans*. *Diplectria* and *Macrolenes* are regarded as separate genera and species traditionally classified within the latter have not been included. *D. leprosa*, *D. reticulata*, and *D. sagittata* are reinstated as species. *Dissochaeta gracilis* is the most common species of *Dissochaeta* and *D. bracteata* is the rarest one. There are no endemic for the island. Each taxon is provided with literature refrences, synonymy, morphological description, distribution, ecological habitat, collector's note and note. An edentification key and a list of collections seen are included.

0240. **Kartonegoro, A. 2012**. The Gesneriaceae of Sulawesi V: a New Species of *Rhynchoglossum* and New Combination in *Codonoboea*. *Edinburgh J. Bot.* 69: 357–361.

Abstract

A new species of *Rhynchoglossum*, *R. capsulare* Ohwi ex Karton. (Gesneriaceae), is described and illustrated. This species resembles the widespread *Rhynchoglossum obliquum* Blume. A new combination, *Codonoboea kjellbergii* (B.L.Burtt) Karton., is proposed to accommodate the former *Henckelia kjellbergii* B.L. Burtt.

Kartonegoro, A. 2013. A Revision of *Rhynchoglossum* (Gesneriaceae) In Malesia. *Reinwardtia* 13(5): 421–432.

Abstract

The genus *Rhynchoglossum* in Malesia has been revised. Five species are included: *R. borneense*, *R. capsulare*, *R. klugioides*, *R. obliquum* and *R. spumosum*. *Rhynchoglossum obliquum* is a widespread and common species, while the other four are endemic to Malesia. Morphological descriptions, nomenclature, distribution, ecological information and notes are provided for all species. An identification key and a list of examined specimens are included.

0241. **Kartonegoro, A.** & J.F. Veldkamp. **2013**. Revision of *Creochiton* (Melastomataceae). *Blumea* 58(3): 217–227.

Abstract

A taxonomic revision of the Malesian genus *Creochiton* (Melastomataceae) is presented. Twelve species are recognized, although one is based on the original description only. *Creochiton turbinatus* (comb. nov.) is raised to specific rank from a variety of *C. ledermannii*. A key to the species, descriptions, ecological habitats, distributions (with maps), synonymy, taxonomic notes, vernacular names and an index to collections are provided.

0242. **Keim, A.P. 2010**. A New Species of *Freycinetia* (Pandanaceae) from Papua New Guinea. *Reinwardtia* 13(2): 101–106.

Abstract

Freycinetia streimannii A.P. Keim is newly described from Papua New Guinea. The novelty is closest to *Freycinetia normanbyensis* Huynh but is clearly separated by differences in the size of the cephalia and in the number of stigmas.

0243. **Keim, A.P.** & **M. Rahayu. 2010**. Pandanaceae of Sumbawa, West Nusa Tenggara, Indonesia. *Reinwardtia,* 13(2): 151–158.

Abstract

Two species of *Freycinetia* and two species of *Pandanus* are recorded from the Batulanteh vicinity in West Sumbawa. One species is a new species described here for the first time and is named *Freycinetia sumbawaensis* A.P. Keim & M. Rahayu.

0244. **Keim, A.P. 2011.** New Variety, Records & Discoveries of Some Species of *Pandanus* (Pandanaceae) in Sumatra & Kalimantan, Indonesia. *Reinwardtia* 13(3): 255–262.

Abstract

This current study shows the presence of a new variety of *Pandanus korthalsii* Solms from Bengkulu, *P. korthalsii* Solms var. *bengkuluensis* A.P. Keim and records the presence of three species from *Pandanus* previously unknown to Sumatra and Borneo, particularly Kalimantan: *Pandanus irregularis* Ridl., *P. labyrinthicus* Kurz and *P. stelliger* Ridl. The result of this study also indicates that in Sumatra the coastal-inhabitat *P. labyrinthicus* can also be found further inland from its previously known habitat.

0245. **Keim, A.P. 2011.** The Pandan Flora of Foja Memberamo Game Reserve and Baliem Valley, Papua-Indonesia. *Reinwardtia* 13(3): 271–297.

Abstract

Seven species of *Pandanus* and seven species of *Freycinetia* are observed in Kwerba and adjacent areas within the Foja Memberamo Game reserve, Papua Indonesia. Two species are proposed as new: *Freycinetia kwerbaensis* A.P. Keim and *Pandanus korwae* A.P. Keim. This recent study also acknowledges a new record for *F. mariannensis* and a possibly new record for *F. vidalii*. The rest are extension of distribution areas in mainland New Guinea. The discovery of a long searched almost mythical wild type of widely cultivated *P. conoideus* is also accomplished. A new species from Baliem Valley nearby Wamena in the Jayawijaya Mountains, Papua Indonesia namely *F. wamenaensis* A.P. Keim is described.

0246. **Keim, A.P., Rugayah** & **H. Rustiami. 2011.** The Pandanaceae of the Bukit Baka Bukit Raya National Park and Adjacent Areas, West and Central Kalimantan, Indonesia, with Notes on Their Nomenclature and the Rediscovery of *Pandanus aristatus* and Several New Records. *Gardens' Bulletin Singapore* 63(1 & 2): 31–62.

Abstract

Eight species of Pandanaceae (3 *Freycinetia* spp., 5 *Pandanus* spp.) were recorded from the Bukit Baka Bukit Raya National Park and adjacent areas in the West and Central Kalimantan Provinces, Indonesia. *Pandanus aristatus* was recollected and the description improved. *Pandanus motleyanus* has been assigned to synonymy under *P. yvanii*. *Pandanus yvanii* and *P. helicopus* were found to occupy different niches in the peat swamps. *Pandanus epiphyticus* Martelli and *P. pachyphyllus* Merrill were recorded for the first time in Kalimantan. The doubtful presence of *F. sumatrana* in Java is resolved. Two Eastern Malesian species, *F. amboinensis* and *F. ceramensis* are synonyms of *F. sumatrana*, thus the species is now an exceptionally widespread species in both western and eastern Malesia. Full descriptions of species are provided.

0247. **Keim, A.P**. & Dransfield, J. **2012**. A Monograph of the Genus *Orania* (Arecaceae: Oranieae). *Kew Bulletin* 67(2): 127–190.

Abstract

Orania Zipp. (Oranieae: Arecoideae: Arecaceae) is a genus of solitary, single stemmed tree palms consisting of 28 species, of which 11 species are new and described for the first time in this paper. The genus has an interesting disjunct distribution, with 25 species found in Malesia and three species confined to Madagascar. The 11 new species, *O. bakeri* A. P. Keim & J. Dransf., *O. dafonsoroensis* A. P. Keim & J. Dransf., *O. deflexa* A. P. Keim & J. Dransf., *O. ferruginea* A. P. Keim & J. Dransf., *O. grandiflora* A. P. Keim & J. Dransf., *O. littoralis* A. P. Keim & J. Dransf., *O. longistaminodia* A. P. Keim & J. Dransf., *O. subdisticha* A. P. Keim & J. Dransf., *O. tabubilensis* A. P. Keim & J. Dransf., *O. timikae* A. P. Keim & J. Dransf. and *O. zonae* A. P. Keim & J. Dransf. are found in New Guinea. A determination key is produced and detailed descriptions provided for all taxa.

0248. **Keim, A.P. 2013**. A New Species of *Freycinetia* Gaudich. (Pandanaceae; Freycinetoideae) From Tidore Island, Moluccas, Indonesia. *Reinwardtia* 13(5): 441–444.

Abstract

A new species of *Freycinetia* Gaudich. (*Pandanaceae*; *Freycinetoideae*) from Tidore Island, Moluccas, Indonesia. *Freycinetia tidorensis* A.P.Keim is newly described from Tidore Island, Moluccas. This new species is morphologically similar to *F. devriesei* Solms but differs in the number of stigmatic remains. In *F. devriesei* the number is 3 to 6, never less than 3; whereas in *Freycinetia tidorensis* 1 to 2, never more than 2.

0249. Keith, P., G.R. Allen, C. Lord & **R.K. Hadiaty. 2011.** Five New Species of *Sicyopterus* (Teleostei: Gobioidei: Sicydiinae) from Papua New Guinea & Papua**.** *Cybium* 35(4): 299–318.

Abstract

Five new species of *Sicyopterus,* freshwater gobies, are described from streams of Papua New Guinea and Papua Province, Indonesia. They differ from other species belonging to the genus by a combination of characters including the upper lip morphology, the number of soft rays in the second dorsal fin, the scales in the lateral, predorsal, transverse back, transverse forward and zigzag series, sexual dimorphism, and live colours.

0250. Keith, P., **R.K. Hadiaty** & C. Lord. **2012.** A New Species of *Belobranchus* (Teleostei: Gobioidei: Eleotridae) from Indonesia.*Cybium* 36(3): 479–484.

Abstract

A new species of *Belobranchus,* a freshwater Eleotridae, is described from streams of west Pacific Islands. It differs from the other only species belonging to the genus by a combination of characters including the scales in transverse forward series (22–28 *versus* 27–35), in transverse back series (18–21 *versus* 20–23), in predorsal scales (16–23 *versus* 21–34), and the *in vivo* general colour pattern.

0251. Keith, P., **R.K. Hadiaty**, N. Hubert, F. Busson & C. Lord. **2014**. Three New Species of *Lentipes* from Indonesia. *Cybium* 38(2): 133–146.

Abstract

Three new species of *Lentipes* (*L. argenteus, L. ikeae* and *L. mekonggaensis*), freshwater gobies, are described from streams of Sumatra, Java, Bali and Sulawesi (Indonesia). They differ from other species of the genus by a combination of characters including an urogenital papilla lacking lateral lobes and retractable into a sheath-like groove, the number of pectoral fin rays, the number of scales, tricuspid teeth in the upper jaw, and a specific body colour in males.

0252. Khumaida, N. & **T. Handayani. 2010.** Induksi dan Proliferasi Kalus Embrionik pada Beberapa Genotipe Kedelai (*Embryogenic Callus Induction and Proliferation on Several Soybean Genotypes*). *Jurnal Agronomi Indonesia* 38(1): 19–24.

Abstract

The successfull of gene transformation on crop plants depends on the ability of explant to develop somatic embryos. The effect of medium composition on induction and proliferation of embryonic callus was analyzed on several soybean genotypes,including low irradiance (LI) tolerant genotype (Ceneng, Pangrango C6-30-10 dan C6-76-10) and two LI sensitive genotypes (Godeg and Slamet). Immature cotyledons (14 DAA) were cultured in induction medium including MSIA (MS, vitamin B5, 30% sucrose, 0.2% gelrite, 10 mg L-1 2,4-D and 10 mg L-1 NAA) and MSIB (MS, vitamin B5, 30% sucrose, 0.2% gelrite, and 40 mg L-1 2,4-D). Embryonic calli was subcultered one month

after initiation onto proliferation medium including MSIIA (MS, vit. B5, 30% sucrose, 0.2% gelrite, 5 mg L-1 2,4-D and 5 mg L-1 NAA) and MSIIB (MS, vitamin B5, 30% sucrose, 0.2% gelrite, and 20 mg L-1 2,4-D). The result showed that percentage of callused explant was 76–94% and the higest initiation obtained on Pangrango genotypes. The average of calli diameter at 1 month after initiation was 0.5–1.2 cm. Calli which was obtained on MSIA medium showed yellow, tranparent, and friable, whereas calli was obtained on MSIB medium showed yellow-brown, transparent and friable. Increasing calli diameter and structure were obtained on proliferation medium. The combination of 2,4-D and NAA on MSIA and MSIIA both are induction and proliferation medium respectively were better than MSIB and MSIIB which were contain only 2,4-D. Ceneng genotype showed best performance of somatic embryogenesis than others, and Slamet genotype showed lowest response both on callus induction and proliferaion.

0253. **Khusniati, T**., Yuliawati & N. Nur Hidayat. **2011**. Physical Performance and Protease Activity of Skim and Whole Milk Additional *Acetobacter aceti* and Inoculated *Pseudomonas fluorescens* at Storage. *Berkala Penelitian Hayati* Edisi Khusus. Hlm. 25–29

Abstract

Pasteurised milk spoiled due to activity of psychrotrophic bacteria. *Acetobacter aceti* which contains acetic acid can inhibit protease activity of psychrotrophic bacteria. To know inhibition of *A. aceti*, physical performance and protease activity of skim and whole milk additional *A. aceti* and inoculated *Pseudomonas. fluorescens* (treated milk) was observed Concentrations of *A. aceti* used were 0, 2.5, 5, 7.5 and 10% (w/v), and incubation was conducted at temperature 35°C for 2 hours. Physical performance was visually detected, and protease activity was detected by "Lowry" method. Times of storage used were 0 (4 days before expiry date), 4, 8, 12 and 16 days.

The research results show that physical performances (colour, flavour, homogenity) on treated whole milk were better than that of skim milk at storage after expiry date. Protease activities of treated milk with various concentrations *A. aceti* were lower than that of control (without *A. aceti*). The higher the concentration of *A. aceti*, the higher the inhibition of protease activity of treated milk at storage. The inhibition of protease activity in treated milk and incubated was stronger than that without incubation. Protease activity in treated whole milk was lower than that in skim. The highest inhibition was found in treated milk with incubation, at storage, and concentration 10% *A. aceti*, with protease activities of treated whole milk were in the range 0.232–0.896 μM/mL.minute, and of skim were 0.236–1.206 μM/mL.minute

0254. **Khusniati, T.,** A. Ardina, & **A. Choliq. 2011**. Lactic Acid Content and β-galactosidase Activity of Yoghurt with Starter Added *Bifidobacteria bifidum* at

Storage and Its Organoleptic Test. *Berkala Penelitian Hayati*. Edisi Khusus. Hlm. 79–82

Abstract

Bifidobacteria bifidum as probiotic bacteria added in yoghurt starter and can increase yoghurt quality. To know *B. bifidum* yoghurt quality, lactic acid content and β-galactosidase activity of yoghurt with starter (*Lactobacillus bulgaricus*: *Streptococcus thermophillus* = 1:1) added *B. bifidum* at storage and its organoleptic test, was observed. Comparison of *B. bifidum* concentration added were 1:1:0, 1:1:1, 1:1:1, 1:1:1.5; and storage times were 0, 5 (milk at expiry date), 10, 15 and 20 days. Organoleptic tests were conducted by 18 panelists, β-Galactosidase activity and lactic acid content were detected by ONPG and titration methods, respectively. The results show that organoleptic scores of probiotic fat yoghurt were more acceptable than that of skim. Lactic acid contents and β-galactosidase activities of probiotic fat yoghurt, at 0 and 5 days, with percentages in the range 0.440–0.540 % and 0.2287-0.2803 U/mL, respectively, were higher than that of skim, with 0.400–0.500 % and 0.1250–0.2083 U/mL, on the contrary, at 10, 15 and 20 days, those of the fat yoghurt, were lower than that of skim ($P<0.05$). Based on organoleptic tests, lactic acid contents, and β-galactosidase activities, probiotic fat yoghurt were more acceptable than probiotic skim yoghurt.

0255. **Khusniati, T., A. Choliq & R.D. Rahayu. 2011**. The Organoleptic and Physic Characteristics and Lactic Acid Contents of Yoghurt with Commercial Starter Added *Bifidobacterium bifidum*. *Berkala Penelitian Hayati* 17(1): 87–90.

Abstract

Bifidobacterium bifidum is probiotic bacteria which inhibit negative bacteria in human ulcer. Adding *B. bifidum* in commercial yoghurt starter may increase yoghurt quality. To know yoghurt quality, organoleptic and physic characteristics and lactic acid contentss of yoghurt with commercial starter added *B. bifidum* was observed. *B. bifidum* concentrations added were 1:4, 2:4, 3:4 (v/v). Organoleptic characteristics were conducted by 18 panelists, physics were visually detected and lactic acid contrents were titration method. The results show that accepted yoghurt characteristics were yoghurt with commercial starter added *B. bifidum* 1:4 (v/v), and fat yoghurt were more acceptable than that skim. The higher *B. bifidum* concentrations used, the stronger flavors (after expiry date) and colours (at and after expiry date) of yoghurt, while yoghurt homogenity decreased (at and after expiry date). Fat yoghurt flavors were stronger than that of skim. The higher *B. bifidum* concentrationss and storage times, the higher yoghurt lactic acid contents. Lactic acid contents of fat yoghurt with various starters, were higher than that skim at storage 0–15 days. The fat yoghurt lactic acid contents were 0.99%–1.44%, while that skim were 0.95%–1.20%. Based on organoleptic and physic characteristics and lactic acid contents, fat yoghurt were more acceptable than that skim.

0256. **Khusniati, T**. & I. Normalia. **2011**. Protease Activities of Semi-purified *Pseudomonas fluorescens* in Protein Degradation of Pasteurized Milk at Storage. *Berkala Penelitian Hayati* 17(1): 63–68.

Abstract

Protein in stored milk spoiled due to protease activities of *Pseudomonas fluorescens*. To know protease effect in milk, protease activities of semi-purified *P. fluorescens* in protein degradation of stored pasteurized milk were detected. Protease was semi-purified by ethanol 70%. Protease activities were detected by modified Lowry method, protein degradation by formol titration, and protein content by Kjeldahl method. Milk storage' times were conducted at 0 day (4 days before expired date) up to 12 days (8 days after expired date).

The results show that the longer the storage times, the higher the protease activities and protein degradation of milk. At storage 12 days, protease activities in control was 0.2556 Unit/mL (skim) and 0.2116 Unit/mL (whole), and in inoculated milk (crude) was 2.2044 Unit/mL (skim) and 1.5378 Unit/mL (whole); while in inoculated milk (semi-purified) was 3.5355 Unit/mL (skim) and 1.6778 Unit/mL (whole), respectively. The decrease of inoculated milk' homogeneous were faster than that of control. Protein degradation in control, inoculated skim milk (crude and semi-purified) at 12 days were 4.48%, 7.28% and 7.62%, while that in whole milk were 3.81%, 7.28% and 6.04%, respectively. Based on protease, protein degradation and homogeneous, it can be concluded that skim milk spoiled faster than whole milk.

0257. **Khusniati, T.,** E.T. Padarik & **R. Handayani. 2011**. The Bacterial Growth and "crude" β-galactosidase Characteristics *of Klebsiella pneumonia* and *Lactobacillus bulgaricus. International Proceeding* of *The International Conference on Bioscience and Biotechnology*. Pp: 69–74.

Abstract

The β-galactosidase enzyme isolated from bacteria is important for human which have "lactose intolerance" because the enzyme hydrolyzed lactose to be glucose and galactose in which these compounds can be digested by human ulcer. To know the characteristic differences between bacteria species producing β-galactosidase, the bacterial growth and "crude" β-galactosidase characteristics of *Klebsiella pneumonia* and *Lactobacillus bulgaricus* were researched. The bacteria were grown in MRS media, the growth of bacteria was based on the values of absorbances, characteristics (pH, temperature, incubation time, optimum activity) of "crude" β-galaktosidase of the two bacteria were detected and the enzyme activities were measured by modified Marteau *et al.* (1990) method. The research results show that the highest bacterial growth of *K. pneumonia* was reach at time period for 24 hours, while that of *L. bulgaricus* was at 27 hours. The highest optimum activity of "crude" *K. pneumonia* β-galactosidase was reached at pH: 5.5, temperature 39oC and incubation time for 35 minutes, while that of *L. bulgaricus* was reached at pH 6.5, temperature 45°C and incubation time for 40 minutes. The activities of "crude" *K.pneumonia*

β-galactosidase before optimazion was 0.340 U/mL and after optimazion was 0.425 U/mL, while that of *L. bulgaricus* before optimazion was 0.047 U/mL and after optimazion was 0.096 U/mL It can be concluded that there were the differences in bacterial growth and characteristics of "crude" β-galactosidase between the two bacteria of *K. pneumonia* and *L. bulgaricus*.

0258. **Khusniati, T**., Lutfi, **A. Choliq, Sulistiani** & **I. Hidayat. 2012**. Characterization of Immobilized β-galactosidase *E. Cloacae* LIPI-MC 390. *Proceeding of International Conference on Biotechnology*. Pp: 187–192

Abstract

β-Galactosidase (EC 3.2.1.23) is an enzyme used in production of low/free lactose milk consumed mainly human which has lactose intolerance. Characteristics of indigenous Lactic acid bacteria (LAB) producing β-galactosidase have not been fully reported. To know the characteristics of the LAB, characterization and identification of the best screened indigenous LAB producing β-galactosidase were researched. The best LAB was molecularly identified. The crude β-galactosidase of LAB was produced by centrifugation. The optimum production of the best LAB β-galactosidase was measured based on incubation time, inoculum concentration, pH and lactose concentration. The optimum activity of the β-galactosidase was measured based on pH and temperature. The β-galactosidase activity was measured by modified method of Lu *et al*. 2009 Research results show that 10 (ten) out of 70 (seventy) indigenous LAB produced β-galactosidase with high activities. LAB producing the highest β-galactosidase activity than the others was LAB strain B110. The LAB strain B110 was identified molecularly as *Lactobacillus plantarum* strain B110. The β-galactosidase optimum production of *L. plantarum* strain B110 was reached at incubation time for 30 hours, 2% inoculum concentration, medium pH: 7, and 2% lactose concentration. The optimum activity of the β-galactosidase was reached at temperature of 45° C and pH: 6,5, respectively. Based on selection and characterization of *L. plantarum* strain B 110, *L. plantarum* strain B 110 was the best LAB producing β-galactosidase than that of the other LAB.

0259. **Khusniati, T., A. Choliq & Sulistiani. 2012**. Acidity, Total Bacteria and Organolptic Tests of Honey Yoghurt. *Prosiding Seminar Nasional XXI. Kimia dalam Industri dan Lingkungan*. JASAKIA. Hlm. 443–446

Abstract

Yoghurt is fermented milk using *Lactobacillus bulgaricus* and *Streptococcus thermophilus* as bacteria starter. To increase the quality of yoghurt, honey was used in production of honey yoghurt.The quality of honey yoghurt have not been conducted, to know it acidity, total bacteria and organoleptic tests of honey yoghurt was researched. The honey concentrations used were 0, 5, 10, 15, 20% honey and the selected honey concentration was 10%. Yoghurt without honey (0%) was used as control. The acidities were detected by titration method,

and the total bacteria were measured by *total plate counts* (*TPC*) method. The organoleptic tests of color, flavor, texture, taste, viscosity and after taste were visually detected by 18 panelists.

The research results show that based on colour, coagulation and homogeneous, yoghurt additional 10% honey was the best concentration than the other concentrations for production of honey yoghurt Yoghurt additional 10% honey was accepted by panelists with scores of colour (5.67), flavor (5.28), texture (5.28), viscosity (5.28), taste (5.0) and after taste (4.83). The lactic acid contents of 10% honey yoghurt was higher than that of control, while the total bacteria of 10% honey yoghurt was lower than that of control. The lactic acid contents of 10% honey yoghurt was 1.57 %, while the lactic acid content of control was 1.31%. The total bacteria of 10% honey yoghurt was $5x10^7$ cfu/mL, while the total bacteria of control was $3x10^7$ cfu/mL. Based on the acidity, total bacteria and organoleptic tests, 10% honey yoghurt was better than that of yoghurt without honey.

0260. **Khusniati, T., A. Choliq** & **Sulistiani. 2012**. The Production Time and Kinetic Parameter of Crude *Enterobacter cloacae* A4Bi β-galactosidase. *Prosiding Seminar Nasional XV. Kimia dalam Pembangunan* JASAKIAI. Hlm. 737–742.

Abstract

The β-galactosidase enzyme has important role in production of low/free lactose milks for consumption mainly human which have "lactose intolerance". This enzyme hydrolyzed lactose to be glucose and galactose. The β-galactosidase characteristics of local various bacteria have not been fully reported, to know it the production time and kinetic parameter of crude *Enterobacter cloacae* A4Bi β-galactosidase were researched. *Enterobacter cloacae* A4Bi was local bacteria isolated from fruits in Salak Mountain. The production time of *Enterobacter cloacae* A4Bi was conducted every 6 hours for 30 hours. The enzyme activities were measured by modified Marteau et al. (1990) method, and kinetic parameter of crude β-galactosidase ($K_{M\ app}$ and $Vmax_{\ app}$) were based on curves of Michaelis Menten and Lineweaver Burk.

Research results show that the production time of *Enterobacter cloacae* A4Bi was reached in 18 hours with the value of crude β-galactosidase activity was 9.117 U/mL. The specific activity of the crude β-galactosidase was 2,108 U/mg. The values of $V_{maks\ app}$ and $K_{M\ app}$ of the crude β-galactosidase were 29.412 µmol/minute and 1.118 mM, respectively. Based on the crude β-galactosidase activity and kinetic parameter of the crude β-galactosidase, it can be concluded that *Enterobacter cloacae* A4Bi was a good local bacteria in production of β-galactosidase.

0261. **Khusniati, T.**, A. Tri Aditya, A. Choliq & Sulistiani. **2014.** Characterization and Identification of the Best Screened Indigenous Lactic Acid Bacteria Producing Beta-Galactosidase. *Proceeding of International Conference of Biological Sciences*. Bio-UGM. First Edition. 2014. Pp. 439–445.

Abstract

β-Galactosidase (EC 3.2.1.23) is an enzyme used in production of low/free lactose milk consumed mainly human which have lactose intolerance. Characteristics of indigenous Lactic acid bacteria (LAB) producing β-galactosidase have not been fully reported. To know the characteristics of the LAB, characterization and identification of the best screened indigenous LAB producing β-galactosidase were researched. The best LAB was molecularly identified. The crude β-galactosidase of LAB was produced by centrifugation. The optimum production of the best LAB b-galactosidase was measured based on incubation time, inoculum concentration, pH and lactose concentration. The optimum activity of the β-galactosidase was measured based on pH and temperature. The β-galactosidase activity was measured by modified method of Lu et al., 2009. Research results show that 10 (ten) out of 70 (seventy) indigenous LAB produced β-galactosidase with high activities. LAB producing the highest β-galactosidase activity than the others was LAB strain B110. The LAB strain B110 was identified molecularly as *Lactobacillus plantarum* strain B110. The β-galactosidase optimum production of *L. plantarum* strain B110 was reached at incubation time for 30 hours, 2 persen inoculum concentration, medium pH: 7, and 2 persen lactose concentration. The optimum activity of the β-galactosidase was reached at temperature of 45o C and pH: 6,5, respectively. Based on selection and characterization of *L. plantarum* strain B 110, *L. plantarum* strain B 110 was the best LAB producing β-galactosidase than that of the other LAB.

0262. Kikuta, S., N. Fujiyama, **S. Kahono**, N. Kobayashi, **S.Hartini &** H. Katakura. **2013.** Potential Ability of the *Solanum*-Feeding Ladybird Beetle *Henosepilachna diffinis* (Coleoptera: Coccinellidae) to Use the Introduced Fabaceous Plant *Centrosema molle* in East Kalimantan, Indonesia. *Treubia* 40: 39–46.

Abstract

Host specificity has been a major factor in generating the tremendous diversity of phytophagous arthropods. Studies of adaptation to introduced or invasive plant species provide an opportunity to investigate incipient evolutionary changes in host specificity. We investigated the cryptic ability of the Asian tropical herbivorous ladybird beetle *Henosepilachna diffinis* to feed on the fabaceous weed "centro", *Centrosema molle*, which was introduced to Southeast Asia about 200 years ago. In laboratory choice tests using this plant and the normal host plant, *Solanum torvum*, adults preferred *S*, *torvum* to centro, but over half the beetles tested ate leaves of both plants. Furthermore, most first-instar larvae accepted centro during a rearing experiment, and a few of them grew to the third-instar stage, though none reached the final (fourth) instar, *Henosepilachna diffinis* likely acquired this incomplete acceptability of centro without any direct host-grazer interaction with centro, probably before this weed was introduced to Southeast Asia. The results of this study further suggest that another *Henosepilachna* species, *H. vigintioctopunctata*, might similarly have already acquired an incomplete ability to use centro when this beetle

encountered it for the first time, and this trigered a subsequent host-range expansion from solanaceous plants to include centro in various parts of South-east Asia.

0263. Kimura, M.T. & **A. Suwito. 2012**. Diversity and Abundance of frugivorous drosophilids and Their Parasitoids in Bogor, Indonesia. *Journal of Natural History* issues 31–32, 1947–1957.

Abstract

The diversity, abundance and association of frugivorous drosophilids and their parasitoids were studied in Bogor, Indonesia (tropical region), and compared with the results in Iriomote-jima (subtropical region) and Tokyo (temperate region). Among the adult drosophilid flies collected in traps baited with banana in wooded areas, the number of commonly observed frugivorous drosophilid species (i.e. species that occupied more than 0.5% of total drosophilid samples) was 10 in Bogor and nine in Iriomote-jima, more than in Tokyo (six species), probably reflecting the high diversity and abundance of fruits. The rate of parasitism was very high in Bogor, especially in species of the *Drosophila ananassae* and immigrans species groups. The diversity of parasitoids attacking frugivorous drosophilids was higher in Bogor and Iriomote-jima than in Tokyo, possibly because of the high species diversity of host drosophilids. Parasitoids generally showed wider latitudinal distributions than drosophilids. No remarkable difference was observed in the host range among tropical, subtropical and temperate parasitoids.

0264. Kimura, M.T. & **A. Suwito**. **2014**. What Determines Host Acceptance and Suitability in Tropical. *Environmental Entomology* 43(1): 123–130 (2014).

Abstract

For successful parasitism, parasitoid females must oviposit and the progeny must develop in individual hosts. Here, we investigated the determinants of host acceptance for oviposition and host suitability for larval development of *Drosophila* parasitoids from Bogor and Kota Kinabalu (≈1,800 km northeast of Bogor), Indonesia, in tropical Asia. *Asobara pleuralis* (Ashmead) from both localities oviposited frequently (>60%) in all of the drosophilid species tested, except the strain from Kota Kinabalu oviposited rarely (10%) in *Drosophila eugracilis* Bock & Wheeler. *Leptopilina victoriae* Nordlander from both localities only oviposited frequently (>77%) in species from the *Drosophila melanogaster* species group except *D. eugracilis* (<3.7%), whereas *Leptopilina pacifica* Novković & Kimura from Bogor oviposited frequently (>85%) only in species from the *Drosophila immigrons* species group. Thus, host acceptance appeared to be affected by host taxonomy, at least in *Leptopilina* species. Host suitability varied considerably, even among closely related drosophilid species, which suggests that the host suitability is at least in part independent of host taxonomy and that it has been determined via parasitoid-host coevolutionary interactions (i.e., arms race). Host acceptance did not always coincide with host suitability,

i.e., parasitoids sometimes oviposited in unsuitable host species. Geographic origin strongly affected the host acceptance and suitability in the *A. pleuralis—D. eugracilis* parasitoid—host pair, whereas it only weakly affected the acceptability and suitability in other parasitoid—host combinations.

0265. Kismurtono, M. & **B. Naiola. 2010.** The Challenges of Biofuel Implementation in Indonesia: Environmental Prospect. Searching the Possibilities to Produce Bioethanol (Gasohol) as New Renewable Energy from Lontar Palm (*Borassus sundaicus* L.) in East Nusa Tenggara, Indonesia. *Proceedings The ASEAN-Korea Symposium and Workshop on Biorefinery Technology 2010*"*-Converging Biorefinery to Response Climate Change. Res. Cent. Biotech-LIPI, Indon. Biotech Consors., Korean Soc. Biotech. Bioengin., ASEAN COST-SBC Indon., Universitas Indonesia*: 63–67

Abstract

Biofuel production in Indonesia in 2025 could reach 15.9 billion liters and 16.5 billion liters per year of ethanol and biodiesel, respectively. If the technology is still depended on the first generation biofuels, the land dedicated to biofuels would be in the range of 6.6 to 11.6 million hectares. Therefore, it is no wonder that there are widespread concerns that biofuels could end up causing more problems than they solve. Several LCA (Life Cycle Assessment) studies reported that the effects of first generation biofuels as fuel can reduce green house gases (GHG) and produce a higher total energy amount than that of fossil fuels. However, recent and more comprehensive studies indicated that if the land use conversion were accounted for, biofuel resulted a much higher of GHG emissions, especially if it was included the rainforest destruction, or conversion of peat lands. For the above reasons, in the near term, the policy priority should find ways to promote sustainable production methods for biofuel feedstock, especially how to avoid direct and indirect destruction of the Indonesian primary forest. Moreover, financial policy should focus on research and development to promote sustainable production methods, especially on second generation biofuels, and not on increased production of first generation biofuels.

0266. Klaus, S., S. Selvandran, J.W. Goh, **D. Wowor**, D. Brandis, P. Koller, R. Meier, C.D. Schubart, B. Streit, P.K.L. Ng & D.C.J. Yeo. **2013.** Out of Borneo – Neogene diversification of Sundaic freshwater crabs (Crustacea: Brachyura: Gecarcinucidae: Parathelphusa). *Journal of Biogeography* 40(1): 63–74.

Abstract

Aim. We investigate the biogeographical history of the species-rich Sundaic freshwater crab genus *Parathelphusa*(family Gecarcinucidae). In particular, we ask to what extent eustatic sea-level fluctuations influenced diversification and species distribution. We test the prediction that sea-level fluctuations in the course of the Pleistocene glaciations increased speciation rates.

Location. Malay Peninsula, Greater Sunda Islands (Borneo, Java, Sumatra, Sulawesi), Bali and the Philippines (Palawan, Mindoro).

Methods Phylogenetic inference calculations were based on partial mitochondrial cytochrome c oxidase subunit I (COX1), 16S ribosomal RNA and nuclear histone subunit 3 (H3) genes using maximum likelihood, maximum parsimony and Bayesian approaches. Divergence time estimation was performed with beast based on external substitution rates. Biogeographical analyses were conducted with a parametric likelihood method (Lagrange) and a Bayesian method (BayesTraits). Lineage diversification was studied with a lineagethrough-time plot, and a maximum likelihood approach as implemented in the R package laser.

Results. We propose a Late Miocene age for the most recent common ancestor of *Parathelphusa*, with an ancestral range covering Borneo and the adjacent part of Sundaland. The evolution of six lineages pre-dates the Pliocene, five of them occurring on Borneo. Subsequent dispersal during the Miocene and Pliocene extended the range of *Parathelphusa*to the Philippines, Sulawesi, the Malay Peninsula and Sumatra, and, during the Late Pliocene and Pleistocene, to Java. Pleistocene divergence occurred between species from the Malay Peninsula and Sumatra, Java and Sumatra, and Java and Borneo.

Main conclusions. Although low sea levels during the Pleistocene in all probability facilitated the dispersal of freshwater crabs among the Greater Sunda islands (excluding Sulawesi, which is not part of the Sunda Shelf), there is no complete Pleistocene geographical admixture of species, and pre-Pleistocene biogeographical patterns were retained. Furthermore, Pleistocene vicariance did not lead to an increased diversification rate in *Parathelphusa*. Instead, single colonization events out of Borneo during the Neogene, followed by species radiation (e.g. on Palawan and Sulawesi), contributed substantially to species diversity in *Parathelphusa*. This involved the crossing of marine barriers such as the Wallace Line.

0267. Koch, A. & **E. Arida. 2013.** Vernachlaessigte Vielfalt in einem Biodiversitaethotspot: die Amphibien und Reptilien von Sulawesi, Indonesien. *Zeitschrift des Koelner Zoos* 56(4): 149–162.

Abstract

Southeast Asia is one of the biologically most diverse regions on earth. At the same time, this natural wealth and global heritage is threatened by enormous economic growth rates and high human population pressure. Consequently, this vast tropical area is distinguished by the highest density of internationally recognized biodiversity hotspots. The Wallacea hotspot is located between the continental shelves of Eurasia and Australia and comprises Sulawesi, the Lesser Sunda Islands, and the Moluccas (Spice Islands). Sulawesi, formerly known as Celebes, is the largest land mass within the bio-geographic transition zone between Asia and Australia and unites unique faunal elements from both biologically distinct regions. Compared with the amphibians and reptiles of

the three Greater Sunda Islands, the herpetofaunal diversity of Sulawesi is impover-ished, since many wide-spread Southeast Asian amphibian and reptile genera did not succeed in colonizing Sulawesi in the past. This depauperate faunal character is the result of the million-year long geological isolation of Sulawesi from surrounding island regions due to marine barriers and strong sea currents. However, despite ambitious investigations by several industrious scientists during the past two centuries, recent fieldwork on Sulawesi and its smaller off-shore islands has revealed that the diversity of amphibian and reptile species has been largely underestimated. Since the last herpetological synopsis was published in 1996, 36 new amphibian and reptile species plus five subspecies have been described or were newly recorded for Sulawesi and its satellite islands. In addition, about 40 species, mainly skinks, have been identified as new to science and still await formal scientific description. This represents an increase by 35 %! In total, about 215 different species of amphibians (ca. 50 species) and reptiles (ca. 160 species) are currently re-cognized from the Sulawesi region and further will be discovered in the future.

0268. Koch, A., T. Ziegler, W. Böhme, **E. Arida** & M. Auliya. **2013.** Pressing Prob-lems: Distribution, Threats, and Conservation Status of the Monitor Lizards (Varanidae: *Varanus* spp.) of Southeast Asia and the Indo-Australian Archi-pelago. *Herpetological Conservation and Biology* 8 (Monograph 3): 1–62.

Abstract

We update an earlier review (Mertens 1959) of the monitor lizards of Southeast Asia and the Indo-Australian Archipelago, emphasizing the importance of this island region as a center of varanid diversity and endemism. Currently, 44 monitor lizard species (i.e., 60% of the known global varanid diversity) are recognized from this vast study region. New Guinea and the surrounding offshore islands harbor the highest diversity in terms of species (15) and subgenera (four). We provide a detailed identification key to all monitor lizards found in the study area. Moreover, we critically review the conservation status of all monitor lizard species involved as needed in light of urgent conservation issues. Major threats to monitor lizards include: (1) habitat destruction; (2) the international trade in reptile skins and in monitors as pets; and (3) human consumption. Current export figures of seven focal monitor species (i.e., *Varanus beccarii, V. boehmei, V. macraei, V. melinus, V. prasinus, V. salvator*, and *V. yuwonoi*) of the commercial skin and pet trade reflect export allowances that are not based on sound information from population studies, meaning that current harvest levels may be unsustainable and could threaten the viability of these Indonesian island endemics. Therefore, these monitor lizard species require special attention by the relevant authorities and conservationists of both the source and the consuming countries. The conservation status of all monitor lizard species and their assessment in the International Union for Conservation of Nature (IUCN) Red List is in need of a critical update and we strongly recommend the establishment of an IUCN Species Survival

Commission (SSC) Monitor Specialist Group. Therefore, this review of distribution, threats, and conservation status of Southeast Asian and Indo-Australian monitor lizards is intended to support customs officers and other government agents in: (1) more strictly enforcing the regulations of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES); (2) monitoring trade activities, annual harvest levels, and export quotas; (3) in reducing current unsustainable harvest levels; and, (4) in reducing over-exploitation and extinction risks of *Varanus* spp. in the wild.

0269. Kohyama, S. Takahashi S, S. Shiodera & **J.S. Rahajoe. 2011**. Quantitative Properties of Peat Swamp and Heath Forest Ecosystems in Central Kalimantan. *Preceeding of 2nd International Workshop on Wild Fire and Carbon Management in Peat-Forest in Indonesia.*

Abstract

No abstract available

0270. **Kramadibrata, K. 2011**. Keanekaragaman JA Bambu di Pulau Sumba. *Berita Biologi* 10(5): 635–639.

Abstract

Arbuscular fungi (AF) associated with eight species of bamboo in Sumba island was studied. The study was initiated by collecting soil samples from bamboo rhizospheres followed by mass propagation of AF by culturing in pot. After several months soil from pot cultures were wet sieved and decanted followed by centrifugation and spores of AF were collected, identified by morphological characters under light microscope. The result showed that diversity of AF in bamboo in Sumba island is low but record of *Acaulospora foveata* on *Bambusa blumeana*, *Dinochloa* sp. and *Nastus reholttumianus*; *A. scrobiculata* on *B. blumeana*, *S. brachycladum* (green) and *N. reholttumianus*; *A. tuberculata* on *Gigantochloa attter*, *S. brachycladum* (yellow) and *S. lima*; *Glomus etunicatum* on *G. atter*; and *G. rubiforme* on *G. atter* associated with bamboo is new for Indonesia.

0271. **Kramadibrata, K. 2013.** Jamur Arbuskula di Taman Nasional Ujung Kulon (Arbuscular fungi in Ujung Kulon National Park). *Berita Biologi* 11(2): 205–209.

Abstract

Study on diversity of arbuscular fungi (AF) of several rizosphere of forest trees in Karang Ranjang Post, Karang Ranjang Resort, Ujung Kulon National Park (TNUK) was done. Ninety-six soil samples from 23 forest trees were collected for examining AF. Each soil sample was placed into a plastic bag and record the host plant then air dried. Part of the samples were wet sieved by using four type of soil sieves, another part were kept as pot culture in the green house for about six to twelve months, then wet sieved. There were three species of *Acaulospora* and eight species of *Glomus* associated with forest trees in

TNUK. Most of species recorded from this area are common, except *Glomus multicaulis*.

0272. **Kramadibrata, K. 2013.** Jenis-jenis *Gomeromycota* di *Pandanus tectorius* dari Jawa dan Madura. *Floribunda* 4(7) 2013:187–189

Abstract

Glomeromycota is a group of arbuscular fungi (AF) which usually grow on rhizosphere of higher plants either dicots or monocots and lower plants. Information on its diversity, particularly in Indonesia remains underexplored, as a result this study is carried out in order to fill the gap on the information of *Glomeromycota* diversity surrounding *Pandanus tectorius*. The soil samples were collected from Pandanus grow in coastal forests in southern part of West Java, villages in West, Central and East Java including Madura island, *Glomeromycota* spores were isolated from soils around rhizosphere of pandan and were identified using their morphological characters. Ten species of Glomeromycota were associated with pandan rhizosphere in the study area that belong to genera *Acaulospora* (3 species), *Claroideoglomus* (1 species), *Funneliformis* (1 species), *Glomus* (2 species), Racocetra (1 species), and *Sclerocystis* (2 species). The record of each species is presented.

0273. **Kramadibrata, K. 2013.** Keanekaragaman Glomeromycota di Kebun Raya Baturaden dan Sekitarnya di Gunung Slamet. *Berita Biologi* 12(2): 217–222.

Abstract

The occurrence of arbuscular fungi (AF), a member of Glomeromycota associated with plant in Baturaden Botanic Garden and its surrounding area in Slamet mountain in Central Java was studied. Part of the Botanic Garden is *Agathis* plantation which was planted for more than 50 years. Soil samples were collected from rhizosphere of *Agathis*, wild plants and shrub. In order to obtain spores of arbuscular fungi, dried soil samples were wet sieved and decanted. Part of soil samples were pot cultured with *Pueraria phaseoloides*. The result showed there were eleven species of AF identified from Baturaden Botanic Garden *i.e.* three species of *Acaulospora*, one species of *Claroideoglomus*, one species of *Funneliformis*, one species of *Glomus*, one species of *Gigaspora*, three species of *Scutellospora* and one species of *Sclerocystis.* In this study there are two new records of AF in Java *i.e. Scutellospora biornata*, and *S. erythropus*, and also new distribution area for *S. projecturata*.

0274. **Kuncari, E.S. 2011**. Kapulaga (*Amomum compactum* Sol. ex Maton): Manfaat dan Sebarannya di Gunung Honje, Taman Nasional Ujung Kulon. *Prosiding Seminar Nasional "Konservasi Tumbuhan Tropika: Kondisi Terkini & Tantangan ke Depan*. Kebun Raya Cibodas, 7 April 2011: 96–100.

Abstract

Cardamom (Kapulaga) is known as a spice for cooking and herbalmixtures. Information on the Cardamom and *Zingiberaceae* in Ujung Kulon National Park especially around Mount Honje has not been published yet. As the plants of high economic value, this data is necessary not only for business people but also for educational, research, and conservation. Research has been done by the method of exploration, direct observation, and interviews. Six plant species of the Family of *Zingiberaceae* which is commonly used and can be found is *Amomum compactum* (Kapulaga), A. *maximum* Roxb. (Hangasa), *Curcuma domestica* (Kunyit), *Alpinia malaccensis* (Laja Goah), *Zingiber zerumbet* (Lempuyang), and *Curcuma javanica* (Koneng Gede). Among these *Zingiberaceae*, Cardamom was found as the most dominant population and spread widely enough in the area around Mount Honje. Not surprisingly, Cardamom is called the native and endemic plants in the hills in western Java. Cardamom fruits plus eucalyptus oil used by communities around the Mount Honje to mix chewing and smeared into children's bodies for warmth. Other common uses of Cardamom seeds are as medicines and spices, such as cough, itchy throat, abdominal pain, bloating, prevent bone loss, bad breath, flavorings and fragrances. Entire parts of plants used as medicine flatulensi, colic, and liniment for rheumatism. Root tuber is used as a fever medicine. Cardamom volatile oil contains e.g. α-terpineol, 1.8-cineol, myrcene, limonene, and borneol.

0275. **Kuncari, E.S. 2011.** Keanekaragaman Tumbuhan Pangan di Hutan Dataran Rendah Ketambe, Taman Nasional Gunung Leuser. *Berkala Penelitian Hayati*: Plant & Algae. Edisi Khusus No. 5A Tahun 2011: 21–24.

Abstract

The information about plant biodiversity as foodstuff especially around Ketambe lowland forest is required for education, research, conservation and human health importance. However, this information is still limited, so that this research needs to be done. The method used here was exploration and interview. This paper will report plant biodiversity as foodstuff around Ketambe lowland forest. Hopefully, the result will increase information about plant biodiversity as foodstuff in Nanggroe Aceh Darussalam especially around Leuser Mountain National Park conservation area. Thirty-six species of foodstuff plant have been recorded belonging to 27 genus and 21 familia, the most from *Euphorbiaceae* Family (6 species). The biodiversity of foodstuff plants recorded showed that the lowland forest still well-preserved. The parts of plant usually use as foodstuff are fruit and seed.

0276. **Kuncari, E.S. 2011**. Perbandingan Kandungan Kimia Jenggitri (*Eurya acuminata* DC.) dan Riang-riang (*Ploiarium alternifolium* Melchior) dari Suku Theaceae yang Tumbuh di Kalimantan Timur. *Berkala Penelitian Hayati*: Growth Reproduction & Medicinal Biology. Edisi Khusus No. 4D Tahun 2011: 55–58.

Abstract

Some plant species from Theaceae Family known have an economic values, for example Thea or Camellia known well as tea tree. A comparison of chemical content have been done by Cuilei Method (phytochemical screening). P. *alternifolium* had the more chemical content tested (8 kind) compared with E. *acuminata* (6 kind). P. *alternifolium* contained flavonoid and emodol/ antrasenoid that didn't find in E. *acuminata*. All of them contained lipid acid, reducing sugar, saponin and tanin. Biological activity from each plant would related to the chemical content.

0277. **Kuncari, E.S.** & **T. Djarwaningsih. 2014.** *Schefflera elliptica* (Blume) Harms: Kandungan Kimia dan Potensinya sebagai Obat. *Prosiding Semnas Biodiversitas* Februari 2014 Vol.3, No.2 Hlm.38–41.

Abstract

Schefflera elliptica is a member of the tribe Araliaceae. This plant is believed to be empirically contain bioactive compounds that are efficacious as an anticancer. Thus, this study has been done by using a chemical content analysis with Cuilei method (phytochemical screening). The results showed that *S. elliptica* contains several chemical compounds such as essential oils, sterols, triterpenoids, carotenoids, coumarins, tannins, reducing sugars, steroid glycosides and poliuranida. The bioactive compounds are thought to have anti-cancer activity in the leaves of *S. elliptica* are carotenoids and tannins, because it has properties to improve the body's immune system against cancer cells and has antioxidant activity.

0278. Kurabayashi, A., M. Matsui, D.M. Belabut, H.S. Yong, N. Ahmad, A. Sudin, M. Kuramoto, **A. Hamidy,** M. Sumida. **2011.** From Antarctica or Asia? New Colonization Scenario for Australian-New Guinean Narrow Mouth Toads Suggested from the Findings on a Mysterious Genus *Gastrophryoides. BMC Evolutionary Biology* 11: 1–12.

Abstract

Background

Microhylidae is a geographically widespread family of anurans. Although several extensive molecular analyses have attempted to elucidate their subfamilial relationships, and correlate these with Mesozoic and Cenozoic continental drifts, consensus has not been reached. Furthermore, generic level relationships have not been well investigated in some microhylid subfamilies, and therefore subfamilial affiliations of some genera are still unclear. To elucidate the phylogenetic positions of two mysterious Asian genera, Gastrophrynoides and Phrynella, and to better understand the trans-continental distributions of microhylid taxa, we performed molecular phylogenetic and dating analyses using the largest molecular dataset applied to these taxa to date.

Results

Six nuclear and two mitochondrial genes (approx. 8 kbp) were sequenced from 22 microhylid frog species representing eight subfamilies. The maximum likelihood and Bayesian analyses could not fully elucidate the subfamilial relationships, suggesting a rapid radiation of these taxa between 85 and 66 million years ago. In contrast, generic relationships of Asian microhylines were generally well resolved.

Conclusion

Our results clearly showed that one of two problematic Asian genera, Phrynella, was nested in the clade of the Asian subfamily Microhylinae. By contrast, Gastrophrynoides occupied the most basal position of the Australian-New Guinean subfamily Asterophryinae. The estimated divergence of Gastrophrynoides from other asterophryine was unexpectedly around 48 million years ago. Although a colonization scenario via Antarctica to the Australian-New Guinean landmass has been suggested for Asterophryinae, our finding suggested a novel colonization route via Indo-Eurasia.

0279. Kuraishi, N., M. Matsui, **A. Hamidy,** D.M. Belabut, N. Ahmad, S. Panha, A. Sudin, H.S. Yong, J.P. Jiang, H. Ota, H.T. Ho Trung Thong, K. Nishikawa. **2012.** Phylogenetic and Taxonomic Relationships of the *Polypedates leucomystax* complex (Amphibia, Anura, Rhacophoridae) Inferred From Mitochondrial and Nuclear DNA Sequences. *Zoologica Scripta* 42(1): 54–70.

Abstract

We investigated the phylogenetic and taxonomic relationships and estimated the history of species diversification and biogeography in the Asian rhacophorid genus *Polypedates*, focusing on the *Polypedates* leucomystax complex, whose members are notoriously difficult to classify. We first estimated phylogenetic relationships within the complex using 2005-bp sequences of the mitochondrial 12S rRNA, $tRNA^{val}$ and 16S rRNA genes with maximum parsimony, maximum likelihood (ML) and Bayesian methods of inference. *Polypedates* exhibits well-supported monophyly, with distinct clades for *P. otilophus*, *P. colletti*, *P. maculatus* and the *P. leucomystax* complex, consisting of *P. macrotis*, and the Malay (*Polypedates* sp. from Malay Peninsula), North China (*P. braueri*), South China (*Polypedates cf. mutus 1*), Indochina (*P. megacephalus*), Sunda (*P. leucomystax*) and Laos (*Polypedates cf. mutus 2*) clades. In a subsequent phylogenetic analysis of 4696-bp sequences of the nuclear brain-derived neurotrophic factor (BDNF), sodium/calcium exchanger 1 (NCX), POMC, Rag-1, Rhod and Tyr genes using Bayesian methods of inference, all of these clades were recovered. Some clades of the *P. leucomystax* complex occur sympatrically and show high genetic diversity or morphological and acoustic differences. Similar tendencies were observed between some allopatric clades. Therefore, we consider each of these groups to be distinct specifically. We also estimated absolute divergence times within the genus using Bayesian methods. Divergence in *Polypedates* began with the divergence of a primarily South Asian Clade from the common

ancestor of secondarily South-East Asia *P. maculatus* and South-East Asian members. The divergence between the latter occurred much later. The *P. leucomystax* complex diverged in the Pliocene, much later than other congeners, and seems to have been greatly affected by human-related dispersal after the Pleistocene.

0280. **Kurniati, H. 2010.** Keragaman dan Kelimpahan Jenis Kodok serta Hubungannya dengan Vegetasi pada Lahan Basah "Ecology Park". *Berita Biologi* 10(3): 283–296.

Abstract

Previous ecological studies have revealed the type of non-forest frog occupying habitats that have been modified by humans are still severly limited. For that purpose the research was conducted in the wetland are of Ecology Park in LIPI Campus Cibinong which is located at S 06° 29' 40.2"; E 106° 51' 06.3" with 165 meters altitude above sea level (asl) over seven months (May–November 2009) by monitoring 14 times during the study period (July–November). The transect method was used to determine the effect of habitat on the diversity and abundance of frog species in the wetland area. Transect was set for 100 meters on one side of the lake where he area has a variety of habitat types. Length of 100 meters transect was divided into 10 sections with 10 meters length for each section. (length of each section was 10 meters). Every 10 meters, the type of habitat, frog spesies encountered and the abundance of the spesies were recorded. Environmental data recorded were air humadity, air temperature, water temperature, and moon phase (full moon, crescent moon or the dark moon). Ten frog spesies which belong to 4 families, the Bufonidae (*Bufo biporcatus* and *B. melanosticus*), Microhylidae (*Kaloula baleata*), Ranidae (*Fejervarya cancrivora, F. limnocharis, R. chalconota, R. erythraea, R. nicobariensis* and *Occidozyga lima*) and Rhacophoridae (*Polypedates leucomystax*) were found. *R. erythraea, R. nicobariensis* and *O. lima* were the dominant spesies and found on every visit. Furthermore, the most dominant spesies was *R. erythraea.* The results showed that environmental factors (air temperature, water temperature, humidity and conditions of the moon) did not have an impact on the presence and number of spesies. Abundance of three dominant spesies (*R. erythraea, R. nicobariensis* and *O. lima*) was strongly linked to vegetation type. Moreover, environmental factors (water temperature, humadity and the condition of moon) affected the abundance of *R. nicobariensis* in sub transect 2 and 5 where dominated by *Eleocharis dulcis* and *Leerxia hexandra.* On the other hand air temperature affected the abundance of *O. lima* in sub transect 7, dominated by floating lotus plant *Nymphaea lotus.*

0281. **Kurniati, H. 2013**. Vocalizations of *Microhyla achatina* Tschudi, 1838 (Anura: Microhylidae) from the Foot Hills of Mount Salak, West Java. *Jurnal Biologi Indonesia* 9(2): 301–310.

Abstract

Vocalization of *Microhyla achatina* have been described before. The advertisements calls of six individual males of *M. achatina* which originated from the foot hills of Mount Salak, West Java were recorded in September 2011 at air temperatures of 21.0°C–23.4°C. Call components were obtained from 95 calls, consisting of 855 pulses, which were then analyzed to obtain the characteristics of sound waves by using software of Adobe Audition 3.0 and SAP2011. Sound waves of *M. achatina* mainly consist of impulses whose sound spectrum ranges from 1327.5–2789.1 Hz, while the band width of the spectrum is 1461.6 Hz. Results of the analysis showed that the frequency of the tree pulse-forming elements (dominant frequency, maximum frequency and minimum frequency) was markedly modulated; frequency modulation was clearly visible in the minimum frequency, which was modulared by 1500 to 2700 Hz modulation. The modulation of the dominant frequency and the maximum frequency was not too broad, *i.e* between 3000–3500 Hz. Results of linear regression analysis of the dominant frequency versus minimum frequency and dominant frequency versus aximum frequency showed a strong correlation between the dominant frequency versus minimum frequency, but a weak correlation between the dominant frequency versus the maximum frequency.

0282. **Kurniati, H. 2013.** Keragaman Suara Kodok Puru Besar {*Phrynoidis aspera* (Gravenhorst, 1829)} Asal Jawa Barat. *Berita Biologi* 12(1): 47–61.

Abstract

Giant River Toad, *Phrynoidis aspera* (Gravenhorst, 1829) is a largest generalist toad that is able to adapt to a variety of habitats and elevations. The complete calls of Giant River Toad had not been published before. To know all of sound characters of the toad, a total of five individuals males *P. aspera* vocalization were recorded on 30 October 2010 (1 individual; air temperature: 23.1°C; water temperature: 18.1°C) by using an Audio Technica AT875R microphone, the sound was recorded on a Fostex FR 2LE in WAV format; and on 22–24 September 2011 (4 individuals; air temperature 21.0°C–23.4°C; water temperature 21.6°C–22.0°C) in Curug Nangka, Mount Salak foot hill, West Java by using PCM-M10 Sony Recorder.

The toad has four types of call: (1) Call type 1, consists of impulses without harmonic and average band width is 317.44 Hertz and average of amplitude is 40.43; (2) Call type 2, consists of pure tone with many sub-harmonics, average range frequency is 1420.28 Hertz and average of amplitude is 42.67; (3) Call type 3, consists of impulses and pure tone with two weak harmonics and average band width is 373.81 Hertz and average of amplitude is 48.19; (4) Call type 4, consists of impulses without harmonic and average band width is 792.62 Hertz and average of amplitude is 51.01. Based on the number of calls that were recorded of five individuals from the Mount Salak foot hill, call type 4 is its major call (common advertisement call), but the three others call types are minor calls.

0283. **Kurniati, H. 2014.** Kajian Ulang Status Kodok *Rhacophorus bifasciatus* van Kampen 1923 dan *Rhacophorus poecilonotus* Boulenger, 1920 asal Sumatra. *Fauna Indonesia* 12(2): 1–5.

Abstract

A recent taxonomy review on two tree frog species that endemic to Sumatra, namely *Rhacophorus bifasciatus* and *Rhacophorus poecilonotus* has moved *R. bifasciatus* to *R. poecilonotus*, left *R. poecilonotus* as the valid name for both species. Before the review publication, population status of *R. bifasciatus* was Near Threatened (NT) with a declining population trend, while for *R. poecilonotus* was Data deficient (DD) with unknown population trend due to the lack of data. Further, *R. bifasciatus* was distributed in Gunung Kerinci, Bukit Barisan Selatan, Bengkulu, Jambi and Aceh, while *R. poecilonotus* was only found in West Sumatra with type locality in Gunung Kerinci, Jambi Province. Reassessment on the distribution resulted that *R. poecilonotus* was only found in grassy swamp of Gunung Tujuh foothill (approximately 2 ha) and Rawa Bento (approximately 2 km^2). It is recommended to upgrade population status of *R. poecilonotus* to Critically Endangered with additional criteria: CR B2 ab (iii) because of small AOO (Area of Occupancy), less than 10 km2, single locality, and continuous decline of habitat quality due to extensive agriculture and chemical fertilizer use.

0284. Laili, N. & H. Imamuddin. 2011. Isolasi dan Karakterisasi Bakteri Pendegradasi Herbisida Diuron dan Bromacil dari Area Perkebunan di Lampung. *Berkala Penelitian Hayati* 17(1) Desember 2011.

Abstract

Diuron and bromacil are a broad-spectrum herbicide that widely used in some plantation at Lampung. We collected soil sample from variety location at banana Plantation (NTF), pineapple plantation (GGPC) and sugarcase plantation (GM). This research aim to isolate and characterize diuron and bromacil degrading bacteria. The highest diuron resistant bacteria were found in GM soil sample and NTF soil samples have the highest bromacil resistant bacteria. We obtained three isolates for diuron degradation and five isolates for bromacil degradation bacteria from NTF, GGPC and GM. These isolates were tested to explore their ability for diuron and bromacil degradation on different concentrations. Isolation of bacteria used enrichment culture method and degradation of diuron and bromacil were checked by spectrophotometric method. Diuron and bromacil degradation by 5 consortium indicated that all of consorsia have ability to degrade them.

0285. Lamb, A., J. Gobilik, **M. Ardiyani** & A.D. Poulsen. **2013**. A Guide to Gingers of Borneo. *Natural History Publications* (Borneo). Kota Kinabalu. p. 144.

Abstract

No abstract available

0286. Lekatompessy, S., H. Sukiman & **K. Kramadibrata. 2013.** Biodiversity of Endomycorrhizae from Hatta Grand Park and Anai valley arboretum garden Padang, West Sumatera Indonesia. *Proceeding of the 4th International Seminar of Indonesian Society for Microbiology and IUMS-ISM Outreach Program on Food Society, Indonesian Microbial Resources: Diversity and global impact;* 22nd-24th June 2011, Udayana University Denpasar-Bali, Indonesia; Pp. 283–287.

Abstract

Forestry Department of Indonesia has announced a forest rehabilitation programme through one billion growing trees in 2011. To anticipate the programme the Indonesian Instute of Sciences has set up the research activity on study the biodiversity *endomycorrhizae* from Indonesian soils. This activity becomes very important since the interest of using potential microbes for biofertilizer substitute is increasing. The *endomycorrhizae* is beneficial on supporting the growth of forest plant. Bung Hatta Grand Forest (Taman Hutan Raya Bung Hatta) and Anai valley arboretum garden had been chosen as locations for *endomycorrhizae* isolation. This forest grand park and arboretum garden are applicable to use since the variation of host plants *endomycorrhizae* are representative for this study. The result showed that *endomycorrhizae* were dominantly isolated from three main forest trees namely *Elaeocarpus* sp., *Cyathea* sp. and *Trema* cf. *canabina*. Number of spore found from those species are 160, 104 and 120 spores of *endomycorrhizae* respectively. Identification of spore was done and the result showed that species of *endomycorrhizae* found dominantly from those three species of host plants are *Glomus* sp., *Acaulospora scrobiculata*, *A. tuberculata* and *Scutellospora* sp. The spore collection will be screened and developed further for biofertilizer which could be applied as chemical fertilizer substitute especially for phosphate fertilizer.

0287. **Leksonowati, A**. & **Witjaksono. 2011.** Morfogenesis pada Daun, Tangkai Daun dan Ruas Batang Kentang Hitam (*Solenostemon rotundifolius* (poir) JK Morton) secara *in vitro. Berkala Penelitian Hayati* 16(2): 161–167.

Abstract

Solenostemon rotundifolius (Poir) JK Morton is a minor crop that produce carbohydrate, and therefore, can be utilized for food diversification and help food security program. This crop is not cultivated intensively, but it is planted as a side crop during the dry season. Low yield could be responsible for its unattractiveness for farmer to farm it intensively. Improvement of varieties is needed but it is hindered by the low genetic variability due to lack of sexual reproduction. Manipulation at cell level and biotechnology could be an alternative for improving this crop. The availability of a reliable protocol(s) for plant regeneration is needed. This study is intended to develop reliable rege-

neration protocols using inocula derived from shoot culture on MS basal medium supplemented with various level of BA and NAA. The results show that inocula of leaf, petiole and stem internodes respond classically to the varying concentration of sitokinin BA and auxin NAA. The optimum production of shoot that reflect the best shoot organogenic response were achieved by leaves inoculums grew on medium supplemented with 5 mg/l BA and 0.1 mg/l NAA. This protocol serves as a protocol for further somatic cell genetic experiments to increase genetic variability of this crop.

0288. Leong-Škorničková, J., O. Šída & **M. Ardiyani. 2011.** Proposal to Conserve the Name *Curcuma euchroma* against *Erndlia subpersonata*. *Taxon* 60(3): 16–17.

Abstrak

Tiga belas jenis *Etlingera* telah dideskripsi berdasarkan material yang diperoleh dari Sumatra, selanjutnya lima jenis lainnya telah didokumentasi sebagai catatan baru (*new records*). Salah satu jenis *Etlingera* dari Sumatra yang cukup spektakuler adalah *Etlingera loerzingii*. Deskripsi asli jenis ini dahulu dibuat berdasarkan material yang tidak lengkap dan sekarang deskripsi lengkapnya disajikan di dalam tulisan ini. Dengan daun yang indah serta bentuk dan warna perbungaan yang menarik, *E. loerzingii* memiliki potensi untuk dikembangkan sebagai tanaman hias.

0289. Lestari, P. **& N. Setyowati. 2014**. Aplikasi Paklobutrazol dan *Temperature* pada Penyimpanan Umbi Kentang Hitam (*Solanostemon rotundifolius* Poir.). *Prosiding Seminar PERHORTI*, Bogor 9–10 Oktober 2013. Vol. Tanaman Sayur. Pp. 332–339.

Abstrak

Peningkatan jumlah penduduk tentu memerlukan peningkatan ketersediaan pangan yang kontinu dan masyarakat Indonesia masih memerlukan ragam sumber mineral penting untuk menunjang kedaulatan pangannya. Kentang hitam tidak hanya mengandung karbohidrat dalam persentase tinggi, tetapi juga berpotensi untuk dikembangkan sebagai komoditas sayur. Dalam 100 gram umbi kentang hitam segar diketahui mengandung energi 142 kkal serta kalsium 34 mg, fosfor 75 mg, vitamin C 38 mg, dan vitamin B1 0.02 mg. Karenanya spesies ini memiliki dual potensi untuk melengkapi kebutuhan gizi masyarakat sebagai biofortifikasi alami. Terkait dengan pemanfaatannya, singkatnya waktu dormansi menjadi kendala dalam pengembangan kentang hitam, baik sebagai bibit maupun bahan pangan. Untuk menanggulangi masalah tersebut, telah dilakukan percobaan untuk memperpanjang masa dormansi umbi kentang hitam. Percobaan disusun berdasarkan rancangan tersarang RKLT, 4 taraf konsentrasi paclobutrazol tersarang dalam perlakuan suhu penyimpanan. Percobaan dilakukan pada tiga aksesi kentang hitam, yakni Sangian, Nganjuk, dan Klefa Imut 6. Aplikasi paklobutrazol dilakukan dengan teknik rendam. Peubah pengamatan meliputi perubahan performa umbi selama

penyimpanan dan vigor benih pada fase pembibitan. Analisis data menggunakan sidik ragam dengan uji berganda duncan sebagai uji lanjut. Hasil penelitian menunjukkan penyimpanan pada suhu rendah mampu memperpanjang masa simpan umbi hingga 9 minggu setelah panen. Hingga konsentrasi 300 ppm, paclobutrazol diduga belum secara signifikan dapat menunda pertunasan umbi kentang hitam. Pemberian paclobutrazol berpengaruh terhadap performa bibit pada masa pembibitan.

0290. **Lestari, P., N.W. Utami** & **A.H. Wawo. 2014**. Adaptasi Aksesi Kentang Hitam {*Solenostemon rotundifolius* (Poir.) J. K. Morton} terhadap Berbagai Intensitas Cahaya. *Berita Biologi* 11(3): 351–358.

Abstract

Light is one of limiting factors for plant growth, including black potatoes {*Solenostemon rotundifolius* (Poir.) J. K. Morton}. This species is a potential carbohydrates source that has been utilized in some areas as an alternative food. Plant adaptation to light intensity is controlled by genetic potential and environment. The aim of this research is to obtain information about the light intensity that is suitable for growing some black potato accessions and its mutants. The study was compiled using Nested Randomized Complete Block Design. Five accessions (Solo, Sangian, Nganjuk, mutation result of Nganjuk by 6gray and 25gray in dosage gamma ray) planted in 3 degrees of light intensity i.e. full light (N0), 70 persen (N1), 50 persen (N2) and 25 persen (N3). The results revealed that light greatly affects the growth and production of 5 accessions of black potatoes. Five accessions tend to tolerant for decreasing light intensity until 70 persen. Decreasing in growth and yield characters significantly occurred in 25 persen of light intensity than control. Solo and Sangian stable to 4 light intensity treatments.

0291. Lisdiyanti, P., M. Otoguru, S. Ratnakomala, Y. Lestari, R.D. Hastuti, **E. Triana**, A. Katsuhito & Y. Widyastuti. **2010**. *Actinokineospora baliensis* sp. nov., *Actinokineospora cibodasensis* sp. nov. and *Actinokineospora cianjurensis* sp. nov., isolated from soil and plant litter. *International Jurnal of Syatematics and Evolutionary of Microbiology* 60(10): 2331–2335.

Abstract

Six actinomycete strains isolated from soil and plant-litter samples in Indonesia were studied for their taxonomic position by using a polyphasic approach. Phylogenetically, all the strains were located in the broad cluster of the genus Actinokineospora. Chemotaxonomic data [cell-wall diamino acid, mesodiaminopimelic acid; cell-wall peptidoglycan, type III (A1γ); major sugars, galactose and arabinose; major menaquinone, MK-9(H_4); major fatty acid, iso-$C_{16:0}$; major phospholipid, phosphatidylethanolamine] supported the affiliation of all six strains to the genus Actinokineospora. The results of DNA–DNA hybridization with DNA from type strains of Actinokineospora species with validly published names revealed three DNA–DNA relatedness groups. Group

I (ID03-0561^T) showed low relatedness to the other strains studied. The three strains in group II (ID03-0784^T, ID03-0808 and ID03-0809) formed a group with high relatedness (98–100%) and showed low relatedness to the other strains studied. The two strains in group III (ID03-0810^T and ID03-0813) showed 58–68% relatedness to Actinokineospora terrae NBRC 15668^T and showed low relatedness (2–24%) to the other strains studied. The description of three novel species is proposed: *Actinokineospora baliensis* sp. nov., for the single strain in group I (type strain ID03-0561^T =BTCC B-554^T =NBRC 104211^T), *Actinokineospora cibodasensis* sp. nov., for the strains in group II (type strain ID03-0784^T =BTCC B-555^T =NBRC 104212^T), and *Actinokineospora cianjurensis* sp. nov., for the strains in group III (type strain ID03-0810^T =BTCC B-558^T =NBRC 105526^T).

0292. Lohman, D.J., K.K. Ingram, **D.M. Prawiradilaga**, K. Winker, F.H. Sheldon, R.G. Moyle, P.K.L. Ng, P.S. Ong, L.K. Wang, T.M. Braile, **D. Astuti** & R. Meier. **2010.** Cryptic Genetic Diversity in "Widespread" Southeast Asian Bird Species Suggests that Phillippine Avian Endemism is Gravely Underestimated. *Biological Conservation* 143: 1885–1890.

Abstract

Mistakenly classifying morphologically cryptic endemic species as populations of widespread species potentially interferes with the conservation of biodiversity because undetected endemics that are imperiled may lack appropriate protection. It also impedes the reconstruction of the evolutionary history of a taxon by obscuring the number and distributional limits of species. Here, we present genetic and phylogenetic evidence corroborated by morphology that Philippine populations of seven widespread, non-migratory passerine birds might represent unrecognized, distinct species. An extrapolation based on this finding suggests that the proportion of endemic species in the Philippines could be much higher than currently estimated. This high degree of cryptic diversity in a well-studied, volant taxon implies that large numbers of unrecognized species can be expected in less thoroughly studied groups. We predict that genetic investigations of insular populationsof widespread species will frequently reveal unrecognized island endemics, and because of vulnerability of island habitats and their biota, these taxa may be particularly susceptible to extinction.

0293. **Lupiyaningdyah, P.** 2012. Lalat Haji. *Dalam:* Y.R. Suhardjono & R. Ubaidillah (eds.). *Fauna Karst dan Gua Maros Sulawesi Selatan.* Jakarta: LIPI Press. pp. 215–226

Abstrak

Tidak ada abstrak

0294. Madika, B., D.D. Putra, J.B.C. Harris, D.L. Yong, F.N. Mallo, A. Rahman, D.M. Prawiradilaga, & P.C. Rasmussen. 2011. An undescribed Ninox owl from the

highlands of Central Sulawesi, Indonesia. *Bulletin British Ornithologists' Club* 131(2): 94–102.

Abstract

The Indonesian island of Sulawesi is a globally important hotspot of avian endemism, yet Sulawesi's birds are little studied and new species are still being discovered from the region. Here this research presents observations and photographs of an apparently undescribed taxon of *Ninox* hawk owl from 2,250 m a.s.l. on Gunung Rorekatimbu, Central Sulawesi. This study reviewed specimens of all known south-east Asian *Ninox* owls and concluded that this bird's white-spotted underparts and pale supercilia are not shared by any other *Ninox* hawk owls in the region. If shown to be of species rank, we suggest the common name White-spotted Hawk Owl for the new species. The unknown owl was discovered in 1999 but occasional searches since then have been unsuccessful in relocating the taxon, although a photograph on the internet appears to pertain. The montane forest at the site remains relatively intact and The writers are hopeful that the owl will be rediscovered and formally described.

0295. **Maharadatunkamsi. 2011.** Profil Mamalia Kecil Gunung Slamet, Jawa Tengah. *Jurnal Biologi Indonesia* 7(1): 171–185.

Abstract

Research of small mammals at Gunung Slamet, Central Jawa was conducted. Three types of habitats as representation of primary forest, secondary forest, and plantation were examined at Kalipagu, Kaliwadas, and Bambangan in order to record its small mammals biodiversity. Combination of trapping and direct observation recorded 31 species of small mammals from the areas observed. Shannon-Wiener index was the highest in secondary forest (3.8) compared to primary forest (3.6) and plantation (3.4). The results indicated that most small mammals of Gunung Slamet use secondary forest for their home range. However, data on microchiropterans that were more frequently recorded in plantations indicated that agricultural plants were their primary foraging areas. On the other hand, most of small mammals species rely on both secondary forest and primary forest as an important food resources. The dendogram resulting from cluster analysis was concordant with this view. Primary forest and secondary forest clustered closely together, while plantation was recognized as a distinct group.

0296. **Maharadatunkamsi. 2012.** Potensi Mamalia Kecil dalam Mendukung Fungsi Lindung Gunung Slamet. *Dalam*: Ibnu Maryanto, Mas Noerdjito & Tukirin Partomihardjo (Editor). *Ekologi Gunung Slamet. Geologi, Klimatologi, Biodiversitas dan Dinamika Sosial*. Jakarta: LIPI Press. Hlm. 95–120.

Abstract

Research was conducted in the area of Slamet Mountain in order to provide basic information of small mammals community in this area. A total of 31

species of small mammals were recorded in this survey. Some of them were protected by Indonesian law, endemic in Jawa, and categorized in IUCN dan CITES appendix. Also some of them were species indicator of their habitats. Their important natural role are as seed dispersal, pollinator, prey, and predator. It is expected that information resulting from this research can be useful for scientific consideration for the management of this area since biodiversity data is an essential information for conservation and sustainable use of this important area.

0297. **Maharadatunkamsi. 2012.** Pengaruh Habitat dan Ketinggian Tempat terhadap Sebaran Kelelawar di Taman Nasional Gunung Ciremai, Jawa Barat. *Jurnal Biologi Indonesia* 8(2): 355–365.

Abstract

We investigated the bat community in its density and diversity between primary forest, secondary forest, shrub, and pines in Gunung Ciremai National Park. This paper discusses the impact of these nature changes on the bats community along this national park. The research data showed a relationship between distribution of each bat species with habitat changes and altitudinal gradients between 500–600 and 1100–2100 m above sea level. The distribution of bats according to their habitat and altitude in this study is parallel with some other previous studies. The results indicated that both habitat and altitudinal differences are important factors in influencing the distribution of each bat species. Although forest and disturbed areas provide food and shelter for support many of these bats species, it is urgent to maintain and improve the quality of the forests in this important national park.

0298. **Maharadatunkamsi. 2012.** Morphological Variation in *Chironax melanocephalus* (Chiroptera: Pteropodidae) from Indonesia and Description of New Subspecies. *Treubia* 39: 51–65.

Abstract

The taxonomy of small fruit bat members of the genus *Chironax* was examined. Morphological character, as well as statistical analyses of skull and external characters revealed that the Kalimantan population is sub-specifically different from Sulawesi and Sumatra-Jawa populations. The Kalimantan population is desribed herein as *Chironax melanocephalus dyasae* **subsp.nov.**

0299. Makihara, H., Sugiarto & **W.A. Noerdjito. 2011.** Longicorn Beetles from Mts. Bromo in East Java, Indonesia with Descriptions of a New Species and a New Subspecies (Coleoptera: Cerambycidae). *Bull. FFPRI*, Vol. 10, No. 4 (No. 421): 251–261.

Abstract

One new species *Prosoplus bromoensis* **sp.nov.** and one new subspecies *Rucentra ochreopunctata silvicola* **subsp. nov**. described on the basis of the specimens

collected from Mts. Bromo, East Java, Indonesia. A total of four Cerambycidae taxa including an unidentified *Sybra* sp. were collected from two study sites at 2,000–2,300 m in altitude in Mts. Bromo in 2010.

0300. **Mansur, M. 2010.** Analisis Populasi *Nepenthes* spp. di Hutan Rawa Gambut, Kalampangan, Kalimantan Tengah. *Jurnal Teknologi Lingkungan* 11(1): 33–38.

Abstract

Population analysis of *Nepenthes* spp in peat swamp forest was conducted at Kalampangan, Central Kalimantan on November-December 2007. This place include to part of one million hectare area of peat land project in 1996 which are planed to convert agricultural land. Peat swamp forest is one of commonly Nepenthes habitats at Kalampangan. One plot (50 x 100 m) was established for population study analysis. We found 230 individu from three species, that are; *Nepenthes ampullaria*, *N. rafflesiana* and *N. gracilis*. In study site, *N. ampullaria* is dominant species with Important Value (IV) is 120,43% and then followed by *N. gracilis* (IV= 97,30%) and *N. rafflesiana* (IV= 82,27%).

0301. **Mansur, M., Saefudin** & **F. Syarif. 2010.** Respon Pupuk Daun NPK terhadap Pertumbuhan *Nepenthes ventrata* dan *Nepenthes neglecta*. *Jurnal Teknologi Lingkungan* 11(3): 503–509.

Abstract

Leaf NPK fertilizer experiments on pitcher plant (*Nepenthes neglecta* and *Nepenthes ventrata*) conducted in May 2008 to March 2009 in a greenhouse, Botany Division, Research Center for Biology-LIPI, Cibinong Science Center, Cibinong. The objective is to study the effect of leaves NPK fertilizer on the growth of the two Nepenthes species tested. Experiments using Random Complete Factorial Design with two factors, namely the two Nepenthes species and three doses of fertilizer each treatment repeated six times. Growth parameters measured include; long shoot leaves, plant height, number of leaves, number of mature pitchers, and growth pitchers. Results showed that the dose of NPK fertilizer provided (2 and 4 ml/lt) have no effect on plant height and number of leaves, but little effect on the number of mature pitchers than the control plants. The statistical tests also showed no interaction between the two Nepenthes species with a given dose of fertilizer on the growth of plants. Minimum-maximum temperature recorded in the greenhouse during the experiment was 22.2^{0}C and 38.5^{0}C. Meanwhile, air humidity between 43.6–64.7%.

0302. **Mansur, M., T. Triono,** Ismail, S.W. Adi, E. Wahyu & G. Ismail**. 2010.** Analisis Vegetasi Pohon di Hutan Hujan Tropik Harapan, Jambi. *Berita Biologi* 10(2): 173–178.

Abstract

Vegetation analysis of trees in Harapan Rainforest, P.T. REKI, Jambi, was conducted on October–November 2009. Two 50m x 100m (0.5 ha) plots were established to obtain primary data for analysis. Plot one was made in the area of Medium Secondary Forest and plot two in the area of High Secondary Forest. Results shown that, the number of tree species were recorded from the two plots was 205 species from 550 individual trees with a total Basal Area (BA)= 64.75 m2. Plot one has 123 species from 284 individuals with BA = 10.82 m2 and Diversity Index (H')=-1.87. *Bellucia axinanthera* was recorded as the dominant species with Importance Value (IV)= 37.21%. Meanwhile, the plot two has a 126 species from 266 individuals with BA= 53.93 m2 and (H')=-1.97. *Shorea acuminata* was recorded as the dominant species with IV= 12.93%. Plot two (High Secunder Forest) has the higher diversity of tree species than plot one (Medium Secunder Forest).The structure and composition of vegetation between plot one and plot two is different from the similarity index for the two plots which is only 21.46%.

0303. **Mansur, M. 2011.** Laju Fotosintesis Jenis-Jenis Pohon Pionir Hutan Sekunder di Taman Nasional Gunung Halimun-Salak, Jawa Barat. *Jurnal Teknologi Lingkungan* 12(1): 35–42.

Abstract

Tree growth is closely related to the process of photosynthesis. So far the rate of photosynthesis in elements of secondary forests has not been known, especially in pioneer species. At the same height of the place and micro-climate conditions, the rate of photosynthesis of pioneer species of secondary forest has a different rate of photosynthesis. This study aims to determine the ability of the rate of photosynthesis of some secondary forest pioneer tree species in order to support reforestation efforts on degraded forests and at the same time looking for the kinds of pioneers who have a high absorption of CO_2 gas in an effort to reduce global warming caused by emissions CO_2 gas in the air. The survey results noted there are 6 common pioneer tree species grow at the sites. *Trema orientalis* had the highest CO_2 assimilation value which is equal to 20,350 μmol $m^{-2}s^{-1}$, followed by the *Macaranga triloba* (17,198 μmol $m^{-2}s^{-1}$), *Omalanthus populneus* (14,097 μmol $m^{-2}s^{-1}$), *Mallotus paniculatus* (13,118 μmol $m^{-2}s^{-1}$), *Macaranga tanarius* (12,862 μmol $m^{-2}s^{-1}$) and *Weinmannia blumei* (10,058 μmol $m^{-2}s^{-1}$). Research conducted during the rainy season (September 2010). During measurement, the light radiation in the upper leaf surface between 63,583 to 363,750 μmol $m^{-2}s^{-1}$, air temperature 21,8 to 26,7^{0}C, air humidity 75,8-89,8%, light intensity 2483,3 to 28701,7 Lux, soil pH 5,8 to 6,3 and soil moisture between 50,7 to 71,7%.

0304. **Mansur, M., N. Hidayati** & **T. Juhaeti. 2011.** Struktur dan Komposisi Vegetasi Pohon serta Estimasi Biomassa, Kandungan Karbon dan Laju Fotosintesis di Taman Nasional Gunung Halimun-Salak. *Jurnal Teknologi Lingkungan* 12(2): 161–169.

Abstract

Research on the structure and composition of vegetation, biomass estimation, carbon content and the rate of photosynthesis was conducted in Citalahab Central Village, Gunung Halimun-Salak National Park, West Java, on August 2010. The purpose of this research is to determine the components and characteristics of each tree species at the study sites associated with biomass, the rate of CO_2 assimilation and transpiration. Results showed that the form of classified forest area of primary forest was a little disturbed. This study recorded 337 individual trees (stem diameter >10 cm) per hectare from 71 species, 50 genera, and 32 families. Lauraceae, Fagaceae, Myrtaceae, Rubiaceae and Meliaceae are the 5 most common families found in the plot area, that is dominated by *Altingia excelsa*, *Blumeodendron elateriospermum*, *Ardisia zollingeri*, *Gordonia excelsa*, *Tricalysia singularis*, *Castanopsis acuminatissima*, *Knema cinerea*, *Laportea stimulant*, *Vernonia arborea* and *Dysoxylum excelsum*. Estimated biomass recorded of 304.5 tons dry weight/ha with a carbon content of 152.3 tons/ha of basal area of 28.89 m2/ha. *Quercus oidocarpa*, *Litsea noronhae*, *Saurauia nudiflora*, *Castanopsis argentea* and *Altingia excelsa* has recorded the highest photosynthetic rates compared with other species. On the other hand, the highest transpiration rate is owned by the *Macaranga triloba*, *Sandoricum koetjape*, *Prunus arborea*, *Urophyllum corymbosum* and *Altingia excelsa*.

0305. **Marwoto, R.M. 2010.** Mengenal Kerang Kupang *Musculista senhousia* (Benson *in* Cantor, 1842). *Fauna Indonesia* 9(1): 15–18

Abstrak

Kerang kupang (mussel), *Musculista senhausia*, is a mollusc from group of bivalvia which has high economic potency. Public of East Java traditionally processes mussel cockle for cookery known as lontong kupang. This mussel lives in muddy sands habitat. They are able to live till 20 m depth. Kerang kupang plays a role as invader and suspension feeder in coastal ecosystem. The study on the biology of kerang kupang is important to get the comprehensive information for future development of kerang kupang utilization.

0306. **Marwoto, R.M.** & **N.R. Isnaningsiah. 2011.** Notes on the Distribution of Invasive Freshwater Snail *Pomacea canaliculata* (Lamarck, 1822) and *P. insularum* (d'Orbigny, 1835) in Indonesia. *Biotropia* 18(2): 123–128.

Abstract

The freshwater snails *Pomacea canaliculata* and *P. insularum* have been reported as important invasive species causing damage to crops, predominantly wetland rice in Asia. These snails are commonly known as "Golden Apple Snail" (GAS), introduced species from the origin locality Argentina. The *P. canaliculata* or named as "keong mas, keong murbei" was introduced in Indonesia around 1983, and after more than 20 years, now it can be found very abundant at habitat as marshes, ponds, irrigations, lakes and rice fields in almost all places in Indonesia.

0307. **Marwoto, R.M. 2011.** Keong Darat dan Air Tawar dari Pulau Nusa Kambangan. *Jurnal Moluska Indonesia* 2(1): 39–47.

Abstract

Nusa Kambangan is a small island situated in the south beach at the west part of Java. The information of the terrestrial and freshwater snails from Nusa Kambangan is very limited. Therefore, a preliminary survey was needed. The aim of this survey is to evaluate the diversity of the terrestrial and freshwater snails from karst and caves in Nusa Kambangan. This study found 18 species of terrestrial snail and five species of freshwater snails in this preliminary survey that was conducted in December 2010. The occurence of these snails and its habitat were discussed in this paper.

0308. **Marwoto, R.M**. & **N.R. Isnaningsih. 2012.** The Freshwater Snail Genus *Sulcospira* Troschel, 1857 from Java, with Description of a New Species from Tasikmalaya, West Java, Indonesia (Mollusca: Gastropoda: Pachychilidae). *The Raffles Bulletin of Zoology* 60(1):1–10.

Abstract

Members of the viviparous freshwater snail genus *Sulcospira* Troschel, 1858 occur in lotic habitats in Southeast Asia. Three species have been reported from Java, two of which (*Sulcospira sulcospira* and *S. pisum*) may have become extinct, while *S. testudinaria* is fairly common. Based on recent collections, here this study describes a new species, *Sulcospira kawaluensis*, from Tasikmalaya, West Java. Shell, embryonic shell, and radula characters of the new species clearly differ from those in *S. testudinaria*. *Sulcospira kawaluensis* new species has a rather restricted occurrence near Tasikmalaya in West Java.

0309. **Marwoto, R.M**. & **N.R. Isnaningsih. 2012.** Moluska dari Karst Maros, Sulawesi Selatan. *Dalam* Y.R. Suhardjono & R. Ubaidillah (editor). *Buku Fauna Karst Maros*. Hlm. 115–148.

Abstrak

Tidak Ada Abstrak

0310. **Marwoto, R.M**. & **N.R. Isnaningsih. 2013.** Keong Air Tawar Endemik marga *Tylomelania* Sarasin & Sarasin, 1897 (Moluska, Gastropoda, Pachychilidae) dari Kawasan Karst Maros, Sulawesi Selatan. *Zoo Indonesia* 22(1): 29–36.

Abstract

The freshwater snail *Tylomelania* Sarasin & Sarasin, 1897 is an endemic genus to Sulawesi, generally living in rivers and lakes. Maros karst area is very spacious with numerous caves that are commonly channeled by the rivers flowing from the cave or into the cave. *Tylomelania* have been collected from the rivers surrounding 12 caves in Maros regency, three of which have been identified, *T. perfecta*, *T. robusta*, *T. wallacei* and two species named as *Tylomelania* sp.1

and *Tylomelania* sp. 2 that thought to be new species. Morphological characters of each species was described as well as its habitat and distribution.

0311. **Maryanto, I**., M. H. Sinaga, **A. S. Achmadi** & **Maharadatunkamsi. 2010.** Morphometric Variation of *Rattus praetor* (Thomas, 1888) Complex from Papua, with the Description of New Species of *Rattus* from Gag Island. *Treubia* 37: 25–48.

Abstract

Thirty specimens of *Rattus* collected from Gag Island, Papua were compared directly with two specimens from Gebe Island, one from Salawati Island and six specimens from mainland of Papua. All cranial, dental, dentary and external characters were measured and analysed using multiple regression and discriminant function. The multiple regression showed that only incisive foramen length was influenced by sexual dimorphism. Discriminant function analysis indicated that the form from Gag island was different from the other populations collected from mainland of Papua, Gebe and Salawati, and thus was described as *Rattus nikenii* sp. nov.

0312. **Maryanto, I**., M. Yani, **S.N. Prijono** & **S. Wiantoro. 2011**. Distribution of Fruit Bats at Lore Lindu National Park, Central Sulawesi, Indonesia. *Hystrix*-Italian Journal of Mammalogy 22 (1): 167–177.

Abstract

Between March 2000 and July 2001, The researchers studied the distribution of fruit bats in Lore Lindu National Park, Central Sulawesi, Indonesia. Vegetation types and elevation belts between 350 and 2,100 m a.s.l. were combined to characterize 17 habitat types, which were surveyed using standardized mist netting. Sixteen species of Pteropodidae (fruit bats) were identified in the park. Using an Euclidian distance dissimilarity index (EDD), the 16 species were clustered into four main groups. The results of cluster analysis were supported by Principle Component Analysis, PC1 and PC2 accounting for 71.94% and 27.39% of total variance, respectively. This study suggests that PC2 primarily implies an altitudinal gradient, while PC1 is probably related to the gradient of humidity.

0313. **Maryanto, I**., M. Yani**, S.N. Prijono** & **S. Wiantoro**. **2012.** A New Species of Fruit Bat (Thoopterus: Pteropodidae: Megachiroptera) from Sulawesi and Adjacent Islands, Indonesia. *Record of the Western Australian Museum* 27: 068–084.

Abstract

A new species of fruit bat in the genus *Thoopterus* is described from Sulawesi, Talaud, and Wowoni Islands in Indonesia. The new species differs from *T. nigrescens* in having larger cranial, dental, mandibular and external measurements, and a wider calcar. In addition, the tail of the new species is absent or

reduced to a rudiment, a quarter to a half of the under face of the uropatagium is sparsely furred and the urethal aperture of the glans penis lacks a conspicuous scale-like projection. The new species is sympatric with *T. nigrescens* and is known from elevations of 60–1,100 m above sea level.

0314. Mat-Salleh, K., **R. Mahyuni,** A. Susatya & J.F. Veldkamp. **2010**. *Rafflesia lawangensis* (Rafflesiaceae), a new species from Bukit Lawang, Gunung Leuser National Park, North Sumatra, Indonesia. *Reinwardtia* 13(2): 159–165.

Abstract

Rafflesia lawangensis (Rafflesiaceae), a New Species from Bukit Lawang, Gunung Leuser National Park, North Sumatra is described. The species was previously recorded as either *R. arnoldi* or *R. atjehensis*, but it is distinguished by the absence of windows, the large undulating exterior annulus, the short pubescence on the upper surface of perigone lobes, and the very wide of diaphragm opening. A key to species of Sumatran Raffesia is provided.

0315. Matsubayashi, K.W., **S. Kahono**, **S. Hartini** & H. Katakura. **2013.** Micro-spatial and Seasonal Distributions of Two Sympatric Host Races of the Phytophagous Ladybird Beetle *Henosepilachna diekei* (Coleoptera: Coccinellidae) and Their Host Plants in West Java, Indonesia. *Treubia* 40: 9–24.

Abstract

Divergent adaptation to different host pants may promote reproductive isolation between hosts-specific populations in phytophagous insects, since strict preferences for different host plants act as an isolating barrier between populations on the different hosts. Moreover, a high dependence on the host plants may cause additional reproductive barriers, e.g., differences in micro-spatial distribution and phenology between host-specific populations when the host plants differ in these characters. However, few studies have specifically addressed these two types of host-plant-induced isolating barriers. Here, the writers compared the micro-spatial distribution and seasonal fluctuation of two host races of the phytophagous ladybird beetle *Henosepilachna diekei* (Coleoptera: Coccinelidae: Epilachninae) in Bogor, West Java, one depending on *Mikania micrantha* (Asteraceae) and the other on *Leucas lavandulifolia* (Lamiaceae). In the field, *M. micrantha* was far more abundant and common than *L. lavandulifolia* throughout the year. *M. micrantha* was found in relatively moist habitats with moderate sunlight, while *L. lavandulifolia* was found in dry, sunny, open habitats. Consequently, the beetles depending on *M. micrantha* were more common and abundant than those depending on *L. lavandulifolia*. Although the two host races could encounter one another where the two host plants occurred in close proximity, they infrequently did so because of strict host fidelity coupled with differences in the abundance and habitat of the two host plants. On the other hand, the writers detected no evidence of host-related seasonal isolation between the two host races.

0316. Matsui, M., **A. Hamidy,** R.M.Murphy, W. Khonsue, P. Yambun, T. Shimada, A. Norhayati, M.B. Daicus & J.P. Jiang. **2010.** Phylogenetic Relationships of Megophryid Frogs of the Genus *Leptobrachium* (Amphibia, Anura) as Revealed by mtDNA Gene Sequences. *Molecular Phylogenetics and Evolution* 56: 259–272.

Abstract

By investigating genealogical relationships, the researchers estimated the phylogenetic history and biogeography in the megophryid genus *Leptobrachium* (sensu lato, including Vibrissaphora) from southern China, Indo-china, Thailand and the Sundaland. The genealogical relationships among the 30 named and unnamed taxa were estimated using 2009 bp of sequences from the mitochondrial DNA genes 12S rRNA, tRNAval, and 16S rRNA using maximum parsimony, maximum likelihood, and Bayesian inference methods. The genus *Leptobrachium* was a well-supported monophyletic group that contained two major clades. One clade had three subclades primarily from disjunct regions including Borneo, Peninsular Malaysia, Java, and Thailand. The Bornean subclade included one species each from the Philippines and Sumatra. The other major clade consisted of two subclades, one from Indochina and the other from southern China (Vibrissaphora). Divergence times estimated an old evolutionary history of each subclade, one that could not be explained by the geohistory of Southeast Asian major landmasses.

0317. Matsui, M., N. Kuraishi, J.P. Jiang, H. Ota, **A. Hamidy,** N.Orlov, K. Nishikawa. **2010.** Systematic Reassessments of Fanged Frogs from China and Adjacent Regions (Anura: Discroglossidae). *Zootaxa* 2345: 33–42.

Abstract

Systematic relationships of fanged frogs usually associated with *Limnonectes kuhlii* are assessed using 15 samples from Japan, Chinese Mainland and Taiwan, Vietnam, Laos, Thailand, Malaysia (Borneo), and Indonesia. Phylogenetic relationship inferred from the mitochondrial 12S rRNA, tRNAval, and 16S rRNA gene sequences revealed that fanged frogs sampled are not monophyletic with the topotypic *L. kuhlii* from Java. Samples from Yunnan of southern China (*L. bannaensis*), northern Laos and central Vietnam, and those from Jiangxi of eastern China (*L. fujianensis*), Taiwan and Japan (*L. namiyei*), respectively, form monophyletic groups, and are collectively sister to the Thai sample (*L. megastomias*). All these samples, *L. fragilis* from Hainan of southern China, and a group of Bornean samples show unresolved relationships with Javanese *L. kuhlii*. From the resultant phylogeny and genetic distances found among samples, *L. "kuhlii"* from Taiwan and *L. fujianensis*, and *L. "kuhlii"* from northern Laos and central Vietnam and *L. bannaensis*, respectively, are surmised to be conspecific. These fanged frogs are morphologically similar to, but phylogenetically distant from, *L. kuhlii* sensu stricto. *Limnonectes namiyei*, *L. fujianensis*, and *L. bannaensis* are considered to have a common ancestor whose chromosome number was 2n=22, unlike *L. fragilis, L. kuhlii* and many other frogs with 2n=26 chromosomes.

0318. Matsui, M., **A. Hamidy,** D.M. Belabut, A. Norhayati, S. Panha, A. Sudin, W. Khonsue, H.S. Oh, H.S. Yong, J.P. Jiang, & K. Nishikawa. **2011.** Systematic Relationships of Oriental Tiny Frogs of the Family Microhylidae (Amphibia, Anura) as Revealed by mtDNA Genealogy. *Molecular Phylogenetics and Evolution* 61: 167–176.

Abstract

We estimated the genealogical relationships and assessed systematic relationships among 45 out of 89 named species and four unnamed taxa from 11 of 14 genera of the Oriental microhylids from 1,767 bp sequences of the mitochondrial DNA genes 12S rRNA and 16S rRNA using maximum parsimony, maximum likelihood, and Bayesian inference methods. Monophyly was rejected for the subfamily Microhylinae, and research data reveal four well-supported clades whose relationships to each other are unresolved: (A) Microhyla, Calluella, and Glyphoglossus, (B) Chaperina, (C) Kaloula, Phrynella, and Metaphrynella, and (D) Micryletta. They were genetically as divergent from each other as from another Oriental subfamily Kalophryninae, and could be recognized as distinct subfamilies. Within Clade A, our data reveal three well-supported subclades whose relationships to each other are unresolved: (AI) Microhyla-I, (AII) Calluella and Glyphoglossus, and (AIII) Microhyla-II. Of the two enigmatic Malaysian genera, whose subfamilial placement has been undetermined, Phrynella was found to be the sister species of Metaphrynella in Clade C, whereas Gastrophrynoides was grouped in the Papua-Australian subfamily Asterophryinae. Currently recognized subgenera and species groups within Microhyla based on morphology were not supported phylogenetically, and require thorough reassessments.

0319. Matsui, M., **Mumpuni** & **A. Hamidy. 2012.** Description of a New Species of *Hylarana* from Sumatera (Amphibia, Anura). *Current Herpetology* 31(1): 38–46.

Abstract

A ranid frog of the genus *Hylarana* from eastern Sumatera is sufficiently divergent morphologically from other congeners as to be recognized as a distinct species. In addition, the frog is also much divergent from other members of the species group genetically, the writers hereby describe it as a new species *H. rawa*. It is closest to *H. baramica, H. laterimaculata*, and *H. glandulosa* among members of *Hylarana.*

0320. Matsui, M., **A. Hamidy** & K. Eto, K. **2013.** Description of a New Species of *Microhyla* from Bali, Indonesia (Amphibia, Anura). *Zootaxa* 3670 (4): 579–590.

Abstract

We describe a microhylid frog from Bali, Indonesia as a new species, *Microhyla orientalis* **sp.nov.** It belongs to the M. achatina group and is close to *M. mantheyi, M. malang*, and *M. borneensis*. It is distinguished from its congeners

by a combination of the following characters: small size (adult males about 16–17 mm in SVL); a faint vertebral stripe present; a black lateral stripe from behind eye to half length of trunk; snout rounded in profile; eyelid without supraciliary spines; first finger less than one-fifth of third; tips of three outer fingers weakly dilated, forming weak disks, dorsally with median longitudinal groove; outer palmar tubercle single; tibiotarsal articulation reaching up to center of eye; tips of toes distinctly dilated into disks, dorsally with median longitudinal groove; inner and outer metatarsal tubercles present; four or more phalanges on inner and outer sides of fourth toe, and three phalanges on inner side of fifth toe free of web; and tail of larva with a black marking at middle. The male advertisement call of the new species consists of a series of notes each lasts for 0.01–0.08 s and composed of 3–5 pulses with a dominant frequency of 3.2–3.6 kHz. Uncorrected sequence divergences between *M. orientalis* and all homologous 16S rRNA sequences available were >6.6%. At present, the new species is known from rice fields between 435–815 m elevation in Wongaya Gede and Batukaru.

0321. Matsui, M., **A. Hamidy** & N. Kuraishi. **2014**. A new Species of *Polypedates* from Sumatra, Indonesia (Amphibia: Anura). *Species Diversity* 19: 1–7.

Abstract

A rhacophorid tree frog from Sumatra that was once identifed as *Polypedates otilophus* (Boulenger, 1893) is sufficiently divergent genetically and morphologically from topotypic specimens from Borneo as to be recognized as a distinct species. It is herein described as *P. pseudotilophus* sp.nov. The Sumatran frogs can be distinguished easily from the Bornean population by the possession of a much more weakly developed supratympanic bony crest, smoother dorsal skin, and a large, hourglass-shaped dark marking, instead of longitudinal stripes on the dorsum.

0322. Matsumoto, K. & **W.A. Noerdjito, 2010.** Species Richness and Species Composition of Butterflies in *Imperata* Grassland, *Acacia mangium* Plantation and Burnt and Unburnt Forest in East Kalimantan. *Proc. of Int. seminar on CDM Plantation and Biodiversity*.–Results of a collaborative research in East Kalimantan, 24 February 2009 in TFFPRI, Tsukuba, Japan (Fukuyama, K. & T. Oka eds): 19–21.

Abstract

Natural in the tropics have been extensively degraded or transformed to grasslands due to human activity and wild fire, causing global concern about the decline of biodiversity. Artificial plantation of fast-growing exotic species, such as *Acacia mangium,* either the vegetation recovery or industrial purposes, have been established on grasslands in the last two decades, yest most biodiversity studies of tropical forests have been done in natural forest, except for studies of biodiversity in grasslands and artificial plantation by Chey et al. (1997), Maeto et al (2008), and Nakamuta et al. (2008). In the present study,

the writers focus on the recovery of butterfly species diversity in artificial plantation. To clarify whether or not, and to what extent if ever, forest insects can recover in artificial plantation, the writers compared assemblanges of butterflies in artificial plantation, ex-forest grassland and natural forest, near Balaikpapan, East Kalimantan. The writers also studied butterfly assemblanges in burnt forest because artificial plantations are usually established on grasslands located next to burnt and if assemblages of forest butterflies is to be restored by reforestation of degraded land, possible colonization of forest butterfly species should be via the burnt secondary forests.

0323. Matsumoto, K., **W.A. Noerdjito** & E. Cholik. **2012.** Butterflies Recently Recorded From Lombok. *Treubia* 39: 27–40.

Abstract

Ten species of butterflies were recently recorded from Lombok, i.e., *Papilio demoleus malayanus*, *Appias olferna*, *Eurema andersonii kashiwaii*, *Theclinesthes miskini gaura*, *Tirumala ishmoides linea*, *Acraea andromacha*, *Acraea violae*, *Junonia villida*, *Lexias aegle miyatai* and *Mycalesis mineusmacromalayana*. *Papilio demoleus malayanus*, *A. olferna* and *A. violae* were thought to be recent immigrants from the mainland Asia, and likewise *J. villida* from Australia. The writers could not determine whether *A. andromacha*, recorded by only one specimen, is a native species or a stray from Sumbawa. The other species were supposed to be native to Lombok.

0324. Meeboon, J., **I. Hidayat** & S. Takamatsu. **2013**. *Pseudoidium javanicum*, a New Species of Powdery Mildew on *Acalypha* spp. from Indonesia. *Mycoscience* 54(3): 183–187.

Abstract

Pseudoidium javanicum is proposed as a new species based on analyses of 28S, ITS and IGS rDNA sequences, and morphological data. This new species was found on *Acalypha wilkesiana* var. *marginata*, *A. argentea*, and *A. cristata* collected from Cibodas Botanical Garden, Bogor (West Java Province, Indonesia). This study showed that all these specimens have identical rDNA sequences and similar morphological characteristics. They form a distinct clade separated from other species of Erysiphaceae. *Pseudoidium javanicum* differs from Erysiphe acalyphae by having shorter conidiophores and foot cells 1–3 times as long as the 0–2 following cells. The conidial size of *Ps. javanicum* is also smaller than that of *E. jatrophae*.

0325. Meeboon, J., **I. Hidayat** & S. Takamatsu. **2013**. *Setoidium castanopsidis*, a New Species of Anamorphic Cystotheca (Ascomycota, Erysiphales) from Indonesia. *Mycoscience* 54(5): 274–278.

Abstract

A powdery mildew fungus belonging to the genus *Setoidium* (anamorph of Cystotheca) was found on *Castanopsis javanica* in Cibodas Botanical Garden and mount Tangkuban Perahu, West Java, Indonesia. The fungus is considered as a new species, namely, *Setoidium castanopsidis*. Phylogenetic analyses of the 28S and ITS rDNA regions showed that *S. castanopsidis* formed a distinct lineage separated from *Cy. tjibodensis*, *Cy. lanestris*, and *Cy. wrightii*. *Setoidium castanopsidis* also differs morphologically from *Cy. tjibodensis* in having distinct appressoria (nipple-shaped), longer conidiophores with longer foot-cells, larger conidia, and being found on *Ca. javanica*. The teleomorphic state has not been found during the collection.

0326. Meeboon, J.**, I. Hidayat, K. Kramadibrata, D. Nurcahyanto,** S.A.S. Siahaan, &. S. Takamatsu. **2013.** *Cystotheca tjibodensis* (Erysiphaceae, Ascomycota): Rediscovery in Java after 90 Years and First Finding of Anamorph. *Mycoscience* DOI 10.1007/s10267-011-0176-6, The Mycological Society of Japan and Springer 2012. 14 january 2012.

Abstract

Cystotheca tjibodensis, formerly known as *Lanomyces tjibodensis* (Perisporales), is a fungus found in 1920 in Indonesia. This species, hitherto only known from its type collection, is now regarded as belonging to the Erysiphales. However, molecular data are still required to verify the taxonomic affinity. In March 2011, the writers rediscovered this fungus at Cibodas Botanical Garden, Java. Detail characterization of this tropical powdery mildew are reported in this study based on morphological and molecular examinations. The anamorph of this species that was found in the type specimen is also reported in this study.

0327. Merker, S., C. Driller, **H. Dahrudin**, **Wirdateti,** W. Sinaga, D. P. Farajallah, & M. Shekelle. **2010.** *Tarsius wallacei*: A New Tarsier Species from Central Sulawesi Occupies a Discontinuous Range. *International Journal of Primatology* 31: 1107–1122.

Abstract

On the basis of distinguishing characteristics of various genetic markers, pelage color, tail tuft, and vocalizations, this research describes a new species of the genus *Tarsius* Storr 1780. The new taxon *Tarsius wallacei* **sp.nov.** occupies a disjunct range in Central Sulawesi, Indonesia. The two isolate populations differ significantly in body size, but are alike in color, tail tuft dimensions, vocalization, and genetic composition. Morphologically, the new species is similar to other Sulawesi lowland tarsiers. In the field, it can be distinguished from its congeners via a characteristis duet song and its yellow-brown pelage coloration and a copper colored throat. Genetic analyses prove Y-chromosomal and mitochondrial DNA sequences and also microsatellite allele frequencies to be absolutely diagnostic.

0328. Miller, J. & **C. Rahmadi. 2012.** A Troglomorphic Spider from Java (Araneae, Ctenidae, Amauropelma). *ZooKeys:* 163, p.1.

Abstract

A new troglomorphic spider from caves in Central Java, Indonesia, is described and placed in the ctenid genus *Amauropelma* Raven, Stumkat & Gray, until now containing only species from Queensland, Australia. Only juveniles and mature females of the new species are known. The reasons for placing the new species in *Amauropelma* are discuss conflicting characters, and make predictions about the morphology of the as yet undiscovered male that will test our taxonomic hypothesis. The description includes DNA barcode sequence data.

0329. **Mirmanto, E. 2010.** Vegetation Analyses of Sebangau Peat Swamp Forest, Central Kalimantan. *Biodiversitas* 11(2): 84–90.

Abstract

The vegetation analysis study has been made in Sebangau peat swamp forest, Central Kalimantan. Eight permanent plots of 50 m x 50 m were set up distribute from close to the river with shallow peat layer up to the inland with relatively deep peat layer. Enumeration of trees (GBH > 15 cm) was conducted in all of 8 plots. Overall, there are 133 species (taxa) recorded within 8 plots belong to 34 families where Dipterocarpaceae, Clusiaceae, Myrtaceae, and Sapotaceae were the most dominant family. Out of all species recorded, *Combretocarpus rotundatus*, *Palaquium leiocarpum*, *sternonurus scorpioides* and *Tristania whittiana* were the most dominant species. Two community's types namely *Combretocarpus rotundatus–Shorea balangeran* community and *Palaquium leiocarpum–Eugenia densinervium* community were recognized and they distributed in slightly different habitat condition. The sequence of these two communities' shows significantly related to both distance to river and peat-depth. In addition there was indication the presence of habitat preference among tree species.

0330. **Mirmanto, E. 2011.** Vegetasi Hutan Pulau Moti, Ternate, Maluku Utara. *Dalam* I. Maryanto & H Sutrisno (eds.). *Ekologi Ternate*. Hlm. 227–236.

Abstract

Vegetation of Moti island, North Maluku has been studied in order to describe pattern of community, their structure and floristic composition. A plot method has been applied to collect basic data as parameter for further vegetation analysis. There were at least 4 community types recognized in the study area: Mangifera-Cocos, Myristica-Canarium, Canarium-Vitex and Mallotus-Ficus communities. The structure and floristic composition among those communities were varied and apparently related to habitat condition. In general, the *Mallotus panniculatus* was the commonest species followed by *Litsea glutinosa*, *Champereia manillana*, *Acalypha caturus*, *Ficus ampelas* and *Canarium hirsutum*.

Locally, however, there were various leading species in each community types and plots as well.

0331. Mishra, S., W.A. Lee, A. Hooijer, S. Reuben, **I.M. Sudiana**, A. Idris, & S. Swarup. **2014.** Microbial and Metabolic Profiling Reveal Strong Influence of Water Table and Land-Use Patterns on Classification of Degraded Tropical Peatlands. *Biogeosciences* 11: 1727–1741.

Abstract

Tropical peatlands from southeast Asia are undergoing extensive drainage, deforestation, and degradation for agriculture and human settlement purposes. This is resulting in biomass loss and subsidence of peat from its oxidation. Molecular profiling approaches were used to understand the relative influences of different land-use patterns, hydrological, and physicochemical parameters on the state of degraded tropical peatlands. As microbial communities play a critical role in biogeochemical cascades in the functioning of peatlands, the writers used microbial and metabolic profiles as surrogates of community structure and functions, respectively. Profiles were generated from 230 bacterial 16 S rDNA fragments and 145 metabolic markers of 46 samples from 10 sites, including those from above and below water table in a contiguous area of 48 km2 covering five land-use types. These were degraded forest, degraded land, oil palm plantation, mixed crop plantation and settlements. Bacterial profiles were most influenced by variations in water table and land-use patterns, followed by age of drainage and peat thickness in that order. Bacterial profiling revealed differences in sites, based on the duration and frequency of water table fluctuations and on oxygen availability. Mixed crop plantations had the most diverse bacterial and metabolic profiles. Metabolic profiling, being closely associated with biogeochemical functions, could distinguish communities not only based on land-use types but also their geographic locations, thus providing a finer resolution than bacterial profiles. Agricultural inputs, such as nitrates, were highly associated with bacterial community structure of oil palm plantations, whereas phosphates and dissolved organic carbon influenced those from mixed crop plantations and settlements. This study provides a basis for adopting molecular marker-based approaches to classify peatlands and determine relative importance of factors that influence peat functioning. The research findings will be useful in peatland management by providing a basis to focus early efforts on hydrological interventions and improving sustainability of oil palm plantations by adopting mixed cropping practices to increase microbial diversity in the long term.

0332. Morinaka, S., **Erniwati**, I.K. Ginarsa & T. Miyata. **2011**. Co-occuring *Delias* Butterflies (Lepidoptera: Pieridae) at Arfak Mts. in the Western Part of New Guinea Island. *Biogeography* 13: 31–34.

Abstract

Fifteen species of *Delias* butterflies with varied bright wing marking were seen flying together and sucking water on the river bed of the River Hingk and its vicinity in Arfak Mts. of western New Guinea. The co-occurrence of adults of many *Delias* species with varied bright wing markings has been also reported from the central to the eastern parts of the mountains. So, the co-occurrence of adults of *Delias* species is likely to be common from the western to eastern highlands of New Guinea. It is noteworthy that 13 of 20 known species from Arfak Mts., are endemic, suggesting the isolation of their habitat from those in the central to eastern parts of New Guinea and their remarkable speciation there. However, the co-occurrence of 11 of 13 endemic species (84.6%) in Arfak Mts. indicates that some common selection has functioned even after isolation and speciation.

0333. Mortellitia, A., R. Castigliaa, G. Amorib, **I. Maryanto** & G.G. Musserd. **2012.** A New Species of *Margaretamys* (Rodentia: Muridae: Murinae: Rattini) from Pegunungan Mekongga, Southeastern Sulawesi, Indonesia. *Tropical Zoology* 25(2): 74–107.

Abstract

Margaretamys christinae **n. sp.** is described from an adult male collected in tropical lower montane rain forest in Pegunungan Mekongga, the most extensive mountainous region on the southeastern peninsula of Sulawesi. Physical characteristics of the specimen (body size, fur coloration and texture, and dimensions of appendages) along with cranial and dental qualitative and quantitative aspects are contrasted with similar traits in samples of *M. beccarii* (Musser, 1981), *M. elegans* (Musser, 1981), and *M. parvus* (Musser, 1981), the three other described species in the genus. The new species joins *M. elegans* and *M. parvus* as representatives of montane endemics, the former in Pegunungan Mekongga, the latter two in the west-central mountain block of Sulawesi's core; *M. beccarii* occupies habitats in tropical lowland evergreen rain forest and is known by voucher material from the northeastern tip of the northern peninsula and central Sulawesi. Aside from its capture site 1.5m above ground at 1,537m in lower montane forest, its age and sex, no other ecological information exists for the Mekongga species, but it is possible if not probable ecology is inferred from ecological information associated with the three other species. The four species are also the subjects of short discussions covering sympatry, zoogeography, phylogenetic alliances, and conservation.

0334. **Mujiono, N. 2010.** Jellyfish (*Crambionella* sp.) Fisheries Around Cilacap Waters, Central Java (Cnidaria: Scyphozoa). *Oseanologi dan Limnologi di Indonesia* 36(1): 37–48.

Abstract

Jellyfish is one of fishery product that has a good demand and price. This product has been exploited intensively in Cilacap during last two decades.

However, it is still not well documented. A research concerning in jellyfish fisheries in Cilacap waters have been carried out in 2008–2009. The aims are to know the species targeted, fishing ground, fishing gears, season, processing method, and production. The author visits Cilacap for four times in order to get the jellyfish sample and to interview the local fishers and jellyfish processing factory workers. The species targeted is *Crambionella* sp. Fishing ground are around three river mouths that flow into Indian Ocean, such as Serayu River in Karang Kandri, Bengawan River in Karang Benda and Ijo River in Jetis. Jellyfish season varied each year, commonly started from August and terminated in November. The umbrella and oral arms are both processed and exported to China, Hongkong, Japan, Korea, and Taiwan.

0335. **Mujiono, N. 2010.** Keanekaragaman Jenis Gastropoda (Mollusca) yang Berasosiasi dengan Ekosistem Mangrove di Taman Nasional Ujung Kulon. *Biota* 15(2): 219–226.

Abstract

A field research was conducted in Ujung Kulon National Park (TNUK) to reveal the biodiversity of Gastropoda which lives associated with mangrove ecosystem. As many as 793 specimens were collected and identified. These specimen consisted of 14 families, 27 genera, and 59 species which could be classified into: Native molluscs (37 species, 62.71%), Facultative molluscs (5 species, 8.47%), and Visitor mollusks (17 species, 28.81%). Within Native molluscs, 19 (51.35%) from 37 species were confirmed as new records from TNUK since they had not been recorded before. One family of Facultative molluscs, the Onchidiidae (*Onchidium chameleon, O. damelli* dan *O. patelloides*) was confirmed as new record from mangrove of Java. Totally from 59 species found here, 33 species (55.95%) were confirmed as new records, the other 26 species had already been recorded by TNUK. Some interactions (predation, mating and aggregation) among individuals were also observed in the field.

0336. **Mujiono, N. 2010.** Siput dan Slug yang Berpotensi sebagai Hama pada Pertanian di Jawa (Gasropoda: Pulmonata). *Berkala Ilmiah Biologi* 9(1): 17–25.

Abstract

Research on the diversity of terrestrial Gastropods as crop pest of horticulture in Java was carried out in June to August 2009. Six species of Gastropoda, which three species are snail and three other are slug, were collected and identified from eighteen host-plant species from twenty locations observed. Some of them are economically destructive. This paper will deal with the morphological identification and distribution of each species, as well as their attack and impact to their host-plant species.

0337. **Mujiono, N. 2011.** Studi Variasi Motif dan Morfometri Cangkang pada *Clithon oualaniensis* (Gastropoda: Neritidae) di Indonesia. *Oseanologi dan Limnologi di Indonesia* 37(1): 91–103.

Abstract

A study on the variation of shell's motif and morphometric in *Clithon oualaniensis* has been carried out between June to August 2009. The aims were to know the variation of motives, the size of shell morphology, and geographic distribution of *C. oualaniensis* in Indonesia. The characters measured are length and width of shell, columellar width, length and width of aperture. Ten motives have been identified from 464 specimens in Museum Zoology Bogor collected from 14 different localities. Five motives were known as 'Eastern Clithon' were appeared in 347 specimens (74.78%) and the others known as 'Western Clithon' are appeared in 117 specimens (25.22%). The most frequent motive is "Axial with numerous little tongues" which appeared in 148 specimens (31.89%). ANOVA test showed that columellar and apertural width could distinguish both group above. The salinity of water was predicted not as the barrier for the geographic distribution of these motives.

0338. **Mujiono, N. 2011.** Beberapa Catatan Kasus Sengatan Ubur-Ubur di Indonesia. *Fauna Indonesia* 10(1): 30–36.

Abstract

It had been reported some cases of jellyfish stings from Indonesian waters between 2005 to 2009. Of them, three deaths were reported in Jebus and Situbondo which might be caused by *Chrysaora quinquecirrha* and *Physalia physalis*. Season, treatment of the injury, and prevention of jellyfish stings will be discussed.

0339. **Mujiono, N. 2011.** Catatan Introduksi Kijing Taiwan (*Anodonta woodiana* Lea, 1837) ke Indonesia. *Fauna Indonesia* 10(2): 28–31.

Abstract

The presence of alien Chinese pond mussel (*Anodonta woodiana* Lea, 1837) in Indonesia was first detected in Bogor, 1970. This mussel was accidentally introduced from Taiwan together with Tilapia (*Tilapia nilotica*) and silver carp (*Hypopthalmichthys molitrix*), two fish that were introduced by Inland Fishery Research Institute as farmed fish. The gills of both fish was possibly already infected by glochidia of *A. woodiana*. The glochidia continued to develop into small mussel as the fish grow and bred. Currently, after 40 years of introduction, their population has invaded Java, Bali and Sulawesi. Out of Indonesia, this mussel has invaded European countries in the same way of introduction.

0340. **Mujiono, N. 2012**. Mengenal Siput Telanjang (Gastropoda: Onchidiidae) dari Hutan Bakau. *Fauna Indonesia* 11(1): 31–36.

Abstract

The Onchidiidae, a group of pulmonate slug that lack of external shell, are mostly living in intertidal zone such like mangrove forest. They live in the substrate floor, making hole as a home. The first Onchidium was described from India. Nowadays, Onchidiid slug consist of 14 genera and more than 141 species, 15 of them described from Indonesian archipelago which 4 name as synonimies. In this paper, general aspects of Onchidiidae would be described.

0341. **Mujiono, N. 2013.** Moluska Bakau sebagai Sumber Pangan. *Fauna Indonesia* 12(1): 12–16.

Abstract

Indonesia is an archipelago country with 13,466 islands and approximately 95,000 km long coastal lines which makes it the 4th longest coastal line in the world. One of the constituents of coastal ecosystem is mangrove forest. Indonesia has 2,900,000 ha mangrove forest or 19% of world's mangrove forest with 243 mangrove species. The increasing population creates more demands on food, meanwhile the land sources alone are not enough to fulfill the demands. Mangrove ecosystem could provide alternative food sources. Of 146 known species of mangrove's molluscs, at least 5 species have been consumed, mostly in Java. This paper will discuss the diversity of exploited mangrove molluscs in Indonesia and their utilization as food.

0342. **Mulyadi. 2010.** Some Common Species of Planktonic Harpacticoida (Crustacea, Copepoda) from Indonesian waters. *Berkala Penelitian Hayati* 16(53–61): 53–61.

Abstract

Taxonomic study was made on the species of the order Harpacticoida, recently collected from 9 sites in indonesian waters. Six species from 5 genera and 5 families Clytemnestridae, Ectinostomatidae, Harpacticidae, tachidiidae, and Talestridae, including *Clytemnestra scutellata* Dana, 1847; *Euterpina acutifrons* (Dana, 1848); *Eudactylopus latipes* (T. Scott, 1894); *Macrosetella gracilis* (Dana, 1848); *Microsetella norvegica* (Boeck, 1864); and *M. rosea* (Dana, 1852) were recorded. *C. scutellata* and *M. norvegica* are recorded for the first time from Indonesian waters. Descriptions, measurements, and figures are given for all species, along with a review of their distribution over the world's oceans, with taxonomic remarks, and restricted synonymies.

0343. **Mulyadi. 2011.** New Records of Species *of Pontella* Dana, 1849 and *Ivellopsis* Claus, 1893 and a Re-examination of These Genera (Copepoda, Calanoida) around Some Small Islands in Indonesian Waters. *Crustaceana* 84(12–13): 1511–1535.

Abstract

Five new records of species of the genus *Pontella* Dana, 1849 and one species of the genus *Ivellopsis* Claus, 1893, i.e., *Pontella diagonalis* C.B. Wilosn, 1950, *Pontella forficula* A. Scott, 1909, *Pontella sewelli* Heinrich, 1987, *Pontella spinipes* Giesbrecht, 1889, *Pontellasurrecta* C.B. Wilson, 1950, and *Ivellopsis elephas* (Brady, 1883) are reported herein. All species are redescribed and figured from specimens collected from eight small islands and off Bojonegara in Indonesian waters. Descriptions of the males of *P. diagonalis*, *P. forficula*, and *P. spinipes* have been published previously by Mulyadi (2000). Subsequently, a misidentification, which resulted in wrong species identity, was discovered in *P. forficula*. A. Scot's *P. forficula*, which was only described from male specimens, is recognized to represent the male of *I. elephas*.

Descriptions, measurements, and figures of those species are given, along with a review of their distribution over Indo-Pacific waters, and together with taxonomic remarks and restricted synonymies.

0344. **Mulyadi. 2011.** Keanekaragaman dan Sebaran Jenis dan Grup-Jenis Pontellidea (Krustasea, Kopepoda, Kalanoida) di Pulau-Pulau Kecil Indonesia. *Prosiding Pengelolaan Sumber Daya Alam dan Lingkungan Hidup Berbasis Kearifan Lokal*. Pusat Penelitian Lingkungan Hidup, Lembaga Penelitian dan Pengabdian Kepada Masyarakat, Universitas Jendral Soedirman: 2–12

Abstract

Taxonomical study on the species and species-groups of the family Pontellidae recently collected from 7 small islands and of Tegal and of Surabaya was conducted. Fifty-three species from 14 species-groups were recorded in the present samples, including 7 species of *Calanopia*, 15 species of *Labidocera*, 15 of *Pontella*, 1 of *Ivellopsis*, 12 of *Pontellopsis*, and 3 of *Pontellina*. Among these species, 16 species were recorded previously, 7 species *Calanopia asymmetrica* Mulyadi & Ueda, 1996; *Labidocera javaensis* Mulyadi, 1997; *L. muranoi* Mulyadi, 1997; *L. kleini* Mulyadi, 2003; *Pontella labuanensis* Mulyadi, 1997; *P. bonei* Mulyadi, 2003; *P. kleini* Mulyadi, 2003; and *P. vervoorti* Mulyadi, 2003, have been recently described as new species, and 6 undescribed species. Further 24 known species have been recorded for the first time from Indonesian waters.

All the species *of Calanopia, labidocera*, and *Pontella* recorded in this study were divided into 4 *Calanopia* species-groups (*aurivilli, elliptica, herdmani*, and *thompsoni)*, 5 *Labidocera* species-groups (*detrncata, kroyeri, minuta pectinata*, and unassigned group), 5 *Pontella* species-groups (*alata, fera, danae, labuanensis*, and unassigned group). The relationships between the species of Pontellidae are discussed and a key to the species groups is provided.

0345. **Mulyadi &** I.F.M. Rumengan. **2012.** Zooplankton Researches in Indonesian Waters: A historical review. *Coastal marine Science* 35(1): 202–207.

Abstract

The taxonomic study of Indonesian marine zooplankton was initiated by the U.S. Exploring Expedition in 1849, followed by Challenger (1874) and other expeditions. Long term studies of Delsman (1921–1939) have made inventory of fish eggs and larvae in Java Sea. Some copepod taxa from Indonesian waters, in particular, have been reported, such as *Rhincalanus*, *Pleurommama*, some genera of *Calanoida*, *Labidocera pectinata* group and Pontella alata group. Studies of Mulyadi (1994–2011) have listed about 300 species of copepods, including 55 new rebords and 13 new species. Zooplankton production-related surveys have been conducted during the Baruna Jaya Expedition I in 1964. The findings of higher zooplankton abundances in the Java Sea than in the Indian Ocean are consistent with the results of more recent studies. Similar tendency of temporal zooplankton distribution in the waters around Seribu Islands and that in Jakarta Bay has been found by the Research center for Oceanography, Jakarta. The studies on effects of environmental faktors on copepods and rotifers are also reviewed. Constraints in taxonomic studies due to the lack of taxonomic skills and insufficient facilities need to be addressed for future elaboration of zooplankton research.

0346. **Mumpuni. 2010.** Keanekaragaman Herpetofauna di Pulau Ternate dan Moti, Maluku Utara. *Dalam* I. Maryanto & H. Sutrisno. *Ekologi Ternate*. Hlm. 105–120.

Abstract

Diversity of Herpetofauna in Ternate and Moti Islands, North Maluku. Study on diversity of herpetofauna was conducted in 2009 and 2010 by collecting specimens from many villages in Ternate and Moti. Four frog and 29 reptile species were found in Ternate, while in Moti was found 3 frog and 23 reptile species. Most species were found both in Ternate and Moti except skinks of *Emoia sorexand Sphenomorphus consobrinus*, snake *Dendrelaphiscaudolineatus modestus* and sea turtle *Chelonia mydas* were only found in Moti island. On the other hand, toad *Bufo melanostictus*, gecko *Gehyra mutilata*, skinks *Eugongylus rufescens*, *Lamprolepis s. smaragdina*, snakes *Acrochordus granulatus*, *Brachyorrhus albus*, *Stegonotus batjanensis*, *Tropidonophis halmahericus*, *T. truncatus*, *Pelamis platurus* and sea turtle *Eretmochelys imbricata* were only found in Ternate. Distribution and habitat of each species in Ternate and Moti are also presented in this paper.

0347. **Mumpuni. 2011.** Study on Herpetofauna in Peatland Forest in Sumatera. *Dalam*: Y. Purwanto & K. Mizuno. *Proceeding of The Workshop on"Sustainable Management of Bio-Resources in Tropical Peat Swamp Forest"*. RC for Biology-LIPI, Cibinong, 19 July 2011.The Indonesian Man and Biosphere (MAB) UNESCO National Committee: 66–77.

Abstract

Indonesia has various peat land forests in Sumatra and Kalimantan. Peatlands spread on eastern part of Sumatera Province such as Riau, Jambi and South Sumatra. Along the Peatland areas live species of flora and fauna including herpetofauna. At least 58 herpetofauna species have been recorded at many peatland forest areas in Sumatra. Species, distribution, and status of each herpetofauna species will be discussed.

0348. **Mumpuni**. **2011.** Dimorfisme Seksual, Reproduksi dan Mangsa Kadal Ekor Panjang *Takydromus sexlineatus* Daudin, 1802 (Lacertilia: Lacertidae). *Jurnal Biologi Indonesia* 7(1): 121–131.

Abstract

Sexual Dimorphism, Reproduction and Prey of Long Tailed Lizard *Takydromus sexlineatus* Daudin, 1802 (Lacertilia: Lacertidae). The morphology and reproductive biology of *Takydromus sexlineatus* were studied in Bogor. Males are larger than females. There is sexual dimorphism onhead size and tail length (larger and longer tail on males) of body size among sexually mature adults, apparently as a consequence of sexual selection. The diet of *T. sexlineatus* consists of variety of insects and their larvae, arachnids, decapods, and snails. Most of the diet are insect (more than 70 % for adults and juveniles). There are higher prey competitions at adult skinks between males and females, adult females and juveniles, but not between adult males andjuveniles. The length of adult males and females are 44.6–58.1 mm and 49.6–62.3 mm respectively, lay eggs throughout the year with 2–3 clutches, per clutch consists of 1–3 eggs.

0349. **Mumpuni. 2011.** Kerabat Labi-labi (Suku Trionychidae) di Indonesia. *Fauna Indonesia* 10(2): 11–17.

Abstract

There are seven species of soft shell turtles included in the family of Trionychidae that are spread throughout the country. One of the species is an introduced species. The seven species occur in a variety of water habitats, from the coastal to mountain streams depending on the species. All species of soft shell turtles are harvested, especially *Amyda cartilaginea*, which is the most common species, as export commodity for consumption. *Chitra chitra javanensis* is a rare giant soft shell turtle and is protected by the Government of Indonesia. Captive breeding of native soft shell turtles in Indonesia has not been successful. It will be a challenge in the future to reduce direct pressure on populations in the wild.

0350. **Mumpuni. 2012.** Morfologi Organ Testis pada Ular Pelangi *Xenopeltis unicolor* Boie, 1827 (Serpentes: Xenopeltidae). *Jurnal Biologi Indonesia* 8(1): 205–209.

Abstrak

Xenopeltis unicolor Boie, 1827 atau ular pelangi termasuk suku Xenopeltidae yang hanya beranggotakan satu marga yaitu *Xenopeltis*, terdiri dua jenis, yakni *X. hainanensis* yang tersebar di China dan Vietnam, sedangkan *X. unicolor* tersebar lebih luas, termasuk Indonesia. Di alam ular ini hidup semi meliang di dalam tanah (fossorial) di dataran rendah sampai pegunungan. Informasi morfologi testis pada ular *X. unicolo*r belum pernah diungkapkan meskipun bentuk testis serupa dijumpai pada ular-ular primitif lain yang hidup fossorial seperti suku Leptotyphlopidae dan Typhlopidae. Dari 10 ular *Xenopeltis unicolor* jantan yang diamati dengan panjang tubuh rataan 811 mm (kisaran 590–980 mm) dan panjang ekor rataan 84 mm (kisaran 75–100 mm), seluruhnya sudah dewasa. Dari seluruh specimen yang diamati, organ testis berjumlah sepasang dengan kedudukan testis kanan lebih ke arah depan bila dibandingkan dengan testis kirinya. Kedudukan testis dalam tubuh ular terletak di antara 14,6–25,24% dari bagian badan belakang ular. Jarak testis kiri terdekat dari lobang anal bervariasi dari 12.3–17.5% dengan rataan 14,6%. Sedangkan jarak testis kanan terjauh bervariasi dari 21,6–28,5% dengan rataan 25,24% dari bagian belakang badan ular.Organ testis berbentuk untaian dengan lobus (bagian) berjumlah 3–9 bagian pada testis kanan dan 2–8 bagian pada testis kiri. Jarak antara lobus satu dengan lainnya sangat bervariasi, dari sepuluh specimen yang diamati terdapat 10 bentuk variasi, dari bentuk yang utuh sampai bentuk untaian yang terpisah jelas dengan bagian lainnya.

0351. **Mumpuni**. **2012.** Pertumbuhan Kura-kura Dada Merah Jambu *Myuchelys novaeguineae schultzei* (VOGHT, 1911) di Penangkaran (Bagian 1). *Fauna Indonesia* 11(1): 11–15.

Abstract

The growth and development of *Myuchelys novaeguineae schultzei* was observed in the captivity. Eight hatchlings within the age of 2–32 months were reared in plastic tanks and ponds. Turtles were fed with koi pellets once a day and boiled tuna fish twice a week. After 32 months, the body weight increased up to 485 grams in females and 535 grams in males. Similarly, the carapace length also increased up to 120.26 mm in females and 127.24 mm in males, while carapace width increased up to 88.02 mm in females and 88.05 mm in males. Growth analysis on age base is also discussed.

0352. **Mumpuni. 2013.** Herpetofauna di Kawasan Resort Kawah Ratu, Kaki Gunung Salak, Jawa Barat. *Prosiding Seminar Nasional Biodiversitas* Vol. 2, Hlm. 37–41.

Abstrak

Penelitian Herpetofauna di Kawasan Resort Kawah Ratu, kaki Gunung Salak, Jawa Barat telah dilakukan pada bulan Desember 2008 selama 12 hari, dengan cara menyusuri sepanjang jalan setapak dan tempat-tempat yang diperkirakan sebagai habitatnya pada siang dan malam hari. Hasil penelitian terungkap sebanyak 31 jenis herpetofauna yang terdiri atas 15 jenis amfibi dan 16 reptil.

Dari kelompok Amfibi semuanya berupa katak, sedangkan dari kelompok reptil terdiri dari 4 jenis bunglon, 3 jenis cicak, 1 jenis kadal, dan 8 jenis ular. Pertelaan jenis, habitat, dan sebarannya di Resort Kawah Ratu akan diuraikan.

0353. **Mumpuni. 2013.** Pertumbuhan Kura-kura Dada Merah Jambu Myuchelys novaeguineae schultzei (Voght, 1911) di Penangkaran (Bagian 2). *Fauna Indonesia* 12(2): 24–28.

Abstrak

Observation of breeding activities and growth of pink-bellied Snapping turtles *Myuchelys novaeguineae* schultzei at captive breeding has been conducted in 2011. Adult females lay egg four times a year. Each clutch contains 6–8 eggs. Length of egg incubation in nest until hatch was between 80 and 101 days. Egg incubation in rainy season is longer than that in dry season. A total of 7 hatchlings were hatched in June by observing their growth to measure body weight, long and wide of carapace every 3 months. Growth of body weight in the second 3-month was faster than that in the first-3 month; and on the contrary, growth of length and width of carapace at the first 3-month was bigger than those of hatchlings at the age of the second 3-month. Hatching during 2011 reach 26 hatchlings where 4 hatchlings have forms and structures of abnormal scale carapace.

0354. **Mumpuni & A. Riyanto. 2013.** Herpetofauna di Kawasan Wisata Cangar, Arboretum Sumber Brantas dan Cuban Talun Kota Batu, Malang, Jawa Timur. *Prosiding Seminar Nasional IPA* 2013 diselenggarakan di Surabaya tgl. 19 Januari 2012 oleh Jurusan Biologi FMIPA Universitas Negeri Surabaya, Yayasan Al-Muslim dan Yayasan Salman Al-Farisi. Surabaya: Universitas Negeri Surabaya Press. ISBN 978-979-028-573-6.

Abstract

Informasi keanekaragaman herpetofauna di Kawasan Wisata Kota Batu, Malang masih sangat terbatas. Informasi keanekaragaman herpetofauna tersebut dipandang perlu dalam pengelolaan kawasan, salah satunya dalam peningkatan wisata berbasis alam. Pengamatan herpetofauna telah dilakukan di Kawasan Cangar, Arboretum Sumber Brantas, dan Cuban Talun pada bulan September 2010. Dari pengamatan selama 5 hari terungkap sebanyak 15 jenis herpetofauna (7 jenis amfibi dan 8 jenis reptil). Jumlah jenis yang terungkap ini akan bertambah bila dilakukan pengungkapan lanjutan. Dari 3 lokasi pengamatan, di Cuban Talun diperoleh jenis paling banyak yaitu 9 jenis, selanjutnya Cangar 6 jenis dan di Arboretum Sumber Brantas paling sedikit yaitu 2 jenis. Keindahan dan keunikan herpetofauna yang berhasil diungkap ini perlu diperkenalkan kepada pengelola kawasan dan pemandu wisata untuk dapat dijadikan salah satu objek dalam peningkatan wisata berbasis alam. Dalam makalah ini disajikan pertelaan masing-masing jenis, keindahan/keunikan, habitat, cara dan waktu pengamatan serta peranan dalam ekosistem.

0355. Munawaroh, E., **H. Rustiami** & **S. Susiarti**. **2011**. Ekstrativisme Getah Jernang (*Daemonorops* spp.) dan Kemungkinan Pengembangannya: Studi Kasus di Jambi, Sumatera, Indonesia. *Dalam:* Y. Purwanto, E.B. Walujo & A. Wahyudi (eds.). *Valuasi hasil hutan bukan kayu, kawasan lindung PT Wirakarya Sakti, Provinsi Jambi*. Hlm. 160–171.

Abstrak

Studi ekstraktivisme getah jernang (*Daemonorops* spp.) dilakukan pada tahun 2005 di Kabupaten Jambi. Studi ini mempelajari tentang keanekaragaman jenis rotan penghasil jernang dan perannya dalam kehidupan sosial-ekonomi masyarakat lokal yang tinggal di sekitar hutan. Di samping itu studi ini juga mengungkapkan sistem pengetahuan lokal dalam rangka kegiatan ekstraktivisme dan pengelolaan kawasan. Dari hasil studi diperoleh hasil di antaranya adalah terdapat 12 jenis rotan dari marga *Daemonorops* yang dapat diekstrak getahnya. Getah jernang mempunyai peranan penting dalam kehidupan rumah tangga masyarakat lokal di kawasan sekitar hutan. Getah jernang memberikan kontribusi sekitar 5–50% dari total pendapatan masyarakat. Jenis ini mempunyai beranekaragam kegunaan di antaranya adalah sebagai pewarna, bahan pembuat obat-obatan, pembuatan varnish, pasta gigi, bahan anti racun, dupa, ritual, dan magis serta kegunaan lainnya. Produk getah jernang yang terkenal sebagai 'dragons blood' dalam perdagangan internasional telah diketahui sejak abad ke-16. Pada masa lalu jenis ini digunakan sebagai pewarna dan bahan obat tradisional. Secara rinci keanekaragaman jenis, potensi, upaya konservasi, kegunaan dan lain-lainnya dibahas dalam makalah ini.

0356. Munawaroh, E., **E.B. Walujo** & **M. Rahayu. 2011.** Keanekaragaman Jenis Hasil Hutan sebagai Stimulan. *Dalam:* Purwanto, Y.; Walujo, E. B. & Wahyudi, A. *Keanekaragaman Jenis Hasil Hutan Bukan Kayu Kawasan Lindung PT. Wirakarya Sakti, Propinsi Jambi.* Unesco, MAB, LIPI & Sinarmas Forestry: 335–353

Abstract

No abstract available

0357. Murata Y.E, B. Novkovic, **A. Suwito**, & M.T. Kimura. **2013**. Diapause and cold tolerance in Asian species of the parasitoid *Leptopilina* (Hymenoptera: Figitidae). *Physiological Entomology* 38: 211–218.

Abstract

Diapause and cold tolerance are essential for temperate insects to pass the winter, with the mechanisms controlling these two traits varying considerably among insects. In the present study, diapause and cold tolerance are compared among three *Leptopilina* species: *Leptopilina japonica* Novkovi´c & Kimura, *Leptopilina victoriae* Nordlander and *Leptopilina ryukyuensis* Novkovi´c & Kimura, all larval parasitoids of frugivorous drosophilid flies, with the aim of understanding their climatic adaptations. The first species is divided into the

temperate (*Leptopilina japonica japonica*) and subtropical subspecies (*Leptopilina japonica formosana*), and the latter two species are distributed in the tropical and subtropical regions. The temperate subspecies of *L. japonica* enters prepupal diapause at low temperatures (15 or 18°C), irrespective of photoperiod, and some individuals enter diapause when exposed to 0°C for 1 or 2 day(s) or when placed at low humidity. *Leptopilina victoriae* also shows signs of diapause initiation at 15°C, although *L. ryukyuensis* and *L. j. formosana* from the subtropical regions do not. Preimaginal viability at low temperature (13, 14 or 15°C) is usually lower in *L. victoriae* from the tropical regions compared with *L. japonica* or *L. ryukyuensis* from the temperate or subtropical regions. Diapausing prepupae of the temperate subspecies appear to be cold tolerant. However, the cold tolerance of nondiapausing prepupae, pupae and adult females varies little among the tropical, subtropical and temperate species or subspecies, and adult males of the temperate subspecies of *L. japonica* are less cold tolerant than those of the tropical or subtropical species or subspecies. Cold tolerance may be unnecessary, except for diapausing individuals of the temperate species, because nondiapausing individuals appear in warmer seasons.

0358. **Murniati, D.C. 2010.** Komposisi Jenis Kepiting Ocypodidae (Dekapoda: Brachyura) dalam Ekosistem Mangrove dan Estuari, Taman Nasional Bali Barat. *Biota* 15(2): 259–264.

Abstrak

Ekosistem mangrove dan estuari merupakan komponen penting dari area intertidal yang merupakan habitat kepiting Ocypodid. Saat ini, penelitian mengenai kepiting Ocypodid di TN Ujung Kulon masih sangat sedikit, sedangkan habitatnya terus mengalami penyusutan. Penelitian ini dilakukan untuk menetukan komposisi jenis kepiting Ocypodidae (Brachyura: Ocypodidae) di ekosistem mangrove dan estuari Taman Nasional Ujung Kulon. Koleksi kepiting dilakukan di Legon Cibariang, Pulau Panaitan dan Cikawung, TN Ujung Kulon. Empat jenis kepiting Ocypodid yaitu *Ocypodeceratophthalma* (Pallas, 1772), *Uca annulipes* (H. Milne Edwards, 1837), *U. coarctata* (H. Milne Edwards, 1852) dan *U. triangularis* (A. Milne Edwards, 1873), berhasil dikoleksi dari ekosistem mangrove dan estuari. Komposisi jenis Ocypodidae di Cikawung lebih bervariasi dibandingkan Legon Cibariang.

0359. **Murniati, D.C. 2010.** Pola Dominansi Capit pada *Uca* spp. (Dekapoda: Ocypodidae). *Hayati* 16(1): 15–20.

Abstract

Uca spp was a unique crab species marked with asymmetry of the cheliped. A major cheliped and a minor cheliped have different function. Major cheliped size is several times of minor cheliped size (cheliped dominance pattern). Each species has different cheliped dominance pattern. This study was done to describe cheliped dominance pattern of three *Uca* species. Major cheliped length and minor cheliped length of twenty male of *U. dussumieri*, *U. vocans*

and *U. perplexa* were examined. Cheliped dominance pattern obtained by comparing the major cheliped length to minor cheliped length. The two-tailed single sample t test showed similar cheliped dominance pattern within *Uca* species (P>0.001). The Kruskal-Wallis test showed different cheliped dominance pattern among *Uca* species (P>0.001). The cheliped dominance pattern of *U. dussumieri*, *U. vocans* and *U. perplexa* are 5.09, 4.24 and 4.75.

0360. **Murningsih, T. 2010.** Aktivitas Antioksidan dan Analisis Kimia Ekstrak Daun Jungrahab (*Baeckea frutescens* L.). *Berita Biologi* 10(1): 129–134.

Abstract

Extraction of Jungrahab (*Baeckea frutescens* L.) leaves was done by using organic solvent (ether). The antioxidant activity of the extract was investigated using 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay. Ascorbic acid (vitamin C) was employed as a positif control. By virtue of their hydrogen donating ability, the extract and ascorbic acid exhibited reducing power. The extract was found to have free radical scavenging activity against DPPH. The antioxidant activity was supposed to be due to the composition of certain constituens e.g. 2,6-di(*t*-butyl)-4-hidroxybenzoic acid (BHT-acid), 5,7-dihydroxy-6-methylflavanone and α-tocopherol (vitamin E) within the extract.

0361. **Murningsih, T. 2010.** Pengaruh Ekstrak Air dan Etanol *Kaempferia* spp. terhadap Aktivitas dan Kapasitas Fagositosis Sel Makrofag yang Diinduksi Bakteri *Staphylococcus epidermidis. Berita Biologi* 10(2): 235-240.

Abstract

Ethanol 95% and water extracts of *Kaempferia* spp. (*K. galanga, K. angustifolia, K. pandurata* and *K. rotunda*) were tested for their influences in *in-vitro* phagocytosis activity and phagocytosis capacity of mouse peritoneum macrophage cells induced by *Staphylococcus epidermidis*. Extracts were tested at a series concentration in logarithmic order (0.1–1000) µg/ml. Imboost and distilled water were employed as positif and negative control, respectively. The results showed that almost all extracts were capable to increase on phagocytosis activity (SPA, Screening for phagocytosis activity) and phagocytosis capacity (IP, Index Phagocytosis) of macrophage cells compared to positive and negative controls significantly (p<0,05). The phagocytosis activity and capacity macrophage cells were increased by increasing extract concentration. *K. rotunda* extracts showed reveal better on above activities in the low concentration (0.1–1000) µg/ml then other species.

0362. **Murningsih, T. 2012.** Sifat Antioksidan, Kandungan Fenol Total dan Flavonoid Total Ekstrak Kulit Batang Mertapang (*Terminalia copelandii* Elmer). *Berita Biologi* 11(1): 85–92.

Abstract

The antioxidant properties of methanolic extract of *T. copelandii* Elmer bark have been evaluated by using free radical (DPPH) scavenging assay, reduction power, and *β*-caroten bleaching assay. Ascorbic acid (vitamin C) and "butylated hydroxytoluene" (BHT) were used as positive control or antioxidant standard. Total phenolic content was estimated by using Folin-Ciocalteu reagent and expressed in gallic acid (Gallic Acid Equivalent), while total flavonoid content was estimated by using aluminium chloride reagent and expressed in routine (Routine Equivalent). The result shows antiradical activity of extract on concentration 40 µg/ml was 89.96%, lower than vitamin C (95.61%) but higher than BHT (52.25%). The reducing power of extract on concentration 50 µg/ml has absorbance value 0.644 lower than vitamin C (0.769), but higher than BHT (0.475). During 2 hours incubation, extract on concentration 50 µg/ml inhibited *β*-caroten bleaching 69.46% higher than control negative (35.81%), but lower than BHT (85.99%). Estimation of total phenolic and total flavonoid content showed that extract contained 350.40 µg (GAE)/g extract and 277.50 µg (RE)/g extract respectively. The antioxidant properties may be attributed to the presence of phenolic and flavonoid compounds present in the extract.

0363. **Murningsih, T. 2013.** Potensi Ekstrak Metanol Kayu Secang (*Caesalpinia sappan* L.) sebagai Stabilisator Membran Eritrosit. *Prosiding Seminar Nasional Aspek Budaya, Kebijakan dan Filosopi Sains Jamu*, IPB International Convention Center-Bogor, Hlm. 145–148.

Abstrak

Kayu Secang atau *Caesalpinia sappan L.* merupakan tumbuhan obat dan digunakan oleh masyarakat sebagai obat herbal untuk menyembuhkan berbagai macam penyakit. Pada umumnya pemanfaatan obat-obat herbal diperoleh dari pengetahuan turun temurun sehingga diperlukan penelitian ilmiah untuk mempertanggungjawabkan efikasinya. Ekstrak tumbuhan secang dilaporkan mempunyai beberapa aktivitas biologi salah satu di antaranya adalah sebagai antiinflamasi. Namun, belum ada laporan penelitian antiinflamasi *in-vitro* yang dilakukan dengan menguji aktivitasnya sebagai stabilisator membran eritrosit. Tujuan dari penelitian ini adalah mengukur potensi ekstrak metanol dari kayu secang dengan melakukan uji aktivitas stabilisasi membran eritrosit. Teknik lysis digunakan dalam penelitian ini dengan menginduksi eritrosit menggunakan larutan hipotonik. Senyawa flavonoid (rutin) dan diklofenak digunakan sebagai kontrol positif. Hasil yang diperoleh menunjukkan bahwa ekstrak kayu secang mempunyai aktivitas stabilisasi membran paling tinggi dengan nilai IC_{50} terkecil (53,01 µg/ml), diikuti rutin (IC_{50}=713,86 µg/ml) dan diklofenak (IC_{50}=1,52 mg/ml). Berdasarkan hasil penelitian ini dapat disimpulkan bahwa ekstrak metanol kayu secang mempunyai potensi besar sebagai stabilisator membran eritrosit.

0364. **Murningsih, T. 2013.** Evaluasi Kandungan Proksimat dan Mineral Umbi Taka (*Tacca leontopetaloides*) dari Beberapa Daerah di Indonesia. *Prosiding Seminar Nasional Biodiversitas*, Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Sebelas Maret, Surakarta Vol. 2 Hlm. 106–109.

Abstrak

Umbi Taka (*Tacca leontopetaloides*) koleksi dari Pulau Karimun Jawa, Pulau Madura, dan Pulau Sertung (Anak Krakatau) telah dianalisis kandungan proksimat dan mineralnya dengan metode yang direkomendasikan oleh "The Association of Official Analytical Chemists". Hasil analisis menunjukkan bahwa umbi mengandung abu berkisar antara (2,26–4,15%), protein (2,75–6,23%), lemak (0,48–0,78%), serat kasar (1,24–2,62%), karbohidrat (80,11–88,07%) dan energi (349,74–369,16 kal/100 g) berdasarkan berat kering. Hasil analisis mineral memperlihatkan bahwa sampel umbi mengandung magnesium sebesar (111,48–221,00 mg/100 g), zat besi (5,65–7,38 mg/100 g), kalsium (208,73–229,18 mg/100 g), kalium (510,80–616,63 mg/100 g) dan phosphor (228,10–278,18 mg/100 g). Berdasarkan hasil analisis nampak bahwa umbi taka mengandung karbohidrat cukup tinggi sehingga berpotensi untuk dijadikan sumber karbohidrat alternatif.

0365. **Murningsih, T. 2013.** Uji Aktivitas Anti-radikal dan Anti-hemolisa Ekstrak Metanol Daun Jungrahab (*Baeckea frutescens* L.). *Prosiding Seminar Nasional Biodiversitas*, Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Sebelas Maret, Surakarta Vol. 2 Hlm. 110–114.

Abstrak

Telah dilakukan uji aktivitas anti-radikal dan anti-hemolisa dari ektrak metanol daun jungrahab (*B. frutescens* L). Uji aktivitas anti-radikal dilakukan dengan menggunakan DPPH (1,1-diphenyl-2-picrylhydrazyl) sedangkan uji aktivitas anti-hemolisa dilakukan dengan menginduksi larutan hipotonik ke dalam suspensi eritrosit. Kontrol positif untuk uji aktivitas anti-radikal digunakan vitamin C sedangkan anti-hemolisis digunakan diklovenak. Hasil yang diperoleh menunjukkan bahwa ekstrak daun jungrahab mempunyai aktivitas anti-radikal dengan nilai IC_{50}=77,55 µg/ml dan pada vitamin C IC_{50}=23,92 µg/ml. Untuk uji aktivitas anti-hemolisa ekstrak mempunyai nilai IC_{50}=42,87 µg/ml dan pada diklofenak IC_{50}=889,36 µg/ml. Nilai IC_{50} yang tinggi menunjukkan aktivitas anti-radikal/anti-hemolisanya rendah. Senyawa flavonoid yang terkandung dalam ekstrak daun jungrahab diperkirakan merupakan senyawa aktif sebagai anti-radikal dan anti-hemolisa.

0366. **Murningsih, T. 2014.** Aktivitas Antiradikal, Daya Reduksi dan Kandungan Vitamin C Ekstrak Buah Dengen (*Dillenia serrata* Thunb.). *Prosiding Seminar Nasional Biodiversitas*, Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Sebelas Maret, Surakarta Vol. 3, No. 1: 203–205.

Abstrak

Dengen (*Dillenia serrata*) merupakan tumbuhan endemik Sulawesi yang umumnya ditemukan tumbuh liar. Buahnya bisa dimakan, namun rasanya asam sehingga kurang disukai penduduk lokal. Untuk meningkatkan pemanfaatan buah ini telah diupayakan dengan mengolahnya menjadi sirup, namun kandungan kimia maupun aktivitas farmakologinya belum diketahui. Oleh karena itu, dilakukan pengujian aktivitas antiradikal, daya reduksi, dan penetapan kandungan vitamin C dari ekstrak buah dengen. Uji aktivitas antiradikal dilakukan dengan metode DPPH (1,1-diphenyl-2-picrylhydrazyl). Uji daya reduksi dilakukan terhadap ion Fe^{3+}dari $[K_3Fe(CN)_6]$. Sebagai kontrol positif digunakan asam askorbat (vitamin C) dan BHT (Buthylated hydroxytoluene), sedangkan penetapan kandungan vitamin C dilakukan dengan metode iodo-iodimetri. Hasil yang diperoleh menunjukkan bahwa aktivitas antiradical ekstrak buah dengen mencapai 75,99% pada konsentrasi 1000 µg/ml, sedangkan daya reduksi ekstrak mempunyai nilai absorbansi 0,130 pada konsentrasi 200 µg/ml. Hasil uji aktivitas antiradikal maupun daya reduksi tersebut lebih kecil dari kontrol positifnya. Penetapan kandungan vitamin C menunjukkan bahwa ekstrak buah dengen mengandung 8 mg vitamin C per gram ekstrak.

0367. **Murningsih, T. 2014.** Sifat Antiradikal dan Komposisi Kimia Minyak Atsiri Kulit Batang Sintok (*Cinnamomum sintoc* BL.). *Prosiding Seminar Nasional Biodiversitas*, Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Sebelas Maret, Surakarta. Vol 1: 206–209.

Abstrak

Sintok (*Cinnamomum sintoc* Bl.) merupakan tumbuhan obat yang mengandung minyak atsiri. Biosintesis komponen kimia dalam minyak atsiri dipengaruhi oleh beberapa faktor lingkungan sekitarnya. Hal ini berdampak pada kandungan dan komposisi kimia minyak atsiri serta bioaktivitasnya. Penelitian tentang kandungan minyak atsiri, komposisi kimia serta aktivitas antiradikal dari kulit batang sintok telah dilakukan. Metode hidrodistilasi digunakan untuk isolasi minyak atsiri sedangkan teknik khromatografi-spektrometri masa digunakan untuk analisis komposisi kimianya. Untuk mengetahui sifat antiradikal minyak, dilakukan uji aktivitas antiradikal dengan metode DPPH (1,1-diphenyl-2-picrylhydrazyl) dan sebagai kontrol positif digunakan vitamin E. Hasil yang diperoleh menunjukkan bahwa kulit batang sintok mengandung minyak atsiri sebesar 1,92% per berat kering yang terdiri dari 22 komponen. Senyawa metileugenol (51,45%), safrol (18,81%), dan eugenol (4,98%) merupakan komponen utamanya. Aktivitas antiradikal minyak atsiri lebih rendah dibanding dengan kontrol positifnya yang ditunjukkan oleh nilai IC_{50} minyak =303,47µg/ml dan nilai IC_{50} vitamin E = 97,43 µg/ml.

0368. Murphy, J.C., **Mumpuni** & K.L. Sanders. **2011.** First Molecular Evidence for the Phylogenetic Placement of the Enigmatic Snake genus *Brachyorrhos* (Serpentes: Caenophidia). *Molecular Phylogenetics and Evolution* 61 (2011) 953–957.

Abstract

Brachyorrhos Schlegel, 1826 is a terrestrial–fossorial snake genus endemic to eastern Indonesia that has been assigned to six different families and subfamilies within Colubroidea (advanced snakes) over the past _200 years. Here we report the first molecular sequences for *Brachyorrhos* and use them to test the position of the genus within snake phylogeny. Our Bayesian and Maximum Likelihood analyses of three mitochondrial and one nuclear gene strongly resolve *Brachyorrhos* within the rear-fanged semiaquatic Homalopsidae (Colubroidea), as the sister taxon to all other genera and sampled species.

0369. Murphy, J.C., **Mumpuni,** R. de Lang, D.J. Gower, K.L. Sanders. **2012.** The Moluccan Short-Tailed Snakes of the Genus *Brachyorrhos* Kuhl (Squamata: Serpentes: Homalopsidae), and the Status of *Calamophis* Meyer. *The Raffles Bulletin of Zoology* 60(2): 501–514.

Abstract

Brachyorrhos Kuhl represents a terrestrial, fangless, vermivorous clade of the Homalopsidae. Most recent discussions of the genus consider it to contain two species, *Coluber albus* Linnaeus and *Calamophis jobiensis* Meyer. These poorly known snakes have had a deeply intertwined and confused nomenclatural history. Here the writers review *Brachyorrhos*, and find that *B. albus* is restricted to Seram and Ambon, but may be present on other nearby islands in the Seram group; *Rabdion gastrotaenia* Bleeker (from Buru) is assigned to the genus *Brachyorrhos*, and *Atractocephalus raffrayi* Sauvage (from Ternate) is also assigned to the same genus. The species on Halmahera is described and named *B. wallacei*. Meyer's genus *Calamophis* is resurrected for *B.jobiensis* and its undescribed relatives, which are endemic to the Bird's Head region of Western Papua and Yapen Island. *Brachyorrhos* species are endemic to the Moluccas and possibly the surrounding area in eastern Indonesia; *Calamophis* also appears to belong to the Homalopsidae.

0370. **Naiola, B.P., N. Nurhidayat**, T.B. Bardant, **T. Murningsih**, S. Tursiloadi, **J. Sulistyo** & M. Kismurtono. **2010**. In Searching the Possibilities to Produce Bioethanol (Gasohol) as New Renewable Energy from Lontar Palm (*Borassus sundaicus* L.) in East Nusa Tenggara, Indonesia. *Proceedings of "The ASE-AN-Korea Symposium and Workshop on Biorefinery Technology 2010" Converging Biorefinery to Response Climate Change. Research Center Biotech-LIPI, Indon. Biotech Consors., Korean Soc. Biotech. Bioengin., ASEAN COST-SBC Indon., Universitas Indonesia Jakarta*, *18–19 Februari 2010*: 83–89

Abstract

Our field study showed that the Rotinese and Sabunese tribes in East Nusa Tenggara (ENT) islands of Indonesia posses a local wisdom, which utilized the sap tapped from the inflorescence of a wild or semi-wild growing lontar palm or palmyra palm (*Borassus sundaicus* L.), to produce local traditional alcoholic drink; the so called "*laru*", with alcohol content of up to 15% ethanol,

and "*sopi*" (up to 30 to 40% ethanol). The yeast *Saccharomyces cerevisiae* and *Candida* sp. were isolated as the main agents responsible in the "traditional" fermentation. To produce these two drinks, the processes are described as PATHWAY I and PATHWAY II. To provide *sopi*, the villagers first boil the *nira* (sap) to produce *gula aer* (a *viscous liquid brown sugar*). The *gula aer* was then diluted, fermented, and distilled to produce *sopi*. "*Sopi*" has a potential to be developed to local (bio)energy. Our further upgrade of "*sopi*" at laboratory level, bioethanol with a purity of up to 93% was able to be produced to create gasohol E85, which was able to operate small static engine potentially aimed for small rural family energy consumption. However, much energy cost is applied by the villagers when using firewood (gathered from the poor savanna vegetation) in producing "*sopi*". This research is looking for suggestions to writers innovation in constructing a so called *energy less system*–i.e. using solar (cell) power in generating energy to upgrade *sopi* as new bioenergy, running from the early step (i.e. boiling *nira* to produce *gula aer*) to the final step i.e. distillation. Molecular sieve dehydration method will be employed in purifying nearly pure (99%) bioethanol originated from *Borassus* palm to create a new E85 mixture.

0371. Ng, H.H & **R.K. Hadiaty. 2011.** *Clarias microspillus,* a New Walking Catfish (Teleostei: Clariidae) from Northern Sumatra, Indonesia. *Journal of Threatened Taxa* 3(3): 1577–1584

Abstract

Clarias microspilus, a new species of walking catfish is described from the short coastal rivers draining the western face of the Leuser Mountain Range and debouching into the Indian Ocean in Nangroe Aceh Darussalam province, northern Sumatra, Indonesia. It can be distinguished from Southeast Asian congeners in having a combination of the following characters: distance between the tip of the occipital process and the base of the first dorsal-fin ray 6.5–9.2% SL; body depth at anus 14.9–18.9% SL; head width 18.6–21.7% SL; head depth 12.9–16.0% SL; interorbital distance 40.5–44.5% HL; occipital process width 31.7–40.8% HL; 64–68 dorsal-fin rays; 51–56 anal-fin rays; anterior tip of frontal fontanel reaching line through middle of orbit; anterior margin of pectoral spine with 22–34 serrations and posterodorsal margin smooth.

0372. Ng, P.K.L. & **D. Wowor. 2011.** On the Nomenclature of the Palaemonid Names *Palaemon spinipes* Desmarest, 1817, *Palaemon spinipes* Schenkel, 1902, and *Macrobrachium wallacei* Wowor & Ng, 2008 (Crustacea: Decapoda: Caridea). *Zootaxa* 2904: 66–68.

Abstract

No Abstract Available

0373. Nijman, V., C.R. Shepherd, **Mumpuni** & K.L. Sanders. **2012.** Over-Exploitation and Illegal Trade of Reptiles in Indonesia. *Herpetological Journal* 22: 83–89.

Abstract

This study reports on the commercial trade in three reptile species harvested for different purposes in western Indonesia (Sumatra, Java, Kalimantan) for international markets: (1) Tokay geckos, *Gekko gecko*, traded for medicinal uses, (2) Javan filesnakes, *Acrochordus javanicus*, harvested for skins, and (3) Asiatic softshell turtles, *Amyda cartilaginea*, harvested for meat; each species is also exploited for the pet trade, but to a lesser extent. All three species are harvested from wild populations. None of these species are protected by Indonesian law, but there is a national harvest and export quota system in place to prevent overexploitation. For each species, the writers collected data from catchers, middlemen, and exporters on harvest volumes, catching locales, turn-over and prices, and compared these figures with the quota allocated by the Indonesian authorities. The trade in *G. gecko* from Central and East Java (3 traders, 2006) amounts to around 1.2 million individuals annually, greatly exceeding the national quota of 50,000 *G. gecko* for the entire year and representing a monetary value for exporters of around one million USD/year. The annual trade in *A. javanicus* (in five cities in East and South Kalimantan, and North Sumatra, Riau (central Sumatra), and South Sumatra, 2005–6) was estimated at around 300,000 individuals from Kalimantan and 30,000 from Sumatra, exceeding the national quota of 200,000 individuals / year and representing a monetary value for exporters of at least three million USD / year. The trade in *A. cartilaginea* was monitored in three cities in North Sumatra and Riau in 1999: 200–450,000 individuals were traded in 1998 and 1999, greatly exceeding the national quota of 10,000, with a monetary value for exporters in excess of ten million USD / year. The writers conclude that implementation of wildlife trade regulations by and large are not abided by many reptile traders and are not sufficiently enforced by the Indonesian authorities. The writers further note that the quota-setting process rarely involves non-detriment findings based on reliable biological information. In order for reptile trade to be sustainable in Indonesia, it is paramount that non-detriment findings are undertaken and existing regulations are sufficiently enforced.

0374. Ningsih, D.R., Gunawan A.W., **Kramadibrata, K. 2013.** Mycorrhiza of Bisbul (*Diospyros blancoi*). *Biotropia* 20(2): 110–119.

Abstract

Bisbul (*Diospyros blancoi*) is a kind of edible fruit and could be beneficial as inhibitor for skin ageing process. Majority of root plants have symbiotic association with arbuscular mycorrhizal fungi (AMF); however, AMF of bisbul has never been reported. The objective of this study were to observe AMF colonies and to identify AMF spores in the rhizophere of bisbul tree and in pot-cultured *Pueraria javanica*. Root and soil samples from rhizosphere of bisbul were collected from three locations in Bogor area. Roots were stained

using 0.05% trypan blue. Soil samples were air dried, then part of them were used for spore isolation and the rest were used for pot cultures. Spores were separated by wet sieving and decanting method and then continued with centrifugation. The results showed that the structures of AMF colonies in bisbul roots were arbuscules, vesicles, coiled hyphae, and internal hyphae. Isolated AMF spores were identified as follow, *Acaulospora longula, A. scrobiculata, A. tuberculata, Claroideoglomus geosporum, Funelliformis etunicatum, Gigaspora candida, G. ramisporophora, Gigaspora* sp., *Glomus albidum, G. glomerulatum,* and *Scutellospora calospora*. This is the first report of mycorrhizal infection in the root of bisbul and AMF association with *bisbul* root.

0375. Nishikawa, K., M. Matsui, H.S. Yong, N. Ahmad, P. Yambun, D.M. Belabut, A. Sudin, **A. Hamidy,** N.L. Orlov, H. Ota, N. Yoshikawa, A. Tominaga, T. Shimada. **2012.** Molecular Phylogeny and Biogeography of Caecilians from Southeast Asia (Amphibia, Gymnophiona, Ichthyophiidae). *Molecular Phylogenetics and Evolution* 63: 714–723.

Abstract

The study investigated the phylogenetic relationships and estimated the history of species diversification and character evolution in two ichthyophiid genera: *Caudacaecilia* and *Ichthyophis*. The writers estimated the phylogenetic relationships of 67 samples from 33 localities in Southeast Asia from 3840-bp sequences of the mitochondrial 12S rRNA, 16S rRNA, and cyt b genes using Bayesian inference, maximum likelihood, and maximum parsimony methods. The Southeast Asian samples formed a well-supported clade differentiated from a South Asian sample. The Southeast Asian clade was divided into two subclades, one containing samples from South China, Indochina, Malay Peninsula, and Java. The other consisted of samples from Borneo and the Philippines. Neither *Caudacaecilia* nor *Ichthyophis* was monophyletic, nor did samples with or without light stripes lateral to the body form clades. This study found several distinct sympatric lineages and undescribed species, especially from Sundaland.

0376. **Noerdjito, M., Roemantyo** & T. Sumampau. **2011.** Merekonstruksi Habitat Curik Bali *Leucopsar rothschildi* Stresemann, 1912 di Bali Bagian Barat. *Jurnal Biologi Indonesia* 7(2): 341–359.

Abstract

Habitat Reconstruction of Bali Starling *Leucopsar rothschildi* Stresemann 1912 in Western Part of Bali Island. Bali Starling *Leucopsar rothschildi* Stresemann 1912 is an endemic species of north western part of lowland of Bali Island. The land use changes of original habitat Bali traling to resettlement and agriculture area since the year 1980, has caused this species moved to the marginal habitat in the Prapatagung Peninsula and resided in Telukkelor areas. In wet season this bird in Prapatagung Peninsula can have enough food from vegetation in the monsoon forest in Telukkelor, but in dry season the birds must look for the food in evergreen forest near Prapatagung. At the end of 2005,

this species was categorized as an extinct species in the wild, but population in captured are still abundant. In 2007 and 2008, the release of this bird in the nature has been done in Prapatagung peninsula area. In following year bird monitoring showed that some pairs of these birds can breed sucessfully. The development of Bali province has caused the end of adding more the electrical power supply from Java electrical power system. To transmite the electrical power to Bali, extra high voltage electrical power transmission infrastructure (SUTET) that will be passing and cutting the lowland forest ecosystem in Prapatagung Peninsula is needed. Other infrastructures such as Jawa–Bali bridge and high way were under studied to develop in similar area. The infrastructures were assumed will decrease the carrying capacity of evergreen forest in supporting Bali Starling food especially during dry season. Based on the recent condition, study on the habitat recovery of Bali Starling should was conducted especially on the original habitat that already changed. The results showed that local state land tenure of Sumberklampok, Sumberbatok, Tegalmuara and Tanjunggelap as in the past known as Bali Starling habitat should be returned back their function as home of Bali Starling. To support this action plant inventarisation has been conducted to understand the rest of plant diversity in supporting Bali Starling conservation.

0377. **Noerdjito, W.A. 2010.** Arti Kebun Raya Bogor Bagi Kehidupan Kumbang Sungut Panjang (Coleoptera: Cerambycudae). *Jurnal Biologi Indonesia* 6(2): 289–292.

Abstrak

Koleksi kumbang sungut panjang di kebun Raya Bogor dilakukan dengan menggunakan perangkap cabang tumbuhan nangka (*Artocarpus heterophyllus*) di 18 lokasi. Setiap lokasi di pasang 3 perangkap cabang tumbuhan nangka yang berupa seikat cabang nangka (5–6 cabang sepanjang sekitar 1 meter dengan banyak daun) yang diikatkan pada cabang, batang atau tongkat kayu atau bambu. Dari keseluruhan perangkap (54 perangkap), selama 3 bulan (27 Mei–22 Agustus, 2005) terkoleksi 13 spesies (657) kumbang sungut panjang didominasi oleh *Sybra fervida* (281 spesimen), *Acalolepta rusticatrix* (132 spesimen), *Pterolophia melanura* (103 spesimen). *Sybra fervida* dilaporkan sebagai catatan baru untuk Jawa yang ditemukan pertama kali di Taman Nasional Gunung Halimun yang terkoleksi pada tahun 2001 di kawasan sekitar Cikanini pada ketinggian 1.000 mdpl. Oleh karena itu dapat dikatakan bahwa *Sybra fervida* lebih cocok hidup di kawasan dataran rendah seperti Kebun Raya Bogor (250 mdpl.).

0378. **Noerdjito, W.A. 2010.** Fauna Kumbang Sungut Panjang (Coleoptera: Cerambycidae) di Kebun Raya Bogor. *Prosiding Seminar Nasional V*. Perhimpunan Entomologi Indonesia, 174–181. di Bogor, 2009. Diterbitkan oleh Perhimpunan Entomologi Indonesia, 20 Mei 2010. Hlm. 174–181.

Abstrak

Penelitian fauna kumbang sungut panjang (coleopteran: Cerambycidae) di Kebun Raya Bogor belum pernah dilakukan, bahkan MZB belum menyimpan spesimennya. Kumbang Cerambycidae pada stadium larva makan berbagai spesies tumbuhan berkayu sebagai pengebor atau penggerek. Larva kumbang ini hidup di dalam liang-liang gerek di dalam xylem dari cabang atau batang pohon. Sebagian besar spesiesnya memilih cabang atau batang yang sudah mati, membusuk atau dalam proses perombakan dan kadang-kadang pada material yang sangat kering. Sebagai salah satu tipe serangga yang hidupnya sangat tergantung pada tumbuhan berkayu, kumbang Cerambycidae merupakan salah satu kelompok penting yang dapat dipakai sebagai indicator keadaan lingkungan hutan atau kawasan hutan tanaman. Kebun Raya Bogor, yang sudah berumur hampir 200 tahun dapat dikatakan sebagai "hutan tanaman" sangat tua. Namun, kawasan ini merupakan suatu kebun koleksi sehingga penanganannya sangat khusus dan tidak alami. Oleh karena itu, dimungkinkan bahwa kumbang "Cerambycidae Kebun Eaya Bogor" adalah khas. Dari 54 titik pengamatan yang telah ditentukan, di pasang seikat cabang *Artocarpus* yang diikatkan pada cabang atau pohon kecil untuk merangkap kehadiran kumbang. Selama 3 bulan koleksi (27 Mei–2 September) mencatat 13 spesies (657 individu) dengan 6 spesies kumbang Cerambycidae yang perlu diteliti lebih lanjut taksonominya.

0379. **Noerdjito, W.A.**, H. Makihara, & Sugiharto. **2010.** Evaluation of Various Forest Conditions Based on Longhorn Beetles (Coleoptera: Cerambycidae) as Bio-Indicators in East Kalimantan. *Proc. of Int. seminar on CDM Plantation and Biodiversity.*–Results of a collaborative research in East Kalimantan, 24 February 2009 in TFFPRI, Tsukuba, Japan (Fukuyama, K. & T. Oka eds) 2010: 30–38.

Abstract

There are many species of longhorn beetle (Coleoptera, Cerambycidae). They are one of the largest groups of woodborers and therefore typical forest-dependent insects. The species diversity of these beetles may vary with species composition and age of the trees, and stability of the forests, and thus they are a useful bio-indicator for assessing forest conditions. The study compared the assemblages of longhorn beetles among *Imperata* grassland, young and elder plantations of *Acacia mangium*, burnt secondary forest, and unburnt old secondary forest in the lowlands of East Kalimantan. Abundance of mature forest species was low in *Imperata* grassland, and somewhat increased in *Acacia mangium* plantations. The species composition of longhorn beetles in *Acacia mangium* plantations seemed intermediate stage between *Imperata* grassland and unburnt forest.

0380. **Noerdjito, W.A. 2011.** Evaluasi Kondisi Hutan Berdasarkan Keragaman Kumbang Sungut Panjang (Coleoptera, Cerambycidae) Di Kawasan Gunung Slamet. *Jurnal Biologi Indonesia* 8(1): 521–531.

Abstract

Evaluation of forest condition using longhorn beetles (Colepterra: Cerambycidae) fauna have been carried out at 3 parts of Mt. Slamet which are, northern part through Guci, southern part through Kalipagu, Baturraden and eastern part through Bambangan. In northern part, research activities were conducted at about 1,200–2,500 m. above see level (m.asl.), in southern part research activities were conducted at 700–1,000 m.asl. and in eastern part research activities were conducted at 700–1,000 m.asl. 1,500–2,400 m.asl. Out of the 37 species of longhorn beetles were collected during this research, dominated by *Sybra fuscotriangularis* (55 specimens). The longhorn beetles collected southern part, indicated lowest individual number (36 specimens) but indicating highest species number (21 species). In the contrary, the highest number of specimens collected (153 specimens), but lowest species number (10 species) were collected in the eastern part, while in northern part were collected 86 specimens (17 species). The species composition and the number of individuals of longhorn beetles collected from each part (northern, southern and eastern part) were different from specific groups. Longhorn beetles collected from secondary forest was similar to the primary forest. Distribution pattern of longhorn beetles in Mt. Slamet, indicated that some forest species were found in certain altitude such as *Batocera* spp. and *Glenea thomsoni*, which only found at 700–1,000 m.asl. The forest area with this altitude (700–1,000 m.asl.) was located in the southern part of Mt. Slamet (Kalipagu, Baturraden) which is known as the main support of water reservoir for electric power and seven spout water (Pancuran Tujuh). Thus, this area has to be conserved from illegal logging and human activities.

0381. **Noerdjito, W.A. 2011.** Kumbang Sungut Panjang di Kawasan Gunung Ciremai. *Dalam* buku *Fauna Serangga Gunung Ciremai*, LIPI, 2011. ISBN 978-979-799-644-4. Hlm. 3–33.

Abstrak

Koleksi kumbang sungut panjang (Coleoptera: Cerambycidae) selama 3 tahun berturut-turut di tiga jalur pendakian Gunung Ciremai dilakukan pada tahun 2006 (Apuy), 2007 (Linggarjati), dan 2008 (Palutungan). Dari sekitar 250 spesimen yang terkoleksi teridentifikasi 40 spesies yang terdiri dari subfamili Prioninae (4 spesies), subfamili Lepturinae (1 spesies), subfamili Cerambycinae (4 spesies), dan subfamili Lamiinae (31 spesies).

0382. **Noerdjito, W.A. 2012.** Dampak Kegiatan Manusia terhadap Keragaman dan Pola Distribusi Kumbang Sungut Panjang (Coleoptera: Cerambycidae) di Gunung Salak, Jawa Barat. *Jurnal Biologi Indonesia* 8(1): 57–69.

Abstract

The impact of human activities on the longhorn beetles diversity and their distribution pattern in Mount Salak, West Java had been conducted by observation and collecting efforts on various types of habitats which include undisturbed and disturbed forests. Longhorn beetles are one of the largest groups of wood borer. Therefore, typical forest dependent insects. The species diversity and distribution pattern of these beetles may vary with species composition age of trees, and stability of the forest, and therefore they are a useful bio indicator for assessing forest condition. The beetles were collecting using "*Artocarpus* branch traps", a bit trap. It is a bundle of about 5–6 freshly cut branches of *Artocarpus heterophyus* (jack fruit), about 80 cm long with many leaves, tied up and hung from a tree trunk or standing poles at 1.5 m above the ground. The trap attracted longhorn beetles that need feeding or reproductive maturity. The trap were set at each study site (habitat). The attracted beetles were collected every week by beating method because in West Java forest area beetles are usually gathered by the 6th day after trap setting. Light traps were also set up for 2 night, at each habitat for collecting nocturnal longhorn beetles. Totally, 578 specimens were collected consisted 38 species of longhorn beetles dominated by small body size species less than 10 mm. Out of these 38 species, some species were known distributed in certain habitat and elevation, other species have wider distribution, where as some species were endemic and new record for Java.

0383. **Noerdjito, W.A. 2012.** Kelompok Utama Fauna Kumbang Kayu Lapuk di Gunung Slamet. *Dalam*: *Ekologi Gunung Slamet. Geologi, Klimatologi, Biodiversitas dan Dinamika Sosial.* LIPI 2012, ISBN 978-979-799-700-7. Hlm. 205–229

Abstract

Bark beetles are a group of insects that part or all of their lives depend on decaying wood. The larvae of this beetles plays an important role in nutrient recycling process while some of the adult beetles functioning as polinators. Among the various species of bark beetles found in the region Mt. Slamet, longhorn beetles (Cerambycidae) is the largest (37 species), followed by stag beetles (Lucanidae: 6 species), scarab (Scarabaeidae: 3 species Dynastinae and 2 species Cetoninae), betsi (Passalidae: 3 species) and tenebrionid (Tenebrionidae: 3 species). Of the 37 species of longhorn beetles found, some species are known to live in a variety of forest type and height, whereas in the forest below 1,000 m.asl., primary and secondary forest, inhabited only by species which is not found in the higher habitats such as *Batocera* spp. and *Acalolepta dispar*. The higher habitat are only found on the South side of the mountain Slamet which serves as the buffer for Ketenger reservoir and Curuh Tujuh. Therefore, these habitat should not be disturbed by various human activities, including bamboo lodging or firewood picking. Changes of habitat or conservation of forest to plantations, agriculture or settlement, including tourist areas Baturraden and the utilization of dead or fallenwood resulted the disappearance of species stag

beetles (Lucanidae) which had been collected in the mountain region Slamet. Currently, only five species were collected of 23 species of stag beetle ever found.

0384. Noske, R.A., **D.M. Prawiradilaga**, D. Drynan, A. Leishman & W. Rutherford. **2011**. Understorey Birds of Cikaniki Research Station, Gunung Halimun-Salak National Park, West Java: Report of the Indonesian Bird Banding Scheme Training Programme. *Kukila* 15: 50–65.

Abstract

This report summarises findings from the first Training of Trainers (ToT) programme of the Indonesian Bird Banding Scheme (IBBS), which took place at Cikaniki Research Station (1,000–1,100 m asl), Gunung Halimun–Salak National Park, during July 2009, and compares them with the results of previous banding studies conducted at the site by PPB-LIPI staff since 1996. Over the seven days from 13 to 19 July 2009, a total of 97 individuals representing 29 species were captured, and in most cases, banded. Juvenile birds belonging to 13 species comprised 28% of all individuals captured, and early primary moult was found on 32% of adults captured, suggesting that many species had recently completed breeding. The two most frequently captured species were the Little Spiderhunter *Arachnothera longirostra* and the Javan Fulvetta *Alcippe pyrrhoptera*. A comparison with previous banding studies between 1996 and 2002 at the same site shows that the latter species was repeatedly misidentified as the Fulvous-chested Jungle Flycatcher *Rhinomyias olivacea*, a species otherwise unknown for the park. This finding negates the conclusions of previous reports that *R. olivacea* is an important component of the understorey avifauna of the park at this altitude. Nine individuals, representing six species, were recaptured during the IBBS programme, including a Sunda Forktail *Enicurus velatus* that was at least 9 years old when re-trapped, and a Horsfield's Babbler *Malacocincla sepiaria* that was at least 8.75 years old.

0385. Noske, R.A., A.J. Leishman, J.B.C. Harris, D.D. Putra & **D.M. Prawiradilaga**. **2013.** Strong Sexual Size Dimorphism in the Dark-eared Myza *Myza celebensis*, a Sulawesi-Endemic Honeyeater, with Notes on Its Wing Markings and Moult. *Kukila* 17 (1): 1–11.

Abstract

We present morphometric and moult data for the Sulawesi-endemic Dark-eared Myza, based on 35 individuals captured at Lore Lindu National Park, Central Sulawesi, during March–April and July 2011. Four individuals banded in March were recaptured at the study site in July, suggesting that the population is probably sedentary. Like most meliphagids, although this species is not sexually dimorphic in plumage, measurements show that males are significantly heavier and have longer wings, tail, and head-bill than females. Seven of the 16 adults in March–April and five of the 19 in July were moulting their primary feathers. Assuming that primary moult follows breeding, estimated laying dates for

adults in the final stages of moult suggest breeding in December and early April, the latter corroborated by the presence of brood patches on two females in late March. A brood patch on a female in July further suggests that the breeding season is protracted. All birds were photographed also showed distict buff tips to most, if not all, secondary coverst, a feature that appears to have gone unnoticed in the literature.

0386. Novkovic, B., H. Mitsui, **A. Suwito** & M.T. Kimura. **2011**. Taxonomy and Phylogeny of *Leptopilina* Species (Hymenoptera: Cynipoidea: Figitidae) Attacking Frugivorous Drosophilid Flies in Japan, with Description of three new species. Entomological Science, Vol. 14, pp.333–346, *Entomological Science* Vol. 14, pp.333–346.

Abstract

Despite the intensive use of the *Leptopilina* genus and its drosophilid hosts as model systems in the study of host–parasitoid interactions, the diversity and distribution of the species occurring in the Asian region remain elusive. Here this study reports the phylogeny of Japanese *Leptopilina* species attacking frugivorous drosophilid flies, based on COI, ITS1 and ITS2 sequences. Consistent with molecular data, hybridization experiments, and morphological examination, five species were recorded in Japan: *Leptopilina heterotoma, L. victoriae* and three new species, two occurring in the Ryukyu archipelago, *L. ryukyuensis* and *L. pacifica*, and another species, *L. japonica*, distributed in Honshu and Hokkaido. *Leptopilina japonica* is further divided into two subspecies, *L. j. japonica* occurring in Japan, and *L. j. formosana* occurring in Taiwan. According to these results, we discuss the evolution, speciation and colonization history of Japanese *Leptopilina* species.

0387. **Nugroho, H., A. Nurkanto & F. Ahmad. 2010.** *Sebuah Kontribusi untuk Perkembangan Ilmu Pengetahuan: Publikasi Buku Pusat Penelitian Biologi-LIPI 2000–2009*. Jakarta: LIPI Press; 89. ISBN 978-979-799-453-2.

Abstrak

Tidak ada abstrak

0388. **Nugroho, H., R. Ubaidillah** & J. Kojima. **2010.** Potter Wasps of the Genus *Eumenes* Latreille (Hymenoptera: Vespidae: Eumeninae) in the Western Part of the Papuan Region, with Description of Two New Species and Taxonomic Notes on E. inconspicuus Smith. *The Raffles Bulletin of Zoology* 58(2): 179–187.

Abstract

A taxonomic study on the solitary vespid wasps in the genus *Eumenes* Latreille, in the western part of the Papuan region is presented. Two new species are described: *E. batantanensis* Nugroho, new species, from Batanta Island and *E. truncatus* Nugroho, new species, from Sentani and Manokwari. *Eumenes conformis* Smith, 1864, known only from Ceram is synonymized under *E.*

inconspicuus Smith, 1858, new synonymy; the species is known to occur widely in the Oriental and Papuan regions, from Thailand to Bali, and through Sulawesi and Moluccas to the western part of New Guinea. The male characteristics of *E. inconspicuus* are described for the first time.

0389. **Nugroho, H.**, J. Kojima & J.M. Carpenter. **2011.** Checklist of vespid Species (Insecta: Hymenoptera: Vespidae) Occurring in Indonesian Archipelago. *Treubia* 38, 71–186.

Abstract

A total of 383 vespid species belonging to 63 genera from Indonesia are listed, together with information of the type material deposited in the Museum Zoologicum Bogoriense (MZB). The references of their distribution in Indonesia are also provided.

0390. **Nugroho, H. 2011.** Taxonomical Review on Pheretimoid Earthworms (Oligochaeta: Megascolecidae) from Indonesian Archipelago. *Zoo Indonesia* 19(2): 93–108.

Abstract

Most studies on Indonesian Pheretimoid earthworms were done from 1860's to 1940's in arbitrary manner After this period, only a small number of publications were available and the latest one was conducted by Easton (1979). A collections of earthworms were obtained from all of main islands of Indonesian Archipelago, but the collecting site were restricted to certain localities. Total of 162 valid species of Pheretimoid worms were recorded and grouped into 9 genera: *Amynthas, Archipheretima, Metaphire. Metapheretima, Pheretima, Pithemera, Planapheretima, Pleionogaster and Polypheretima*. Only four type specimens deposited at Museum Zoologicum Bogoriense (MZB) in macerated and poorly condition, and the remaining two types cannot be located. Taxonomical problems on Pheretimoid worms of Indonesia are discussed consecutively to give guidance for further studies.

0391. **Nugroho, H. 2012.** Cacing Tanah. *Dalam*: Suhardjono, Y.R. & R. Ubaidillah. *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Puslit Biologi-LIPI, Cibinong. Jakarta: LIPI Press. Hlm. 149–163.

Abstrak

Tidak ada abstrak

0392. **Nugroho, H.**, J. Kojima & **R. Ubaidillah. 2013.** Review of Potter Wasps with a Petiolate Metasoma Excluding So-called "Zethinae" (Hymenoptera: Vespidae: Eumeninae) in the Lesser Sunda Islands of the Indonesian Archipelago. *Zootaxa* 3608 (1): 001–025.

Abstract

Twenty species and six subspecies of nine genera of eumenine wasps with a petiolate metasoma occurring in the Lesser Sunda Islands are listed. New synonymies are proposed for *Delta campaniforme campaniforme* (Fabricius 1775) (=*D. campaniforme gracilior* Giordani Soika 1986, syn. nov.) and *D. nigriculum* Giordani Soika 1986, stat. nov. (=*D. campaniforme rendalloide* Giordani Soika 1993, syn. nov.). *Eumenes piriformis* de Saussure and *E. inconspicuus* Smith are newly recorded from the Lesser Sunda Islands; *E. pius* Giordani Soika, *D. nigriculum* Giordani Soika, *D. pyriforme* (Fab-ricius), *D. sciarum* (van der Vecht), *Pareumenes nigerrimus* van der Vecht, and *Labus vandervechti* Giordani Soika, are newly recorded from some islands of the Lesser Sunda. Hitherto unknown male of *P. nigerrimus* is described.

0393. **Nugroho, H.,** J. Kojima & **R. Ubaidillah**. **2014.** Synonymy of the Potter Wasp Genus *Philippodynerus* Gusenleitner (Hymenoptera, Vespidae, Eumeninae) with *Apodynerus* Giordani Soika, with Taxonomic Notes on Apodynerus Species. *Journal of Hymenoptera Research* 36: 131–151

Abstract

Philippodynerus omicroniformis Gusenleitner, 1996, the type species of the monotypic potter wasp genus *Philippodynerus* Gusenleitner, 1996, is a synonym of *Apodynerus gregarioides* (Giordani Soika, 1986), and consequently, *Philippodynerus* Gusenleitner, 1996 is synonymized under *Apodynerus* Giordani Soika, 1993. Taxonomic notes on *Apodynerus* species are given, including two new synonymies for *Apodynerus troglodytes troglodytes* (de Saussure, 1856): *A. t. karimonensis* (van der Vecht, 1937), **syn. n.** and *A. t. baliensis* (Giordani Soika, 1987), **syn. n.** A synoptic key to species and a revised species checklist are provided.

0394. Nuraini, A., **N.L.P.R. Phadmacanty** & Yulianto. **2012.** Koleksi dan Preservasi Sperma Garangan (*Herpestes javanicus*). *Jurnal Sain Veteriner* 30(2): 97–106.

Abstract

Cryopreservation technique can be used to preserve animal cell, plant, or other genetic material included semen in frozen. *Herpestes javanicus* is one of wild animal with a large number, but no data about the sperm quality and technique to preserve it. This research is proposed to know sperm quality of *H. javanicus* and the technique to preserve it. This research used three different method to collect sperm that was electroejaculator method, flushing method, and maceration/cuting method. Then, the sperm was analyzed for quality which was volume, pH, viscosity, colour, smell, motility, concentrasion, viability, morphology, and morphometry. Then sperm preserved in tris citrat glucose egg yolk extender by different concentration. The result showed that the best method for collected sperm was maceration/cuting method and the best extender for sperm was low concentration of tris cytrate glucose egg yolk.

0395. **Nurkanto, A**., F. Listyaningsih, **H. Julistiono** & **A. Agusta. 2010**. Eksplorasi Keanekaragaman Aktinomisetes Tanah Ternate sebagai Sumber Antibiotik. *Jurnal Biologi Indonesia* 325–339.

Abstract

Exploration of Soil Actinomycetes Diversity from Ternate as Indigenous Antibiotic Sources. Actinomycetes of soil samples from Ternate, North Moluccas were isolated using SDS-YE method in humic acid vitamin agar. Ternate has high abundance of Actinomycetes, approximately 6.00–487 x 104 CFU/g soil, depends on habitat types. The writers have selected 60 isolates and conducted antibiotic screening against pathogenic bacteria and fungi using agar diffusion method and found both narrow and broad antibiotic spectrum types. Based on 16S rDNA analysis, all Actinomycetes with antibiotic activities are belong to the genus *Streptomyces*. Minimum Inhibitor Concentration (MIC) value was determined by broth microdilution method. It was found that MIC values varied, depended on microbial tested. This study found two isolates with higher antibiotic activity compared to the commercial antibiotics (chloramphenicol, erythromycin for antibacterial and nystatin, kabicidin for antifungal). Cell destruction analysis caused antibiotic activities was conducted through leak of protein and nuclatic acid.

0396. **Nurkanto, A., H. Julistiono**, **A. Agusta**, & W. Sjamsuridzal. **2012**. Screening Antimicrobial Activity of Actinomycetes Isolated from Raja Ampat, West Papua, Indonesia. *Makara Journal of Science* 16: 21–26.

Abstract

In the framework of exploitation of antimicrobial activity of Actinomycetes in Papua, one hundred isolates of Actinomycetes isolated from soil and leaf litter samples from various ecosystems in Batanta and Salawati Island, Raja Ampat, West Papua were screened. The writers obtained 200 crude extracts from 100 isolates based on two extraction phases. Nonpolar metabolites were extracted by ethyl acetate: methanol (4:1) solvent while the polar metabolites were concentrated using a freeze-drying method. Based on the agar dilution method, a total of 43 from 200 (21.5%) crude extracts have antimicrobial activity against bacteria and yeasts (*Escherichia coli* NBRC 14237*, Bacillus subtilis* NBRC 3134*, Staphylococcus aureus* NBRC 13276*, Micrococcus luteus* NBRC 1367, *Candida albicans* NBRC 1594 and *Saccharomyces cerevisiae* NBRC 10217). Some crude extracts showed anti-Gram negative (1.5%), anti-Gram positive (17%) and antifungal (17%) activities. Crude metabolites which were extracted using ethyl acetate: methanol were more effective on antimicrobial activity (35%) compared with water extraction (17%). Five most potential isolates (BL-13-5, BL-06-5, BL-14-2, BL-22-3, and Sl-36-1) were identified based on 16S rRNA gene sequence data. Sequence similarity search by BLAST program revealed that they show sequence similarities to *Streptomyces kanamyceticus* (92%), *Streptomyces verne* (92%), *Streptomyces narbonensis* (92%), *Streptomyces malachitofuscus* (98%), and *Streptomyces hygroscopicus* (96%), respectively.

0397. Ochi, T., M. Kon, & **S. Hartini. 2010**. Two New Species of *Onthophagus* (*Parascatonomus*) from Java (Coleoptera, Scarabaeidae). *Kogane* No. 11: 125–130.

Abstract

Two new species of the subgenus *Parascatonomus* of the genus *Onthophagus* were described from Java under the names of *Onthophagus (Parascatonomus) javanitidus* sp. nov., and *O. (P.) salakensis* sp.nov.

0398. Ohtsuka, S., Y. Kondo, Y. Sakai, T. Shimazu, M. Shimomura, T. Komai, K. Yanagai, T. Fujita, J. Nishikawa, H. Miyake, BA. Venmathi Maran, A. Go, K. Nagaguchi, S. Yamaguchi, C. Dechsakulwatana, K. Srinui, S. Putchakarn, **Mulyadi, N. Mujiono**, Sutomo, & F.M. Yusoff. **2010.** In-situ Observations of Symbionts on Medusae Occurring in Japan, Thailand, Indonesia and Malaysia. *Bulletin of* the Hiroshima *University* Museum 2: 9–18.

Abstract

During an ecological investigation on symbionts of medusae in Eastern and Southern Asian waters, seven species of hydro-and scypho-medusae were found to harbor a wide variety of invertebrates and fishes: the isopod *Idotea matallica* and the nudibranch *Fiona pinnata* on the chondrophoran *Vaellela vellela*, the actinarian *Peachia quinquecapitata* on the leptomedusae *Aequorea coeruescens*; the butterfish *Psenopsis anomala* and the Hyperiid amphipod *Hyperta galba* associated with the semaestome *Chrysaora melanaster*, *H. Galba* on the semaestome *Aurelia limbata*, metacercariae of three species found in the mesogloea of a semaestome, *Aurelia* sp.; the ophiuroid *Ophioenermis marmorata*, the caridean shrimp Latreutes spp. and the shrim scad *Alepes djedaba* on the rhizostome *Versuriga anadyomene*. Juveniles of benthic organisms such as crabs and ophiuroids seem to become hitchikers for dispersal, while juvenile fish utilize medusae as refugia againts predation. Since the previous and present studies have shown that edible thizostomes are associated with many kinds of symbionts, fisheries for these jelyfish for these jellyfishes possibility hinder the recruitment of symbionts, fisheries for these jellyfishes possibly hinder the recruitment of symbionts such as decapods, ophiuroids and fish.

0399. Oliver, P., K. Krey, **Mumpuni** & S. Richards. **2011.** A New Species of Bent-Toed Gecko (*Cyrtodactylus*, Gekkonidae) from the North Papuan Mountains. *Zootaxa* 2930: 22–32.

Abstract

This study describes a new species of *Cyrtodactylus* from lower montane forests on the Torricelli and Foja Mountain ranges of northern New Guinea. *Cyrtodactylus boreoclivus* **sp. nov.** can be distinguished from all other described *Cyrtodactylus* by the combination of moderately large size (SVL 104–109 mm), males with pores extending to the knee and arranged in independent precloacal and femoral series, transversely enlarged subcaudal scales, and dorsal pattern

consisting of five to seven indistinct transverse dark bands. The known distribution of this species is similar to many other vertebrate taxa apparently restricted to isolated ranges within the North Papuan Mountains, and supports the biogeographic association of these poorly known upland areas.

0400. Ommeh S., L.N Jin, H. Eding, F.C. Munchadeyi, **S. Sulandari, M.S.A. Zein,** G. Dambaro, I.A. Yousif, K.N. Heo, S.J. Oh, M. Tapio, D. Masiga, O. Hanotte, H. Jianlin & S. Weigend. **2010**. Geographic and Breed Distribution Patterns of an A/G Polymorphism Present in the Mx Gene Suggests Balanced Selection in Village Chicken. *International Journal of Poultry Science* 9(1): 32–38.

Abstract

An A/G Single Nucleotide Polymorphism (SNP) at position 1,892 of the Mx gene coding sequence has been linked to susceptibility/resistance to avian viral infection *in vitro*. Using PCR-RFLP and sequencing methods, 1,946 samples from 109 populations from Asia, Africa, and Europe; grouped as indigenous village, commercial, fancy chicken as well as wild junglefowl were genotyped for the polymorphism. Allele and genotype frequencies were calculated. Only the G allele was present in Ceylon junglefowl *Gallus lafayetti*. Using the wild red junglefowl *G. gallus* population as reference, the writers assessed if the A/G alleles and genotypes frequencies have been affected by the breeding history and the geographic dispersion ofdomestic chicken. Within group variation was high, but overall, there were no significant variation indistribution of alleles and genotypes frequencies between the red junglefowl and indigenous village chickens ($p>0.1946$), with the exception of the East Asian group ($p<0.0001$). However, allele and genotype frequencies were significantly different between the red junglefowl and the commercial or fancy groups ($p<0.0001$). A small but significant negative correlation ($r =-0.166$, $p<0.0003$) was observed between allelic and geographic distance matrices amongst indigenous village chicken populations. Human selection and genetic drift are likely the main factors having shaped today's observed allele and genotype frequencies in commercial and fancy breeds. In indigenous village chicken and red junglefowl, we propose that both A and G alleles have been maintained by natural selection for disease resistance through a balancing selection mechanism.

0401. Otoguro, M., H. Yamamura, T. Tamura, R. Irzaldi, S. Ratnakomala, R. Ridwan, G. Kartina, **E. Triana, A. Nurkanto**, Y. Lestari, P. Lisdiyanti, Y. Widyastuti & K. Ando. **2011**. *Actinophytocola timorensis* sp. nov. and *Actinophytocola corallina* sp. nov., isolated from soil. *International Jurnal of Syatematics and Evolutionary of Microbiology* 61(4): 834–838.

Abstract

Two actinomycete strains, ID05-A0653^T and ID06-A0464^T, were isolated from soils of West Timor and Lombok island, respectively, in Indonesia. 16S rRNA gene sequence analysis clearly demonstrated that the isolates belonged to the family Pseudonocardiaceae and were closely related to the genus *Actinophytocola*.

Strains ID05-A0653^T and ID06-A0464^T exhibited 98.1 and 98.2% 16S rRNA gene sequence similarity, respectively, with *Actinophytocola oryzae* GMKU 367^T. The isolates grew well on ISP media and produced white aerial mycelium. Short spore chains were formed directly on the substrate mycelium. The isolates contained meso-diaminopimelic acid, arabinose, and galactose as cell-wall components, MK-9(H_4) as the sole isoprenoid quinone, iso-$C_{16:0}$ as the major cellular fatty acid and phosphatidylethanolamine as the diagnostic polar lipid. The DNA G+C contents of strains ID05-A0653^T and ID06-A0464^T were 69.7 and 71.2 mol%, respectively. On the basis of phenotypic characteristics, DNA–DNA relatedness and 16S rRNA gene sequence comparisons, strains ID05-A0653^T and ID06-A0464^T each represent a novel species of the genus *Actinophytocola*, for which the names *Actinophytocola timorensis* sp. nov. (type strain ID05-A0653^T =BTCC B-673^T =NBRC 105524^T) and Actinophytocola corallina sp. nov. (type strain ID06-A0464^T =BTCC B-674^T =NBRC 105525^T) are proposed.

0402. Panjaitan, R.G.P., W. Manalu, E. Handayani & **Chairul. 2011.** Pengaruh Pemberian Pasak Bumi (*Eurycoma longifolia* Jack) pada Fungsi Hepar. *Majalah Farmasi Indonesia* 22 (1): 15–20.

Abstract

The aim of this research is to study the effects of the methanol extract and its derived fraction (n-hexane, cloroform, ethyl acetate and methanol water) on liver function of male rats. The treatment groups were administered 500 mg/kg body weight of methanol extract and its derived fractions (n-hexane, cloroform, ethyl acetate, n-butanol and methanol water) of *E. Longifolia* for 7 consecutive days. Liver function was monitored by measuring alanine transaminase (ALT), aspartate transaminase (AST), total protein, alkaline phosphatase (ALP), total bilirubin, direct bilirubin and indirect bilirubin consentrations in the serum. Compared with control, oral administration of methanol extract and derived fractions of methanol extract of *E. Longifolia* root had no significant effects on liver function (p>0,05). Methanol-water fraction gave similar results to silymarin.

0403. Parenti. L.R. & **R.K. Hadiaty. 2010.** A New, Remarkably Colorful, Small Ricefish of the Genus *Oryzias* (Beloniformes, Adryanichthyudae) from Sulawesi, Indonesia. *Copeia* 2010, 2: 268–273.

Abstract

Oryzias woworae, a new species of ricefish, is described from a freshwater habitat on Muna Island off the southeastern coast of the main island of Sulawesi, Indonesia. The new species is distinguished from all other known ricefishes by a remarkable color pattern of both sexes in life: the ventral surface of head and body anterior to the pelvic fins, dorsal portion of pectoral fins, dorsal-fin base, posterior portion of anal-fin base, caudal peduncle, and dorsal and ventral portions of caudal fin are brilliant red; the midlateral scales from just posterior

to the eye to the caudal-fin base and the body scales anterior to the anal fin and ventral to midlateral scales are steel blue; the blue coloration is most prominent in adult males. *Oryzias woworae*, the smallest known ricefish from Sulawesi, is hypothesized to be a member of an unnamed clade of ricefishes diagnosed by a truncate, rather than lunate or emarginate, caudal fin. Description of *O. woworae* brings the recognized number of species in the beloniform family Adrianichthyidae to 29, 13 of which are endemic to Sulawesi. Ricefishes, in particular the new species, may serve as icons to generate interest in conservation of the endemic freshwater biota of Sulawesi.

0404. Parenti, L.R.**, R.K. Hadiaty**, D. Lumbantobing & F. Herder. **2013.** Discovery and Description of Two New Ricefishes of the Genus *Oryzias* (Atherinomorpha, Beloniformes, Adrianichthyidae) augments the Endemic Freshwater Fish Fauna of Southeastern Sulawesi, Indonesia. *Copeia* 2013 (3): 403–414.

Abstract

Oryzias asinua and *O. wolasi* are two new species of ricefishes described from several disjunct inland, freshwater habitats in the Indonesian province of Sulawesi Tenggara or southeastern Sulawesi. With *O. woworae,* the first described endemic ricefish of Sulawesi Tenggara, they comprise a group of small, colorful species characterized by orange to deep red dorsal and ventral margins of the caudal fin and the ventral margin of the caudal peduncle and at least the posterior portion of the base of the anal fin, and a bluish sheen on the body in both sexes that is most pronounced in live adult males. The two new species are distinguished from *O. woworae* by elongate middle dorsal-fin rays in males that reach the posterior extent of the first principal caudal-fin ray and by an orange–colored olfactory epithelium that marks each nasal organ in females. *Oryzias asinua* is relatively slender compared to *O. wolasi* and *O. woworae:* the body is narrow (21–25 % SL, with a mean of 22.9, in *O. asinua* versus 23–32 % SL, mean of 25.3 in *O. wolasi* and 22–30 % SL, mean of 26 in *O. woworae*). *Oryzias asinua* has fewer procurrent caudal-fin rays in the lower lobe (4–5 versus 5–7 in *O. wolasi* and 5–6 in *O. woworae*). *Oryzias wolasi* is golden in life in both sexes and relatively deep-bodied, reaching 32% SL, has a deeper caudal peduncle (11–12 % SL, mean of 11.2, versus 9–11, mean of 10 in *O. asinua* and 8–11, mean of 9.2, in *O. woworae)*. Each species may be distinguished by its mitochondrial cytochrome *c* oxidase subunit 1 (COI) sequence or sequences, the DNA barcode. All species are allopatric. Description of *O. asinua* and *O. wolasi* brings the number of valid species in the beloniform family Adrianichthyidae to 33, 16 of which are endemic to Sulawesi. The two new species are just the second and third ricefishes described from the province of Sulawesi Tenggara, a neglected region in exploration and discovery of the freshwater fish fauna of the Indonesian islands of Sulawesi.

0405. Park, J-H., E. Inam, M.H. Abdullah, **D. Agustiyani**, L. Duan, T.T. Hoang, K-W. Kim, S.D. Kim, M.H. Nguyen, T. Pekthong, V. Sao, **A. Sarjiya**, S. Sa-

vathvong, S. Sthiannopkao, J.K. Syers & W. Wirojanagud. **2011**. Implications of Rainfall Variability for Seasonality and Climate-Induced Risks Concerning Surface Water Quality in East Asia. *Journal of Hydrology* 400 (2011): 323–332.

Abstract

Water resources in East Asia are considered particularly vulnerable to climate variability and extremes due to strong hydrologic variability inherent in the monsoon climate and rising water demand resulting from rapid economic growth. To obtain a better understanding of the current status and climate-induced risks concerning surface water quality in East Asia, seasonal and spatial variations in surface water quality were compared among 11 watersheds in eight countries during typical dry and wet periods from 2006 to 2008. Meanwhile, concentrations of dissolved ions tended to be higher during dry periods, concentrations of suspended sediments and dissolved organic matter were significantly higher during wet periods at most sampling locations. Metals with low solubility showed higher total concentrations during wet periods and had strong positive relationships with suspended sediment concentrations. Metals with high partitioning into the dissolved phase exhibited higher concentrations during dry periods at many sites. Seasonal and spatial patterns were distinct along the Lower Mekong River, including much higher monsoonal concentrations of sediment-associated metals and relatively high dry-season concentrations of dissolved as along upper reaches. The results suggest that rainfall variability is crucial in understanding seasonality and climate-induced risks concerning surface water quality in East Asia.

0406. Paukstadt, U., J.H. Paukstadt, **Y.R. Suhardjono**, **H. Sutrisno** & **P. Aswari, 2011**. A Annotated Catalogue of the Saturniidae in Coll. Museum Zoologicum Bogoriense (Cibinong)–Saturniini Part III (Lepidoptera: Saturniidae: Saturniinae). *Beiträge zur Kenntnis der wilden Seidenspinner* 9 (1) Februari 2011: 3–56.

Abstrak

Merupakan catatan daftar spesies ngengat kelompok famili Saturnidae (Lepidoptera) yang tersimpan di dalam koleksi di Museum Zoologicum Bogoriense. Dalam naskah ini, setiap nama jenis dilengkapi dengan keterangan spesimen tipe, lokasi, tanggal koleksi, dan nama kolektornya.

0407. **Peggie, D. & W.A. Noerdjito. 2011.** Kupu-kupu Gunung Ciremai dan Sekitarnya. *Dalam*: *Fauna Serangga Gunung Ciremai: Kumbang Sungut Panjang, Capung, Kupu-kupu*.D. Peggie (ed). Jakarta: LIPI Press. Hlm. 53–103

Abstrak

Penelitian kupu-kupu di kawasan Gunung Ciremai telah dilakukan oleh tim LIPI pada tahun 2006–2008. Dalam buku ini dipaparkan 109 spesies kupu-kupu yang terdiri dari 12 spesies Papilionidae, 17 spesies Pieridae, 69 spesies Nymphalidae, 5 spesies Lycaenidae, dan 6 spesies Hesperiidae. Foto semua

spesies kupu-kupu yang diperoleh di Gunung Ciremai ditampilkan juga dalam buku ini.

0408. **Peggie, D. 2011.** Precious and Protected Indonesian Butterflies/ Kupu-kupu Indonesia yang Bernilai dan Dilindungi. Bidang Zoologi (Museum Zoologi Bogor), Pusat Penelitian Biologi & Nagao Natural Environment Foundation Japan, Cibinong, 72 pp.

Abstract

In Indonesia, 19 butterfly species are protected and 24 species are regulated by an international convention CITES as Appendix II. This book covered 25 butterfly species which are precious and protected in Indonesia. This bilingual book is written in simplicity and practical so that it can be easily understood.

0409. **Peggie, D. 2011.** Tinjauan Keanekaragaman dan Sebaran Kupu Ternate. *Dalam*: *Ekologi Ternate*. Ibnu Marjanto & H.Sutrisno (eds.). LIPI Press. Hlm. 145–158.

Abstract

Observation on the butterfly diversity in Ternate was conducted for two weeks from July 28 until August 10, 2009. This research aimed to obtain current data of the biodiversity and distribution of butterflies in Ternate. The field work resulted in 56 species of butterflies. In this paper, the writers reports the occurrence of 9 species as new records, i.e. *Catopsilia pyranthe*, *Cethosia cydippe bernsteini*, *Euploea algea dalmannii*, *Vindula dejone dorokusana*, *Euchrysops cnejus*, *Hypolycaena erasmus*, *Jamides celeno*, *Jamides cyta amphissa* and *Jamides schatzi*. This study also confirms the occurrence of 10 butterfly species in which their distributional ranges were not stated in detail previously, i.e. *Melanitis boisduvalia*, *Parthenos sylvia ellina*, *Catochrysops strabobinna*, *Everes lacturnus*, *Lampides boeticus*, *Leptotes plinius*, *Pithecops dionisius*, *Psychonotis caeliuscaelius*, *Zizina otis* and *Zizula hylax*.

0410. **Peggie, D. 2012.** A List of the Butterflies of Ujung Kulon National Park, Java, Indonesia. *Treubia* 39: 67–76.

Abstract

The occurrence of butterfly species at Ujung Kulon National Park is presented based on collection and observation data obtained in 2005, 2006, and 2010 and previous reports. As many as 101 butterfly species were recorded during the recent surveys. The data are compared with previous findings. To date, there are 177 species reported from Ujung Kulon.

0411. **Peggie, D. 2014.** Mengenal Kupu-kupu. Pandu Aksara Publishing, Jakarta. v + 78 Hlm.

Abstrak

Tidak ada abstrak

0412. Perbatakusuma, E.A., J. Supriatna, I.H. Wijayanto, **H. Soedjito,** A. Damanik, K. Azmi, M.C.W. Arif & A.H. Lubis. **2010.** *Strengthtening Biodiversity Conservation at Key Landscape Areas in Northern Sumatra Biodibersity Corridor*. Conservation International Indonesia, Jakarta. ISBN 978-602-8901-01-7. 82.

Abstrak

Tidak ada abstrak

0413. Perrard, A., M. Arca, Q. Rome, F. Muller, J. Tan, S. Bista, **H. Nugroho**, R. Baudoin, M. Baylac, J.-F. Silvain, J.M. Carpenter, C. Villemant. **2014.** Geographic Variation of Melanisation Patterns in a Hornet Species: Genetic Differences, Climatic Pressures or Aposematic Constraints?. *PLoS One* 9(4): e94162

Abstract

Coloration of stinging insects is often based on contrasted patterns of light and black pigmentations as a warning signal to predators. However, in many social wasp species, geographic variation drastically modifies this signal through melanic polymorphism potentially driven by different selective pressures. To date, surprisingly little is known about the geographic variation of coloration of social wasps in relation to aposematism and melanism and to genetic and developmental constraints. The main objectives of this study are to improve the description of the colour variation within a social wasp species and to determine which factors are driving this variation. Therefore, this study explored the evolutionary history of a polymorphic hornet, Vespa velutina Lepeletier, 1836, using mitochondrial and microsatellite markers, and the writers analysed its melanic variation using a colour space based on a description of body parts coloration. This research found two main lineages within the species and confirmed the previous synonymy of V. auraria Smith, 1852, under V. velutina, differing only by the coloration. This study also found that the melanic variation of most body parts was positively correlated, with some segments forming potential colour modules. Finally, the writers showed that the variation of coloration between populations was not related to their molecular, geographic or climatic differences. Research observations suggest that the coloration patterns of hornets and their geographic variations are determined by genes with an influence of developmental constraints. Research results also highlight that Vespa velutina populations have experienced several convergent evolutions of the coloration, more likely influenced by constraints on aposematism and Müllerian mimicry than by abiotic pressures on melanism.

0414. Pfaender, J. F.W. Miesen, **R.K. Hadiaty** & F. Herder. **2011.** Adaptive Speciation and Sexual `Dimorphism Contribute to Diversity in Form and Function in

the Adaptive Radiation of Lake Matano's Sympatric Roundfin Sailfin Silversides. *Journal of Evolutionary Biology* doi: 10.1111/j.1420-9101.2011.02357.x.

Abstract

The utility of traits involved in resource exploitation is a central criterion for the adaptive character of radiations. Here, this study tests for differentiation in morphology, jaw mechanics, and nutrition among species and sexes of Lake Matano's sympatric 'roundfin' sailfin silversides. The three incipient fish species differ significantly in several candidate traits for adaptation following ecological selection pressure, corresponding to contrasting jaw mechanics and distinct patterns in food resource use. These findings are consistent with functional adaptation and suggest divergence following alternative modes of feeding specialization. Furthermore, intersexual resource partitioning and corresponding adaptation in jaw mechanics is evident in two of the three incipient species, demonstrating that sexual dimorphism contributes to the ecomorphological and trophic diversity of the emerging radiation. This is, to the best of writers knowledge, the first study reporting interspecific as well as intersexual adaptation by alternative modes of form and function in an evolving fish species flock.

0415. **Phadmacanty, N.L.P.R.,** R. Indraswari, Istriyati, A. Nuriliani. **2010.** Pengaruh Alga Cokelat (*Sargassum duplicatum J Agardh*.) terhadap Struktur Histologis Duodenum, Pankreas, dan Ginjal Tikus Putih *(Rattus norvegicus* L.) yang Terdedah $FeSO_4$. $7H_2O$. *Zoo Indonesia* 19(2): 59–70.

Abstrak

Zat besi (Fe) berperan penting dalam transport oksigen, komponen beberapa enzim, dan praliferasi selular. Namun, kelebihan Fe menyebabkan iritasi saluran pencernaan, kerusakan pankreas, dan ginjal. *Sargassum* mengandung senyawa-senyawa yang berpotensi mengatur homeostasis penyerapan logam dalam tubuh serta melindungi sel dari kerusakan oksidatif akibat kelebihan Fe. Penelitian ini bertujuan mempelajari pengaruh alga cokelat *Sargassum duplicatum* J. Agardh. terhadap struktur histologis duodenum, pankreas, dan ginjal tikus putih (*Rattus norvegicus* L.) yang terdedah $FeSO_4$. $7H_2O$. Penelitian menggunakan 20 ekor tikus jantan, dibagi menjadi 5 kelompok berdasarkan perlakuan dengan masing-masing terdiri dari empat ulangan. Kelompok pertama sebagai kontrol dengan pemberian aquades, kelompok kedua diberi $FeSO_4.7H_2O$, kelompok ketiga diberi jus *S. duplicatum*, kelompok keempat diberi campuran $FeSO_4.7H_2O$ dan jus alga cokelat, dan perlakuan kelima diberi $FeSO_4.7H_2O$ selama 20 hari kemudian diberi jus alga cokelat dosis selama 20 hari berikutnya. Perlakuan dilakukan per oral selama 20 hari (kecuali kelompok perlakuan II). Setelah perlakuan berakhir tikus dikorbankan. Sediaan histologis ketiga organ tersebut dibuat dengan metode parafin, fiksatif larutan Bouin, tebal sayatan 6 um, pewarnaan Hematoksilin-Eosin. Hasil penelitian menunjukkan bahwa sel goblet pada duodenum kelompok kedua, dan terakhir tampak lebih padat dibanding-kan kelompok lain. Pada pankreas, insula Langerhans kelompok kedua tampak renggang dan perbatasan antara insula Langerhans dengan sel asini tampak

longgar pada kelompok keempat, dan terakhir Struktur histologist ginjal kelompok pertama dan keempat normal namun terjadi kerusakan struktur pada kelompok lainnya. Berdasarkan hasil penelitian, dapat disimpulkan bahwa Sargassum berpotensi melindungi/mencegah duodenum, pankreas, dan ginjal dari kerusakan akibat kelebihan Fe.

0416. **Phadmacanty, N.L.P.R., R.T.P. Nugraha**, & **Wirdateti. 2013.** Organ Reproduksi Jantan Sulawesi *Giant Rat (Paruromys dominator). Jurnal Sain Veteriner* 31(1): 100–109.

Abstrak

Indonesia memiliki keanekaragaman fauna, salah satunya adalah tikus. Kebanyakan metode mengidentifikasi karakter satwa adalah melalui struktur morfologinya, misalnya panjang tubuh dan warna rambut. Namun, ternyata organ reproduksi setiap jenis juga memiliki perbedaan, baik lokasi, bentuk, warna, dan beratnya. *Paruromys dominator* merupakan salah satu jenis tikus di Sulawesi. Banyak info mengenai morfologi jenis tersebut, namun belum ada data mengenai organ reproduksinya. Untuk mengenai organ reproduksi jenis tersebut maka harus dilakukan sampling saluran reproduksi dan mengukurnya kemudian dibuat sediaan histologis dan anatomi yang kemudian dianalisis dengan mikroskop cahaya dan SEM. Berdasarkan basil penelitian ini, *P. dominator* memiliki organ reproduksi seperti muridae lainnya, yaitu vesikula seminalis, testis, kelenjar prostat, kelenjar Cowper, dan glans penis. Tidak ada perbedaan struktur histologist testis jenis tersebut dengan jenis lainnya, tetapi dengan SEM tampak adanya duri-duri penis pada jenis tersebut. Kepala sperma jenis tersebut berbentuk kait, sama halnya dengan *Rattus norvegicus*. Rata-rata panjang kepala dan panjang ekor sperma masing-masing adalah 1,28± 0,101 um dan 12,95±1,139 um.

0417. Poeloengan, M. & **Praptiwi. 2010.** The Effect of Meniran (*Phylanthus niruri* L.) Extract to the Growth of Some Moraxella Isolates. *Jurnal Bahan Alam Indonesia* 7(3): 127–129.

Abstrak

Penelitian ini dilakukan untuk mengetahui pengaruh ekstrak meniran (*Phylanthus niruri* L.) terhadap penghambatan pertumbuhan beberapa isolate *Moraxella* sp. secara in-vitro dengan metode difusi pada kertas cakram steril. Tiga isolat *Moraxella* sp. (I, II dan III) diisolasi dari sapi yang menderita penyakit *pink eye* di Jawa Tengah. Masing-masing isolate diuji penghambatan pertumbuhannya pada berbagai konsentrasi ekstrak meniran (50, 40, 30, 20, dan 10%). Hasil penelitian menunjukkan bahwa meningkatnya konsentrasi ekstrak meningkatkan pula daya hambat pertumbuhan isolat *Moraxella* sp. ($P < 0.05$). Diameter penghambatan pertumbuhan pada konsentrasi ekstrak 50, 40, 30, 20, dan 10% berturut-turut adalah 17,65, 14,65, 12,31, 8,31, dan 5,65 mm. Isolat *Moraxella* sp. II merupakan isolat paling sensitif terhadap ekstrak meniran. Penghambatan pertumbuhan isolat *Moraxella* sp. I, II dan III berturut-

turut adalah 7,8, 13,28, dan 11,48 mm. Berdasarkan hasil tersebut, dapat disimpulkan bahwa ekstrak meniran dapat menghambat pertumbuhan *Moraxella* sp.

0418. Poeloengan, M. & **Praptiwi. 2010.** Uji Aktivitas Antibakteri Kulit Buah Manggis (*Garcinia mangostana* Linn.). *Media Penelitian dan Pengembangan Kesehatan* 20(2): 65–69.

Abstract

Mangosteen peel had been used as traditional medicine to treat dysentery, diarrhea, and uric acid. This study was done to determine chemical compounds of mangosteen peel extract and its antibacterial activity by diffusion paper disk method. Its chemical compounds were determided by phytochemical screening while the antibacterial test was done against Gram positive bacteria (*Staphylococcus aureus* ATCC 25922 and *S. epidermidis*) and Gram negative bacteria (*Salmonella typhimurium* B 2284 and *Eschericia coli* B 2245). Ekstrak concentration used for the study were 50, 25, 12.5, 6.25 and 3.125% in which every concentration had three replicates. Result of phytochemical screening of mangosteen peel extract showed that the extract contained alkaloid, saponin, triterpenoid, tannin, phenol, flavonoid, glycoside and steroid. Mangosteen peel extract at the concentration up to 3.125% had growth inhibition area on Gram positive bacteria (*S. aureus* ATCC 25922 and *S. epidermidis*) and there were no growth inhibition area on Gram negative bacteria (*S. typhimurium* B 2284 and *E. coli* B 2245). Increasing extract concentration resulted in increasing growth inhibition area.

0419. **Poerba, Y.S.** & **F. Ahmad. 2010.** Genetic Variability among 18 Cultivars of Cooking Bananas and Plantain by RAPD and ISSR Markers. *Biodiversitas* 11(3): 118–123.

Abstract

This study was done to assess the molecular diversity of 36 accessions (18 cultivars) of the plantain and cooking bananas (*Musa acuminata x M. balbisiana*, AAB, ABB subgroups) based on Random amplified polymorphic DNA (RAPD) and and Inter Simple Sequence Repeats (ISSR) markers and to determine genetic relationships in the bananas. RAPD and ISSR fingerprinting of these banana varieties was carried out by five primers of RAPDs and two primers of ISSRs. RAPD primers produced 63 amplified fragments varying from 250 to 2500 bp in size. 96.82% of the amplification bands were polymorphic. ISSR primers produced 26 amplified fragments varying from 350 bp to 2000 bp in size. The results showed that 92.86% of the amplification bands were polymorphic. The range of genetic distance of 18 cultivars was from 0.06–0.67.

0420. **Poerba, Y.S.** & **F. Ahmad. 2010.** Keragaman Genetik Kultivar Pisang Diploid (AA) Koleksi Cibinong Science Center Berdasarkan Marka RAPD dan ISSR. *Biota* 15(3): 308–315.

Abstrak

Pisang (*Musa acuminata* Colla) merupakan tanaman buah penting yang memiliki nilai ekonomi tinggi sebagai sumber bahan makanan. Pada penelitian ini, keragaman genetik 20 kultivar pisang diploid (AA) koleksi Cibinong Science Center dianalisis. Sidik jari ke-20 kultivar pisang diploid ini dilakukan dengan empat primer Random amplified polymorphic DNA (RAPD) dan dua primer Inter Simple Sequence Repeats (ISSR) yang menghasilkan amplifikasi DNA. Produk amplifikasi RAPD dan ISSR menghasilkan pita-pita DNA yang *plomorphic*, masing-masing 97,83% dan 95%. Ukuran pita DNA bervariasi dari 350 bp hingga 2,0Kbp. Kisaran jarak genetik dari 0,06 hingga 0,7. Data molekular ini menunjukkan ke-20 kultivar pisang diploid ini merupakan koleksi yang beragam.

0421. **Poerba, Y.S.** & **E.A. Widjaja. 2010.** Analisis Keragaman Genetik *Dyera costulata* (Miq) Hook.f. Berdasarkan Marka "Random Amplified Polymorphic DNA". *Biota* 15(1): 126–133.

Abstrak

Dyera costulata (Miq.) Hook.f (Apocynaceae) adalah jenis pohon besar hutan hujan tropis dataran rendah Asia Tenggara yang tumbuh di Thailand, Semenanjung Malaysia, dan di pulau Sumatra dan Borneo. Nilai ekonomis pohon ini adalah getahnya, yang digunakan sebagai *gum chile* dalam pembuatan permen karet. Akhir-akhir ini, kayu pohon jenis ini digunakan dalam pembuatan pensil dan bingkai foto. Informasi keragaman genetik jenis pohon ini sangat terbatas. Oleh karena itu, penelitian ini dilakukan dan keragaman genetik diduga dengan menggunakan marka Random Amplified Polymorphic (RAPD) pada 47 aksesi *Dyera costulata* yang berasal dari berbegai daerah di Jambi. Empat primer terpilih dari Operon (10 mer) menghasilkan 90 produk amplifikasi yang konsisten yang ukurannya berkisar dari 150 bp hingga Kb. Analisis kluster menunjukkan bahwa ke-47 individu terkelompok ke dalam satu kluster dan satu individu terpisah sendiri. Nilai ketidaksamaan genetik berkisar dari 0,17 hingga 0,42. Hasil ini menunjukkan bahwa ke-47 aksesi *D. costulata* dari Jambi berasal dari populasi yang beragam.

0422. **Polosakan, R. 2010**. Dinamika dan Populasi Jenis Pohon pada Kawasan Hutan di Bukit Lawang, Taman Nasional Bukit Tigapuluh, Riau. *Proceeding Book 7th Basic Science National Seminar*: 383–392.

Abstrak

Dinamika dan populasi jenis pohon pada kawasan hutan di Bukit Lawang, Taman Nasional Bukit Tigapuluh, Riau. Studi ini bertujuan untuk mengungkap keanekaragaman jenis pohon di hutan Bukit Lawang pada kawasan Taman

Nasional Bukit Tigapuluh, Provinsi Riau. Metode yang dipakai adalah metode petak tunggal seluas 1 ha yang terdiri dari 25 anak petak yang berukuran 20x20 m. Hasil studi menunjukkan bahwa keanekaragaman jenis tercatat sebanyak 215 jenis pohon yang tergolong dalam 123 marga dari 51 suku dengan kerapatan 453 pohon per hektar. Keragaman jenis pohon di hutan tersebut cukup tinggi dengan Indeks Shanon =-5,0911. Jenis-jenis pohon terpenting antara lain *Anisoptera costata* (Nilai Penting = 19,54%), *Parashorea stellata* (NP = 7,30%), *Pimeleodendron papaveroides* (NP = 5,84%), *Shorea parvifolia* (NP = 5,57%), *Macaranga triloba* (NP = 4,65%) dan *Xanthophyllum flavescens* (NP = 4,60%). Euphorbiaceae (30 jenis), Lauraceae (17 jenis), Meliaceae (13 jenis), Burseraceae (13 Jenis), Dipterocarpaceae (10 jenis) dan Annonaceae (10 jenis) merupakan suku yang paling kaya akan jumlah jenis pada kawasan tersebut.

0423. **Polosakan, R. 2010.** Keanekaragaman Jenis Pohon dan Potensi Pemanfaatan oleh Masyarakat Sekitarnya pada Kawasan Suaka Margasatwa Cikepuh, Sukabumi. *Proceeding Book 7th Basic Science National Seminar*: 425–431.

Abstrak

Keanekaragaman jenis pohon dan potensi pemanfaatan oleh masyarakat sekitarnya pada kawasan Suaka Margasatwa Cikepuh, Sukabumi. Penelitian ini bertujuan untuk mengungkap keanekaragaman jenis pohon dan potensi pemanfaatannya oleh masyarakat yang tinggal di sekitar kawasan Suaka Margasatwa Cikepuh, Kabupaten Sukabumi. Metode yang dipakai adalah metode Kuarter (*point centered quarter method*) (Curtis & Cottam, 1962) untuk keanekaragam jenisnya serta metode wawancara untuk potensi pemanfaatannya. Keanekaragaman jenis pohon pada kawasan Suaka Margasatwa Cikepuh tercatat sebanyak 68 jenis yang tergolong dalam 56 marga dari 34 suku. Adapun suku-suku yang mempunyai jumlah jenis terbanyak antara lain Euphorbiaceae, Myrtaceae, Sterculiaceae, dan Tiliaceae. Untuk potensi pemanfaatannya, tercatat 15 jenis sebagai bahan pangan, 39 jenis sebagai bahan bangunan, 16 jenis sebagai kayu bakar, 3 jenis bahan pembuatan perahu, 2 jenis bahan obat, 2 jenis bahan furniture, 2 jenis bahan kusen, 2 jenis bahan tali dan masing-masing 1 jenis untuk bahan alat tenun, papan cor, pegangan cangkul, alat penumbuk padi dan bagan (sebagai penangkap ikan di laut) serta 4 jenis yang tidak dimanfaatkan.

0424. **Polosakan, R. 2010.** Komposisi Jenis dan Struktur Vegetasi Hutan di Kawasan Suaka Margasatwa Cikepuh, Sukabumi–Jawa Barat. *Jurnal Teknologi Lingkungan* 11(2): 147–155.

Abstract

A study on the structure and composition of trees species was carried out in Cikepuh Game Reserve. The informations and data on forest ecosystems of Cikepuh Game Reserve were still very limited. Method of study used point centered quarter. The results of study recorded total species number was 55 species of trees consisted of 35 genera and 26 families, while saplings (Belta)

recorded was 51 species consisted of 34 genera and 23 families.The common species of trees in the area were *Vitex pinnata* (Important Value = 53.37%), *Alseodaphne cunneata* (IV = 44.12%), *Aporosa microcalyx* (IV = 25.88%) and *Helicia robusta* (IV = 24.38%), while saplings were *Vitex pinnata* (IV = 27.82%), *Dillenia aurea* (IV = 27.11%), *Microcos tomentosa* (IV = 25.72%), *Aporosa microcalyx* (IV = 23.10%) and *Phyllanthus emblica* (IV = 21.62%).

0425. **Polosakan, R.** & **Soehardjono. 2010.** Analisis Vegetasi Jenis Pohon pada Kawasan Cagar Alam Dungus Iwul di Jasinga, Kabupaten Bogor. *Dalam:* Agus Nuryanto, Iman Budisantoso, Erwin R Ardli, Romanus E Prabowo (Eds.) *Prosiding Seminar Nasional Biologi: Peran Biosistematika dalam Pengelolaan Sumberdaya Hayati Indonesia***.** Purwokerto, 12 Desember 2009.: 1000–1006.

Abstrak

Telah dilakukan penelitian tentang analisis vegetasi jenis pohon pada kawasan CA Dungus Iwul di Jasinga, Kabupaten Bogor. Informasi dan pengetahuan mengenai ekosistem hutan Cagar Alam Dungus Iwul saat ini masih sangat terbatas, bahkan keberadaannya seakan-akan telah "terlupakan" karena luasnya sangat relatif sempit, yaitu ± 9 Ha. Padahal hutan di kawasan ini sangat penting karena merupakan salah datu dari sejumlah kecil sisa-sisa hutan basah tropis dataran rendah yang masih tersisa di Pulau Jawa. Selain itu, pada kawasan tersebut pernah ditemukan beberapa jenis pohon khas Sumatra yang tidak ditemukan pada kawasan lain di Pulau Jawa dan melimpahnya jenis Iwul (*Orania sylvicola*) yang tidak dapat tumbuh ditempat lain. Penelitian dilakukan pada bulan Juli 2009. Metode yang digunakan adalah metode Kuarter (*point centered quarter method*) (Curtis & Cottam, 1962). Hasil analisis vegetasi, komposisi jenis pada kawasan CA Dungus Iwul dijumpai 68 jenis pohon dan anak pohon yang tergolong dalam 59 marga dan 36 suku serta 12 jenis belum teridentifikasi. Jumlah individu jenis pohon tercatat sebanyak 428 pohon dengan kerapatan 715 pohon/Ha, yang tergolong dalam 47 jenis dari 22 suku. Sementara itu, anak pohon (belta) tercatat sebanyak 368 individu yang tergolong dalam 68 jenis dari 29 suku dengan kerapatan 1424 individu/Ha. Komposisi jenis-jenis utama atau jenis-jenis yang mendominasi CA Dungus Iwul antara lain *Orania sylvicola* (Nilai penting=NP 129,86%), *Mallotus paniculatus* (NP=15,73%), *Helicia serata* (NP=14,05%) dan *Garcinia* rostrata (NP=13,74%) untuk jenis pohon. Sementara itu, jenis anak pohon yang mendominasi antara lain *Knema laurina* (NP=36,63%), *Antidesma stipulare* (NP=36,27%), *Canarium denticulatum* (NP=32,30%), dan *Polyalthia subcordata* (NP-22,10%).

0426. **Polosakan, R., S. Susiarti** & **Y. Purwanto. 2010.** Habitat *Pandanus* di Gunung Ambang Taman Nasional Boganinani Wartabone dan Pemanfaatan oleh Masyarakat Sekitarnya. *Prosiding Seminar Nasional Biologi: Peran Biosistematika dalam Pengelolaan Sumberdaya Hayati Indonesia. Purwokerto, 12 Desember 2009*: 748–753.

Abstrak

Telah dilakukan penelitian tentang habitat Pandanaceae dan pemanfaatannya pada kawasan Gunung Ambang TN Boganinani Wartabone, Sulawesi Utara. Akhir-akhir ini suku Pandanaceae menjadi pusat perhatian kalangan botanis. Pengungkapan tentang keragaman, habitat, dan pemanfaatannya lebih diintensifkan mengingat selama ini Pandanaceae masih belum banyak terungkap. Penelitian dilakukan dengan menggunakan metode petak. Petak berukuran 20 m x 20 m sebanyak 5 buah, yang diletakkan pada kawasan yang mempunyai tegakan *Pandanus* sp. Setiap jenis individu yang tercacah diukur diameter batang dan ditaksir tingginya. Pemanfaatannya dilakukan dengan cara wawancara pada masyarakat sekitarnya. Dari hasil analisis vegetasi, tampak bahwa jenis-jenis yang dominan pada kawasan habitat Pandanaceae antara lain *Cyathea cf. Contaminans* (NP: 57,74 %), *Elaeocarpus* sp. (25,92 %), *Neolitsea javanica* (19,47 %), *Pandanus* sp. (19,04 %), *Sarcandra glabra* (18,86 %) dan *Caldeluvia celebica* (16,43 %) untuk jenis pohon. Anak pohonnya antara lain *Cyathea cf. Contaminans* (53,11 %), *Syzygium lineatum* (26,35 %), *Cinnamomum burmanii* (21,57 %), *Sarcandra glabra* (20,94 %), *Polyosma integrifolia* (15,82 %), *Pandanus* sp. (14,77 %) dan *Sarcandra* sp. (14,08 %). Adapun pemanfaatan Pandanaceae oleh masyarakat sekitar sangat minim, bahkan sudah hampir tidak ada lagi yang memanfaatkannya.

0427. **Polosakan, R. 2011.** Keanekaragaman Jenis Pohon dan Potensi Pemanfaatan Kayu oleh Masyarakat di Kawasan Taman Nasional Gunung Halimun Salak, Sukabumi. *Berkala Penelitian Hayati,* (*Journal of Biological Researches). Edisi Khusus* 5A: 67–72.

Abstract

Gunung Halimun Salak National Park (TNGHS) is one of the biggest conservation area in Java Island which has some pressures similar to other conservation areas in Indonesia. Based on satellite landset classification, there was 347.523 Ha (52.14%) forest degradation in TNGHS corridor in the period of 1990–2001. This situation threatens the existing biodiversity and local wisdom of the people around conservation area. So, it is needed to asses more deeply on biodiversity and local wisdom to complete/conclude the previous research prior to difersity loss caused by deforestation. The aim of this research was to reveal the diversity of tree species and their potential use in the communities around the Mountain Halimun Salak National Park in Sukabumi District. The method used was the quadratic method for enumeration of tree species diversity, while interview method was done to determine their potential use. The result showed that the number of tree species in Mt Halimun Salak National Park were 46 species that classified in 38 genera of 27 family. The main or dominant species were *Schima wallichii, Altingia excelsa, Syzygium gracilis* and *Quercus gemelliflora***.** The potential use of tree species were building material (35 species), fuel wood (20 spc), board manufacture (15 spc), edible fruit/ vegetable (4 spc), supporting board for concrete (3 spc), door frame (2 spc),

other utilization such as 1 species of furniture, handles machetes, rice cruher, medicinal plant and to increase demand in selling things.

0428. **Polosakan, R. 2011.** Komposisi Jenis dan Struktur Vegetasi Pohon di Hutan Pantai pada Kawasan Cagar Alam Pulau Sempu, Kabupaten Malang. *Prosiding Seminar Nasional "Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan". Kebun Raya Cibodas, 7 April 2011*: 336–340.

Abstract

Sempu Island Natural Reservation in Malang district with an area of 877 Ha has been known to have several type of ecosystems that are lowland forest, mangrove forest, lake forest, and coastal forest. However, vegetation information and quantitative data of this nature reserve are still very limited. This research was conducted to determine the species composition and vegetation structure of coastal forest in this nature reserve. The experiment was conducted in October 2010 by using single plot. The result showed that there were 49 species of trees with the density of 705 trees/ha. The important species were *Mallotus floribundus* (Important Value = 30.66%), *Ficus* sp. (IV = 30.56%), *Drypetes ovalis* (IV = 20.35%), *Artocarpus elasticus* (IV = 19.79%), *Vitex pinnata* (IV = 19.09%) and *Aglaia odoratissima* (IV = 13.27 %) while Euphorbiaceae (12 species), Sterculiaceae (4 species) and Anacardiaceae (4 species) were the plant family with high large number in plant species.

0429. **Polosakan, R. 2011.** Studi Keanekaragaman Jenis Pohon di Kawasan Hutan Danau Bangko, Jambi: Analisis Aspek Ekologi dan Pemanfaatannya. *Dalam* Purwanto, Y., E. B. Walujo & A. Wahyudi (editor). *Valuasi Hasil Hutan Bukan Kayu Kawasan Lindung PT Wira Karya Sakti Jambi*. Jakarta: LIPI Press. 215–224.

Abstrak

Studi keanekaragaman jenis pohon di kawasan hutan Danau Bangko, Jambi: Analisis aspek ekologi dan pemanfaatannya. Studi ini bertujuan untuk mengungkap keanekaragaman jenis tumbuhan yang terdapat di kawasan hutan lindung Danau Bangko milik P.T. Wira Karya Sakti di Jambi dan mengungkapkan kegunaan dan pemanfaatan tumbuhan tersebut oleh masyarakat Melayu yang tinggal di sekitar kawasan tersebut. Hasil studi menunjukkan bahwa keanekaragaman jenis pohon di hutan tersebut sangat tinggi dengan kerapatan pohon per hektar 473 pohon dan jumlah jenis sebanyak 179 jenis. Jenis-jenis pohon terpenting antara lain *Gironiera nervosa* (Nilai Penting = 9,90%), *Ixonanthes icosandra* (9,69%), *Ochanostachys amentacea* (9,63%), *Pimeleodendron griffithianum* (9,26%), *Hopea ferruginea* (7,88%), *Hydnocarpus kuenstleri* (7,62%) dan *Aporosa nervosa* (6,40%). Sementara itu, hasil studi etnobotani tercatat 85 jenis pohon yang dimanfaatkan oleh masyarakat lokal sebagai produk hutan nonkayu (NTFPs) seperti bahan pembuatan peralatan rumah tangga, peralatan angkut dan lain-lainnya.

0430. **Polosakan, R.** & **S. Susiarti. 2011**. Studi Valuasi Hasil Hutan Bukan Kayu (NTFPs) Berpotensi di Kawasan Lindung P.T. Wirakarya Sakti, Jambi. *Dalam* Purwanto, Y., E.B. Walujo & A. Wahyudi (editor*). Valuasi hasil hutan bukan kayu kawasan lindung PT Wira Karya Sakti Jambi*. LIPI P*ress*: 144–159.

Abstrak

Studi valuasi hasil hutan bukan kayu (*Non Timber Forest Products*-NTFPs) di kawasan konservasi P.T. Wira Karya Sakti (WKS) bertujuan untuk mengetahui jenis-jenis hasil hutan bukan kayu yang penting di kawasan tersebut, yang dapat dimanfaatkan oleh masyarakat di kawasan tersebut. Studi ini mendeskripsi jenis-jenis hasil hutan bukan kayu yang memiliki nilai ekonomi dan prospek pengembangan selanjutnya. Hasil studi ini dapat dijadikan acuan untuk pengembangan kawasan konservasi milik PT Wira Karya Sakti seluas 10% dari seluruh konsesi yang dimilikinya. Beberapa jenis hasil hutan bukan kayu yang penting di antaranya adalah damar, rotan dan getah jernangnya, madu, buah-buahan, daun pandan, dan jenis-jenis ikan. Secara rinci, hasil hutan bukan kayu tersebut dibahas dalam makalah ini.

0431. **Polosakan, R**. & **L. Alhamd. 2012**. Keanekaragaman dan Komposisi Jenis Pohon di Hutan Pameumpeuk–Taman Nasional Gunung Halimun Salak, Kabupaten Sukabumi. *Jurnal Teknologi Lingkungan*. Edisi Khusus "Hari Bumi": 53–59.

Abstrak

The research of the diversity and composition of tree species in the Pameumpeuk forests of Mount Salak in Sukabumi district has been done. The method used was single plot of 1 ha (quadrat method). The result showed that the number of tree species in Pameumpeuk forests of Mt Salak were 71 species classified in 49 genera of 31 family with plant density of 649 trees/ha. The most important of tree species composition *were Ostodes paniculata (Important Value = 28.21 %), Castanopsis argantea (IV = 24.31 %), Sloanea sigun (IV = 23.06 %), Ardisia sanguinolenta (IV = 20.87 %)* and *Macaranga triloba (IV = 20.73 %)*. The plant family with *hight* number of plant species were Euphorbiaceae (11 species), Lauraceae (8 species) and Rubiaceae (5 species).

0432. **Polosakan, R. 2013.** Keanekaragaman, Struktur dan Komposisi Jenis Pohon di Hutan Rancak Erang, Cagar Alam Bojonglarang Jayanti, Kabupaten Cianjur. *Pros. Sem. Nas. Biodiversitas IV. Biodiversitas Menunjang Pembangunan Berkelanjutan: Pemetaan Biodiversitas Daerah Tropis. Universitas Airlangga Surabaya*, 15 September 2012.: 180–188

Abstract

The research of the diversity, structure and composition of tree species in the Rancak Erang forests of Bojonglarang Jayanti Natural Reservation in Cianjur district has been done. The method used was single plot of 1 ha (quadrat method). The result showed that the number of tree species in the Rancak

Erang forests of Bojonglarang Jayanti Nature Reserve were 62 species classified in 49 genera of 26 family with plant density of 906 trees/ha. The most important of tree species composition were *Barringtonia racemosum* (Important Value = 25.94%), *Aporosa frutescens* (IV = 18.85%), *Vitek pinnata* (IV = 18.51%), *Baccaurea racemosa* (IV = 18.07%) and *Diospyros hermaphroditica* (IV = 16.08%). The plant family with high number of plant species were Euphorbiaceae (13 species), Moraceae (9 species) and Meliaceae (4 species). Key words: composition, diversity, Rancak Erang forests, structure, tree species.

0433. **Polosakan, R**. **2013**. Pemanfaatan Jenis Pohon oleh Masyarakat Lokal di Kawasan Hutan Cagar Alam Bojonglarang Jayanti, Kabupaten Cianjur. Prosiding Seminar Nasional Biodiversitas" Konservasi keanekaragaman hayati berbasis kearifan lokal masyarakat Indonesia. Solo, 10 November 2012

Abstrak

Telah dilakukan penelitian yang bertujuan untuk mengungkap pemanfaatan jenis-jenis pohon di hutan oleh masyarakat setempat yang tinggal di sekitar kawasan CA Bojonglarang Jayanti, Kabupaten Cianjur. Penelitian ini menggunakan metode petak untuk keanekaragaman jenisnya dan wawancara untuk mengungkap pemanfaatannya. Hasil menunjukkan bahwa keanekaragaman jenis pohon di CA Bojonglarang Jayanti tercatat sebanyak 61 jenis pohon yang tergolong dalam 48 marga dari 25 suku dengan kerapatan 906 individu per hektar. Jenis-jenis yang mempunyai jumlah individu terbanyak antara lain *Barringtonia racemosa* (117 individu/ha), *Endospermum moluccanum* (73 ind/ha) dan *Aporosa frutescens* (67 ind/ha). Berdasarkan pemanfaatannya, pemanfaatan sebagai kayu bakar mencapai yang tertinggi yaitu sebanyak 48 jenis (78,69%), disusul berturut-turut sebagai bahan bangunan 44 jenis (72,13%) dan bahan kusen 17 jenis (27,87%). Adapun berdasarkan jumlah individunya per hektar, pemanfaatan sebagai kayu bakar juga mencapai tertinggi yaitu 773 individu (85,32%), disusul berturut-turut sebagai bahan bangunan 568 individu (62,69%), bahan lain-lain 330 individu (36,42%) dan bahan mebel 230 individu (25,39%).

0434. Poulsen, A.D., O.G. Gideon & **M. Ardiyani. 2010**. Names of *Tapeinochilos* (*Costaceae*) in Wallacea. *Blumea* 55(1): 61–64.

Abstract

Four species of *Tapeinochilos* have been described from material collected in Wallacea. This study designates the lectotype of the genus, *T. pungens*, which was synonymized with *T. ananassae* in 1917 and add here *T. teysmannianus* as another synonym. The type of *T. koordersianus* from Sulawesi has been rediscovered at Herbarium Bogoriense and is identified as *Etlingera heliconiifolia* (*Zingiberaceae*), the combination of which is published here. After establishing that *T. koordersianus* applies to a species of *Etlingera*, there is no evidence that any species of *Tapeinochilos* occurs in the island of Sulawesi; the westernmost

presence of the genus being in the Sula Islands represented by *T. ananassae*, the only species thus presently occurring in Wallacea.

0435. Pouyaud, L., Kadarusman, **R.K. Hadiaty**, J. Slembrouk, N. Lemauk, R.V. Kusumah & P. Keith. **2012.** *Oxyeleotris colasi* (Teleostei: Eleotridae), a New Blind Cave Fish from Lengguru in West Papua, Indonesia. *Cybium* 36(4): 521–529.

Abstract

Oxyeleotris colasi is the first hypogean fish recorded from West Papua. The habitat consists of a freshwater pool in the cave of Jabuenggara located in the heart of Seraran Anticline in the limestone karst of Lengguru. The new species is most closely related to the blind cave fish *O. caeca* described by Allen (1996) from eastern New Guinea. The two troglomorphic species are hypothesised to be derived from *O. fimbriata*, an epigean freshwater gudgeon that ranges widely in New Guinea. *Oxyeleotris colasi* differs from its congeners by the absence of eyes, skin and fins totally depigmented, a very developed sensory papillae system, a reduced number of cephalic sensory pores, a reduced number of scales on head and body, a long head with a short snout length, a reduced mouth width and a long upper jaw length, a body shape with a thin anterior body depth and a thin body width, a long and deep caudal peduncle, long predorsal and prepectoral lengths, and a long pectoral fin.

0436. **Praptiwi, Y. Jamal, A. Fathoni & A. Agusta. 2010.** Antimicrobial Metabolite from the Culture of Endophytic Fungus AFK-8 Isolated from Kayu Kuning (*Archangelisia flava* (L.)Merr.). *Proceeding International Seminar "Biotechnology for Enhancement the Tropical Biodiversity"*. Bandung, 18–20 Oktober 2010.

Abstract

The fungus AFK-8 is one of endophytic filamentous fungus isolated from young stem of kayu kuning [*Archangelesia flava* (L.) Merr.]. The ethyl acetate extract derived from fungus culture shows their antibiotic activity tested against bacteria and fungi on a disc diffusion method. Scaling up cultivation of endophytic fungus AFK-8 on 1L PDA for 3 weeks yielded 143.3 mg of chloroform extract. Fractionation guided assay of these extract showed that the fraction 6 is the most active fraction against tested microbes with MIC values 8, 32, 4 and 64 mg/ml against *B. subtilis, M. luteus, S. aureus* dan *E. coli* respectively. This fraction is also active against *C. albicans, R. minuta* and *A. niger* with MIC value 32 *m*g/ml. The proposed chemical structure of active metabolit in fraction 6 is 1,2-diamino-9,10-anthracenedione which was determined through a GC-MS analysis.

0437. **Praptiwi, E.S. Kuncari,** D.R. Agungpriyono & Chairunnisa. **2010.** Pengaruh Pemberian Ekstrak Kulit Batang *Ailanthus altissima* terhadap Perubahan Sel Hati dan Ginjal Mencit. *Biota* 15(1). Februari 2010. Akreditasi Nomor 43/ DIKTI/Kep/2008.

Abstract

The aim of this study was to determine the toxicopathological effect of *Ailanthus altissima* extract in liver and kidney of mouse. The treatments in this study were: (1) negative control (carboxy methocellulose), extracts with concentration of (2) 1 mg/kg BW, (3) 10 mg/kg BW, (4) 100 mg/kg BW, and (5) 1000 mg/kg BW. Every treatment consisted of 5 mice. After receiving A. *altissima* extract for seven day consecutively, the mice were then euthanized with overdose of ether. The liver and kidney were taken and then fixed within 10% solution of buffer neutral formalin (BNF). Histopatology slides of liver and kidney were processed and stained with hematoxylin eosin. The cell degeneration and cell death were observed with video photo microscope. The lesion of cell death and degeneration of hepatocytes and epithelium of kidney proximal tubule were counted. The data were analyzed statistically with Anova test continued with Duncan test. The result showed that cell necrosis of hepatocytes was not significantly different (P>0,05) compared to control treatment, while cell necrosis was increasing in the treatment of ≥10 mg/kg BW in tubuli of the kidney.

0438. **Praptiwi, D. Wulansari** & **Chairul. 2010.** Efek Toksisitas Ekstrak Pegagan (*Centella asiatica* Linn.) pada Organ dan Jaringan Mencit (*Mus musculus*). *Majalah Farmasi Indonesia* 21(1): 40–47.

Abstract

Toxicity test of *Centella asiatica* Linn. Water extract had been carried out. Extract were administered via oral, single and daily doses in mice (*Mus musculus*). The effect of extracts on organs and tissue were evaluated by observing the pathology and anatomy of heart, liver and kidney and also LD_{50} value. The influences of acute and sub-chronic toxicity on morpho anatomy organs and histopathology tissue were in accordance with LD_{50} experiment. The results of morpho anatomy showed that all organs were still in normal condition at low dose treatment, but stain and white spots appeared on liver, black spot on heart and white spots on kidney at higher dose. Histopathology indicated that low dose administration of extract resulted that all of tissue observed were in good and normal condition, but at higher dose resulted injuries of muscle fibres and also injuries of nucleus cells of heart tissue, also the colour of liver tissue was brick red and white stain manifestation (because the damaged of cells and accumulation of leucocytes). Degeneration and conjestive sinus occured in liver tissue, while necrosis and protein degeneration formed in kidney because of glomerolus membrane damaged. LD_{50} of *Centella* extract was 13.6 g/kg BW. This dose indicated that *Centella* extract is slightly toxic (5-15 g/kg BW), so that it suggested that if it was used in phytotherapy had to be under supervision of an expert and administered in low dose and in short period.

0439. **Praptiwi, Y. Jamal, A. Fathoni** & **A.P. Keim. 2011.** Komposisi Kimia dan Aktivitas Antibakteri Minyak Atsiri *Piper gibbilimbum* C. DC: Piperaceae. *Berkala Penelitian Hayati* 16 (2): 179–183.

Abstract

Distillation of *Piper gibilimbum* leaves by water distillation yielded 0.85% light yellow essential oil. Result of GC_MS analyses showed that *P. gibilimbum* essential oil contained contained 72 chemical compounds with major components 3-carene (40.64), β-pinene (8.47%), cineol (6.19%)), α-copaene (5.47%), and α-guaiene (9.30). Antibacterial test with paper disc method indicated that the essential oil of 50% concentration inhibited the growth of *Staphylococcus aureus, Bacillus subtilis, Streptococcus mutans, Streptococcus viridans, Eschericia coli* and *Shigella flexneri.*

0440. **Praptiwi, Y. Jamal, A. Fathoni, A. Nurkanto** & **A. Agusta. 2013.** Antibacteral Activity of Bisanthraquinone (+)-1,1'-Bislunatin. *Microbiology Indonesia* 7(4): 159–166.

Abstract

Endophytic fungi has been known as a source of biological active compund with a broad sprectrum of activities. One of the endophytic fungi isolated from young stem of gambier (*Uncaria gambier* ROXB.), *Diaporthe* sp. GNBP-10 could produce (+)-1,1'-bislunatin when cultivated on potato dextrose agar (PDA). (+)-1,1'-Bislunatin show moderate antibacterial activity against 7 pathogenic bacteria *Bacillus subtilis, Staphylococcus aureus, Eschericia coli, Micrococcus luteus, Shigella flexneri, Proteus vulgaris* and *P. mirabilis* with MIC value in the range of 32–64 µg/ml. The cell wall disruption and morphological changes of bacterial cells were affected by exposure of (+)-1,1'-bislunatin were also discussed.

0441. **Praptiwi. 2014.** Skrining Aktivitas Penangkap Radikal Bebas DPPH (2,2-diphenyl-1-picrylhydrazil) Beberapa Jenis Tumbuhan Suku Annonaceae. *Prosiding Seminar Nasional Biodiversitas* 3(1): 186-189.

Abstrak

Penelitian ini dilakukan untuk mengetahui aktivitas antioksidan dari ekstrak beberapa jenis tumbuhan dari suku Annonaceae. Ekstrak metanol atau etanol dari tujuh jenis tumbuhan dari suku Annonaceae (*Polyalthia lateriflora, Cananga odorata, Pseuduvaria riuosa, Stelechocarpus burahol, Sageraea lanceolata, Annona reticulata*, dan *Popowia nervosa*) dianalisis aktivitas antioksidannya dengan metode penangkap radikal bebas DPPH (2,2-diphenyl-1-picrylhydrazil). Analisis dilakukan dengan spektrofotometer UV-Vis pada panjang gelombang 515 nm. DPPH digunakan sebagai kontrol negatif sedangkan kontrol positif digunakan vitamin C. Hasil penelitian menunjukkan bahwa persentase penangkap radikal DPPH ekstrak tumbuhan dari suku Annonaceae yang diteliti bervariasi, yaitu berkisar antara 63,333–85,965%. Aktivitas pe-

nangkap radikal bebas DPPH yang tertinggi adalah ekstrak etanol daun *Stelechocarpus burahol* (93.684 persen) dan tidak berbeda nyata (p>0.05) dengan vitamin C sebagai antioksidan alami. Sementara itu, ekstrak etanol buah *Annona reticulata* tidak mempunyai aktivitas penangkap radikal bebas DPPH. Persentase penghambatan radikal bebas DPPH dari ekstrak *Stelechocarpus burahol, Polyalthia lateriflora, Sageraea lanceolata, Cananga odorata, Pseuduvaria rugosa, Popowia nervosa*, dan *Annona reticulata* berturut-turut adalah 93.68; 85.97; 80.70; 77.72; 64.39; 63.33; dan 0 persen.

0442. **Praptiwi** & **E.S. Kuncari**. **2014**. Evaluasi Potensi Hasil Fraksinasi Ekstrak Etil Asetat Pauh Kijang (*Irvingia malayana*) terhadap Tingkat Parasitemia pada Mencit. *Prosiding Seminar Nasional Biodivertitas* vol. 3(1): 183–185. 2014

Abstrak

Tujuan penelitian adalah untuk mengetahui pengaruh pemberian fraksi dari ekstrak etil asetat pauh kijang (*I. malayana* Oliver) terhadap tingkat penurunan parasitemia *P. berghei* pada mencit jantan. Mencit dikelompokkan ke dalam 6 kelompok perlakuan, yaitu fraksi 1–6 dari ekstrak etil asetat. Masing-masing perlakuan terdiri dari 4 ekor mencit. Metode yang digunakan adalah menghitung penurunan persentase sel darah merah yang terinfeksi *Plasmodium berghei* setelah perlakuan. Hasil penelitian menunjukkan bahwa pemberian fraksi 1 sampai dengan fraksi 6 ekstrak etil asetat pauh kijang dapat menurunkan tingkat parasitemia pada mencit secara bervariasi. Persentase penurunan parasitemia paling tinggi adalah pada perlakuan fraksi 3 (34,28%) yang berbeda nyata (p<0,05) dengan fraksi 1 (7,02%).

0443. Praptosuwiryo, T.Ng, **Rugayah,** & D.O. Pribadi. **2011**. Survey and monitoring methods for *Cibotium barometz*(L.) J. Sm. (Cyatheaceae). *Prosiding Seminar Nasional "Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan"*. 7 April 2011. Kebun Raya Cibodas. Hlm. 449–456.

Abstract

Tumbuhan paku *Cibotium barometz* (L.) J. Sm. (Cyatheaceae) merupakan salah satu komoditi ekspor yang termasuk di dalam daftar Appendix II CITES, sejak tahun 1976. *Cibotium barometz* penting sebagai sumber bahan obat di China, Eropa, Indonesia, Filipina dan Thailand, dan sampai saat ini masih digunakan sebagai obat tradisional di Asia Tenggara. Buludan rhizome *C. barometz* terutama dimanfaatkan sebagai obat penahan darah, menghentikan pendarahan, anti reumatik, menstimulasi hati dan ginjal, dan memperkuat tulang belakang. Pemanfaatan jenis-jenis liar yang termasuk di dalam daftar Appendix IICITES, termasuk *C. barometz*, harus dibatasi dengan sistem kuota agar kelestariannya terjamin. Penetapan kuota seharusnya berdasarkan NDF (*Non Detriments Finding*). Data lapangan dan informasi biologi merupakan hal penting untuk menggambarkan NDF. Oleh karena itu survei dan monitoring *C. barometz* di seluruh sebarannya perlu dilakukan dengan metode yang cukup akurat, namun cukup mudah dan cepat dilakukan sehingga data baru setiap tahun tersedia

sebagai bahan penentuan kuota setiap tahun. Makalah ini memaparkan metode survei dan monitoring yang telah biasa digunakan untuk mengumpulkan data lapangan *C. Barometz* dari tahun 2005 sampai 2010, yaitu metode *randome search* dengan *belt transect*. Metode survey dan monitoring baru untuk *C. barometz* diusulkan.

0444. Pratiwi, N.T.M., **R.M. Marwoto**, M. Krisanti, & P. Kumaladewi. **2011**. Tingkat Konsumsi Keong Murbei (*Pomacea canaliculata*) terhadap *Vallisneria spiralis* serta Potensinya dalam Penanggulangan Gulma Air. *Jurnal Moluska Indonesia 2* (2): 59–66.

Abstrak

Golden Apple Snail (GAS) (*Pomacea canaliculata*) has wide shell variations such as colour, spire, and body whorls. However, there is a lack of information about differences of consumption level to aquatic weeds between different shell variations. This study aims to determine the consumption level between those two populations with different shells (yellow and brown shelled) variation on consumption of *Vallisneria spiralis* using stratified experimental design. The second experiment result showed that the consumption level increased along with increasing of body size. The shell variations did not show any differences consumption level of GAS on *V. spiralis* ($p \geq 0.05$). On the other hand, the GAS's consumption level of weeds were different in size category ($p \leq 0.05$). Based on this experiment, it is clearly shown that the proper size to use in aquatic weeds control is medium size (2.99–3.22 cm).

0445. **Prawiradilaga, D.M, T. Haryoko, M. Irham, S.Sulandari, M.S.A. Zein, Y.S. Fitriana,** A.B. Dharmayanthi, & **E.A. Arida. 2013.** Peranan *DNA Barcode* dalam Kehidupan (BAB 4). *Dalam:* M.S.A. Zein &D.M. Prawiradilaga (eds.). *DNA Barcode Fauna*. Penerbit Kencana, Prenada Media Group.Edisi I, ISBN 978.602.7985.26.1 590, 242.

Abstrak

DNA barcode sebagai suatu sistem yang dirancang untuk identifikasi dan karakterisasi suatu jenis secara otomatis, cepat dan akurat dapat digunakan oleh berbagai kalangan. Sekuen DNA dari region yang sama pada genom DNA dapat digunakan sebagai *DNA barcode ofLife* (*DNA barcode* untuk kehidupan) yang berguna untuk berbagai penelitian dan kehidupan. Pengumpulan dan penyusunan data sekuen yang terkait dengan nama spesimen menjadi suatu perpustakaan yang bisa diakses masyarakat umum dengan lebih cepat dan murah akan membuat *barcode* baru ini semakin praktis dan bermanfaat.

0446. **Prawiradilaga, D.M.** & H. Soedjito. **2013.** Chapter 16: Conservation Challenges in Indonesia. *In.* N.S. Sodhi, L. Gibson & P. Raven (eds.). *Conservation Biology: Voices from the tropics*. pp. 134–141. John Wiley & Sons Ltd

Abstract

Indonesia has faced many challenges in conserving its biodiversity. The most important challenge is deforestation. Deforestation in Indonesia was mostly an impact from mis-policy and misuse of natural resources such as the decentralization policy which gives more authority to the district level. Existing economic and political systems tend to view natural resources, primarily forests, as sources of income. This only made worse because eventhough forest concession companies obtain legal permit, but the companies operate unsustainable forest management. Those forest disturbances will decrease species diversity and also increase genetic erosion of persisting populations. Ironically, Indonesian biodiversity–despite being ranked as one of the highest in the world in terms of species richness and endemism–is not well documented, and therefore, the country will probably lose many of its natural assets without even knowing their tremendous value and their varied uses.

0447. **Prawiradilaga, D.M.**, **Purwaningsih, S. Susiarti, I. Sidik, A. Suyanto, I. Rahmatika, W.A. Noerdjito,** A. Marakarmah, M.H. Sinaga, E. Cholik, Ismail & **A. Saim**. **2014.** Rapid Assessment on Biodiversity in Logged Forest of Tesso Nilo, Riau Province, Sumatra. *Jurnal Biologi Indonesia* 10(2): 267–279.

Abstract

Tesso Nilo area which is located at Riau province covers an area of 188.00 ha. Recently, it is famous because of a sharply increase in encroachment activities for forest conversion, especially for oil palm plantations and village sites. It was conducted in logged forest around Segati river, Toro river, Mamahan river, and Sawan river in June 2003. The results showed that the area had the high richness of plant species which was indicated by the high value of Mennhenick index. Records from the 1 ha studied plot identified a total of 360 species included 165 genera and 57 families with 215 tree species 305 sapling species. Some important tree species which were included in the Red List of IUCN were 'gaharu' (*Aquilaria malaccensis*), 'ramin' (*Gonystylus bancanus*), *Shorea* spp. and *Dipterocarpus* spp. The local community utilized 83 species of medicinal plants and 4 species of toxic plants for fishing. The total number of recorded bird species was 114 species represented 29% of the total Sumatran bird species. The most important bird species were the Wrinkled Hornbill (*Aceros corrugatus*), Crestless Fireback (*Lophura erythrophthalma*), Crested Fireback (*Lophura ignita*), and Hooked-billed Bulbul (*Setornis criniger*). The total number of recorded mammal species was 34 species or 16.5% of 206 species of Sumatran mammals. The most important mammal species included Sumatran tiger (*Panthera tigris sumatrae*), Sumatran elephant (*Elephas maximus sumatrensis*), the Sun bear (*Helarctos malayanus*) and three species of primates: *Hylobates agilis*, *Presbytis femoralis* and *Macaca nemestrina*. The herpetofauna contained 15 reptile species and 18 amphibian species. The most important herpetofauna was the endangered False Gharial (*Tomistoma schlegelii*) and the vulnerable Common Softshelled turtle (*Amyda cartilaginea*). The number of recorded fish species was 50 represented 18% of the total Sumatran fish species

(272 species). The important fish species were *Breinsteinea* sp. and *Chaca bankanensis* which were unique and rare. Since insects are the largest group of animal, this study only focused on beetles. The identified beetles were classified into 644 species and 34 families. The important beetles were the Longhorn beetles (Cerambycidae) and the Scarab beetles (Scarabaeidae).The small mammal parasites consisted of ectoparasites which were categorized into 14 species and endoparasites which were categorized into 2 orders and 3 species.

0448. **Purwaningsih. 2010.** *Acacia decurrens* Wild: Jenis Eksotik dan Invasif di Taman Nasional Gunung Merbabu, Jawa Tengah. *Berkala Penelitian Hayati (Journal of Biological Researches) Special Topic in PLANT S and ALGAE* No. 4A: 23–28.

Abstract

Acacia decurrens Wild is an exotic species which is original from Australia and has been developed rapidly in Merbabu mountain eventhough up to altitude 3000 m asl., especially at Cuntel village in which approximately whole of the forest area occupied by *Acacia decurrens* and bush. The study was carried out at two places, in Selo and Cuntel Village by using quadrat method. The plot set up at some altitudes from 1,600 up to 2,400 m asl. The aims of this study is to know and to explain about the vegetative of Merbabu mountain and the status of Acacia decurrens. The result from the inventory of 7 plots (each 0.25 ha) were recorded only 20 species. Selo village has species number, density and basal area which were higher than the other one. The invasive character of *Acacia decurrens* shown by flowering continuety along year and the small diameter has already started to flowering and the seed resistant to forest fired also. Population of *Acacia decurrens* was abundant caused by the natural species rapidly decreased.

0449. **Purwaningsih. 2010.** Keanekaragaman Jenis Pohon di Hutan Riam Durian, Kalimantan Tengah. *Berkala Penelitian Hayati Edisi Khusus* 4A: 29–35.

Abstract

Diversity of tree species in Riam Durian forest, Center Kalimantan. The study on plant inventory was carried out in Riam Durian Forest to know tree species diversity and potency. There were 3 forest types which was chosen for the study. They were the peat swamp, riparian, and after fired forest. The result of the inventory was totally species number recorded 214 species consists of 109 genera and 46 families. The common forest type at the research location was flooded peat swamp forest which has the species diversities (peat swamp forest 174 species) was higher than the other both of the forest types (fired forest 79 species and riparian forest 39 species). The tree species were found in the three forests types about 50 species, among them *Calophyllum pulcherrimum, Garcinia dioica, Dillenia eximia, Diospyros borneensis, Lithocarpus elegans,*

Litsea firma, Pternandra caerulescens, Horsfieldia grandis, Syzygium spp. dll. The potency of plant at the three location were as medicinal plant.

0450. **Purwaningsih. 2011.** Eksplorasi Tumbuhan di Daerah Konservasi Perkebunan Kelapa Sawit REA-KALTIM. *Prosiding Seminar Nasional 'Konservasi Tumbuhan Tropica: Kondisi Terkini dan Tantangan ke depan". UPT Balai Konservasi Tumbuhan Kebun Raya Cibodas, LIPI*: 288–298.

Abstract

Flora exploration has been carried out in Kembang Janggut District, Kutai Kertanegara Regency to inventory plants diversity, mainly in conservation area of the oil palm plantation. The conservation area covers 19% of the total area (30,000 ha) of the oil palm plantation. The inventory study used explorative method which was implemented in 3 types ecosystem: peat swamp, riparian, and lowland forests which are located on Tepian, Sungai Senget, and Loa Buluh. There were 248 species of plants recorded growing in this area which consist of 177 genera and 78 families. They were dominated by trees of 136 species and 8 species of epiphytic plants. The rate of deforestation is high so the composition of species recorded in all observation sites are mostly common secondary species such as *Macaranga spp*., *Baccaurea spp*, *Ficus spp.*, *Santiria griffithii*, *Soulatri calophyllum*, *Garcinia dioica*, *Diospyros borneensis*, only few primary species recorded. *Barklaya motleyi* and *Cryptocoryne sp.*, were the two rare species which has been collected from peat swamp forest.

0451. **Purwaningsih. 2011.** Home Garden Plant Diversity in Ujungjaya and Tamanjaya Villages, Ujung Kulon National Park-Banten. *Proceeding The 1st ACIKITA International Conference of Science and Technology Jakarta 25–27 Juli 2011*: 462–470.

Abstract

The study of home-garden plant species diversity in the villages of Ujung Jaya and Taman Jaya, Ujung Kulon National Park was carried out with a method of exploration in a residential area in the villages. Every house in the villages has garden area with the size average 10 x 10 m, but the smallest size was 1 x 3 m and the widest is 40 x 20 m. From the exploration, it recorded ± 72 species with 60 genera and 37 families, after classified by the usage, it shows that the most widely planted species were fruit species and building material species, while for ornamental species and vegetables were very few and usually planted in small garden. Fruit species which is common in Ujung Jaya and Taman Jaya gardens are *Musa spp*. (banana), *Psidium guajava* (guava), *Cocos nucifera* (coconut), *Mangifera indica* (mango), *Carica papaya* (pepaya), *Artocarpus hetrophyllus* (jackfruit) and *Annona muricata* (soursop), while species for building materials such as *Paraserianthes falcataria* (sengon), bamboo, *Pterospermum javanicum* (bayur), *Swietenia mahagony* (mahoni), and *Tectona grandis* (jati). The native species from Ujung Kulon planted at the villages were

not too many and among them were *Gnetum gnemon*, *Syzygium polyanthum*, *Mangifera indica*, *Sysygium aqueum*, *Lansium domesticum*, *Alstonia scholaris.*

0452. **Purwaningsih. 2011.** Keanekaragaman Jenis Tumbuhan Obat di Hutan Rawa Gambut Riam Durian-Kalimantan Tengah. *Berkala Penelitian Hayati (Journal of Biological Researches) Special Topic in Growth Reproduction and Medicinal Biology. Edisi Khusus* 4D: 31-38.

Abstract

Medicinal plants research has been carried out in the peat swamp forest Riam Durian, Central Kalimantan to study the diversity of medicinal plant species used by the Dayak Kaharingan. The result was a list of 74 species of data sampling included in the category of medicinal plants from the overall total 332 species of plants which were used by local people for various uses, such as buliding materials, food, pet food, etc. The local residents' tie into the forest was relatively high and they often held traditional ceremonies for healing the sick. Medicinal plant was used by people, especially liana, the parts of plants widely used for the drug were the leaves and bark. Medicinal plants were abundant in nature such as *Eurycoma longifolia*, *Labisia pumila*, *Curculigo orchidioides, Dalbergia ferruginca* and *Cratoxylon formosum*. For a population of slightly medicinal plants, among others recorded *Tabernaemontana pauciflora*, *Ampelociscus thyrsiflorus, Strychnos sp., Polyscias cumingiana* and *Aquilaria malaccensis*.

0453. **Purwaningsih. 2011.** Populasi dan Sebaran *Gluta wallichii* (Hook.f) Ding Hou di Hutan Rawa Gambut Suaq Balimbing, TNGL. *Berkala Penelitian Hayati (Journal of Biological Researches) Special Topic in Plant and Algae*. *Edisi Khusus No*. 5A: 93–96.

Abstract

Gluta wallichii (Hook.f.) Ding Hou is common species of Anacordiaceae which grows in the peat swamp forest. It has several synonyms. *Melanorrhoea maingayi* Hook f; *Melanorrhoea wallichii* Hook f; *Melanorrhoea woodsiana* Scort. Ex King: *Swintonia elmeri* Merr: *Swintonia obtusifolia* Engl. Distribution of this species is very limited in the Malay Peninsula, Borneo, and Sumatra. Generally, they have black gums and very toxic. In Indonesia, it is known by the name of 'rengas manuk'. This study used square method and data analysis to obtain some important parameters, such as importance values, density, and basal area in plot size of 1.6 ha. Results obtained from the sampling data of forest vegetation Suaq Balimbing recorded 44 species. The population of the most dominant species was *Gluta wallichii* with importance value of 79.15, density of 213 trees/ha, and basal area m^2/ha 15.89. *Gluta wallichii* average recorded 25.7 cm in diameter and tree height 17.5 m. Frequency was also very high (100%) because this species were found in all plots (160 plots).

0454. **Purwaningsih** & **R. Polosakan. 2014**. Sebaran Jenis *Dipterocarpus* (Kruing) di Indonesia. *Prosiding Sem.Nas.Biodiversitas "Biodiversitas: Studi, Pemanfaatan dan Konservasi Keanekaragaman Hayati Nusantara dalam Bidang Kesehatan"* Solo, 10 November 2013

Abstrak

Dipterocarpaceae adalah salah satu suku yang paling banyak tumbuh di Indonesia. Persebaran jenis Dipterocarpaceae tidak merata di setiap pulau, ke arah timur persebarannya semakin kecil terutama marga *Dipterocarpus*. Marga *Dipterocarpus* ("kruing") merupakan penghasil oleoresin yang terdiri atas 39 jenis dengan sebaran jenis terbanyak di Kalimantan (28 jenis) dan Sumatera (25 jenis), tetapi tidak dijumpai di Sulawesi, Maluku dan Papua. Jenis *Dipterocarpus* merupakan pohon besar dengan ciri khas daun dengan venasi yang melipat-lipat seperti kipas, berbiji besar, dan bersayap dua. Tempat tumbuh umumnya di dataran rendah dengan ketinggian <500 m dpl., tetapi ada beberapa jenis *Dipterocarpus* yang tumbuh di rawa di antaranya *Dipterocarpus tempehes, D. validus, D. elongtus, D. semivestitus*, dan *D. coriaceus* serta ada 1 jenis yang tumbuh di hutan kerangas yaitu *D. borneensis.*

0455. **Purwaningsih, E. 2010.** New Species of Strongylid Nematode, *Labiostrongylus biakensis* (Nematoda: Strongyloidea) from *Macropus agilis* (Gould, 1842) from Biak Papua. *Treubia* 37: 15–23.

Abstract

Labiostrongylus biakensis, new species (Nematoda: Strongyloidea: Chabertiidae) was collected from the stomach of *Macropus agilis* (Agile Wallaby) in Papua-Indonesia. This species distinguished from its congeners by a combination of characters including the shape of buccal capsule, and the female tail, the form of genital cone and spicule, and the proportion of the ovejector. A key to the genus is given.

0456. **Purwaningsih, E**. & L. R. Smales. **2010.** Two New Species of *Dorcopsistrongylus* (Strongylida: Strongyloidea) from *Dorcopsis muelleri* (Marsupialia: Macropodidae) from Papua Indonesia. *Journal of Parasitology*, 96(3): 596–601.

Abstract

In a survey of the brown dorcopsis, *Dorcopsis muelleri*, on Salawati Island, Papua, Indonesia, two new species were found in the stomach. *Dorcopsistrongylus ewini* **n. sp**. can be differentiated from its congeners in having the proximal end of the spicule twisted and from *D. labiacarinatus* in having shorter intestinal diverticula and in the proportions of the elements of the ovejector. *Dorcopsistrongylus salawatiesis* **n. sp**. can be differentiated from its congeners in having bilobed lateral lip like elements and an elongated terminal bulb of the esophagus. Collection of helminths from the other species of *Dorcopsis*, may reveal more species of *Dorcopsistrongylus*.

0457. **Purwaningsih, E.** & **A. Riyanto. 2011.** Morfologi Larva dan Pola Infeksi *Falcaustra kutcheri* Bursey *et.al.* 2000 (Nematoda: Cosmocercoidea: Kathlaniidae) pada *Leucocephalon yuwonoi* (Mc cord et. Al., 1995) di Sulawesi Tengah Indonesia. *Jurnal Biologi Indonesia* 7(1): 45–52)

Abstract

Some nematode parasites *Falcaustra kutcheri* Bursey et al., 2000 were found in alimentary tract of *Leucocephalon yuwonoi*. Those were large in numbers in rectum and intestin, but a small numbers in stomach. Both adult and larvae were collected from the host. The larvae were different on mouth structure and the shape of esophagus. The additional character, i.e two lateral branches of the anterior part of intestine that appear along the growth of larvae were reported.

0458. **Purwaningsih, E**. & L. R. Smales. **2011.** Two New Species of Labiostrongylinea (Strongylida: Cloacinidae) from Salawati Island Indonesia. *Trans. Roy. Soc. S.A*. 135 (2):124–133

Abstract

Two new species of Labiostrongylinea (Nematoda: Cloacininae), *Labiosimplex papuensis* **n. sp.** and *Labiomultiplex sagawinensis* **n. sp.**, were described from the stomach of the macropodid marsupial, *Dorcopsis muelleri* (Mammalia: Macropodidae) in Papua, Indonesia. *Labiosimplex papuensis* n. sp. is most similar to *Ls. redmondi Smales*, 1982 in having the lateral lips of similar shape to the submedians and can be distinguished from it by much shorter spicules. *Labiomultiplex sagawinensis* n. sp. falls across two groups of species, including *Lm. novaeguineae* Smales, 1994 which is found only in New Guinea, in regard to spicule length. It can be distinguished from all its congeners by a suite of characters including the shape of the lateral lips, spicule length, the form of the genital cone, gubernaculum and branchlets of the dorsal ray and egg size. The finding of these two new species may be indicative of a scenario of coevolution with the host, *D. muelleri* after isolation from Australia.

0459. **Purwaningsih, E. 2011.** Nematode Parasites, *Auchenacantha* spp. from Flying Lemur, *Cynocephalus variegatus*: Morphological study with SEM. *Asian Pasific Journal of Tropical Biomedicine* 1(6): 434–439.

Abstract

To observe morphology of *Auchenacantha galeopteri, A. spinosa*, and *A. parva* from Sukabumi and Ujung Kulon, Indonesia, this research used scanning electron microscopy (SEM). Methods: Specimens for light microscopy examination were fixed with warm 70% alcohol, cleared and mounted in lactophenol for wet mounting. Drawings were made with the aid of a drawing tube attached to a Nikon compound microscope. Specimens for SEM examination were processed according to Bozzola [3]. Measurements were given in micrometers (μm) as the average of findings, followed by the range in parentheses, unless

otherwise stated. Results: The measurements of *Auchenacantha* spp are same with those of previously described. The striations of male and female *A. galeopteri* are widen towards outside and wavy. The mouth of female with 6 lips, each of them is wider at base than distal end in *A. galeopteri* and rectangular in *A. spinosa*. Both species have dentiform protrusion from inner surface of lips, such structure absent in *A. parva*, but the lips with transverse festoon like pattern at anterior end of each lip. Conclusions: Using SEM, the lip and the striation pattern of three species of *Auchenacantha* can be clearly distinguished. Sukabumi and Ujung Kulon are new locality of *A. galeopteri* and *A. spinosa*.

0460. **Purwaningsih, E. & Mumpuni. 2011.** New host records of snake intestinal nematode, *Kalicephalus* spp. in Indonesia. *Asian Pasific Journal of Tropical Biomedicine* 1(2): 121–123.

Abstract

To observe three species of *Kalicephalus* found in three species of snake (*Ophiophagus hannah, Ptyas mucosus*, and *Naja sputatrix*) during research on Capture Snake for Trading in Java and Snake Biodiversity in Kalimantan Islands. Methods: Specimens for light microscopy examination were fixed with warm 70% alcohol, cleared and mounted in lactophenol for wet mounting. Drawings were made with the aid of a drawing tube attached to a Nikon compound microscope. Measurements were given in micrometers (μ) as the average of findings, followed by the range in parentheses, unless otherwise stated. Result: *Kalicephalus costatus* indicus was found from 7 *Ptyas mucosus, K. bungari* from 2 *Naja sputatrix* and 1 *K.c. indicus* and *K. assimilis* found from 1 *O. hannah*. The morphology and measurement of three species of *Kalicephalus* found in this study, are close to those described before. Conclusion: New finding of host of *K.c. indicus* and *K. bungari* was a snake species of *Naja sputatrix*. New records of locality were Kalimantan Island as the new locality of *K. assimilis*, and Java island was new locality of *K.c. indicus*.

0461. **Purwaningsih, E. 2013.** The First Report of New Species: *Trichuris landak*. *Asian Pasific Journal of Tropical Biomedicine* 3(2): 85–88.

Abstract

Objective: To study nematode parasites morphology of *Hystrix javanica*, both through the feces and internal organs.

Methods: Feces were observed by direct smear method, while internal organ were observed after dissecting the host. Specimens for light microscopy examination were fixed with warm 70% alcohol, cleared and mounted in lactophenol for wet mounting. Specimens for SEM examination were postfixed in caccodylate buffer and glutaraldehyde, then dehydrated through a graded series of alcohol and freeze dried. The specimens were attached to stubs with double cello-tape, coated with gold and observed with a JSM5310 LV Electron Micro-

scope. Figures 1–14 were made with the aid of a drawing tube attached to Olympus compound microscope, while other figures were photographed of Scanning Electron Microscope images. Measurements were given in micrometers as the mean followed by the range in parentheses, unless otherwise stated.

Results: The nematode species were found in the intestine of *H. javanica* are *Gireterakis girardi* and a new species, *Trichuris landak*. The new species differs with previously reported species from *Hystrix* because of having stylet and short cervical alae. The pattern of bacillary band is closed to *T. trichiurus*, the species that infect human, but differs from the surface of its vulva which is not covered with densely spine.

Conclusions: The species of nematodes found in *Hystrix javanica* are *Gireterakis girardi* and a new species *Trichuris landak* **n. sp.** Those two species are the new record in Indonesia.

0462. **Purwaningsih, E** & Smales, L.R. **2014.** Two New species of *Dorcopsinema* and *Paralabiostrongylus* (Nematoda: Chabertiidae: Cloacininae) from Indonesia, with a Key to Species of *Dorcopsinema*. *Zootaxa* 3857(4): 591–598.

Abstract

Two new species of nematodes (Chabertiidae: Labiostrongylinea) from *Dorcopsis muelleri* in Raja Ampat Island, Papua, were described and figured. *Dorcopsinema longispicularis* **sp.nov**. is most similar to *D. simile*, but can be distinguished from it in being a smaller worm with longer spicules and a relatively longer oesophagus, as well as in the form of the posterior lip of the genital cone, the form of the spicule tips and the spiked tip of the female tail. *Paralabiostrongylus rajampatensis* **sp.nov**. differs from its congener, *P. bicollaris*, in having the deirids and excretory pore at about the same level, and in the form of the dorsal ray, with lateral branches proximal to the bifurcation of the dorsal trunk, the relatively longerspicule with ala extending to the tip and the form of the posterior lip of the genital cone.

0463. **Purwaningsih, S**. **2010**. Isolasi, Populasi dan Karakterisasi *Rhizobium* pada Daerah Perakaran dan Tanah dari Bengkulu, Sumatera. *Biosfera,* 27(1): 46–52.

Abstract

A study was conducted in order to know the isolation, population and characterization of *Rhizobium* bacteria on the soil and rhizosphere plant from Bengkulu, Sumatra. The purpose of the study are to know the population of *Rhizobium* bacteria from rhizosphere plant, and the get pure culture. The sample was taken from 25 sample soil from rhizosphere of plant. Isolation was done in *Rhizobium* standart medium (YEMA) and the population was done with plate count methods. Incubation was done in room temperature of 27–28°C for 7 days. The results showed that the population of *Rhizobium* bacteria ranging between 18–87 X 10^5 CFU/g soil. The highest population from the rhizosphere is *Zea mays* plant. Among seventy five which gave pure culture,

The growth characteristic of pure culture was observed by using YEMA medium mixed respectively with Brom Thymol Blue and Congo Red as indicators. Among seventy five which gave culture pure, nine isolates can be grouped as slow growing, while sixty six can be grouped as fast growing.

0464. **Purwaningsih, S. 2012**. Isolasi, Populasi dan Karakterisasi Bakteri Pelarut Fosfat pada Daerah Perakaran dan Tanah dari Bengkulu, Sumatra. *Jurnal Teknologi Lingkungan,* 13(1): 101–108.

Abstract

The research was conducted in order to know the isolation, population, and characterizations of phosphate solubilizing bacteria on the soil from rhizosphere plants from Bengkulu, Sumatra. The purpose of the study were to know the population of phosphate solubilizing bacteria from rhizosphere plants and the get pure culture. The sample was taken from 25 sample soil from rhizosphere of plants. Isolation was done with dilution methods in standard medium Pycosvkaya, the inculation at (27–28°C) after 15 days, and the population with plate count methods. The population of phosphate solubilizing bacteria was in the range of 13–101 X 10^5 CFU/g soil, and the highest population was found from the sample soil from rhizoaphere with Semangka (*Citrulus lanatus*) plant. Seventy five gave of pure culture. The growth characteristic of pure culture was observed by using Pycosvkaya medium. Incubation at (27–28°C) after 15 days. The clear zone surrounding the colonies indicated that the phosphate in the medium was hydrolyzed and the formed zone from two days until eight days.

0465. **Purwaningsih, S.** & **Saefudin**. **2012**. Pengaruh Inokulasi Bakteri Penambat Nitrogen terhadap Pertumbuhan dan Hasil panen Kedelai (*Glycine max* L). *Jurnal Teknologi Lingkungan,* Edisi Khusus "Hari Bumi" April 2012. Hlm.13–20.

Abstract

This study is an experiment on the effect of nitrogen fixing bacteria inoculation on the growth and yield of Glycine max L. The purpose of the study was to get of nitrogen fixing bacteria to improve the growth and production of *Glycine max* L.

The experiment was carried out in garden land from Cibinong, Research Center for Biology-LIPI, 1,5 X 1 m for each plot treatments, with total 30 plot. The experiment was designed as Randomized Complete Block Design as 10 treatments with three replications for each treatments, and interval planted with 20 X 20 cm.

The strain used five single inoculants were as follow: A = Y20R, B = Y64R, C = Y278R, D = Y273R, E = Y 284R and three mixed inoculants as: F = (campuran A-E), G = campuran Azotobacter dan Azospirillum, H = campuran dari Rhizobium(F) + Azotobacter + Azospirillum. The controls as uninoculated

plant without urea fertilizer (K_1) and uninoculated plant with urea ferlitizer equal 100 kg/ha (K_2).

The plant were harvested after 80 days. The parameters of investigation were the high plant, number of leave (2, 4, 6, 8, and 10 week), the dry weight of canopy, roots, root nodules, number of pods, and number of seeds.

The results showed that all of the nitrogen fixing bacteria inoculants affected the plant growth and productions significantly. Strain of H (Rhizobium (F) + Azotobacter + Azospirillum) have given better results on the growth and production of *Glycine max* L., while single strain have given the better results on the growth and production of *Glycine max* L.

0466. **Purwanto, Y. 2011.** Analisis Nilai Kepentingan Budaya Hasil Hutan Bukan Kayu untuk Valuasi Potensi dan Kemungkinan Pengembangannya. *Dalam:* Purwanto, Y., E. B. Walujo & A. Wahyudi (editor). *Valuasi Hasil Hutan Bukan Kayu Kawasan Konservasi PT Wira Karya Sakti Jambi*. Jakarta: LIPI Press. 121–143.

Abstract

The study on utilization of non timber forest products (NTFPs) analyzed by Index of Cultural Significance (ICS) was done in PT Wirakarya Sakti Concession area. The aim of this study is to identify of NTFPs that have highest importance value to local society. Results of this study are (1) List of NTFPs diversity used by Malay society in surrounding P.T Wirakarya Sakti concession area, Jambi; (2) List of NTFPs as a source of fruit producer crop, medicinal plant, playwood and pulp materials, equipments materials and other local technology and artistic; and (3) Basic data for economic valuation study of NTFPs. Result of this study is presented in this article.

0467. **Purwanto, Y.,** R. Saparita & E. Munawaroh. **2011.** *Keanekaragaman Jenis Hasil Hutan non-Kayu Berpotensi Ekonomi dan Cara Pengembangannya di Kabupaten Malinau*. LIPI Press. Hlm. 268.

Abstrak

Tidak ada abstrak

0468. **Purwanto, Y.** & E. Sukara. **2011.** Hasil Hutan non-Kayu (NTFPs): Terminologi dan Perannya Bagi Masyarakat di Sekitar Hutan. Dalam Purwanto, Y., E. B. Walujo & A. Wahyudi (editor). *Valuasi Hasil Hutan Bukan Kayu Kawasan Konservasi P.T. Wira Karya Sakti Jambi*. Jakarta: LIPI Press. 12–48.

Abstract

The use of Non Timber Forest Products (NTFPs) for local people are as source of food, medicine, local technology, art, poison and anti poison, ritual and also other natural products. That NTFPs role for local people ranges from 10–80% from overall need of the society. During that time, forest is viewed

as a timber source only because it gives a high devisa for the country. In fact, some people only take this benefit, while the local people are as audience. Management and utilization of NTFPs is an alternative management of forest resource, so that it can be more conservative and it can give more advantages for local society. In this article, the writers give a detailed analysis on the definition of NTFPs and its role in local society life surrounding forest.

0469. **Purwanto, Y. & E.B. Walujo. 2011.** Rancangan Studi Valuasi Hasil Hutan Bukan Kayu Bahan Bangunan (*Non Timber Forests Products* NTFPs) di Hutan Bekas Logging: Pendekatan Multidisiplin Pengelolaan Keanekaragaman Hayati. *Dalam Purwanto, Y., E. B. Walujo & A. Wahyudi (editor). Valuasi Hasil Hutan Bukan Kayu Kawasan Konservasi PT Wira Karya Sakti Jambi*. Jakarta: LIPI Press. 1–11.

Abstract

Study of Non Timber Forest Products (NTFPs) was conducted in conservation area of PT Wirakarya Sakti Jambi in 2001–2004. This area represent 10% of concession area which must be protected as conserved area. It is a forest after being logged for about 20 years ago. The Malay people who live surrounding the concession area of PT Wirakarya Sakti is the focus of this study. This study covers etnobiology, ecology, sosial economics, plant diversity, and other aspects related to management of the protected area. Main target of this study to have more information on the diversity of Non Timber Forest products, its role, its potency, and also the method of its management. To realize this objectives, an interdisciplinary approach and establishing permanent plot as basic information are carried out in order to identify and characterize NTFPs after forest logging. This article will present the background, target of research, method, and some aspects related to this study.

0470. **Purwanto, Y., E. B. Walujo & E. Munawaroh. 2011.** The Diversity and the Used of Benzoin (*Styrax* spp.) in Sumatra. *Dalam:* Purwanto, Y., E. B. Walujo & A. Wahyudi (editor). *Valuasi Hasil Hutan Bukan Kayu Kawasan Konservasi PT Wira Karya Sakti Jambi*. Jakarta: LIPI Press. 189–202.

Abstract

This article deals with the observations made in a field research in North Sumatra (Toba, Dolok Sanggul, Sarulla Valley, North Tapanuli), South Sumatra and Jambi, concerning the traditional agricultural system, extraction activities, and the used of benzoin. The Society of Sumatra (North Sumatra) classify three kinds of benzoin tree according to the quality of resin, i.e., *hamijon toba*, *hamijon durame* and *hamijon bulu*. *Hamijon toba* is identified as Syrax paralleloneurum Perk., which is cultivated at locations above 100 m contour and produce the best quality resin. *Hamijon durame* is cultivated at lower elevation site 500–1000 m. and produces a lower quality material. It can be identified as Styrax benzoin Dryand. Meanwhile, *Hamijon bulu* has not been exactly identified, but concerning the morphology and habitat of the tree and

the characters of its resin, it seems to suggest that it may be a kind of natural hybrid of the two species referredto above. The resin can be obtained from the trees of 6–70 years of age. The quality of the resin is primarily determined by the species of benzoin tree. The older the trees, however, the lesser the amount of high grade resins. The commercial blend-benzoins are manufactured by blending different quality resins in various proportions. Even the dammar, a non benzoin material, is mixed to fairly high percentages.

0471. **Purwanto, Y., E.B. Walujo** & A. Wahyudi (Editors). **2011.** *Keanekaragaman Jenis Hasil Hutan Bukan Kayu Kawasan Lindung PT Wirakarya Sakti, Provinsi Jambi*. Komite Nasional Program MAB, LIPI, & Sinarmas Forestry. LIPI Press. ISBN. 979-799-125-3

Abstrak

Tidak ada abstrak

0472. **Purwanto, Y**., **H. Rustiami, F.M. Setyowati** & **E.B. Walujo. 2011**. Keanekaragaman Jenis Rotan di Kawasan Lindung PT Wirakarya Sakti, Jambi. *Dalam:* Y. Purwanto, E.B. Walujo & A. Wahyudi (eds.). *Keanekaragaman jenis hasil hutan bukan kayu, kawasan lindung PT Wirakarya Sakti, Provinsi Jambi*. Hlm. 290–319.

Abstrak

Tidak ada abstrak

0473. **Purwanto, Y., E.B. Walujo** & J.J. Afriastini. **2011.** Keanekaragaman Jenis Hasil Hutan Bukan Kayu di Plot Permanen di Areal PT Wirakarya Sakti, Jambi. *Dalam:* Purwanto, Y., E. B. Walujo & A. Wahyudi (editor). *Valuasi Hasil Hutan Bukan Kayu Kawasan Konservasi PT Wira Karya Sakti Jambi*. Jakarta: LIPI Press. 73–90.

Abstract

Study on diversity of non timber forest products (NTFPs) in conservation area of PT Wirakarya Sakti represent the part of project research on "Economic Valuation of Non Timber Forest Products (NTFPs): Multidisciplinary Approach of Biodiversity Management". In this study, the writers established two permanent plots and each is 1 ha. The study analyzed floristic diversity, identify useful plant species, non timber forest products diversity, and study ethnobotany on Malay society around the concession area of PT Wirakarya Sakti, Jambi. The study resulted on the tree composition which had diameter up to 10 cm in the permanent plot 1 ha. The writers accounted about 171 species of trees. The trees species predominating this area were *Hydocarpus polycephala*, *Parashorea aptera*, *Pentaspadon motleyi*, *Pimelodendron griffittii*, *Santiria rubiginosa*, *Artocarpus kemando*, *Dysoxylum ridgewayi*, *Diospyros* sp., *Knema cinerea*, *Nephelium maingayii* and *M. Uncinatum*, *Shorea* spp., *Syzygium* and others. The identification result of the useful plant species noted more than

300 plant species exploited by Malay society around the area. From a number of useful plant species which recognized by the society, only about 5% is used in their daily life as firewood, food, construction, equipments, medicine, ritual, and others. The NTFPs diversity found in the permanent plot are fruits (35 species), vegetable (17 species), spices and flavor (6 species), cane and rattan (8 species), drug (>35 species), poison (2 species), firewood (30–45 species) and honeybee (1 species).

0474. **Purwanto, Y. 2012.** The Ethnobotanical Study of Pandanaceae in Papua and Papua Barat, Indonesia. *Berita Biologi* 11(1-a): 123–141.

Abstract

The ethnobotanical study of Pandanaceae in the Indonesian Provinces of Papua Barat was proceeded in the Dani-Baliem Valley during five years started in 1990 as a part of the Ethnobiology research of Dani-Baliem society. This recent study records more than 66 taxa of Pandanaceae in Papua, in which many, mainly from the genus *Pandanus* are used by the local communities as sources of food, medicine, handicraft, ornamental plant, and building materials. The plants offer a wide range of environmental purposes including control of coastal erosion, windbreak, protection of food crops from salt spray, soil fertility and organic matter levels improvements, shading and nesting ground for birds. This paper described the results of ethnobiological analyses of Pandanaceae found in Baliem Valley, Timika, Cyclops Mountain, Yapen Island, and Raja Ampat Archipelago.

0475. Purwantoro, R.S., **A. Agusta** & **Praptiwi. 2011.** Aktivitas Antibakteri Ekstrak Daun *Schefflera elliptica* (Blume) Harms. *Prosiding Seminar Nasional HUT Kebun Raya Cibodas ke-159 "Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan". Cibodas, 7 April 2011*: 406–410

Abstract

The antibacterial activity of n-hexane, ethyl acetate, and methanol extracts of *Schefflera elliptica* (Blume) Harms. againsts *Eschericia coli* (NBRC 14237) and *Staphylococcus aureus* (NBRC 14276) have been studied through Agar Dilition Method. The results showed that the ethyl acetate extract inhibited the growth of *S. aureus* at the concentration of 50, 100, and 200 mg/ml. Meanwhile n-hexane extract did not show antibacterial activity at tested concentrations.

0476. Puspitasari, R.T., N. Sukarno**, K. Kramadibrata** & D. Setiadi. **2010.** Identifikasi Jamur Mikoriza Arbuskula Asal Hutan Pantai Ujung Genteng, Sukabumi, Jawa Barat. *Dalam: H. Semangun, F. Karwur, M. Martosupono, S. Notosoedarmo (eds.). 2010. Cakrawala Pemikiran Teori Evolusi Dewasa ini (Prosiding).* Salatiga: Universitas Kristen Satya Wacana, Program Studi Magister Biologi.

Abstract

Arbuscular mycorrhizal fungi (AMF) are not included in the phyllum of Zygomycota, but it should be classified in the new phyllum of Glomeromycota. In general, AMF are obligate symbiont which increase the ability of plants to survive in saline and critical habitat. This research was to identify AMF symbiont on the host plant roots at coastal forest in Ujung Genteng, Sukabumi. Three series of experimental observations were carried out in this experiment to identify the AMF. The field samples are seedlings of the field plant, pot culture of *Pueraria phaseoloides*, and *Sorghum* sp. as a host. Twenty three AMF species from 45 plant rizosphere were identified. The fungi belong to five species of *Acaulospora*, two species of *Gigaspora*, 13 species of *Glomus*, one species of *Paraglomus*, and two species of *Scutellospora*.

0477. Puspitasari, R.T., N. Sukarno, **K. Kramadibrata** & D. Setiadi. **2011.** Keanekaragaman Fungi Mikoriza Arbuskula (FMA) di Hutan Pantai Ujung Genteng, Sukabumi-Jawa Barat. *Prosiding Seminar Nasional Mikoriza II. Percepatan sosialisasi teknologi mikoriza untuk mendukung revitalisasi pertanian, perkebunan dan kehutanan*. Bogor, 17–21 Juli 2007. SEAMEO BIOTROP Southeast Asian regional Centre for Tropical Biology. Hlm. 198–209.

Abstract

This study was aimed to explore the diversity and distribution of AMF on the vegetation at coastal forest and their correlation with salinity at Ujung Genteng, Sukabumi, West Java. The study was conducted at field, green house, and laboratory. Vegetation analysis on seedling, sapling, and tree were taken. Soil samples were analysed for physic, chemist, and salinity. Isolation and identification of AMF were done at the laboratory. The results illustrated 23 species of AMF from 45 rhizosperes namely *Acaulospora* (5), *Gigaspora* (2), *Glomus* (13), *Paraglomus* (1), and *Scutellospora* (2). *Glomus geosporum* is dominant and wide distribution (16,5–23.7%). *Glomus etunicatum*, *A. foveata*, *A. longula*, *A. scrobiculata*, *A. tuberculata*, and *Scutellospora auriglobosa* were found as higher as the others species at the field. Vegetation analysis presented 68 plant species from 40 families at Ujung genteng. *Dysoxyllum parasiticum* and *Piper* cf. *baccatum* were most dominant. This study concluded that no correlation between plant to AMF diversity. The AMF diversity was more caused by graduated of salinity.

0478. **Rachman, E.** & **Tihurua, E.F. 2011**. Pertumbuhan In Vivo Buluh Serbuk Sari dalam Stigma Ginseng Jawa *(Talinum triangulare*) Pasca Penyerbukan Buatan: Efek Donor Serbuk Sari. *Jurnal Teknologi Indonesia* 34: 17–23

Abstract

Talinum triangulare Wild. pollen were germinated in vivo in the stigma with three hand pollination treatments based on pollen donor in order to know its germination rate and if the pollen tube growth rate affected by pollen origin. Flower buds were picked at prior to anthesis time and let them to be anthesized

in laboratory condition. The three pollination treatments were directly executed at full anthesis stage and four different incubation times: 5, 10, 15, and 20 minutes. The experiment was conducted twice with about one month interval between November and December 2008. Significantly different pollen tube growth rate was only showed between stigma pollinated by pollen neighbor flowers of same individual and stigma pollinated by pollen from next individual plant. The highest final pollen germination level and tube growth rate was resulted by hand pollination with pollen from neighbor flowers of the same individual called geitonogamy (54.48% and 9.081 μm per minute). The second highest was pollination with pollen from the flower itself called autogamy (45.92% and 6.806 μm per minute). The lowest was hand pollination with pollen from flowers of outside individual called exogamy (39.61% and 3.525 μm per minute). Stagnated growth of pollen tubes after pollination with outside pollen in exogamy at first minutes of incubation may be related to individual adaptation.

0479. **Rachman, E., Tihurua, E.F.** & **Sunaryo. 2012**. Keanekaragaman dan Penyebaran Gall di Kebun Raya Bogor. *Buletin Kebun Raya* 15(2): 93–101.

Abstract

In order to know the habitat preference gradation for gall-forming insects from the border to the middle of the habitat or more precisely the edge effect on the galling existence and the expansion ability of local gall to infect on non indigenous species, observation of all plant life collections block by block in the Bogor Botanic Gardens were done. Host plant and galling insect species composition differed quite characterictically between the edge and the interior of paths, but did not for galling insect richness. Insect gall richness was expressed as the ratio between insect gall and host plant richness (gall per plant ratio) and in the same time a weak relationship of insect species-area was found. The research results suggests that the number of galling insects per individual plant is not affected by the size of the patch. Despite these results, the natural forest patches found in this region seem well-suited for long-term studies addressing species-area relationships.

0480. **Rachmatika, R. 2011.** Behavior and Feed Intake Bayan (*Eclectus roratus*) during the Breeding Season, Brood Season, and Rearing Season. *Zoo Indonesia* 20(2): 34–42.

Abstract

Successful breeding can not be separated from the feed and behavioral aspects. The aim of the research is to examine differences on behavior and feed intake during the breeding season, brood season, and rearing season. This research used a pair of eclectus parrot in the Bird Captive Breeding, Research Center for Biology-LIPI. Feed intake and behavioral observations were conducted during breeding season for 15 days, brood season during 15 days, and rearing season during 15 days. Behaviour was observed using focal sampling method

with continuous recording. Feed was provided by ad libitum. The results show that sexual behavior increase in male and female during breeding season, nesting behavior increase in females in the brood season, and eating behavior is increased in males and females during rearing season. Feed intake during breeding season is 72.11 g/pair/day, during brood season is 55.26 g/pair/day, and during rearing season 102.67 g/group/day.

0481. **Rachmatika, R. 2012.** Natural Diets of Emerald Dove (*Chalcophaps indica*) at Cikepuh Wildlife Reserve. *Fauna Indonesia* 11(1): 6–10.

Abstract

A research to investigate the natural diet of Emerald Dove (*Chalcophaps indica*) was carried out at Cikepuh Wildlife Reserve on 2–8 December 2010. Feeding activity was observed and crop samples were collected and further analyzed using proximate analysis. The natural diet of this bird is fruits of Kiara (*Ficus gibbosa*), Pintinu (*Flueggia virosa*), Sulangkar (*Leea aequata*), Engsrek (*Passiflora foetida*), Ki tanah (*Leea rubra*) and seeds of Jente (*Lantana camara*) and Dadap (*Mallotus tiliaefolius*). Several nutritions variables that were measured i.e dry weight, ash, protein, fat, crude fiber, BETN and energy showed that Dadap had the highest dry weight (95.3%), protein (16.4%), crude fiber (57.23%), and energy (5577 kal/g). Sulangkar contained the highest ash (17.39%). Meanwhile, Engsrek had the highest fat (9.84%) and BETN (28.56%).

0482. **Rachmatika, R. 2012.** Perilaku Kakatua Maluku (*Cacatua moluccensis*, Gmelin 1788) pada Masa Memelihara Anak. *Fauna Indonesia* 13: 35–38.

Abstract

One of the important aspects in breeding program is behavior. This experiment was conducted to study daily behavior of Moluccan cockatoo (*Cacatua moluccensis*) in the rearing period in captivity. A pair in rearing period was observed for 14 days using scan sampling method. Feed restricted was used in this observation. The result showed the order of daily behavior is roost (42,1%), vocalization (23,6%), feeding (23,2%), nestling (6,6%), grooming (2,7%), and flying (1,8%).

0483. **Rahajoe, J.S.** & Chumairoh**. 2011.** Input Karbon dan Nitrogen via Gugur Seresah di Hutan Dataran Rendah Taman Nasional Gunung Gede Pangrango. *Prosiding Seminar Nasional HUT Kebun Raya Cibodas ke-159*. Hlm. 216–219.

Abstract

Carbon and nitrogen input through litterfall was measured in the lowland forest of Gunung Gede Pangrango National Park. The litterfall was collected by using littertrap. Twenty littertraps were installed in the permanent plots established and were monitored for one year period, with monthly sampling time. The litterfall was claasified into five components, there were leaves, branches (diameter < 2 cm), stems (diameter > 2 cm), reproductive parts, and

others materials. The total carbon input in the ecosystem was recorded for 3736 ± 789 kg ha-1 y-1 and that was of nitrogen 174.67 ± 7.02 kg ha-1 y-1. The highest C and N input recorded was from *Nauclea lanceolata* and that was significantly higher during rainy season than that of the dry season at $p < 0.05$.

0484. Rahajoe S.T. dan **R. Polosakan**. 2012. Structure and Species Composition in the Low Disturbance Peat Swamp Forest in Bawan Village, Central Kalimantan. *Proceeding of the International Workshop on "Suitable management of bioresources in tropical peat-swamp forest" Cibinong.* Hlm. 130–136.

Abstract

Tree structure and species composition of the peat swamp forest research was carried out in the bawan village, central Kalimantan.The aim of the study is to determine the tree species composition in the low disturbance peat swamp forest. Fourty-five species were recorded belonging to 32 genera and 21 families. The tree density were 622 in 0.5 ha^{-1}.The tree species having higher important value were *Calophyllum cf.calcicola* (imfortant value = 48.36%), *Hopea ferruginea* (IV=29.90%), *Ternstroemia aneura* (IV=27.16%), *Neoscortechinia kingie* (IV= 26.55%), *Stemonurus secundiflorus* (IV=26.24%) and *Shorea brunesscens* (IV=21.01%). Important plant families were: Dipterocarpacea, Euphobiaceae and Myrtaceae.

0485. **Rahajoe, J.S.**, **L. Alhamd,** T.D. Atikah, B.A. Pratama, **Suhardjono**, S. Shiodera & K. Takashi. **2013.** Floristic Diversity and the Distribution of Selected Species in the Peatland Ecosystem in Central Kalimantan. *Proceedings of International Symposium on Wild Fire and Carbon Management in Peat-Forest in Indonesia* 2013: 62–66

Abstract

No abstract available

0486. **Rahayu, M.** & **Rugayah. 2010.** Pengetahuan Lokal dan Pemanfaatan Tumbuhan oleh Masyarakat Lokal Pulau Kabaena–Sulawesi Tenggara. *Berita Biologi* 10(1): 67–75.

Abstract

An ethnobotanical research focusing on the local people Maronene of the Wumbu Buro village, eastern part of Kabaena island, South East Sulawesi, was carried out using semi structural interviews and field observation. The local people practiced a traditional agricultural system. The results indicated that maize *Zea mays* L., rice *Oryza sativa* L. and some other vegetable plants become the first priority species planted before cultivating horticultural plants such as cashew *Anacardium occidentale* L., cacao *Theobroma cacao* L. and coconut *Cocos nucifera* L. A total of 65 plant species were used by the local people for their daily needs, such as for food, utensil, roof, waving, medicine, and cosmetic

purposes including a plant species used for harvesting the palm sugar. The indigenous knowledge owned by the local people in utilizing plant spesies is discussed.

0487. **Rahayu, M., H.M. Sangat** & **V.B. Lestari. 2011.** The Ethnobotanical Aspects of *Curcuma* spp. in Javanese Traditional Medicine. *Proceedings The 2nd International Symposium on Temulawak*: 29–33.

Abstract

The Javanese traditional medicine or *jamu* is becoming very popular now. There are so many kinds of *jamu* recipes prepared by various methods and for different purposes and uses. In the Indonesia community, *Jamu* is generally accepted by the Indonesia community due to its high potency and effectiveness for increasing the body's resistance against infections, illnesses, and also in helping maintaining its balance and stability. Field observation showed that about 90% this type of Javanese traditional medicine and cosmetic sold in domestic market contain substance derived from rhizomes *Curcuma* spp. the Indonesia *jamu* and traditional cosmetics, which use *Curcuma* as one of their ingredients are being analyzed for ethnobotanical or ethnopharmacological aspects.

0488. **Rahayu, M., S. Susiarti** & **M.F. Royyani. 2011.** Food Resources and Local Knowledge of Tobelo Dalam People. In: Iswaldi, I. *et al.* (Eds.). *Proc. The 1st Acikita Int. Conf. of Secience and Technology*. Acikita Foundation. Jakarta, July 25–27, 2011. pp. 182–188.

Abstract

Ethnobotany studies plant species diversity utilization of food by Tobelo Dalam people or Togutil in the village of Koli, Halmahera Island–North Maluku conducted in June 2010. Data were collected by using open and non-structural interviews to local residents as well as direct observation in the field. Tobelo Dalam Tribe is a nomadic society with the main livelihood of hunting and fishing in rivers. It was recorded that no fewer than 40 species plants, 9 species are source of carbohydrates, 9 species are flavoring ingredient of cuisine, 5 species are vegetables, and 18 species are fruits. Two species of plant sources of carbohydrates such as *Arenga microcarpa* and *Metroxylon sago* originated from Indonesia. Local interaction with the outside community/transmigration is one of the causes of changes in diet pattern from sago comsumption to bulbs and cereal. The local knowledge of at least the species of vegetables and species is associated with the main livelihood.

0489. **Rahayu, M., S. Sunarti** & **Rugayah. 2011.** Perawatan Paska Persalinan: Studi Etnofarmakologi Masyarakat Lokal Desa Tanjung Lame dan Legon Pakis, Ujung Kulon–Banten. *Jurnal Bahan Alam Indonesia* 7(7): 351–354 .

Abstract

Ethnofarmalogical study was conducted at Tanjung Lame and Legon Pakis District, Ujung Kulon National Park in 2007. At least 40 plant species have been utilized by Sundanese at this area for post partum care. Those species are mostly wild as weedy on agriculture plant. Common species used are *Blumea balsamifera, Carica papaya, Centellla asiatica, Curcuma longa, C. xanthorrhiza, Cymbopogon nardus, Imperata cylindrica, Myristica fragrans, Parameria laevigata, Pilea trinervia, Piper belte, P. nigrum, Plectranthus scutellariodes, Pluchea indica, Polyscias fruticosa, Punica granatum, Sauropus androgynus, Syzygium aromaticum* and *Tinospora crispa.* Mengkudu or *Morinda citrifolia* is one species used for that purpose in other location but none in this area.

0490. **Rahayu, M., Y. Purwanto** & **S. Susiarti. 2012**. Nilai Kepentingan Budaya Keanekaragaman Jenis Tumbuhan Berguna di Hutan Dataran Rendah Bodogol, Sukabumi, Jawa Barat. *Berita Biologi* 11(3): 313–320.

Abstract

Indez Cultural Significance (ICS) of useful plants diversity in ethnobotanical study is an important step, such as activity strategy which have subsystem aspect and traditional classification. Ethnobotany study Bodogol lowland forest, West Java recorded more than 200 useful plants species within 3 times visits in 2009 to 2010. Data collection was done by "walk in the wood", interview method, direct observation in permanent plots, and estimation of Index Cultural Significance (ICS) form. Result of the study indicated that indigenous people around Bodogol lowland forest has good knowledge about biodiversity around them. Based on interview method, this study showed that index cultural significance of useful plants in this area was in the range of 0.5 and 86. Kawung {*Arenga* pinnata (Wurmb) Merr.} has highest ICS whilst Acung leutik (*Arisaema filiforme* BI.) is the lowest.

0491. **Rahayu, R.D., A. Dinoto, J. Sulistyo** & **S. Purwaningsih. 2011.** Aktivitas Proteolitik dan Anti-hipertensi Susu Kedelai yang Difermentasi oleh *Lactobacillus plantarum* Ap1 dan *Spingobacterium* Sb Tb17. *Berkala Penelitian Hayati*. Edisi Khusus No.4C Tahun 2011. Hlm. 19–24.

Abstract

Soy milk fermentation experiments had been conducted on laboratory scale using inoculant of *Lactobacillus plantarum* AP1 and *Spingobacterium* sp TB 17. The results showed that non-fermented soy milk has the highest protease activity of 18.68 units/ml, followed by soy milk fermented by S*pingobacterium* Sb Tb17 of 9.72 units/ml, and soy milk fermented by *Lactobacillus plantarum* AP1 (5.88 units/ml), while comercial soy milk fermented by *Lactobacillus plantarum* AP1 showed no protease activity. Results for assay of anti–hypertension in commercial soy milk, showed that in the control and the treatment of API exhibited no difference in activity to the reduction of hypertantion, whereas in treatment using the isolate TB17, showed the influence of hyper-

tansion decreased by 13.3 to 16.19%, either on a commercial soy milk or on laboratory production soy milk. Other results showed that the glucose content in the fermented soybean milk was lower compared to the non-fermented soy milk. These results gave a good indication about the benefits of low calories of soy milk.

0492. **Rahayu, R.D., J. Sulistyo, R. Handayani** & **A. Dinoto**. **2011**. Ekstraksi Minyak Kelapa Secara Enzimatik oleh Kapang, Kamir dan Bakteri. *Berkala Penelitian Hayati* Edisi Khusus No.4C Tahun 2011. Hlm. 59–63

Abstract

To understand the enzimatic capacities for coconut oil extraction, three microbial isolates representing *Aspergillus oryzae* KIA (mold). *Candida rugosa* K2A (Yeast), and *Lactobacillus plantarum* K3A (Bacteria) were compared. This study confirmed that all tested starins produced amylase, protease, and lypase. However, among tested starins, *Lactobacillus plantarum* K3A showed the higest activities of amylase and protease reaching 1.0 IU/ml and 2.5 IU/ml, respectively, under the laboratorial condition. As predicted, those enzymes were related to oil extraction yielding the highest oil recovery from coconut milk as much of 24.5% (V/v)

0493. **Rahayu, R.D., A. Nurkanto**, **J. Sulistyo** & **A. Dinoto. 2012**. Ekstraksi Beta Karoten Sel Tunggal yang Mempunyai Aktivitas Antioksidan. *Prosiding Seminar Nasional XXI* Perhimpunan Biologi Indonesia. Hlm. 422–425.

Abstrak

Produksi betakaroten menggunakan biakan khamir (*Phaffia rhodozyma, Rhodotorula minuta*) dan kapang (*Neurosphora sitophylla, Monascus purpureus*) pada media air kelapa dan sukrosa. Kadar betakaroten tertinggi pada *Phaffia rhodozyma* dalam inkubasi 168 jam dengan rata-rata jumlah pigmen sebesar 46.12 µg/g dibandingkan dengan *Monascus purpureus*, *Rhodotorula minuta* dan *Neurosphora sitophylla*. Nilai IC_{50} sebesar 9,9896 µg/ml dengan adanya penurunan serapan terhadap DPPH terhadap samapel setiap 5 menit selama 30 menit. Penurunan ini menunjukkan bahawa aktivitas antioksidan ekstrak *Neurosphora sitophylla* adalah 22 kali lebih lemah dibandingkan dengan daya antioksidan vitamin C. Sementara itu, kapang mempunyai konsentrasi konsumsi gula dan mengalami penurunan seiring dengan lamanya waktu inkubasi, sedangkan pada khamir sebaliknya.

0494. **Rahayu, R.D., J. Sulistyo**, **A. Dinoto**, **S. Purwaningsih** & **S. Saputra**. **2013.** Uji Coba Pakan Fermentasi pada Sapi Bali di Desa Banyumulek, Lombok Barat–NTB. *Prosiding Seminar Nasional Teknologi Peternakan "Membangun Center of Excellent untuk Pengembangan Industri Peternakan Menuju Swasembada Daging Nasional"*. Jakarta, 3 Juni 2013 ISBN: 978–602–98275–1–4. Hlm. 133–140.

Abstrak

Bioaktivator sebagai starter enzimatik berbentuk cair yang mengandung karotenoid sel tunggal (KST), probiotik, dan protein sel tunggal (PST) hasil pengembangan di Laboratorium Bioprospeksi, Bidang Mikrobiologi, Pusat Penelitian Biologi LIPI, masing-masing diproduksi dari biakan *Phaffia rhodozyma*, *Lactobacillus plantarum,* dan *Saccharomyces cerevisiae.* Pembuatan stater enzimatik berbentuk padat, diproduksi menggunakan substrat dedak padi dengan penambahan ketiga macam starter cair sebanyak 2,5% (v/w) dan 5% (v/w). Produksi pakan ternak konsentrat yang difermentasi, dilakukan dengan menambahkan stater padat sebanyak 1% (w/w) terhadap bahan baku pakan konsentrat yang berasal dari sumber daya lokal. Hasil analisis menunjukkan bahwa kandungan protein pakan konsentrat yang difermentasi menggunakan starter yang mengandung bioaktivator 2,5% adalah 13,50%, sedangkan hasil fermentasi menggunakan starter mengandung bioaktivator 5% adalah 14,60%. Adapun hasil analisis kandungan protein pada pakan konsentrat yang tidak difermentasi adalah 8,11%. Hasil uji coba pemanfaatan pakan konsentrat yang telah difermentasi menunjukkan hasil yang cukup signifikan. Rata-rata peningkatan bobot badan sapi (ADG) mencapai 1,102 kg per hari setelah diberi pakan selama 72 hari pengujian.

0495. Rahayu, S., M. Yusuf, Suharsono, C. Kusmana & **R. Abdulhadi. 2010**. Morphological Variation of *Hoya multiflora* Blume at Different Habitat Type of Bodogol Research Station, Gunung Gede National Park, Indonesia. *Biodiversitas* 11(4): 182–193.

Abstract

Hoya multiflora Blume (Asclepiadaceae) is an Asiatic tropical Epiphytic shurb which has been utilized as ornamental plant and reported to possess medicinal properties. The aim of this study is to evaluate the morphological variation of *Hoya multiflora* populations at different habitat types of Bodogol Research Station of Gunung Gede Pangrango National Park in Indonesia. This study collected 48 samples from three sub populations with six different habitat types. Morphological variation was found in stem, leave, and inflorescence. According to the discriminant and cluster analysis, the 48 samples were separated into three groups at 12% dissimilarity. The groups were determined by canopy cover degree.

0496. Rahayu, S., **R. Abdulhadi,** R.A. Risna & Y.W.C. Kusuma. **2011.** Keanekaragaman Habitat *Hoya multiflora* Blume di Stasiun Penelitian Bodogol, Taman Nasional Gunung Gede Pangrango. *Prosiding Seminar Nasional " Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan".* 367–372

Abstract

Hoya multiflora Blume (*Asclepiadaceae*) is one of valuable germplasms in Indonesia that has been widely utilized as an ornamental and medicinal plant. This epiphytic plant faces some problems in its natural population survivorship,

mainly due to habitat degradation. The study aims to understand the habitat diversity of *H. multiflora* in the Bodogol Area, Gunung Gede Pangrango National Park (GGPNP). According to writers' observation, this species distributed naturally from 700 to 900 m asl. The type of vegetation as its habitat was varied for species dominant and density. The habitat condition was varied at canopy cover (40–85%), light intensity (30–70%), temperature (22–32^{o}C), and humidity (70–98%). Light intensity, canopy cover, and temperature were the main factors on the presence of *H. multiflora* in Bodogol.

0497. **Rahmadi, C**. & J. Kojima. **2010.** Whip Spiders of the Genus *Sarax* in the Papuan Region, with Description of Two New Species (Amblypygi: Charinidae). *Journal of Arachnology* 38(3): 475–484.

Abstract

Three species of the genus *Sarax* are recognized in the Papuan region. Among them, two species, *Sarax newbritainensis*, new species from New Britain, and *S. monodenticulatus*, new species from Waigeo Island are described. *Sarax newbritainensis* resembles *S. willeyi* in having the same number of denticles on the pedipalpal tarsus, but they distinctly differ from each other in body size, form of carapace, length of legs, and number and arrangement of the trichobothria of tibia of leg IV. *Sarax monodenticulatus* is distinguished from the other two Papuan species by possessing a single denticle on the pedipalpal tarsus. The taxonomic status and the natural history of the species are discussed.

0498. **Rahmadi, C**., M.S. Harvey & J. Kojima. **2010.** Whip Spiders of the Genus *Sarax* Simon 1892 (Amblypygi: Charinidae) from Borneo Island. *Zootaxa* 2612: 1–21.

Abstract

Five species of the whip spider genus *Sarax* are recognized from Borneo, with the following four species newly described: *Sarax yayukae* **sp.nov.** from Sabah (Malaysia), West and Central Kalimantan (Indonesia), and three species from East Kalimantan, *S. cavernicola* **sp.nov.**, *S. sangkulirangensis* **sp.nov**., and *S. mardua* **sp.nov**. *Sarax mardua* and *S. cavernicola* have pale coloration, reduced eyes, and elongate legs suggesting troglomorphic adaptations to cave environments. The characters diagnosing the family Charinidae and the genus *Sarax* are discussed and revised. The distribution patterns of *Sarax* species in Southeast Asia, especially in Borneo Island are discussed in relation to their habitat preferences. The generic status of *Stygophrynus moultoni* Gravely 1915 (Charontidae) is briefly discussed.

0499. **Rahmadi, C. 2011**. Kekayaan Arthropoda Gua di Kawasan Karst Gunungsewu dan Jonggrangan– Mengapa Penting?. *Prosiding Workshop Ekosistem Karst "Berbagi Informasi untuk Meningkatkan Upaya Konservasi Kawasan Karst*

Gunungsewu dan Jonggrangan". Diselenggarakan oleh Pusat Penelitian Biologi-LIPI, BKSDA Yogyakarta, dan Yayasan Kanopi Indonesia. Hlm. 189–198.

Abstrak

Indonesia merupakan salah satu negara yang memiliki kawasan karst yang tersebar dari ujung barat Pulau Sumatra sampai ujung timur di Papua. Beberapa kawasan karst memiliki kekhasan dan keunikan bentang alam yang tiada dua. Kawasan karst di Jawa merupakan salah satu contoh kawasan yang memiliki keunikan tersebut sekaligus tekanan yang sangat tinggi akibat aktivitas manusia. Di Yogyakarta, terdapat kawasan karst yang cukup menarik secara biologi yaitu Gunungsewu dan Jonggrangan di Pegunungan Menoreh. Keberadaan gua-gua yang berkembang di dalam kawasan tersebut menyimpan potensi biologi yang belum banyak tergali terutama kelompok fauna seperti arthropoda gua. Catatan jenis baru yang khas dan endemik banyak ditemukan di Gunungsewu seperti kepiting gua, udang gua, isopoda gua, dan kelompok lainnya. Sementara itu, di Jonggrangan temuan terakhir yang paling menarik adalah laba-laba jenis baru yang memiliki mata kecil dan telah menunjukkan adaptasi pada lingkungan gua yaitu *Amauropelma matakecil* Miller & Rahmadi 2012. Berdasarkan komposisi invertebrata gua di Gunungsewu, Suhardjono dkk. (2001) melaporkan 29 jenis arthropoda gua. Menurut Rahmadi (2005), paling sedikit ada 45 jenis yang meliputi delapan jenis troglobit dan tiga jenis stigobit. Data terbaru Rahmadi (2011) melaporkan 46 jenis dan merupakan jumlah jenis terbanyak dari beberapa kawasan karst yang disurvei. Sebagai faktor penting, diharapkan pengetahuan biologi gua khususnya keanekaragaman jenis arthropoda dapat digunakan sebagai bahan pertimbangan pengelolaan kawasan karst seperti konservasi, khususnya Gunungsewu dan Jonggrangan.

0500. **Rahmadi, C. 2011.** The Biospeleology of Java Caves, Indonesia: A Review. In *Proceeding of Asian Trans-Disciplinary Karst Conference 2011*. pp. 241–250.

Abstract

No abstract available

0501. **Rahmadi, C.**, M.S. Harvey & J. Kojima. **2011.** The Status of the Whip Spider Subgenus *Neocharon* (Amblypygi: Charontidae) and the distribution of the Genera *Charon* and *Stygophrynus*. *Journal of Arachnology* 39(2): 223–229.

Abstract

The Solomon Island endemic species of Charontidae, *Stygophrynus (Neocharon) forsteri* Dunn 1949, is transferred to the genus *Charon*, thus forming the new combination *Charon forsteri* (Dunn 1949). The subgenus *Neocharon* is a junior synonym of *Charon*. The distribution of *Stygophrynus* is found to be restricted to Southeast Asia from southern Myanmar to Java, not spreading east of Wallace's Line. This study provides a full description, diagnosis, and numerous figures of *Charon forsteri*.

0502. **Rahmadi, C. 2012.** Bab 9. Artropoda Gua. *Dalam*: Suhardjono Y. R. & R. Ubaidillah (*eds*.). *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Puslit Biologi-LIPI, Cibinong. Jakarta: LIPI Press. 191–214.

Abstrak

Tidak ada abstrak

0503. Rahman, M.R.A., **A.S. Achmadi**, R.C.T. Tingga, & N.H. Hasan. **2010.** New Distributional Record of Rare *Coelops robinsoni* from Sarawak, Malaysian Borneo. *Journal of Tropical Biology and Conservation* 7:87–92.

Abstract

A specimen of the rare Lesser Tailless Roundleaf Bat, *Coelops robinsoni* was caught at the mouth of Lobang Gan Kira, one of the entrances to Niah Cave, Niah National Park (NNP) on 15thNovember 2008. This bat is a new record for the park and only the third record for Malaysian Borneo, the previous records being from the Deer Cave, Muluand Sarawak Planted Forest Zone (SPFZ), Bintulu Division. Detailed descriptions of the external morphology, skull, and dentitionare presented. Additional individuals of this species may occur in the cave as a potential roosting site was found on the cave ceiling approximately six meters above the floor and 300 m from the entrance. More information on this bat is crucial for immediate and effective conservation plans as this species is listed as vulnerable by the IUCN.

0504. Rahman, M.R.A., R.C.T. Tingga, N.H. Hasan, **S. Wiantoro, A.S. Achmadi**, E. Lit, B. Ketol, H.I. Husin & M.T. Abdullah. **2010.** Diversity of Bats in Two Protected Limestone Areas in Sarawak, Malaysia. *The Sarawak Museum Journal* LXVII (88): 209–246.

Abstract

An assesment of bats diversity from the two limestone protected area of Sarawak, Niah National Park (NP) and Wind Cave Nature Reserve (NR) was conducted from November 2007 until April 2009. The assesments were aimed at updating the current state of bats diversity in relation with previous studies done at limestone areas in Sarawak. Eight to twelve mistnets and three harp traps were used, with accumulated effort of 572 trap-nights for both Niah NP and Wind Cave (NR). A total of 1,520 individuals representing 36 species from 17 genera and 10 families were recorded. *Penthetor lucasi, Hipposideros cervinus*, and *Cynopterus brachyotis* were the three most abundant species captured in both sampling areas. Meanwhile, nine species of bats are new records for both areas. Seven out of nine are new records for the Niah NP; *Hipposideros ater, H. bicolor, H. cineraceus, Coelops robinsoni, Rhinolophus trifoliatus, Murina rozendali* and *Kerivoula hardwickei*, while *H. ridleyi* and *Tylonycteris robustula* are new records for Wind Cave NR. This present information is crucial for the future management and conservation of cave area by wildlife management agencies in Sarawak.

0505. **Rahmansyah, M.** & **I.M. Sudiana. 2010**. Soil Microbial Enzymatic Activity Relate to Role of Methanotrophic Bacteria in the Tropical Forest Soil of Gunung Salak National Park. *ARPN Journal of Agricultural and Biological Science* 5(2), March 2010.

Abstract

Study on link between soil enzymes activity and net methane emission from the tropical forest soil have not yet been intensively investigated. This observation was intended to elucidate the link between organic substrate hydrolyses, net methane emission, and possible role of soil microbial communities in the soil collected from the forest of Gunung Salak National Park. Microbial community structure of forest soil was reasonably divers, and several important functional microbial groups in soil could become indicator of environmental damage. Higher population of functional microbes of cellulolytic, amylolytic, proteolytic, and phosphate solubilizing bacteria, assumed to be positively maintain the ecological forest in the altitude of 1,000 to 900 m above sea level (als), compared to the lower of riparian soil that obtain from tea plantation areas at 800 m asl. Soil enzymatic activities (cellulase, amylase, invertase, urease, and phosphatase) hydrolyze polymer organic substrate to become soluble as importance soil nutrient. Along with continuous bio-processing, some nutrients could take turns to the carbon sources for both of methanogen and methanotrophic organism. Subsequently, the net methane emission likely was governed by polymeric substances hydrolyzing microbes and do to keep methanotrophic and methanogenic activities. In well preserved forest, methanotrophic bacteria were luxurious and controlling net methane emission from forest soil. Accordingly, forest ecosystem is not only important for maintaining ecosystem health but also important preserving microbial diversity and its genetic resources.

0506. **Rahmansyah, M.** & **I.M. Sudiana. 2010.** Production of Acid Phosphatase in *Bacillus* sp. Isolated from Forest Soil of Gunung Salak National Park. *Jurnal Biologi Indonesia* 6(3): 313–323.

Abstrak

Pada pengamatan ini dilakukan karakteristik bakteri pelarut fosfat yang diisolasi dari tanah hutan Taman Nasional Gunung Salak. Sebanyak 21 koloni hasil isolasi diuji terhadap produktivitas enzim fosfatase berdasar pelarutan media mengandung fosfat. Isolat yang terkuat melarutkan fosfat diidentifikasi sebagai *Bacillus* sp. Pada pengamatan lanjutan terhadap *strain* teruji yang dilakukan penumbuhan pada media cair selama 90 jam inkubasi dan hasilnya ternyata mampu melarutkan fosfat inorganik (Pi) dari sumber trikalsium fosfat (Ca-Pi) dan alumunium fosfat (Al-Pi) masing-masing pada kisaran 1,2 sampai 152 dan 0,8 sampai 25 mg.L-1; dan menunjukkan aktifitas enzim fosfomonoesterase antara 0,2 sampai 1,01 unit pada media yang mengandung larutan *para-nitrophenyl-phosphate* sebagai media fosfat organik (Po) artifisial. Konsumsi glukosa pada media yang diukur selama pertumbuhan sejalan pula dengan produk ortofosfat sebagai akibat adanya aktifitas enzim fosfatase. Peningkatan fosfatase

juga sejalan dengan bertambahnya biomassa sel bakteri dan penambahan produk asam glukonat. Penurunan pH dari 7 menjadi 5 diakibatkan peningkatan produk asam glukonat di dalam media tumbuh. Bakteri pelarut fosfat yang berasal dari tanah hutan Taman Nasional Gunung Salak dapat memproduksi fosfatase asam untuk memineralisasi sumber-sumber fosfat menjadi sumber nutrisi yang siap digunakan oleh akar tumbuhan dan itu merupakan prediksi kuat untuk menjadikan isolat bakteri pelarut fosfat sebagai sumber bahan pupuk hayati.

0507. **Rahmansyah, M**. & **I.M. Sudiana. 2012.** Enzymatic Activities in Soil of Paddy-rice Plantation with the System of Rice Intensification Reduce Methane Emission. *Berita Biologi* 11(1-a): 143–151.

Abstract

The writers work to support SRI (Rice Intensification System) technology was intended to evaluate the soil microbial enzyme activities, especially those responsible for mineralization function of C, N and P. Those enzymes as due to microbial function activity in paddy-field soil examined and compared between conventional method (T0) to SRI-technology. The SRI-technology with 3 treatments: fertilizer purposes (T1), organic substance enrichment (T2), and organic substance with biofertilizer augmentation containing phosphate-solubilizing bacteria (T3). There was significant fluctuation activities of soil enzymes amylase, cellulose, and urease both in SRI and conventional system, but positively stable in phosphatase activities at 10, 20, and 30 d.a.p. Augmentation of microorganism having phosphate solubilizing capacity show that phosphatase activities are important to phosphate mineralization. Best plant growth performance and seed yield is by T3. The relationship between soil enzyme activities and restraining methane emission is verified.

0508. **Rahmansyah, M., D. Agustiyani**, **H. Julistiono** & **T.K. Dewi. 2012**. Growth and Adaptation of Four *Streptomyces* Isolates in the Media Containing Propoxur. *ARPN Journal of Agricultural and Biological Science* 7(9), September 2012

Abstract

Actinomycetes growth in the media containing carbamates is an interesting subject associated to its adaptation and metabolism behavior. In this work, four isolates of *Streptomyces* spp. had been approved to grow and demean propoxur, a carbamates pesticide commonly uses to control pest insect. The *Streptomyces* spp. cultures were incubated for seven days in the media containing propoxur, and incubated in the rotary (50 rpm) shaker-bath at 350C. Microbial population calculated based on culture dry weight throughout separating supernatant and biomass sedimentation in the media with centrifugation work. Propoxur degradation evaluated during the isolates refined in yeast extract media containing starch (YSB) and without starch (YB), then the propoxur (0, 200, 600, 1200, and 1800 ppm) were added to the media. After a period of incubation, propoxur content in the media determined with hydrolysis to

become 2 isopropoxyphenol method, and with diazotized 3-aminopyridine processes turn into azo-dye forming which became visible in 463 nm absorbance by spectrophotometric exertion. Streptomyces growth actions showed differently among the culture, and YSB media tendentiously stimulated microbial growth performance compared to YB media. Media restrain with starch were tending to decrease propoxur content and stimulate growth performance, and proved in some certain growth behavior among Streptomyces spp. Decomposing of propoxur as due to microbial growth processes were investigated through the effect on maize seedling growth performance. Growth of Streptomyces sp.3 isolate along cultured with propoxur in the media then used to invigorate maize seedling growth improvement. Significant consequences to seedling dry weight of maize biomass appeared after ten days growth period of seedlings.

0509. **Rahmansyah, M., A. Sugiharto** & **I.M. Sudiana. 2013**. Pro-poor technology in Small Scale Farming for Adaptation to Climate Anomalies. *Proceeding of 2013 International Seminar on Climate Change and Food Security (ISCCFS*) 2013. Palembang, South Sumatra-Indonesia, 24–25 October 2013. pp. 13–16.

Abstract

The objective of study was to assess the role of local biodiversity resources and pro-poor technology input on the ability of local community (community resilience) to face the impact of weather or climate anomalies. Local resources of floral feed have a significance sense to farmer community resilience faced climate anomalies impact, particularly in some certain local farmer in the dry land of northern and eastern small island of Bali, Indonesia. Forage availability was influenced by on water shortage. Climate anomaly impact to perceive rainfall shifting, even to the dry season period began. In Bali, peak of dry climate crisis in 2004 led to feed even to food scarcity. Those above problems should be anticipated by enthusiasm of local farmer communities. Due to this obscurity, studies had been summarized on the potential of floral forage resources. This study examines in attempt to identify local forage sources utilized as feed and silage during the transition and along the dry season. Results of the current assessment concluded that silage fermentation was acceptable for the forage preservation in effort to maintain feed availability as livestock favor. Main study was verifying the role of fermentative and hydrolyzing microbes, particularly Lactobacillus plantarum. The output of the representation work could become a reference in addressing for adaptation response through the application of functional microbial technology involvement in the small local cattle management activities, in particular for silage handling to keep the feed quality and its continuity of the supply.

0510. **Rahmansyah, M., A. Sugiharto, A. Kanti** & **I.M. Sudiana. 2013**. The feed readiness in small scale farms as the adaptation strategy toward the climate change by exploiting local flora biodiversities. *Buletin Peternakan* 37(2): 95–106.

Abstrak

Sumber daya flora lokal untuk pakan memiliki nilai penting, khususnya untuk ketahanan masyarakat petani di dalam menghadapi perubahan iklim global. Ketersediaan hijauan pakan untuk ternak pada ekosistem lahan kering tergantung kepada ketersedian air. Dampak perubahan iklim dirasakan pada bergesernya pola curah hujan, bahkan terhadap mulainya masa musim kering. Hal tersebut harus diantisipasi dengan kesiapan masyarakat lokal di dalam memahami ketersedian pakan dan pengelolaannya pada masing-masing musim. Di kawasan Bali Bagian Timur dan kawasan Nusa Tenggara (Barat dan Timur), iklim kering tahun 2004 menyebabkan krisis pakan. Mengacu kepada permasalahan tersebut di atas, penelitian telah dilakukan dengan tujuan inventarisasi sumber daya hayati flora potensial di lahan kering. Fokus bahasan dilakukan berdasarkan pada hasil survei dan pengumpulan data sekunder. Diperoleh 22 tanaman yang dapat dimanfaatkan untuk hijauan (*forage feed*) yang materialnya berlimpah pada musim hujan; sedangkan 15 ragam sumber pakan lainnya dapat dijadikan pakan awetan (*silage*) maupun pakan hijauan pada musim peralihan dan sepanjang musim kering. Hasil analisis menunjukkan bahwa saat ini yang perlu dilakukan adalah introduksi teknologi fermentasi silase untuk pengawetan pakan untuk persediaan musim kemarau. Terkait dengan pengembangan teknologi tersebut maka dilakukan kajian terhadap peran mikrobia penghidrolisis senyawa polimer dan proses fermentasi dengan keberadaan mikrobia GRAS (*Generally Recognized as Safe*) yang diawali oleh peran *Lactobacillus plantarum*. Hasil kajian dapat menjadi acuan dalam mengatasi dampak perubahan iklim di wilayah lahan kering, melalui aplikasi teknologi mikrobia fungsional pada pengelolaan pakan ternak sapi petani lokal yang berskala kecil.

0511. **Retnowati, A. 2010**. Selected Species of *Marasmius* (Agaricales: Tricholomataceae) from Kayan Mentarang National Park, East Kalimantan, Indonesia. *Gardens Bulletin Singapore* 62(1): 31

Abstract

Five species of *Marasmius* were encountered from forest surrounding Paraye village at Kayan Mentarang National Park, East kalimantan; three of them are described as new taxa (1 new species and 2 new varieties). The five species of *Marasmius* are *M.* cf. *purpureostriatus*, *M. guyanensis, M. coklatus* var. *mentarangensis*, var. nov., *M. caryote* var. *parayeensis*, var. nov., and *M. gypseus*, sp. nov. Comprehensive descriptios, illustrations, and comparison with similar taxa are presented.

0512. **Retnowati, A. 2010.** Two Wild Edible *Russula* (Agaricales: *Russulaceae*) from Indonesia. *Floribunda* 3(4): 109–112.

Abstract

Two wild edible *Russula*, namely *R. cyanoxantha* and *Russula* sp. were encountered during the fieldwork in Kayan Mentarang National Park, East Kalimantan, Indonesia.

0513. Riedel A., K. Sagata, **Y.R Suhardjono** & R. Tänzler. **2013**. Integrative taxonomy on the Fast Track-Towards More Sustainability in Biodiversity Research. *Frontiers in Zoology*, 10: 15.

Abstract

A so called "taxonomic impediment" has been recognized as a major obstacle to biodiversity research for the past two decades. Numerous remedies were then proposed. However, neither significant progress in terms of formal species descriptions, nor a minimum standard for descriptions have been achieved so far. Here, this study analyzes the problems of traditional taxonomy which often produces keys and descriptions of limited practical value. This research suggests that phylogenetics and phenetics had a subtle and so far unnoticed effect on taxonomy leading to inflated species descriptions.

The term "turbo-taxonomy" was recently coined for an approach combining *cox1* sequences, concise morphological descriptions by an expert taxonomist, and high-resolution digital imaging to streamline the formal description of larger numbers of new species. This study proposes a further development of this approach which, together with open access web-publication and automated pushing of content from journal into a wiki, may create the most efficient and sustainable way to conduct taxonomy in the future. On demand, highly concise descriptions can be gradually updated or modified in the fully versioned wiki-framework this resesacrh use. This means that the visibility of additional data is not compromised, while the original species description-the first version-remains preserved in the wiki, and of course in the journal version. A DNA sequence database with an identification engine replaces an identification key, helps to avoid synonyms and has the potential to detect grossly incorrect generic placements. This study demonstrates the functionality of a species-description pipeline by naming 101 new species of hyperdiverse New Guinea *Trigonopterus* weevils in the open-access journal *ZooKeys*.

Fast track taxonomy will not only increase speed, but also sustainability of global species inventories. It will be of great practical value to all the other disciplines that depend on a usable taxonomy and will change our perception of global biodiversity. Meanwhile this approach is certainly not suitable for all taxa alike, it is the tool that will help to tackle many hyperdiverse groups and pave the road for more sustainable comparative studies, e.g. in community ecology, phylogeography, and large scale biogeographic studies.

0514. **Riffiani, R.** & **N. Sulistinah**. **2010**. Biodegradasi Phenanthrene oleh Bakteri *Indigenous* Laut Pari Kepulauan Seribu. *Berkala Penelitian Hayati* (*Journal of Biological Researches*). Edisi Khusus No. 4F: 13–18.

Abstract

The increasing oil pollution in the offshore will threaten the aquatic life and the ecosystem. Polycylic Aromatic Hydrocarbon (PAHs) phenanthrene is one of crude oil's components which is potentally carcinogenic and persistent in nature environment. That is the reason why we need a technology that offers great promise to resolve the oil pollution, called bioremediation. Role of indigenous bacteria will be important when we choose biostimulation process. Main step of this research are isolation of indigenous Pari sea's bacteria capable of degrading phenenthrene, ability reconfirm test and growth test, molecular identification bacteria based on 16S rRNA gene sequences, and phenanthrene biodegradation using TOC analyzer. Two bacteria capable of degrading phenanthrene were identified as *Ruegeria* sp DG898 and *Alpha proteobacterium* GMDJE10F1. *Alpha protobacterium* GMDJE10F1 is a cosmopolit bacteria which can optimally grows on temperature 25°C and 2% salinity and $\mu = 0{,}118\ h^{-1}$. Meanwhile, *Ruegeria* sp DG898 is a tropical seawater bacteria which can optimally grows on temperature 25°C and 2% salinity and $\mu = 0{,}2099\ h^{-1}$. After 19 days, biodegradation of phenanthrene by *Ruegeria* sp DG898 was 70% and *Alpha proteobacterium* GMDJE10F1 was 65.23%. Overall, biodegradation phenanthrene by *Ruegeria* DG898 has more better result than that in *Alpha proteobacterium* GMDJE10F1.

0515. **Riffiani, R.** & **N. Sulistinah**. **2010**. Penapisan Mikroba Laut Senyawa Nitril dan Protein yang Diisolasi dari *Sponge* di Perairan Ternate. *Jurnal Biologi Indonesia* 6(3): 353–365.

Abstract

Thirty three marine bacteria have been isolated from marine sponge in Ternate by enrichment culture. Screening bacteria-degrading nitrile was done by microtitter plate method based on growth ability tested by Iodonitrotetrazolium chloride. Product of nitrile degradation was determined by Gas Chromatography (GC) and the potential bacteria-degrading protein was also screened by using selected media which contained casein. The results showed that twenty one (21) isolates were able to show the clearing zone in selected media. Five (5) isolates capable of utilizing acetamide as the sole source of carbon and nitrogen. Acetic acid and ammonia produced for hydrolysis acetonitrile by using resting cell of *Lysobacter* sp.

0516. **Riffiani, R.** & **N. Sulistinah**. **2011**. Isolasi dan Penapisan Bakteri Pendegradasi Dibenzothiophene, Phenanthrene, dan Fluoranthene Asal Perairan Laut Sekitar P. Moti-Ternate. *Ekologi Ternate*. Hlm. 309–316

Abstract

Petroleum hydrocarbons of crude oils are one of the main causes of pollution in marine environment. This study focuses on to screening microbial strains from Moti Island Ternate and their ability to remove some Polycyclic Aromatic Hydrocarbon (dibenzothiophene, phenanthrene, and fluoranthene). Enumera-

tion of PAHs-degrading bacteria were accomplished by spreading a serial dilution of the cultures onto the surface of ONR7a agar medium by using sublimation technique of phenanthrene, dibenzothiophene, fluoranthene onto the agar and incubated at room temperature until bacteria grew. The isolate which degrade the PAHs was showed by clearing zones around the colonies. The result showed that bacteria which can degrade dibenzothiophene were dominant group from bacteria community in Moti Island Seawater.

0517. von Rintelen, T., B. Stelbrink, **R.M. Marwoto** & M. Glaubrecht. **2014.** A Snail Perspective on the Biogeography of Sulawesi, Indonesia: Origin and Intra-Island Dispersal of the Viviparous Freshwater Gastropod *Tylomelania*. *PLoS One*. 2014; 9(6): e98917. Published online 2014 June 27. doi: 10.1371/journal.pone.0098917.

Abstract

The complex geological history of the Indonesian island Sulawesi has shaped the origin and subsequent diversification of its taxa. For the endemic freshwater snail *Tylomelania*, a vicariant origin from the Australian margin, has been hypothesized. Divergence time estimates from a mtDNA phylogeny based on a comprehensive island-wide sampling of Tylomelania fit regional tectonic constraints and support the 'out-of-Australia' vicariance hypothesis. The Banggai-Sula region of the Sula Spur, the Australian promontory colliding with West Sulawesi during the Miocene, is identified as a possible source area for the colonization of Sulawesi by the ancestor of *Tylomelania*. The molecular phylogeny also shows a rapid diversification of *Tylomelania* into eight major lineages with very little overlap in their distribution on the island. Haplotype networks provide further evidence for a strong spatial structure of genetic diversity in *Tylomelania*. Distribution boundaries of the major lineages do at best partially coincide with previously identified contact zones for other endemic species groups on Sulawesi. This pattern has likely been influenced by the poor dispersal capabilities and altitudinal distribution limits of this strict freshwater inhabitant. This study suggests that late Miocene and Pliocene orogeny in large parts of Sulawesi has been the vicariant event driving primary diversification in *Tylomelania*.

0518. **Riyanto, A. 2010.** Diversitas Suku Agamidae (Reptilia: Squamata) pada Berbagai Tipe Habitat di Kawasan Pertambangan Emas Martabe, Sumatera Utara: Dalam Tahap Konstruksi. *Biota* 15(2): 266–172.

Abstract

A study of Agamid Lizards diversity and their distribution surrounding Martabe Minning Project Area, South Tapanuli, North Sumatera was conducted in five habitat types. The data were gathered by oppurtunistic searching in each habitat type with two replications. Shannon-Wiener index was used to determine the diversity, while the homogenety was verified by Pelou index. The similarity of Agamid communities among habitat types was confirmed by Sorensen

coefficient. As a result, 9 agamid species were recorded with Draco melanopogon as the major component of Agamid community making up 49.1% of total individuals gathered. Highest diversity occured in moderately disturbed forest, but the most homogeny took place in riparian lowland forest. The cluster analysis using Sorensen's coefficient of agamid species distribution among habitat types distributed the habitats into three major groups, with the most similar occured between primary and riparian lowland forest (75%). The identification key of the species was made.

0519. **Riyanto, A. 2011.** Herpetofaunal Community Structure and Habitat Associations in Gunung Ciremai National Park, West Java, Indonesia. *Biodiversitas* 12(1): 38–44.

Abstract

Community structure and habitat associations of amphibians and reptiles on both rainy and dry season of six habitat types of three sites in Gunung Ciremai National Park, West Java were investigated in March and October 2008. The data of herpetofauna were obtained by opportunistic searches. Herpetofaunal diversity for each habitat was determined by using Shannon Wiener index, the species abundance per unit area was calculated by using Margalef's index, and the homogeneity of distribution of species in relation to other species in a sampled per unit area was evaluated using Evenness index. The similarity in herpetofauna communities is in habitat utilization. Thus, both of the community similarities and habitat utilization dispayed in cluster dendrogram. A total of 46 amphibian and reptile taxa were recorded, comprising 16 anurans, 22 lizards, and 8 snakes. Of the total taxa, four anurans are endemic and an unsual specimens probably new in sciences referred to the genus *Cyrtodactylus* and *Eutropis.* There were differed in sequential of biological indices among habitat types but not much different in their values. The result of cluster analysis showed different pattern on the community similarity among habitat type and habitat utilization during rainy and dry seasons.

0520. **Riyanto, A., Mumpuni** & J.A. McGuire. **2011.** Morphometry of Striped Tree Frogs, *Polypedates leucomystax* (Gravenhorst, 1829) from Indonesia with Description of New Species. *Russian Journal of Herpetology* 18(1): 29–35.

Abstract

This study examined patterns of geografic variation within *Polypedates leucomystax* using multivariate statistical analyses of 14 characters measured from 146 specimens obtained from Sumatera, Java, Kalimantan, and Sulawesi. Discriminant analyses revealed ten morphological characters and found that the Sulawesi population is morphologically distinct from all other considered. Following the Evolutionary Species Concept, this study described the Sulawesi population as a new species in *P. leucomystax* species complex.

0521. **Riyanto, A.** & **Erniwati**. **2012.** A Comparasion of *Pseudocalotes tympanistriga* (Squamata: Agamidae) Diet During the Rainy Season from Two Habitat Types in Mount Ciremai, West Java, Indonesia. *Biota* 17(1): 29–34.

Abstract

This study examined stomach content of 64 adult preserved specimens of *Pseudocalotes tympanistriga* (Squamata: Agamidae) that was collected during rainny season (April 2006 and March 2008) from mount Ciremai, West Java. Diet was composed of various types of small athropods with no plant material being eaten. The Arban population consumed only 12 prey types, whereas the Cigowong population consumed 22 prey types. The difference in diversity of prey item consummed between Arban and Cigowong population could reflect differences in habitat type. Both of population exhibited strong niche overlap among sex and also gravidity. No significant variation on body size proportions (AGL/SVL) was detected, which is consistant with similarity in foraging activities between the seves and between non gravid and gravid females.

0522. **Riyanto, A. 2012.** *Cyrtodactylus hikidai* **sp. nov.** (Squamata: Gekkonidae): a New Bent Toed Gecko from Mount Ranai, Bunguran Island, Indonesia. *Zootaxa 3583*: 22–30.

Abstract

Cyrtodactylus hikidai **sp. nov.** is a new gekkonid species described on the basis of 13 specimens collected from Mount Ranai, Bunguran Island, Indonesia. This large *Cyrtodactylus* (female SVL up to 102.2 mm, male SVL up to 100.6 mm) differs from all other Sunda Shelf species of *Cyrtodactylus* by the combination of a reticulated color pattern on the dorsum of the head, body banded, enlarged precloacal scales, six pore-bearing precloacal scales in a deep groove in both males and females, tubercles on forelimbs, hind limbs and occiput, absence of enlarged femoral scales, and absence of femoral pores.

0523. **Riyanto, A.** & **Mumpuni. 2013.** Herpetofauna di Taman Nasional Bali Barat. *Prosiding Seminar Nasional-IPA 2013* diselenggarakan di Surabaya 19 Januari 2012 oleh Jurusan Biologi FMIPA Universitas Negeri Surabaya, Yayasan Al-Muslim dan Yayasan Salman Al-Farisi. Universitas Negeri Surabaya Press-Surabaya ISBN 978-979-028-573-6.

Abstrak

Pulau Bali terkenal akan objek wisatanya, dari kekayaan budaya maupun alamnya yang menawan. Taman Nasional Bali Barat (TNBB) merupakan kawasan konservasi yang di dalamnya memiliki berbagai ekosistem yaitu savana, hutan bakau, hutan muson, dan hutan pegunungan. Pengetahuan mengenai keragaman herpetofauna yang terdapat dalam TNBB ini dapat digunakan sebagai modal dalam pengembangan ekowisata. Dari penelitian dan ditunjang hasil studi pustaka, terungkap sebanyak 32 jenis herpetofauna tersebar di

berbagai tipe ekosistem di TNBB. Dalam makalah ini disajikan pertelaan dari beberapa jenis, dilengkapi infomasi biologi dan ekologi dan waktu pengamatan.

0524. **Riyanto, A.**, A.M. Bauer, & D.S. Yudha. **2014.** A New Small Karst-Dwelling Species of *Cyrtodactylus* (Reptilia: Squamata: Gekkonidae) from Java, Indonesia. *Zootaxa* 3785 (4): 589–599.

Abstract

A new small karst-dwelling species of the genus *Cyrtodactylus* is described from East Java and Special Province of Yogyakarta, Indonesia. *Cyrtodactylus semiadii* **sp. nov**. is a small species (SVL to 47.1 mm in females, 42.1 mm in males) distinguished from all other congeners by unique characters combination: short, robust, cylindrical tail, indistinct ventrolateral folds, absence of precloacal groove, absence of enlarged femoral scales, absence of precloacal and femoral pores, and lack of enlarged median subcaudal scales. It is the third member of the genus recorded from Java.

0525. **Riyanto, A.** & **H. Kurniati. 2014.** Three New Species of *Chiromantis* Peters 1854 (Anura: Rhacophoridae) from Indonesia. *Rusian Journal of Herpetology* 21(1): 65–73.

Abstract

This study described three new species of the genus *Chiromantis*, one added as a member of Javan frogs and two others as new members of Sumatran frogs. Discovery of the new frogs from Sumatra and Java is not surprising because Sumatra is one of the biggest islands in Indonesia with varied habitat types, herpetofaunal survey especially on frogs in this island is still insufficient. As for Java in which herpetofauna has been relatively well studied, the present finding of a new species suggests occurrence of more undescribed species and/or future record of taxa occurring elsewhere.

0526. Robilard, T., A.V. Gorochov, S. Poulain & **Y.R. Suhardjono. 2014**. Revision of the Cricket Genus *Cardiodactylus* (Orthoptera, Eneopterinae, Lebinthini): the Species from Both Sides of the Wallace Line, with Description of 25 new species. *Zootaxa* 3854 (1): 001–104.

Abstract

Penelitian ini mendeskripsikan sebanyak 25 spesies baru, 3 spesies dideskripsi ulang dan 5 spesies diperkirakan baru. Spesies yang diungkapkan berasal dari Asia Tenggara dan Jepang. Dari Jepang hanya 1 spesies, sedangkan dari Thailand dan Kamboja 1 spesies. Dari sebelah barat Garis Wallacea tercatat dari Singapore (2 sp), Malaysia (1 nsp), Sumatera (3nsp), Borneo (2nsp+1sp), Tolaud (2nsp), Jawa (2nsp) dan Filipina (2nsp+4sp). Sementara itu, sebelah timur Garis Wallacea adalah Sulwesi (6nsp+1sp), Lombok (1nsp), Sumba (1nsp), Flores (2nsp), Obi (1nsp), Halmahera (1 nsp), Buru (1 nsp) dan Seram (1 deskripsi ulang).

0527. **Roemantyo. 2010.** Model Pemanfaatan Lahan Pulau Moti, Kota Ternate, Maluku: Suatu Analisis Tata Ruang Berbasis Vegetasi. *Jurnal Biologi Indonesia* 6(3): 415–428.

Abstract

Land Use Model of Moti Island, Ternate, Moluccas: A Vegetation Based Spatial Design Analysis. The Moti Island was dominated by mountain areas and humitropepts soil type which have high organic matter and low subsoil base saturated values. Geologically, it is a volcanic rock with andesite composition includes lava, breccias, and tuffs volcanic. Combined with high rainfall, width of island (24.6 km^2), and very steep mountain (950 m asl.), the island has become fragile when it was not well-managed. Compared to the other district, the productivity of this area was low because the natural resources have not been well developed yet. The shortage of biodiversity data of Moti Island has become major obstacles in developing Moti Island. This research was conducted to develop land use models as basic knowledge for spatial design analyses of Moti Island. Detail discussion on developing Digital Elevation Model of land use and slope area based on vegetation data was presented in this paper.

0528. **Roemantyo** & **T. Partomihardjo. 2010.** Analisis Prediksi Sebaran Alami Gaharu Marga Aquilaria dan Gyrinops di Indonesia. *Berita Biologi* 10(2): 189–198.

Abstract

A spatial analysis was applied to predict the natural distribution of agarwood producing taxa of *Aquilaria* and *Gyrinops* in Indonesia. This research were conducted using herbarium materials which deposited in Herbarium Bogoriense, Research Center for Biology LIPI and field data was collected by researcher within periods of 1992–2009. Time serial maps of 1:250,000 were used in this analysis, such as Indonesian digital base map of 1990, province land cover and deforestation digital maps of 1989 and 2005. Every sites of herbarium collection was identified using digital Cyclopedia of Malesian Collectors for the name of village/place and date of collection. The coordinate of those sites comprises latitude, longitude, and altitude was retrived by query method using Indonesia digital geo reference data. Tabulated data of every collection/data were created and then overlaid to the time serial land cover and deforestation maps using GIS software, to identify the recent condition of that area. The results show that horizontal natural distribution of *Aquilaria* was mainly occur in the western part of Indonesia, while Gyrinops in eastern part of Indonesia. Vertical distribution analyses of the *Aquilaria* and *Gyrinops* showed that in general both genera are mainly grown naturally in the low land areas less than 300 m asl. Spatial analyses using time serial land cover and deforestation map indicated that low land areas less than 300 m asl. Having very high risk on the land use changes, whereas increasing land status classification from six on 1989 to fifteen on 2005. More than 20% of forested areas have been change into non-forest area such as plantation, agricultural land, resettlements, and open unproductive

lands since 1989. Natural distribution of agarwood producing taxa horizontally and vertically on all of major islands and the conservation strategy were discussed in this paper.

0529. **Roemantyo. 2011.** Struktur dan Komposisi Vegetasi Hutan Semusim Habitat Curik Bali (*Leucopsar rothschildi* Stresemann, 1912) di Kawasan Labuan Lalang, Taman Nasional Bali Barat. *Jurnal Biologi Indonesia* 7(2): 361–374.

Abstract

Research was conducted in Labuan Lalang monsoon forest, Bali Barat National Park in May 2010 to identify their vegetation structure and composition of plant species communities in this area. This information was important as basic data for developing model for habitat econstruction of endemic Bali starling birds (*Leucopsar rothschildi* Stresemann 1912). Several ecological parameters information such as name species, frequency, density and abundance of individual species were collected for qualitative an quantitative analyses. The result showed that 93 species belonging 84 genera and 37 families were found in this area. Some plant species were recorded as endangered such as *Strycnos lingustrina, Helicteres ixora, Protium javanicum, Rauvolfia serpentina, Zanthoxylum rhetza, Ziziphus rotundifolia, Ceriops tagal, Flacourtia indica,* and *Santalum album*. The important species found in this forest were dominated by *Grewia ericocarpa*, *Schoutennia ovata* (Tiliaceae) and followed by *Vitex trifoliata* and *Abutilon indicum.* The species diversity and evenness index of Shannon-Wiener indicated that species diversity in this forest were not too high and the populations were on unstable condition. Principal Coordinate Analyses (PCO) on the tree height and altitude data of every tress showed that tree species associated to Bali starling were found on the 10–25 m tree heihgt community and occupied in the area of 40–60 m asl. The problems and real condition of the area as the habitat of Bali starling were discussed in this paper.

0530. **Roemantyo**, A.S. Nastiti & N.N. Wiadnyana. **2012**. Struktur dan Komposisi Vegetasi Sekitar Sarang Penyu Hijau (*Chelonia mydas* Linnaeus) Pantai Pangumbahan, Sukabumi Selatan, Jawa Barat. *Berita Biologi* 11(3): 373–387.

Abstract

Pangumbahan coastal area is one of many important nesting sites of the green turtle (*Chelonia mydas* Linnaeus) in Indonesia. This area mainly comparises of disturb coastal old secondary forest. Some sites along the seashore were converted into fishpond, dry land agricultural and other was destroyed for other uses or as an open unproductive areas. However, this area still plays an important role, especially for the conservation of green turtle *habitat* and also for the ecosystem stabilization of the coastal area in general.Floristic research was conducted on September 2009 to investigate the existing vegetation structure and composition along the seashore using transects method. The "point center quarters method" was used to calculate the importance value of the

vegetation on every turtle nesting sites. The important natural species vegetation communities in the area comprises of herbs, shrubs and trees species. *Ipoemoea pescaprae* (L.) R. Br and *Spinifex littoreus* (N.L. Burman) Merrill as a first layer coastal line plant community that play as an important herbs species which creeping grown on the white sands coastal surface. The second layer comprises herbs, small trees, and shrubs such as *Pandanus tectorius* Parkinson ex Zucc, *Crinum asiaticum* L. and *Callotropis gigantean* R. Br. The second layer species plays as a vegetation community which covering and protecting the green turtle nest site from the direct sunshine, running of big wave and heavy rain water. *Terminalia catappa* L., *Calophyllum inophyllum* L., *Barringtonia asiatica* (L.) Kurtz. and *Hibiscus tiliaceus* L. as a big crown tree community grown covering on the most behind as a back layer of coastal line which play as shading trees of the second layer species community, especially to stabilize humidity and temperature of the sand and the environment. The vegetation structure and composition of the old secondary coastal forest of Pangumbahan was described to understand the detailed role and function of the vegetation species in this area.

0531. Rowe, K.C., **A.S. Achmadi** & J.A. Esselstyn. **2014.** Convergent evolution of Aquatic Foraging in a New Genus and Species (Rodentia: Muridae) from Sulawesi Island, Indonesia. *Zootaxa* 3815 (4): 541–564.

Abstract

The island of Sulawesi, in Indonesia, lies at the crossroads of the Indo-Australian Archipelago and has remained isolated from the Asian (Sunda) and Australian (Sahul) continental shelves for at least the last 10 million years. Of the 50 native species of rodents on Sulawesi, all are endemic and represent the evolution of a variety of ecological and morphological forms within the Muridae and Sciuridae. Carnivorous rodents have evolved, perhaps independently, in Muridae from the Philippines, Sulawesi, and Sahul, but semi-aquatic murids are only known from Sahul. Here, this study describes a new genus and species of insectivorous water rat from Sulawesi. Phylogenetic analyses demonstrate that it is related to the shrew rats of Sulawesi and represents an origin of aquatic carnivory that is independent from the evolution of water rats on Sahul. Many areas of Sulawesi have not been surveyed systematically and current lists of mammal species are likely to dramatically underestimate actual diversity.

0532. **Royyani, M.F.** & **M. Rahayu. 2010.** Pengetahuan Lokal Tumbuhan Obat Masyarakat Desa Dompo-Dompo Jaya, Pulau Wawonii-Sulawesi Tenggara. *Jurnal Teknologi Lingkungan* 11(2): 157–165.

Abstract

The ethnobotanical study of plant used by people of Wawonii island had conducted from April to May 2006. The local knowledge of medicinal plants in Wawonii island is a result of interactions among people of Wawonii island.

Data collected included the uses of plants in which more than 62 species of them were recorded by their local names. The data were discussed in the context of Wawonii island culture, tradition, and way of life. Furthermore, plants used also show the nearness of emotional relationship between human and environment.

0533. **Rugayah, Suhardjono** & **S. Susiarti. 2010**. Keanekaragaman Tumbuhan Pulau Sepanjang Jawa Timur. *Berita Biologi,* 10(2): 205–215.

Abstract

Sepanjang Island is a small island located in the eastern part of Madura Island in the Indonesian Province of East Java. An exploration has been carried out in 2005 to record plant diversity of this area. Approximately 250 to 300 species of plants were recorded including the cultivated ones. Apocynaceae, Euphorbiaceae, Fabaceae, Malvaceae, Meliaceae, Moraceae, Rhamnaceae, Rubiaceae, and Vitaceae were dominant in this island. Some species were included in Indonesian of endangered plant (*Alstonia scholaris*, *Dyera costulata*) and protected species (*Cordia subcordata*, *Excoecariaagalloca*). Some collection are as a new record for Flora of Jawa and new collection for Herbarium Bogoriense from this island.

0534. **Rugayah,** T.Ng. Praptosuwiryo & D.M. Puspitaningtyas. **2010**. Morphological Variation of *Cibotium barometz* from West Sumatra. *Proceed. International Conference on Biological Science. Faculty of Biology Univ. Gajah Mada*, Yogyakarta, October 16–17, 2009. 392–401.

Abstract

Cibotium barometz is one tree fern of the family Cyatheaeceae that is usually recognized as 'chain fern' in the medicinal plants trade.The distribution of the species in Indonesia is limited. At present, Sumatra is the only mainland where the population is abundances. Morphological comparison study of the population in West Sumatra has been carried out. Forty five collection numbers from six localities have been examined. Three groups are recognized based on the character combinations: hair colors, the existent of hairs on stipe and costae, lamina incision, segment distant, and the branching of veinlets. The possibilities of the taxonomical treatments are discussed.

0535. **Rugayah**, **H. Rustiami** & **A.P. Kiem. 2011**. Diversity of *Pandanus* spp. in Wetland Area of Kalimantan. *Proceed. Of the international workshop on "Sustainable management of Bio-Resources in Tropical Peat-swamp forest*. Bogor. pp. 141–149.

Abstact

Bornean *Pandanaceae* has been thoroughly studied by Stone since 1967. Fifty three species of *Pandanus* have been reported in 1993. Most of those species recorded from the North of Borneo (Sabah, Sarawak and Brunei) as endemic

species. Recently, based on herbarium specimens study, nine species of *Pandanus* spp. were recorded from wetland area of Kalimantan. Three species are accounted as new records, namely *P. sigmoideus*, *P. vinaceus*, and *P. yvanii*. Two species formerly recorded endemic to Sarawak, whereas *P. yvanii* formerly endemic to Malay Peninsula. Two species recorded as endemic to Borneo are *P. motleyanus* and *P. discostigma*. Meanwhile, the rest of the species–*P. affinis, P. aristatus*, *P. helicopus* and *P. korthalsii* have more wide distribution compared with other species and can be found in rain forest of West Malesia region. An identification key to species and their descriptions are presented.

0536. **Rugayah**, D. Sahroni & Dirman. **2011**. *Annonaceae* di Taman Nasional Bogani Nani Wartabone: Studi Pendahuluan Keanekaragamannya. *Floribunda* 4 (2): 40–47.

Abstrak

Annonaceae merupakan salah satu suku penting di daerah hutan hujan dataran rendah di kawasan Malesia. Beberapa jenis *Annonaceae,* mempunyai nilai ekonomi sebagai bahan pembuatan parfum dan dimakan sebagai buah. Penelitian ini berdasarkan pada pengamatan specimen herbarium yang disimpan di Herbarium Bogoriense, dan diketahui terdapat 18 jenis *Annonaceae* yang tergolong dalam 12 marga telah dikoleksi dari Taman Nasional Bogani Nani Wartabone, Sulawesi Utara. Dari penelitian ini diketahui bahwa keberadaan *Orophea hexandra* di taman nasional tersebut merupakan rekaman baru untuk Sulawesi, *Pseuduvaria oxycarpa* dan *Mitrephora ferrugenea* dilaporkan termasuk jenis-jenis langka. Kunci identifikasi marga serta persebaran masing-masing jenisnya disajikan pada makalah.

0537. **Rugayah** & **E.F. Tihurua. 2011**. Leaf Anatomy of *Artabotrys suaveolens* Blume var. *suaveolens* and *Artabotrys suaveolens* Blume var. *parviflorus* Miquel (Annonaceae*). Floribunda* 4(2): 54–56.

Abstract

The result of leaf anatomical study indicates that there is no distinctive difference between *Artabotrys suaveolens* Blume var. *suaveolens* and *Artabotrys suaveolens* Blume var. *parviflorus* Miquel, so that the two varieties should be merged.

0538. **Rugayah. 2014.** Annonaceae dari Wawonii, Sulawesi Tenggara. *Jurnal Biologi Indonesia* 10(1): 67–77.

Abstrak

Pulau Wawonii merupakan salah satu pulau kecil yang terletak di sebelah tenggara Sulawesi dengan luas sekitar 6.500 km^2. Kegiatan ekplorasi dan inventarisasi telah dilakukan pada tahun 2003–2006 dan lebih dari 900 jenis tumbuhan telah teridentifikasi, dan termasuk jenis-jenis paku dan tanaman budi daya. Salah satu suku yang menjadi anggota penyusun vegetasi pulau

Wawonii adalah Annonaceae. Hasil kegiatan yang telah dilakukan di P. Wawonii, merekam 10 jenis Annonaceae yang tergolong dalam 8 marga yaitu *Anaxagorea* (*A. cf. luzonensis* A. Gray), *Annona* (*A. muricata* L., *A. squamosa* L.), *Artabotrys* (*A. suaveolens* (Blume) Blume), *Cananga* (*C.odorata* (Lam.) Hook.f. & Thomson), *Polyalthia* (P. celebica Miq.), Monoon (*Monoon* sp.), *Pseuduvaria* (*P.reticulata* (Blume) Miq. dan *Uvaria* (*U.littoralis* (Blume) Blume dan Uvaria sp.). Salah satu jenisnya yaitu *Pseuduvaria reticulata* merupakan rekaman baru untuk Sulawesi. Kunci identifikasi marga, jenis, dan daerah persebarannya akan dibahas dalam makalah.

0539. **Rustiami, H. 2010**. Taxonomy Study on the Diversity of Palmae in Wilis Mountainous Area, East Java. *Proceedings International Conference on Biological Science*. pp. 782–785.

Abstract

No abstract available

0540. **Rustiami**, **H., J.P. Mogea** & S.S. Tjitrosoedirdjo. **2011**. Revision of the Rattan Genus *Daemonorops* (Palmae: Calamoideae) in Sulawesi Using a Phenetic Analysis Approach. *Gardens' Bulletin Singapore* 63(1&2) 17–30.

Abstract

A phenetic analysis based on 27 morphometric characters of seven species of *Daemonorops* in Sulawesi recovered two groups with a similarity coefficient value of 0.51. Group A consists of *D. takanensis* and *D. lamprolepis* with a similarity coefficient value of 0.58. Group B is divided into subgroup B1 and subgroup B2, with a similarity coefficient value of 0.59. Group B1 consists of *D. macroptera, D. mogeana* and *D. robusta*. Group B2 consists of *D. riedeliana* and *D. sarasinorum*. An identification key to species and their descriptions are presented.

0541. **Rustiami, H. 2013**. Palem di Taman Nasional Bukit Baka-Bukit Raya, Kalimantan Barat. *Berita Biologi* 9(2): 265–281.

Abstract

Field work of palm diversity in Bukit Baka–Bukit Raya National Park had been conducted and revealed 17 species of palms, namely Caryota, Iguanura, *Licuala, Pinanga* as well as 4 *Calamus* spp., 5 *Daemonorops* spp., and 3 *Korthalsia* spp. Seven species out of seventeen species were recorded endemic in Kalimantan, namely *Caryota no, Iguanura macrostachya, Licuala borneensis, Pinanga tomentella, Calamus pogonacanthus, Daemonorops microstachys* and *Daemonorops* sp. 1. Identification key, species description, synonym and other information related to the species are reposted in this paper.

0542. **Rustiami, H.,** J. Dransfield & E.S. Fernando. **2014**. *Daemonorops sedisspirituum,* a New Species of *Daemonorops* Blume (Arecaceae: Calamoideae) from Java. *Kew Bulletin* 69(3): 9531.

Abstract

A new species of the rattan genus *Daemonorops* is recorded for Java, *Daemonorops sedisspirituum*. *D. sedisspirituum* is closely allied to *D. hirsuta* and *D. oblonga* but differs in stem size, sheath armature, and seed surface.

0543. **Sadili, A. 2010.** Komposisi Jenis Herba Pasca Kebakaran di Kalampangan-Kalimantan Tengah sebagai Awal Proses Suksesi Sekunder. *Biota* 15(1): 134–140.

Abstract

The early stage of secondary succession process in 1 year old post fire Kalampangan peat swamp area has been studied on herbaceous plant species composition. This study found 6 fern species and 1 grass species out of 23 species representing 20 families. The coverage area of herbaceous vegetation was 13.12% or 1,312 m^2 per hectare, which indicates relatively low percentage. In terms of relative dominance and frequency, herbaceous plant species in the area study was highly dominated by a terrestrial fern *Stenochlaena palustris*. Some tree species known as secondary and primary forest constituents such as *Macaranga caladifolia* (Euphorbiaceae), *Dyera lowii* (Apocynaceae), *Combretocarpus rotundatus* (Combretaceae), *Cratoxylon arboresncens* (Clusiaceae), *Garcinia sp.* (Clusiaceae) and *Ploinarium alterifolium* (Theacee) were found at their early growth stage on the forest floor but still in lower abundance compared to other recorded species from the study.

0544. **Sadili, A. 2010.** Struktur dan Komposisi Jenis Tumbuhan Herba dan Semai pada Hábitat Satwa Herbivor di Suaka Marga Satwa Cikepuh, Sukabumi, Jawa Barat. *Berita Biologi* 10(1): 51–58.

Abstract

The research was conducted to study the structure and composition of herbaceous and seedling communities (understorey species) occurred on herbivor habitat within Cikepuh wildlife sanctuary. A series of 25 plots of 1 m x 1 m each with an interval of 5 m were used to establish a species-area relationship. The proportion (percentage) of canopy (leaf) coverage of each species occurred within the sampling plots to the sampled soil surface area was measured. A total of 54 species belonging to 47 genera and 29 families occurred in the 25 plots developed, with the species diversity index (value) of 2.09 using the Shannon Wiener formula. Nine species were categorized as herbaceous plants (16.67%) while the other 45 species were categorized as seedlings (83.33%). The average density measured was 39 individuals/m^2 or c. 386,400 individuals/ha. The most dominant family was Euphorbiaceae (possessing 5 different species), while the most dominant species was *Urochloa subquadripara* (Poaceae) with and importance value of 96.08%.

0545. **Sadili, A. 2011.** Keanekaragaman, Persebaran dan Pemanfaatan Jenis-Jenis Anggrek (Orchidaceae) di Resort Citorek, Taman Nasional Gunung Halimun-Salak, Jawa Barat. *Jurnal Biosfera* 28(1): 15–22.

Abstract

Orchid diversity, distribution, and utilization has been studied on the mountains of Halimun-Salak National Park especially Citorek resort. The observation field surveys is used for exsploring Citorek, Lebaktugu, Cinakem, Cibedug, and Ciawitali area. As total result 107 species are in 46 genera. The endemic Java recorded 27 species on 17 genera and another species generally at Indonesia island distribution. Most species have no economic value and only a few have been cultivated. The Calanthe, Cymbidium, Phaius, and Renanthera has been used for cross breeding.

0546. **Saefudin. 2010.** Karbon Organik di Bawah Tegakan Hutan Produksi di BKPH Majenang, Banyumas Barat. *Prosiding Seminar Nasional Kimia FMIPA-UNESA. 20 Februari 2010.* Hlm. 65–73.

Abstrak

Pemanfaatan lahan hutan produksi sebagai ekosistem pertanian dapat mengubah cadangan karbon melalui proses dekomposisi bahan organik tanah. Sebagai produk akhir dari proses tersebut adalah lepasnya karbon dioksida (CO_2) ke atmosfer. Vegetasi alami di hutan produksi Bagian Kesatuan Pemangku Hutan Majenang, wilayah Banyumas Barat meliputi luas 10.832,6 ha dengan lansekap dataran, berbukit, lahan terjal, dan didominasi tegakan pinus (*Pinus mercusii*), jati (*Tectona grandis*), dan mahoni (*Swietenia mahagoni*). Lebih kurang 60% agroekosistem di bawah tegakan merupakan lahan usaha tani tanaman pangan, obat, dan hortikultura. Materi karbon organik permukaan tanah di bawah tegakan pinus, mahoni, dan jati yang dibudi daya tanaman pangan, obat dan hortikultura tergolong rendah, berkisar antara (0,5–1,8%) dan laju respirasi antara (5,05–55,64) gr/hari/m^{-2}, sedangkan karbon organik di lahan yang tidak dibudidaya adalah 10,3% dan laju respirasinya 4,95 gr/hari/m^{-2}. Pengelolaan yang sangat penting di areal agroekosistem untuk mitigasi emisi karbon dan mempertahankan keamanan sumber daya hutan adalah sistem pertanian organik dengan memanfaatkan keanekaragaman hayati lokal.

0547. **Saefudin. 2010.** Perbaikan Lingkungan Tumbuh untuk Meningkatkan Hasil Penyulingan Minyak Nilam (*Pogestemon cablin* Benth.) di Bawah Tegakan. *Prosiding Seminar Nasional Kimia FMIPA-UNESA*. Hlm. 57–64.

Abstrak

Penelitian ini dilakukan untuk mengetahui produksi bahan baku nilam dan hasil penyulingan minyaknya setelah perbaikan lingkungan tumbuh melalui sistem pertanian organik di bawah tegakan. Percobaan dilakukan di areal produksi nilam lembaga masyarakat desa hutan (LMDH-Salamsari) Desa Cilempuyang, Cimanggu, Bagian Kesatuan Pemangku Hutan (BKPH) Majenang,

Wilayah Banyumas Barat. Faktor-faktor yang diuji adalah tingkat pemupukan (0, 10 dan 20) ton/ha pupuk organik yang diperkaya mikroorganismedan jenis tegakan yaitu jati (*Tectona grandis* L.f.) macam penaungan atau banyaknya cahaya masuk ke lahan di bawah tegakan jati, mahoni, mahoni (*Swietenia macrophylla* King.) dan tempat terbuka tanpa penaungan. Percobaan dirancang secara faktorial, masing-masing perlakuan diulang sebanyak 4 kali ulangan. Hasil percobaan menunjukkan bahwa perbaikan sistem budi daya organik nilam di bawah tegakan dapat meningkatkan produksi secara nyata dengan kualitas minyak nilam yang tetap baik. Produksi nilam tertinggi adalah 27,35 ton/ha pada lahan di bawah tegakan jati dengan pemberian pupuk organik 20 ton per ha, dan rendemen minyak yang dihasilkan 2,08% (laboratorium) atau 1,64% (penyulingan oleh pengepul) .

0548. **Saefudin** & T. Rostiwati. **2010.** Pemilihan Bahan Vegetatif untuk Penyediaan Bibit Bambu Hitam **(***Gigantochloa atroviolaceae* Widjaja**).** *Tekno Hutan Tanaman* 3(1): 23–28.

Abstract

The research aimed to determine appropriate vegetative material that showed the highest percentage of growing bud of the *Gigantochloa atroviolacea* Widjaja. There were three types of vegetative material to be tested, i.e. rhizome, stem cutting, and branch cutting. The result showed that the percentage of the three type of material were 84.7%; 52.5% and 43.7% respectively for the rhizome, stem cutting, and branch cutting. Even though the percentage of branch cutting material was the lowest, but its technique was the efficient one in processing and in the use of materials as well. To improve the growing bud capability of branch cutting material, it was done by soaking the materials in the 5000 ppm hormone IBA solution for 2 hours prior to be immersed in the cultivating medium. This treatment increased the percentage of growing buds of branch cutting material from 43.7% to 64.5%.

0549. **Saefudin** & **F. Syarif**. **2013**. Pengaruh Naungan Tumbuh dan Pupuk Organik pada Hasil Penyulingan Minyak Nilam (*Pogestemon cablin* Benth). *Prosiding Seminar Nasional Biodiversitas. Konservasi Keanekaragaman Hayati Berbasis Kearifan Lokal Masyarakat Indonesia*. Kelompok Studi Biodiversitas Jurusan Biologi Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Sebelas Maret Surakarta 2013. Hlm. 157–160.

Abstrak

Penelitian untuk mengetahui produksi bahan baku nilam dan hasil penyulingan minyaknya dilakukan di areal produksi nilam Lembaga Masyarakat Desa Hutan (LMDH) Salamsari, desa Cimanggu-Bagian Kesatuan Pemangku Hutan (BKPH) Banyumas Barat setelah perbaikan lingkungan tumbuh melalui sistem pertanian organik di bawah tegakan. Faktor-faktor yang diuji adalah macam penaungan atau banyaknya cahaya masuk ke lahan di bawah tegakan jati (*Tectona grandis* L.f), mahoni (*Swietenia macrophylla* King.), tempat terbuka tanpa penaungan,

dan tingkat pemupukan (0, 10, dan 20) ton/ha pupuk organik yang diperkaya mikroorganisme pelarut fosfat. Masing-masing perlakuan diulang sebanyak 4 kali ulangan. Hasil percobaan menunjukkan bahwa tingkat penaungan dalam budi daya organik di bawah tegakan meningkatkan produksi bahan baku nilam dengan kualitas minyak nilam yang tetap baik. Produksi nilam tertinggi adalah 27,35 ton/ha pada lahan di bawah tegakan jati dengan pemberian pupuk organik 20 ton per ha, dan rendemen minyak yang dihasilkan 2,08% (skala laboratorium), dan 1,64% hasil penyulingan pada tingkat pengepul

0550. **Sambas, E.N**., C. Kusmana, L.B. Prasetyo & **T. Partomihardjo. 2011**. Klasifikasi Vegetasi Gunung Endut, Taman Nasional Gunung Halimun-Salak, Banten. *Berita Biologi* 10(5): 597–604.

Abstract

The research objective is to classify the variety of vegetation types at Mount Endut, Gunung Halimun-Salak National Park. Vegetation sampling was carried out by systematic sampling with random start. Vegetation type at alliance level was determined by vegetation ordination using factor analysis. Four vegetation alliances can be extracted from the ordination. These alliances are *Castanopsis acuminatissima-Schima wallichii/Freycinetia javanica* (alliance 1); *Castanopsis argentea-Dendrocnide stimulans/Schismatoglottis calyptrata* (alliance 2); *Coffea canephora* var. *robusta-Quercus lineata/F. javanica* (alliance 3); and *Paraserianthes falcataria-Coffea canephora* var. *robusta/Oplismenus compositus* (alliance 4).

0551. **Sambas, E.N.,** C. Kusmana, L.B. Prasetyo & **T. Partomihardjo. 2013**. Preferensi Ekologis Jenis-Jenis Tumbuhan Dominan di Gunung Endut, Banten. *Jurnal Biologi Indonesia* 9(2): 209–218.

Abstract

Thirteen plant species of main vegetation alliances were detected upon their preferences on various factors, among them, six species had preferences on either soil or topographical factors, while four species only had preferences on soil factors, and one species only on topographical one. On topographical factors, there were six species which had preferences most on average elevation and one species on minimum elevation of the research plots.

0552. **Sambas, E.N. 2014**. Komposisi Jenis Pohon pada Hutan Pamah Mamberamo, Papua. *Prosiding Seminar Nasional Jurusan Biologi FMIPA UNPAD*. Hlm. 234–243.

Abstrak

Papua telah dikenal sebagai pusat keanekaragaman hayati di Indonesia bahkan dunia. Eksplorasi dan studi ekologi tumbuhan telah dilakukan pada dua lokasi di Daerah Aliran Sungai Mamberamo yaitu Kwerba (elevasi 129 m) dan Hotice (elevasi 285 m). Eksplorasi mengoleksi 67 spesimen dari 43 jenis (39 marga dan 29 suku). Studi ekologi dengan menggunakan petak, di petak penelitian

Kwerba (0,1 Ha) tercatat 28 jenis pohon yang tergolong pada 24 marga dan 15 suku, sedangkan di Hotice (0,18 Ha) tercatat 51 jenis pohon dari 42 marga dan 23 suku. Jenis-jenis pohon dominan adalah *Teijsmaniadendron novoguinense* (Verbenaceae), *Anisoptera thurifera* (Dipterocarpaceae) dan *Intsia bijuga* (Fabaceae). Sementara itu, suku-suku tumbuhan penting adalah Euphorbiaceae, Meliaceae, Verbenaceae, dan Fabaceae.

0553. **Sambas, E.N. 2014.** Komposisi Jenis Pohon Pada Hutan Sub-Pegunungan di Halmahera Tengah, Maluku Utara. *Prosiding SNaPP: Sains, Teknologi dan Kesehatan*, Vol. 4 No. 1 (2014) UNISBA. Hlm. 307–314.

Abstrak

Flora hutan sub-pegunungan Pulau Halmahera belum banyak diungkapkan. Namun kelestarian keanekaragaman tumbuhan tersebut terancam akibat berbagai kegiatan manusia seperti penambangan nikel. Eksplorasi dan studi ekologi tumbuhan telah dilakukan di lingkungan areal penambangan Weda Bay Nickel. Sebuah petak berukuran 50 m x 70 m yang dibagi menjadi 35 petak berukuran 10 m x 10 m. Hasil pencacahan mencatat sebanyak 27 jenis pohon (diameter > 10 cm) yang termasuk 19 marga dan 16 suku serta 36 jenis anakan pohon (diameter 2,0–9,9 cm) yang termasuk ke dalam 28 marga dan 20 suku tumbuhan. Jenis pohon dominan adalah *Dacrydium nidulum*, *Ternstroemia gymnanthera*, *Garcinia celebica* dan *Calophyllum soulattri*; sedangkan anakan pohon yang dominan adalah *Ternstroemia gymnanthera*, *Gordonia rumphii*, *Ilex cymosa* dan *Calophyylum soulattri*. Eksplorasi mengoleksi 53 jenis tumbuhan yang termasuk ke dalam 47 marga dan 29 suku. Jenis-jenis asli pohon yang dominan perlu dilestarikan untuk kepentingan penghutanan kembali pasca-penambangan nikel.

0554. Sanders, K.L., **Mumpuni,** & M.S.Y. Lee. **2010.** Uncoupling Ecological Innovation and Speciation in Sea Snakes (Elapidae, Hydrophiinae, Hydrophiini). *Journal of Evolutionary Biology* 23: 2685–2693.

Abstract

The viviparous sea snakes (Hydrophiinae) are by far the most succesful living marine reptiles, with 60 species that comprise a prominent component of shallow-water marine ecosystems throughout the Indo-West Pasific. Phylogenetically nested within 100 species of terestrial Australo-Melanesian elapids (Hydrophiinae), moleculer timescales suggest that the Hydrophiinae are also very young, perhaps only 8–13 Myr old. Here, this study uses likelihood-based analyses by combining phylogenetic and taxonomic data for Hydrophiinae to show that the initial invation of marine habitats was not accompanied by elevated diversification rates. Rather, a dramatic three to six-fold increase in diversification rates occured at least 3–5 Myr after this transition, in a single nested clade: the Hydrophis group accounts for 80% of species richness in Hydrophiini and 35% of species richness in (terestrial and marine) Hydrophiinae. Furthermore, other co-distributed lineages of viviparous sea snakes (and marine

Laticauda, *Acrochordus* and homalopsid snakes) are not especially species rich. Invasion of the oceans has not (by itself) accelerated diversification in Hydrophiini; novelties characterizing the *Hydrophis* group alone must have contributed to its evolutionary and ecological succes.

0555. Sanders, K.L., **Mumpuni, A. Hamidy**, J.J. Head, & D.J. Gower. **2010.** Phylogeny and Divergence Times of Filesnakes (*Acrochordus*): Inferences from Morphology, Fossils and Three Molecular Loci. *Molecular Phylogenetics and Evolution* 56: 857–867.

Abstract

Acrochordidae is species-poor but highly distinctive aquatic snakes distributed from northwest India to the western edge of the Pacific. This study provides the first phylogeny for the three extant species using Bayesian and parsimony analyses of one mitochondrial and two nuclear gene sequences. *Acrochordus javanicus* is strongly recovered as sister to *A. arafurae* + *A. granulatus*, counter to expectations from superficial ecology, external phenotype, and former taxonomy. This study reviewed and revised key fossil calibrations for dating snake divergences. Bayesian relaxed clock analysis of the two nuclear loci yields deep interspecific divergences among extant species that occurred during the Miocene, 16 and 20 Mya (million yeas ago), pre-dating at least two of the three other living marine snake lineages. New morphological data for *Acrochordus arafurae*, and our molecular timescale, provide support for the placement of fossil taxon *A. dehmi* within the *Acrochordus* crown group, as sister to *A. javanicus among nominate species*. Finally, *Acrochordus* phylogeny provides an improved basis for taxon selection and character polarization in higher snake phylogenetics. This study highlights the three *Acrochordus* species as old and highly distinct lineages that comprise an important component of the threatened Indo-Australian biodiversity.

0556. Sanders, K.L., A.R. Rasmussen, J. Elmberg, **Mumpuni,** M. Guinea, P. Blias, M.S.Y., Lee & B.G. Fry. **2012.** *Aipysurus mosaicus,* a New Species of Egg-Eating Sea Snake (Elapidae: Hydrophiinae), with a Redescription of *Aipysurus eydouxii* (Gray, 1849). *Zootaxa* 3431: 1–18.

Abstract

This study describes a new species of egg-eating sea snake, *Aipysurus mosaicus* **sp. nov.**, from northern Australia and southern New Guinea. This species was previously considered to be an allopatric population of *A. eydouxii*, which occurs throughout the Sunda Shelf and in New Guinea. Molecular analyses reveal these two species to be sister lineages with fixed nucleotide substitutions at three independent mitochondrial and nuclear loci, and a deep phylogenetic divergence exceeding that of all other sampled species pairs in *Aipysurus*. *Aipysurus mosaicus* sp. nov. is also distinguished from *A. eydouxii* by morphological characters relating to scalation (e.g. number of ventral scales), colour pattern (e.g. number and shape of transverse body bands), internal soft anatomy

(e.g. position of heart in relation to ventral scales), and skeletal morphology (e.g. shape of nasal and caudal neural spines). Additional sampling is needed to clarify the extent of geographic contact between *A. eydouxii* and the new species in New Guinea where they appear to be sympatric. It is likely that the boundaries between these taxa will be mirrored in other coastal sea snakes with ranges spanning the deep waters of the Timor Trench; discovery of such cryptic species will have important implications for conservation of this highly diverse but relatively poorly studied group of marine vertebrates.

0557. Sanders, K.L., A.R. Rasmussen, **Mumpuni,** J. Elmberg, A. de Silva, M.L.Guinea, M.S. Lee. **2013.** Recent Rapid Speciation and Ecomorph Divergence in Indo-Australian Sea Snakes. *Molecular Ecology* 22(10): 2742–2759.

Abstract

The viviparous sea snakes (Hydrophiinae) are a young radiation of at least 62 species that display spectacular morphological diversity and high levels of local sympatry. To shed light on the mechanisms underlying sea snake diversification, this study investigated recent speciation and eco-morphological differentiation in a clade of four nominal species with overlapping ranges in Southeast Asia and Australia. Analyses of morphology and stomach contents identified the presence of two distinct ecomorphs: a 'macrocephalic' ecomorph that reaches >2 m in length, has a large head and feeds on crevice-dwelling eels and gobies; and a 'microcephalic' ecomorph that rarely exceeds 1 m in length, has a small head and narrow fore-body and hunts snake eels in burrows. Mitochondrial sequences show a lack of reciprocal monophyly between ecomorphs and among putative species. However, individual assignment based on newly developed microsatellites separated co-distributed specimens into four significantly differentiated clusters corresponding to morphological species designations, indicating limited recent gene flow and progress towards speciation. A coalescent species tree (based on mito-chondrial and nuclear sequences) and isolation-migration model (mitochondrial and microsatellite markers) suggest between one and three transitions between ecomorphs within the last approximately 1.2 million to approximately 840000 years. In particular, the macrocephalic 'eastern' population of *Hydrophis cyanocinctus* and *microcephalic H. melanocephalus* appear to have diverged very recently and rapidly, resulting in major phenotypic differences and restriction of gene flow in sympatry. These results highlight the viviparous sea snakes as a promising system for speciation studies in the marine environment.

0558. Sanders, K.L., M.S.Y., Lee, **Mumpuni**, T. Bertozzi, & A.R. Rasmussen. **2013.** Multilocus Phylogeny and Recent Rapid Radiation of the Viviparous Sea Snakes (Elapidae: Hydrophiinae). *Molecular Phylogenetics and Evolution* 66(3): 575–591.

Abstract

The viviparous sea snakes (Hydrophiinae: Hydrophiini) comprise a young but morphologically and ecologically diverse clade distributed throughout the

Indo-Pacific. Despite presenting a very promising model for marine diversification studies, many relationships among the 62 species and 16 genera in Hydrophiini remain unresolved. Here, this study extends previous taxonomic and genomic sampling for Hydrophiini using three mitochondrial fragments and five nuclear loci for multiple individuals of 39 species in 15 genera. Study results highlight many of the impediments to inferring phylogenies in recent rapid radiations, including low variation at all five nuclear markers, and conflicting relationships supported by mitochondrial and nuclear trees. However, concatenated Bayesian and likelihood analyses, and a multilocus coalescent tree, recovered concordant support for primary clades and several previously unresolved inter-specific groupings. The *Aipysurus* group is monophyletic, with egg-eating specialists forming separate, early-diverging lineages. All three monotypic semi-aquatic genera (*Ephalophis*, *Parahydrophis* and *Hydrelaps*) are robustly placed as early diverging lineages along the branch leading to the *Hydrophis* group, with *Ephalophis* recovered as sister to *Parahydrophis.* The molecular phylogeny implies extensive evolutionary convergence in feeding adaptations within the *Hydrophis* group, especially the repeated evolution of small-headed (microcephalic) forms. *Microcephalophis* (*Hydrophis*) *gracilis* is robustly recovered as a relatively distant sister lineage to all other sampled *Hydrophis* group species, here termed the 'core *Hydrophis* group'. Within the 'core *Hydrophis* group', *Hydrophis* is recovered as broadly paraphyletic, with several other genera nested within it (*Pelamis*, *Enhydrina*, *Astrotia*, *Thalassophina*, *Acalyptophis*, *Kerilia*, *Lapemis*, *Disteira*). Instead of erecting multiple new genera, this research recommends dismantling the latter (mostly monotypic) genera and recognising a single genus, *Hydrophis* Latreille 1802, for the core *Hydrophis* group. Estimated divergence times suggest that all Hydrophiini last shared a common ancestor 6 million years ago, but that the majority of extant lineages diversified over the last 3.5 million years. The core *Hydrophis* group is a young and rapidly speciating clade, with 26 sampled species and 9 genera and dated at only 5–3 million years old.

0559. **Santika, Y. 2010**. Leaf Anatomy of *Freycinetia javanica* Blume and *F. scandens* Gaund. (Pandanaceae; Freycinetoideae). *Floribunda* 4(1): 18–20.

Abstract

Leaf anatomy of *Freycinetia javanica* and *F. scandens* differs in the arrangement of stomata and the shape of the cuticle. The leaf anatomy also supports the placement of the two species into separate sections (*Cyrtopoda* for *F. javanica*, *Oligostigma* for *F. scandens*).

0560. Sartika T., **S. Sulandari** & **M.S.A. Zein. 2011.** Selection of Mx Gene Genotype as Genetic Marker for Avian Influenza Resistance in Indonesian Native Chicken. *Proceeding International symposium on anamal genomic for animal health. Paris, France. 31 May–2 June 2010. BMC proceeding.* 5(Suppl 4): S37.

Abstract

Background: In previous studies, the Mx Gene has been demonstrated to confer positive anti viral responses in chicken. The amino acid variation of Asn (allele A) at position 631 was specific to positive antiviral Mx/resistant, while, that of Ser (allele G) was specific to negative Mx/susceptible. This research was aimed at selecting one of the native chicken breeds which was found out to be resistant to avian influenza using molecular technique. The selected breed will then be used as the base population to improve native chicken breed in Indonesia.

0561. **Santika, Y. 2012**. Keanekaragaman Zingiberaceae di Kawasan Konservasi Gunung Endut, Taman Nasional Gunung Halimun Salak dan Pemanfaatannya oleh Masyarakat Lokal. *Proceeding Seminar Nasional Biodiversitas IV.*

Abstrak

Six species of *Zingiberaceae* are known from Gunung Endut, Halimun–Salak National Park. One species of *Alpinia scabra*, one species of *Etlingera coccinea*, one species of *Amomum aculeatum*, two species of *Horstedtia***,** namely *H. pinanga* and *H. padulosa*, and one species of *Zingiber* sp. Zingiber species is still unidentified because of lack of opened flower. Identification key is given, with full description. Ecology and etnobotany information of some species are discussed.

0562. **Saskiawan, I.** & K. Rubowo. **2011**. Peranan Puslit Biologi dalam Pengembangan Produksi Jamur Pangan di Indonesia. *Prosiding Peran Jejaring dalam Meningkatkan Inovasi dan Daya Saing Bisnis.*

Abstrak

Indonesia merupakan negara dengan kekayaaan sumber daya hayati melimpah yang berpotensi sebagai sumber bahan pangan. Salah satu sumber bahan pangan tersebut adalah jamur pangan (*edible mushroom*). Untuk lebih mengoptimalkan pengembangan produksi jamur pangan di Indonesia diperlukan beberapa komponen yang harus berperan secara sinergis dan interaktif. Dalam paper ini kolaborasi Triple Helix antara Akademisi, Pelaku Budi Daya Jamur, dan Pemerintah akan dipaparkan. Institusi-intstitusi tersebut adalah lembaga pemerintah sebagai penentu kebijakan teknis, regulator umum maupun stimulator. Termasuk dalam kelompok ini adalah Kementerian Pertanian, Kementerian Perdagangan dan Kementerian Perindustrian. Institusi litbang dan perguruan tinggi dengan para penelitinya sebagai inovator teknologi. Terakhir adalah pelaku pembudidaya jamur yang dapat berbentuk sebagai asosiasi. Dalam paper ini akan ditampilkan beberapa kegiatan baik yang berupa penelitian di laboratorium, lokakarya maupun kegiatan iptekda yang dilakukan oleh Pusat Penelitian Biologi, Lembaga Ilmu Pengetahuan Indonesia (LIPI) untuk menunjang pengembangan produksi jamur pangan di Indonesia.

0563. **Saskiawan, I.** & **R. Handayani. 2011**. Hidrolisis Kitin Melalui Fermentasi Semi Padat untuk Produksi N-Asetilglukosamina. *Berita Biologi* 10(6): 721–728.

Abstract

N-acetyl-D-glucosamine (GlcNAc), the monomeric unit of polymer chitin has attracted much attention for their therapeutic activity in osteoarthritis. It is mainly produced by acid hydrolysis of chitin which affect the environmental problem because of its acidic wastes. Therefore, it is need to develop the new method for GlcNAc production. The aim of this experiment is to produce GlcNAc by mean of submerged fermentation of chitin. The preliminary study showed that fermentation of chitin by *Aspergillus* sp. 501 produced higher GlcNAc than that of *Saccharomyces* sp. It was 1.39 μg/ml and 1.07 μg/ml. Then the *Aspergillus* sp. 501 was used in optimation of GlcNAc production. The effect of pH and nitrogen course such as bacto peptone, yeast extract, ammonium sulfat, and urea to GlcNAc production was examined. Then the product of GlcNAc was precipited by vacuum evaporated and freeze dryed. The results showed that the highest of production GlcNAc of 2.228 μg/ml was obtained of pH 4 of medium solid state fermentation using urea as Nitrogen source at 10 days incubation.

0564. **Saskiawan, I.** & **R. Handayani. 2011**. Sintesis Alkil N-asetilglukosamina (Alkil-GlcNAc) dengan Enzim *N*-asetilheksosaminidase yang diisolasi dari *Aspergillus sp*. 501. *Jurnal Biologi Indonesia* 7(1): 81–88.

Abstract

N-Acetylhexosaminidase from *Aspergillus sp*. 501 has transglycosylation and hydrolytic activity. Transglycosylation occur through transfer of N-acetylglucosamine (GlcNAc) which was hydrolyzed from p-nitrophenyl-β-N-acetylglucosamine (*p*NP-GlcNAc) to various alcohols. The transglycosylation product was determined by Thin Layer Chromatography and High Performance Liquid Chromatography. Using this transglycosylation activity the novel compound of Alkyl-GlcNAc was synthesized using N-acetylchitotriose as a donor and an ethanol as an acceptor.

0565. Sastrapradja, S. & **E.A. Widjaja. 2010**. *Keanekaragaman Hayati Pertanian Menjamin Kedaulatan Pangan*. LIPI Press.

Abstrak

Pangan merupakan masalah yang berkelanjutan untuk kehidupan manusia. Saat ini jarang yang menyadari bahwa pangan manusia tergantung pada keberadaan keanekaragaman hayati. Melalui sistem pertanian, keanekaragaman hayati dapat dikelola dan terus menerus dikembangkan oleh manusia sehingga menjamin ketersediaan pangan yang dibutuhkannya. Melalui buku ini seorang dapat mengetahui apa yang dimaksud dengan keanekaragaman hayati pertanian. Selanjutnya, buku ini juga mengajak pembaca untuk peduli terhadap keberadaan keanekaragaman hayati pertanian yang mengalami berbagai tekanan

dalam kehidupan manusia di Zaman modern ini. Masyarakat Indonesia wajib mengetahui bahwa Indonesia dianugerahi Tuhan dengan kekayaan hayati pertanian, yang kalau kita bisa memanfaatkannya kita akan dapat mempertahankan kedaulatan pangan kita. Sayangnya, kekayaan untuk mempertahankan kedaulatan pangan ini mulai menyusut karena berbagai perubahan yang terjadi di Indonesia, termasuk petani sebagai pengelola keanekaragaman hayati pertanian. Peran IPTEK untuk menangani pengembangan kekayaan ini dibahas pula. Tidak dilupakan kebijakan-kebijakan yang telah tersedia dan yang perlu dikembangkan untuk mengelolanya. Pada akhirnya, buku ini mengajak para pembacanya untuk mencermati rencana-rencana yang sudah digariskan pemerintah, mengapa tidak bisa dilaksanakan dan mengapa memerlukan tekad kebersamaan baru untuk memilih salah satu di antara tiga skenario yang ditawarkan.

0566. **Semiadi, G., H. Wiriadinata, E.B. Walujo** & **D. Darnaedi. 2010.** Rantai Pasokan Produk Tumbuhan Gaharu (*Aquilaria* spp.) asal Merauke, Papua. *Bulletin Plasma Nutfah* 16(2): 85–167.

Abstract

Papua is claimed to Have High Production of Gaharu (*Aquilaria spp*.) that is Mainly Extracted from Swamp Areas. However, it is still a polemic whether this claim is true and what is the real production level. Therefore, a field survey was conducted in Jayapura, Merauke (Papua), and Probolinggo (East Java) to unveil the actual condition of the gaharu production and its condition. Interviews were made with local forestry officers (BBKSDA) and local traders in Jayapura and Merauke, shipping companies, warehouse administrators, and port administrators in Probolinggo, East Java as the final destination sea port. The results showed that the gaharu taken from swamp area in the region of Merauke was proven by BBKSDA officials. In one year, the legal production of gaharu in the form of kamedangan reached 100 tons, while similar amount was thought to be slipped away by the illegal trades. Field survey in 2007 conducted by local BBKSDA officers in Asmat and Mappi dstricts showed a high production of gaharuin the form of wet kamedangan. Gaharu se frighters at least carried 175 sacks/trip, with special freighters could carry up to 2.100 sacks/trip. The mean weight of each sack was between 58–90 kg with the mean water content ranged from 54–87.39%. Special quota criteria is required to be established on the basis of its quality for Merauke region to avoid problems on undervalue or misconception ofthe products and production level. Verification on the gaharu tree species originated from Papua regionis is also still needed.

0567. Setiadi, M.I., **A. Hamidy**, Z. Abidin, D. Susanto, R.M. Brown, A.T. Peterson, X. Li, B.J. Evans, **2010.** Genetic Structure of Herpetofauna on Halmahera Island, Indonesia: Implication for Akejawe-Lolobata National Park. *Conservation Biology* 24: 553–562.

Abstract

Genetic variation within species a priority for biodiversity conservation is influenced by natural selection, demography, and stochastic events such as genetic drift. This study evaluated the role of these factors in 14 co-distributed species of reptiles and amphibians on the Indonesian island of Halmahera by testing whether their molecular variation was correlated with geographic distance, ecology, riverine barriers, or Halmahera's paleoisland precursors. This study found support for isolation by distance effects in four species. Two of these four were also significantly affected either by rivers or by ecology. A fifth species was significantly affected by ecology and a sixth was significantly affected by Halmahera's paleoislands. These findings are the most comprehensive survey of multispecies genetic variation on Halmahera to date bode well for the efficacy of the recently established Aketajawe-Lolobata National Park in conserving a substantial component of vertebrate genetic variation on this island. Future success of conservation efforts will depend crucially, of course, on funding for and enforcement of conservation management of this park.

0568. **Setiarto, R.H.B. 2011.** Studi Kasus: Aspek Biokimiawi Mikrobial Korosi dan Cara Penanggulangannya Dalam Dunia Industri. *Korosi* 20(1): 29–44.

Abstract

Corrosion is degradation experienced by metal effect its happening oxidation-reduction reacted among metal with environmental substantion. Corrosion can happen by physics, chemical and also biological process. Reverential biological corrosion because microba activity is known with terminology microbial corrosion. Mikrobial corrosion is one of factors constitutes which shall be regarded on power station installation development, oil and gas industry, chemical industry, industrial transportation assembly, development water treatment system, and pulp paper industry. Microorganism that gets main role caused corrosion for example are sulfate reducing bacteria, sulfur oxydizing bacteria, manganese iron oxide bacteria, fungi, alga, and protozoa. Inhibitor microbial corrosion that generally been utilized deep industrial are sodium hypochlorite, quaterner's salt, imidazoline, amida, mixture amida-imidazolin and also organic inhibitor. But then since dangerous character of syntesys chemical material, expensive price, and non environmentally-friendly therefore needfull alternative for protection microbial corrosion attack on metal. One of alternative inhibitor that is nature material extract such as extract of tobacco leaf, tea, coffee, aloe, and papaw leaf that contain N, O, P, S atom, and other atoms that have free electron couple.

0569. **Setiarto, R.H.B. 2011.** Studi Komparatif Toksisitas LC_{50} Aflatoksin, Okhratoksin, Zearalenon Pada Kacang Tanah (*Arachis Hypogaea L*). *Widya Riset* 14(3): 535–540.

Abstract

Aflatoxin, ochratoxin, zearalenon is a compound resulted from metabolism process *Aspergillus flavus*, *Aspergillus ochraseaus* and *Fusarium graminearum* which grows in moist peanut. A long period and over dose of aflatoxin, ochratoxin, zearalenon can be caused liver cancer, cirrhosis, carsinoma, chronic hepatitis, jaundice, food absorption disturbance, digestion disturbance and immunosuppressive. This research have focused on comparative study about toxicity aflatoxin, okhratoxin, and zearolenon compound. The result of toxicity test by using Artemia salina, it was knowingly detected that LC_{50} value from crude extract peanut of ochratoxin, zearalenon, aflatoxin was 296.82 ppm, 366.28 ppm, 251.55 ppm respectively. Finally, it can be concluded that aflatoxin compound from peanut sample had toxicity effect of the most dangerous than other compound (ochratoxin, zearolenon) due to lethal 50% Artemia salina population in smallest concentration.

0570. **Setiarto, R.H.B.** & **M. Rahmansyah. 2011.** *Buku Profil Zat Racun Aflatoksin*. Penerbit: LIPI Press. ISBN 978-979-799-571-3

Abstract

Keberadaan aflatoksin pada sumber pangan dan pakan harus diwaspadai. Kasus keracunan aflatoksin jangan sampai melanda masyarakat Indonesia. Pada sebagian besar masyarakat mungkin saja kasus itu telah terjadi pada perorangan, namun tidak terungkap sebagai penyakit yang mengancam kesehatan masyarakat. Gangguan kesehatan karena menderita sirosis akibat aflatoksin juga belum jelas karena banyak macam racun lain yang memiliki efek sama seperti ketika tubuh terpapar aflatoksin. Pengetahuan tentang proses pembentukan (biosintesis) maupun aspek toksikologi aflatoksin diharapkan dapat memberikan pencerahan kepada masyarakat agar lebih mewaspadai keberadaan senyawa tersebut. Dengan penguasaan pengetahuan itu pula masyarakat diharapkan dapat lebih selektif dalam memilih bahan pangan yang aman untuk dikonsumsi serta mampu membedakan bahan pangan yang telah terkontaminasi senyawa aflatoksin. Metode identifikasi aflatoksin yang dihasilkan oleh suatu kegiatan riset di perguruan tinggi maupun lembaga penelitian hendaknya menjadi suatu kegiatan yang tepat dalam mengenali lebih jauh karakter senyawa aflatoksin. Selain itu, metode identifikasi tersebut hendaknya dapat segera diaplikasikan dalam proses pengawasan mutu mulai dari bahan baku pertanian, maupun ketika setelah menjadi produk pangan olahannya. Dengan dikuasainya metode identifikasi, diharapkan masyarakat industri pangan dan pakan bisa lebih cepat dalam mengidentifikasi secara saksama problem penanggulangan cemaran aflatoksin. Metode identifikasi hendaknya memiliki *standard operational procedure* (SOP) yang mudah sehingga dapat mendukung upaya pencegahan proses peracunan pada segala produk pangan dan pakan. Pengembangan metode identifikasi aflatoksin menjadi tantangan tersendiri bagi para peneliti dalam teknik identifikasi yang cepat dan akurat. Sampai saat ini, cara yang dapat diacu berdasar kepada metode yang ada di buku ini antara lain kromatografi lapis tipis, KIT ELISA, dan High Performance Liquid Chromatography

(HPLC). Secara sederhana, metode kromatografi lapis tipis dapat menganalisis keberadaan senyawa aflatoksin secara semi kuantitatif, serta memiliki kelebihan yang relatif murah, praktis, dan efisien. Metode KIT ELISA memiliki beberapa kemudahan, di antaranya karena cara ekstrasi sampel cukup sederhana, cepat, sensitif, dan spesifik serta hasilnya konsisten. Oleh karena itu, sangat dianjurkan untuk diaplikasikan pada kegiatan industri pangan yang menggunakan komoditas kacang-kacangan maupun serealia sebagai bahan baku utama. Metode HPLC memiliki tingkat akurasi tinggi dan mampu menganalisis kadar aflatoksin secara kuantitatif. Metode ini tepat digunakan bagi kegiatan penelitian karena memiliki keakuratan analisis yang tinggi. Senyawa racun lain seperti okratoksin, zearalenon, fumonisin, trikotesena, maupun deoksivalenol yang dihasilkan oleh kapang atau fungi juga harus diwaspadai keberadaannya. Meskipun dampak toksikologi yang ditimbulkan tidak separah aflatoksin, namun akumulasi dalam jumlah besar dalam rentang waktu yang lama juga dapat mendatangkan efek yang sama dan sangat merugikan bagi kesehatan. Aspek pengendalian secara terpadu dapat menjadi tindak pencegahan cemaran aflatoksin terhadap komoditas pertanian. Pengamanan dapat dilakukan sejak awal persiapan dan penanaman, selama pertumbuhan, ketika pemanenan, dalam pengolahan pascapanen, dan penyiapannya sebagai sumber pangan, sampai siap terhidang di meja makan. Demikian pula untuk alur produk sumber pakan keperluan peternakan. Informasi yang disampaikan buku ini sebenarnya masih jauh dari sekadar upaya dalam mencegah keracunan aflatoksin. Segala penjelasan yang disampaikannya diharapkan dapat menggugah kesadaran terhadap bahaya aflatoksin. Demikian pula bila mengingat efek yang ditimbulkannya yang dapat mengancam kesehatan masyarakat dan menimbulkan kerugian yang fatal di dalam usaha peternakan. Dengan adanya penjelasan aflatoksin dalam buku ini, siapapun diharapkan dapat mengembangkan tindak pencegahan dalam menanggulangi bahaya aflatoksin. Tidak satupun dari bahaya aflatoksin, baik yang berefek akut mupun kronis, bisa ditoleransi. Kemunduran daya tahan tubuh, secara cepat atau lambat, akan menurunkan produktivitas dan disfungsi organ tubuh hati.

0571. **Setiarto, R.H.B**. & **I. Saskiawan. 2013.** Seleksi dan Karakterisasi Mikroba Lignoselulolitik yang Diisolasi dari Limbah Serbuk Gergaji sebagai Media Tanam Jamur Tiram (Pleurotus ostreatus). *Berita Biologi* 12(1): 1–9.

Abstract

Spent Mushroom Substrate (SMS) is a composted growing medium that results from the mushroom growing process. The utilization of SMS for biofertilizer or soil conditioner would be an important point in green agriculture. The study revealed the lignocellulolytic activity from 20 isolates of Fungi and 13 isolates of Bacteria which were isolated from sawdust as a spent mushroom substrate of Pleurotus ostreatus. The selected microorganism then would be used as inocullant for the production of biofertilizer using SMS as a main material. The lignocellulolytic system consist of laccase, cellulase, and xylanase activity was analyzed. The results shown that among 20 isolates of Fungi, the

highest activity of laccase, cellulase, and xylanase was obtained from the isolates 2F1, 2F4 and 2F5. There was (6.153 U, 4.662 U, 3.791U) for laccase, (6.740, 3.711 U, 3.605 U) for cellulase and (6.870 U, 4.673 U, 3.773 U) for xylanase respectively for 2F1, 2F4 and 2F5. Furhtermore, the characterization of the highest lignocellulytic fungi was also conducted. The isolate 2F1 opimally grow in pH 5 at 40°C, isolate 2F4 in pH 9 at 30°C and isolate 2F5 in pH 5 at 30°C. The identification of isolated fungi are in the progress.

0572. **Setiarto, R.H.B.** & **I. Saskiawan. 2013.** The Lignocellulolytic Activity and Ability to Produce Indole Acetic Acid Hormone of Fungal Inoculant Isolated from Spent Mushroom (Agaricus sp.) Substrate. *Microbiology Indonesia* Vol 7, No. 4.

Abstract

The main problem in soil conservation is the lack of source of carbon from organic material. Rice straw from the spent mushroom substrate can be used as organic fertilizer to supply organic carbon for soil. It can also improve soil structure and increase macro-elements and micro-elements for plants. This research focused on analyzing lignocellulolytic activity and Indol Asetic Acid (IAA) concentration from 14 fungi which were isolated from Spent Mushroom Substrate (SMS) of *Agaricus* sp. Based on screening, there were 4 fungi isolates (JPF 2, JPF 5, JPF 13, JPF 14) which had been selected and characterized. The results showed that JPF 14 isolate had the highest activity of laccase (1.767 $U.mL^{-1}$) and it could also produce indol acetic acid (IAA) hormone with the highest concentration (6.78 $mg.ml^{-1}$). JPF 13 isolate had the highest activity of amylase (0.746 $U.mL^{-1}$). JPF 2 isolate had the highest activity of cellulase (0.502 $U.mL^{-1}$). JPF 5 isolate had the highest activity of xylanase (0.560 $U.mL^{-1}$). Characterization of pH and temperature for the 4 isolates fungi lignocellulolytic showed that isolate JPF 2 was mesophylic-acidophylic microbial, isolates JPF 5 and JPF 14 were psycrophylic-acidophylic microbial, and isolate JPF 13 was psycrophylic-alkalophylic microbial. Total microbial population on starter inoculan F2 for organic fertilizer was 2×10^5-5.6×10^5 CFU. mL^{-1}. It was counted by using Total Plate Count (TPC) Method.

0573. **Setyowati, F.M**. **2010.** Etnofarmakologi dan Pemakaian Tanaman Obat Suku Dayak Tunjung di Kalimantan Timur. *Media Litbang Kesehatan* 20(3): 104–112.

Abstract

Modern medicine has been known by people in East Kalimantan including Dayak Tunjung tribe, but until now they still maintain their tradition in utilizing plants in the forest and the surrounding area for curing various diseases. The empirical experience and knowledge from them are very valuable information for developing new drugs. Field study recorded 47 plant species were being used as medicinal plants by Dayak Tunjung people in East Kalimantan. Further research needs to be done to analyze the chemical compounds of these medicinal plants and also the safe dosage of its use.

0574. **Setyowati, F.M. 2010.** Keanekaragaman Tumbuhan Obat Suku Mentawai di Desa Mailepet, Siberut. *Prosiding Seminar Nasional Biologi,* 6 Desember 2010: 237–248.

Abstract

No abstract available

0575. **Setyowati, F.M. 2010.** Ramuan Tumbuhan Obat untuk Perawatan Pasca-Bersalin Masyarakat Aceh. *Jurnal Bahan Alam Indonesia* 7(3): 119–123.

Abstract

No abstract available

0576. **Setyowati, F.M. & Wardah. 2010.** Utilization of Traditional Medicine as Stamina Enhance in Sundanese Communities at Cicemet Village, Banten Kidul. *Proceeding of International Conference on Medicinal Plants*, Surabaya 21–22 Juli 2010: 476–482.

Abstract

Indonesian people has long been known and used traditional medicinal plants as one of efforts to overcome health problems, particularly body stamina. The knowledge was inherited from one generation to generation. A study was conducted at Cicemet Village, Banten Kidul in which the inhabitants were Sundanese. Data collecting was carried out by using explorative survey through interviewing local communities using the medicinal plants existing at their adjacent areas. There were 21 species of medicinal plants which is used by the communities as stamina enhancer, such as tangkur gunung (*Lophatherum gracile*), kicantung (*Goniothalamus macrophyllus*), canar bokor (*Smilax leucophylla*), harega (*Bidens pilosa*), and ki urat (*Plantago major*). Ninety percent of the plants was found growing wild at nature, while ten percent have been cultivated. Processing method, parts of the plants used, chemical composition of each species were described in this paper.

0577. **Setyowati, F.M. & Wardah. 2010.** Potensi Pandan Sebagai Bahan Baku Kerajinan: Studi Kasus di Jawa Timur dan Jawa Tengah. Dalam *Prosiding Seminar Nasional Biologi*. Hlm. 813–817.

Abstract

No abstract available

0578. **Setyowati, F.M.** & **Wardah. 2011.** Ethnomedicinal of Ginseng Jawa (*Talinum paniculatum*) and Kolesom (*Talinum triangulare*) in Several Regions in Indonesia**.** *Proceeding The 1st ACIKITA International Conference of Science and Technology*. Jakarta, July 25–27.

Abstract

Ginseng is often used in traditional medicine as tonic and aphrodisiaca. Its root improves the flow and increases the production of red blood cells, and helps the recovery from illness. In Indonesia, there are several plant species that have similar properties to ginseng such as ginseng jawa or som Jawa (*Talinum paniculatum*) and kolesom (*Talinum triangulare*). In traditional medicine practise, its root mixed with various types of herbal medicine, and the most common is mixed with wine. Assesment of eficacy and kolesom role has been done in purpose as Indonesian ginseng. The result of direct field observations and interviews with local communities in several regions in Indonesia, it is known that both plants are widely use as traditional medicine. On the other hand, these plants have also been used as vegetable and ornamental plants.

0579. **Setyowati, F.M.** & **Wardah. 2011.** Potensi Duapuluh Tujuh Jenis Tumbuhan Obat yang Dimanfaatkan oleh Suku Sasak di Sekitar Taman Nasional Gunung Rinjani. *Prosiding Seminar Nasional "Konservasi Tumbuhan Tropika: Kondisi terkini dan tantangan kedepan"*. Hlm. 134–139

Abstrak

Di Indonesia, praktik pengobatan tradisional diwariskan oleh nenek moyang kita sejak zaman dahulu dan diturunkan dari satu generasi ke generasi selanjutnya. Penelitian ini dilakukan dengan metode survei-exploratif termasuk di dalamnya wawancara dengan tokoh masyarakat, ketua adat maupun masyarakat Sasak yang mengetahui tentang pemanfaatan tumbuhan obat dan eksplorasi langsung ke lapangan. Semua informasi mengenai bagian tumbuhan yang digunakan, cara pengolahan, serta usaha yang dilakukan oleh masyarakat untuk konservasi jenis tumbuhan obat khususnya yang sudah dikategorikan langka. Tercatat 27 jenis tumbuhan yang dimanfaatkan untuk mengobati berbagai macam penyakit oleh masyarakat Sasak yang tinggal di sekitar kawasan Taman Nasional Gunung Rinjani.

0580. **Setyowati, N. 2011**. Pengaruh Intensitas Cahaya dan Media Tanam terhadap Pertumbuhan Bibit Rosela. *Jurnal Agrivigor* 10(2): 219–228.

Abstract

The research study was arranged by Factorial in Randomized Completely Block Design with 2 factors and 5 replications. The first factor was light intensity *i.e.* without shading, with shading of 25%, and with shading of 50%, respectively. The second factor was medium (combinations in soil:dang-manure:compost) with 6 levels factor *i.e.* 1:0:0, 1:1:1, 1:1:2, 3:1:1, 1:2:1, and 2:1:1. The result showed that the full of light intensity on without shading, on 39300 lux of light intensity was the best growth response of rosella seedling, these showed in all parameters were obserbved (plant high 68.79 cm; leaf number 37.92; diameter of trunk 6.08 mm; root length 24.09 cm; root number 24.08; shoot dry weight 9.24 g, root dry weight 2.05 g and seedling quality index 0.277.

The influence on growth media of 1:1:1 treatments showed that best response on growing of rosella seedling compared to other medium. The media 1:1:2 with the best composition of nutrition could trigger on plant high 62.50 cm, root dry weight 1.7 g and seedling quality index 0.6.

0581. **Setyowati, N. 2011.** Pengaruh Pemupukan terhadap Pertumbuhan Bibit Garut (*Maranta arundinacea* L.) di Bawah Naungan 50%. *Biosfera* 28(3): 134–139.

Abstract

Study on the effect of fertilizer on growing of arrowroot (*Maranta arundinacea* L.) seedling under 50% shadding was conducted at the Experimental Garden of Research Center for Biology-LIPI, Cibinong. The research studied was arranged by Factorial in Randomized Completely Block Design with 2 factors and 5 replications. The first factor was fertilized time with 2 levels factors *i.e.* W1= 1x fertilizer in the early of planting and W2= 2x fertilizer (the early and 5 month age of seedling). The second factor was kinds of fertilizer with 5 levels factors *i.e.* P1= Control (without fertilizer), P2= dung manure of goat dirt, P3= dung manure of chicken dirt, P4= dung manure of cow dirt, P5= compost fertilizer. The result showed that two time application of dung manure of goat dirt (P2) is the best response on growing of arrowroot seedling (98.6 cm of plant high, 100 sheet of leaf number, and 8 of clump). The lowest data was seen at control with 1 time fertilizer *i.e.* 39.6 cm of plant high, 28 sheet of leaf number, but the clump 3.2 more amount than compost fertilizer (2.8 of clump). This treatment was also seen to increase of plant high adding of arrowroot seedling during observation. The frequency of fertilizer was significant effect on growing of plant vegetative, *i.e.* 2x fertilizer better than 1x fertilizer.

0582. **Setyowati, N.** & **Saefudin. 2011.** The Pattern of Farming Systems in the Periphery: A Case study at Majenang forest Sub District, West Banyumas Forest District'. *Proceedings of the 1st ACIKITA International Conference of Science and Technology (AICST*), Jakarta, 26–27 July 2011. Hlm. 437–446.

Abstract

Study of 'The Pattern of Farming Systems in the Periphery: A Case study at Majenang forest sub district, West Banyumas forest district' was carried out, from June to August 2009. The study was conducted at 6 villages *i.e.* Cilempuyang, Rejodadi, Boja, Ujungbarang, Pamulihan, and Ciporos. The method of this study was survey. The primary data collected by direct observation in the field and interview with respondent. There were 10 (ten) respondents in each sample area, *i.e.* '*KK*' ('*kepala keluarga*' means head of family). Meanwhile the secondary data were collected by literature study at the library and internet orientation. The data were analyzed by D & D methods. The results showed that there were 3 of farming systems model developed at the periphery *i.e.* intercropping, monoculture, and mixed-farming, include of 39, 3, and 6 plant species, all of them practiced at home-gardens, dry lands, rice field, and

forest area. There were 43 variations of species plants as component of food, fodder, industry, medicinal, spices, and fuel woods. The part of plant which was utilized *i.e.* tuber, pod, flower, fruit, stem, and leaf. The farming system was conducted by conventionally. Selected of farming system was intercropping between food crop, medicinal plant, and annually plant were pine, mahogany and teak which its seedlings provided by '*Perhutani*' (Forestry Department).

0583. **Setyowati, N.** & **Saefudin. 2012**. Pertanian Organik di Bawah Tegakan Hutan untuk Ketahanan Pangan di Desa Hutan Cilempuyang, Banyumas. *Prosiding Seminar Nasional 'Proses Biologi dan Kimia dalam Industri yang Berwawasan Lingkungan*'. FMIPA, Universitas Nusa Bangsa. Bogor, 8 Desember 2011. P. 502–515.

Abstract

Studi about 'organic agricultural under forest tree for food security at Cilempuyang periphery, Banyumas' was carried out in 2009. The methods of the study were survey and direct practized with periphery communities, about procedure made organic compost from forest waste and organic agriculture under forest tree. The objective of the study is to increase income and farmer's skill through utilization of waste product for preservation of forest tree species. The result showed that forest waste can be utilized as organic compost, and can be used as organic fertilizer in the food crop practice and medicinal in the future in order to increase environment under forest tree *i.e.* teak, pine, and mahogani in the periphery. Land management was conducted by minimalist with weeding, and made plant hole. Plant maintenance was conducted by manual with clean weeding on 2 months age. The concept of pest control was conducted by prevention with good sanitation and to protection after flooding. The production of first food crop rice dry field (padi gogo), maize, and vegetable beginning on pre-rain season and several other root crop conducted on rain season next on. Beside, for increasing food production also utilized for increasing environment.

0584. **Setyowati, N.** & N. Sumiasri. **2011**. Pemanfaatan Bambu di Kabupaten Jember, Jawa Timur. *Prosiding Seminar Nasional 'Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan*'. Kebun Raya Cibodas, 7 April 2011. Hlm. 265–271.

Abstract

Jember is one of regencies in East-Java Province where bamboo is very famous for daily life of the communities. In this area, it can be found two tribes *i.e.* Javanese and Maduranese, but the majority was Maduranese. The objective of this study was to know the utilization of bamboo species, especially for the daily life of communities. The method of this study was survey. Data were collected through direct observation in bamboo distribution area and literature study. There were 10 (tens) respondents in each sample area, including KK (head of families or "*kepala keluarga*"). The data analysis was done by D & D

method. The results showed there were 10 groups of the utilization of bamboo in this area which consists of about 45 kind products. All of the bamboos were utilized traditionally. There were 10 species of bamboo which were utilized generally was '*pring tali*'/ *Giganthochloa apus* (20 kinds of bamboo product).

0585. **Setyowati, N. 2012.** Perbanyakan Garut (*Maranta arundinacea* L.) dari Bibit Cabutan Sisa Panen dengan aplikasi Berbagai Pupuk Kandang. *Majalah Pangan* 21(2): 387–396.

Abstract

Study of propagation of Arrowroot (*Maranta arundinacea* L.) from plant residues after harvest with various application of dung manure which was conducted at the Experimental Garden of Research Center for Biology LIPI, Cibinong. The research study was arranged by Factorial in Randomized Completely Block Design with 2 factors and 5 replications. The first factor was fertilized time with 2 levels factors *i.e.* W1= 1x fertilizer in the early of planting and W2= 2x fertilizer (the early and 4 month after planting). The second factor was kinds of fertilizer with 5 levels factors *i.e.* P1= Control (without fertilizer), P2= dung manure of goat dirt, P3= dung manure of chicken dirt, P4= dung manure of cow dirt, P5= compost fertilizer. The result showed that the plant residues after harvest for propagating of arrowroot produced best growth is as same as propagation with tuber material, so this study suggested to use of plant material with plant residues after harvest. This could save about 3,000–3,500 kg tubers for planting material per hectare. The best response on growing of arrowroot was the application 2 times of dung manure from goat dirt (P2). This was shown at all parameters observation *i.e.* 98.6 cm of plant high, 100 sheets of leaf number, and 8 of clump. The lowest data were seen at control with 1 time fertilizer *i.e.* 39.6 cm of plant high, 28 sheet of leaf number, but the clump 3.2 more amount than compost fertilizer (2.8 of clump). This treatment was also seen to increase of plant high adding of arrowroot seedling during observation. The frequency of fertilizer was significant effect on growing of plant vegetative, *i.e.* 2x fertilizer better than 1x fertilizer.

0586. **Setyowati, N.**, **S. Susiarti** & **Rugayah. 2012.** Studi Fisiologi Pertumbuhan *Tacca leontopetaloides* di Sumenep untuk Mendukung Program Kedaulatan Pangan yang Berkelanjutan. *Prosiding Simposium dan Seminar Bersama PERAGI-PERHORTI-PERIPI-HIGI 'Mendukung Kedaulatan Pangan dan Energi yang Berkelanjutan',* Selasa–Rabu, 1–2 Mei 2012. IPB International Convention Center (IICC), Bogor. Hlm. 53–59.

Abstrak

Penelitian tentang studi fisiologi pertumbuhan *Tacca leontopetaloides* di Sumenep untuk mendukung program kedaulatan pangan yang berkelanjutan telah dilakukan pada bulan Maret 2011. Metode yang digunakan adalah survei. Data primer dikumpulkan secara pengamatan langsung di lapangan dan wawancara dengan masyarakat lokal. Pengambilan data lapangan dilakukan pada

4 desa (Talango, Padike, Langsar, dan Jedung) di kabupaten Sumenep. Tiap desa diambil 5 contoh tanaman untuk diambil data pertumbuhannya, kemudian ditabulasi dan dianalisis dengan menghitung rataannya. Data sekunder dikumpulkan secara penelusuran pustaka di perpustakaan dan penelusuran internet. Hasil penelitian menunjukkan bahwa terdapat 2 kelompok tumbuhan *Tacca leontopetaloides* yaitu kelompok semi budi daya dan kelompok liar. Kelompok semi budi daya ditemukan di kebun penduduk desa Langsar, tumbuh bersama tanaman palawija. Masyarakat sudah memanfaatkan tepung dari umbi *Tacca* sebagai makanan selingan. Kelompok yang masih liar ditemukan di pulau Talango, tetapi masyarakat belum memanfaatkannya. Rataan pertumbuhan Tacca dari desa Langsar terlihat paling tinggi yaitu tinggi tangkai daun (55,25 cm), jumlah buah (17), diameter umbi empu (6,43 cm), diameter umbi anakan (11 cm), berat umbi empu (105,80 gr), berat umbi anak (410,58 gr) dan berat total (985,09 gr). Pada kelompok yang masih liar terlihat rataan biomassanya lebih rendah, total biomassa terendah dari desa Padike (433,31 gr). Dari 10 umbi ukuran besar (± 4 kg umbi) dapat menghasilkan 1 kg tepung *Tacca*. Dari hasil analisis tanah dapat dikemukakan bahwa komposisi kimia tanah yang sesuai untuk pertumbuhan *Tacca* adalah pada kandungan 15% pasir, 32% debu dan 53% liat, 1,29% C, 0,11% N dan 12% C/N rasio, juga pada kandungan 51 mg/100 gr P_2O_5 dan 31 mg/100 gr K_2O, dengan nilai tukar kation yaitu Ca 18.32; Mg 2.14; K 0.42; Na 0.14 dan KTK 19.33. Dari hasil penelitian ini diharapkan dapat dipakai sebagai masukan untuk pengembangan *Tacca* yang lebih optimal di wilayah terkait sebagai sumber penghasil karbohidrat yang tentunya akan mendukung terlaksananya program kedaulatan pangan yang berkelanjutan.

0587. **Setyowati, N.**, **S. Susiarti** & **Rugayah. 2012**. *Tacca leontopetaloides*: Persebaran dan Potensinya sebagai Sumber Pangan Lokal di Jawa Timur. *Jurnal Teknologi Lingkungan* Edisi Khusus "Hari Bumi", April 2012: 31–40.

Abstract

Study on '*Tacca leontopetaloides*: Distribution and its potential as a local food resources in East Java' was carried out on March 2011. The method of this study was survey. The primary data were collected by direct observation in the fields and interview with local communities. The field data were collected by random at 18 villages of 11 subdistricts on 5 regencies (Sumenep, Bangkalan, Kediri, Tulungagung, and Trenggalek) in Jawa Timur. The secondary data were collected by literature study in the library and internet orientation. The results showed that Sumenep and Bangkalan Regencies are the distribution area of *Tacca leontopetaloides*, especially at Sumenep regency. A distribution of *Tacca* was at 15–93 m altitude, 07° S, 112–114° E. Most of them were found at shady place under tree canopy with light intesity 77–536 (10x) lux, ambient temperature 30–36°C (shady place), 39°C (open area), and relative humidity 71–91%. At Guwa Daja village, starch of *Tacca* tuber was used for producing various foods supplement to substitute wheat starch by local people. The *Tacca* was not found in Kediri, Tulungagung, and Trenggalek. Therefore, the local people

also do not know it. The result of this research is expected to used in taking policy in the framework of development and concervation a local plant for supporting of food sovereignty of local people.

0588. **Setyowati, N. 2013.** Menggali Potensi *Simaroubaceae* Sebagai Tumbuhan Obat Malaria di Wilayah Bogor dan Jakarta. *Prosiding Seminar Nasional "Aspek Budaya, Kebijakan dan Filosofi Sains Jamu*", Selasa, 2 Oktober 2012. IPB International Convention Center (IICC), Bogor. Prosiding, Januari 2013: 87–92.

Abstrak

Penelitian untuk menggali potensi *Simaroubaceae* sebagai tumbuhan obat malaria telah dilakukan di wilayah Bogor dan Jakarta. Metode yang digunakan adalah survei. Data primer dikumpulkan secara pengamatan langsung di lapangan, dan wawancara dengan masyarakat lokal. Pengambilan data lapangan dilakukan pada 6 lokasi termasuk kebun koleksi tumbuhan di wilayah Bogor–Jakarta yaitu (Serpong, Kebun Obat Karyasari Leuwiliang, Cilangkap, Sawangan, Kawasan Wisata Ilmiah Cimanggu, dan Kebun Raya Bogor). Data sekunder dikumpulkan secara penelusuran pustaka di perpustakaan dan penelusuran internet. Tujuan penelitian adalah untuk menggali potensi famili *Simaroubaceae* khususnya *Brucea javanica* dan *Picrasma javanica* sebagai tumbuhan obat malaria yang dapat dikembangkan untuk bahan baku industri. Hasil penelitian menunjukkan bahwa *Brucea javanica* dan *Picrasma javanica* (*Simaroubaceae*) saat ini sulit dijumpai, baik tumbuh secara alami ataupun dibudi daya oleh masyarakat. *Brucea javanica* ditemukan hanya merupakan bagian koleksi di beberapa kebun obat industri jamu, obat herbal, dan kosmetik seperti Martina Berto, Karyasari, dan Balitro. *Picrasma javanica* hanya ada di Kebun Raya Bogor dan tidak dijumpai di kebun tanaman obat yang lain. Diperoleh informasi bahwa *B. javanica* semakin dikenal dan mulai diekspor oleh beberapa pengusaha di Palembang serta mulai dikembangkan di Malaysia. Ada peluang untuk memasok buah *B. javanica* ke industri obat tradisional sebagai bahan baku industri.

0589. **Setyowati, N. 2013.** Potensi Tumbuhan Minor Penghasil Karbohidrat dan protein untuk menunjang program kedaulatan pangan di Propinsi Banten. *Prosiding Seminar Nasional Riset Pangan, Obat-obatan, dan Lingkungan untuk Kesehatan*, 27 Juni 2013, FMIPA Unpak & Unpad di IPB-ICC. P. 57–68.

Abstract

Penelitian tentang 'potensi tumbuhan minor penghasil karbohidrat dan protein untuk menunjang program kedaulatan pangan' telah dilakukan di Propinsi Banten. Penelitian dilakukan pada 2 kabupaten, yaitu kabupaten Lebak dan kabupaten Pandeglang dengan metode survei. Data primer dikumpulkan secara pengamatan langsung di lapangan, dan wawancara dengan masyarakat lokal. Data sekunder dikumpulkan secara penelusuran pustaka di perpustakaan dan penelusuran internet. Penelitian ini dilakukan pada 2 tahap yaitu pada tahap pertama dilakukan survei untuk mencari keberadaan tumbuhan minor yang

dicari (ganyong, garut, gude, dan kecipir). Tahap kedua adalah melakukan pendataan tentang lingkungan tempat tumbuhnya, dicatat tinggi tempat (TT) berapa m di atas permukaan laut, suhu lingkungan (°C), kelembaban relative (%), dan intensitas cahaya (lux) saat penelitian untuk selanjutnya ditabulasi. Dari hasil survei awal ditemukan tumbuhan ganyong, garut, dan kecipir terdapat pada 7 desa yang termasuk dalam 5 kecamatan, sedangkan gude tidak ditemukan selama survei dilakukan. Selanjutnya 7 desa ini ditetapkan sebagai sampling lokasi penelitian, yaitu desa Mekarsari (kecamatan Sajira, kabupaten Lebak), desa Beunying, Cilaja (kecamatan Majasari), desa Cianjur, Kadohejo (kecamatan Saketi), desa Koranji (kecamatan Pulosari), dan desa Mandalawangi (kecamatan Mandalawangi) dari kabupaten Pandeglang. Hasil penelitian menunjukkan bahwa propinsi Banten berpotensi sebagai sumber tumbuhan minor penghasil karbohidrat dan protein seperti ganyong, garut, dan kecipir, namun masyarakat belum memanfaatkan secara optimal, dan belum membudidayakannya. Ganyong dan garut banyak dijumpai tumbuh liar di pinggir jalan, tebing, di tegalan, di bawah pohon pisang, cengkeh, kopi, dan mlinjo. Kecipir hanya dijumpai di pekarangan dan hanya sebagian kecil masyarakat yang memanfaatkannya sebagai sayur. Tanaman ganyong dijumpai tumbuh pada ketinggian berkisar antara 68–390 m dpl, suhu 26–31°C, kelembaban 68–90%, intensitas cahaya 1.990–9.800 Lux. Garut dijumpai pada ketinggian 68–351 m dpl, suhu 28–29°C, kelembaban 72–84%, intensitas cahaya 1511–4070 Lux. Tanaman kecipir dijumpai pada ketinggian 68 m dpl, suhu 28°C, kelembaban 84%, intensitas cahaya 4.070 Lux. Melihat tumbuhan minor tersebut dapat tumbuh baik di wilayah Banten, namun masyarakat belum memanfaatkannya secara optimal, diperlukan adanya sosialisasi yang lebih intensif baik untuk penanaman dalam skala lebih luas juga pemanfaatannya sebagai bahan pangan alternatif, begitu juga tentang cara-cara pengolahannya sehingga akan dapat menambah penghasilan keluarga dan dapat menunjang program kedaulatan pangan.

0590. **Setyowati, N.** & **N.W. Utami. 2013**. Pengujian Berbagai Jarak Tanam 3 Aksesi Jagung Lokal Maros, Sulawesi Selatan terhadap Pertumbuhan dan Produksinya. *Prosiding Seminar Nasional Riset Pangan, Obat-obatan, dan Lingkungan untuk Kesehatan*, 27 Juni 2013. Hlm. 133–145.

Abstract

Penelitian tentang 'pengujian berbagai jarak tanam 3 aksesi jagung lokal Maros, Sulawesi Selatan terhadap pertumbuhan dan produksinya' telah dilakukan di kebun percobaan Pusat Penelitian Biologi LIPI, Cibinong, pada bulan Mei–Agustus 2012. Percobaan menggunakan Rancangan Acak Kelompok yang disusun secara faktorial, 2 faktor dengan 4 kali ulangan, masing-masing ulangan 10 tanaman. Faktor pertama adalah aksesi jagung pulut terdiri dari 3 taraf yaitu A1= Pulut Snack, A2= Pulut Beras dan A3= Pulut Hibrida. Faktor kedua adalah jarak tanam terdiri dari 3 taraf yaitu JT1= 100x20 cm, JT2= 80x20 cm, JT3= 60x20 cm. Pengamatan pertumbuhan tanaman dilakukan setiap minggu sampai tanaman berbunga, setelah lebih dari 50% buah jagung siap panen. Hasil penelitian menunjukkan bahwa pertumbuhan tinggi tanaman meningkat

seiring dengan bertambahnya umur tanaman. Sementara itu, pertumbuhan jumlah daun terlihat maksimal pada umur 6 minggu, kemudian menurun karena pengurangan jumlah daun yang mengering akibat proses penuaan tanaman. Perlakuan aksesi berpengaruh nyata terhadap pertumbuhan vegetatif jagung pulut. Aksesi A2 (Pulut Beras) paling cepat pertumbuhannya yaitu tinggi 116,35^{a} cm, jumlah daun 11,52^{a} helai, daripada aksesi A1 (Pulut Snack) yaitu tinggi 91,20^{b} cm, 7,67^{c} helai, dan Aksesi A3 (Pulut Hibrida) yaitu tinggi 111,96^{ab} cm, jumlah daun 8,28^{b} helai. Pada umur 7 MST terlihat semua aksesi sudah berbunga antara 70–90 %. Aksesi A1 (Pulut Snack) terlihat lebih cepat berbuah (90%) daripada A3 (Pulut Hibrida) 80%, dan aksesi A2 (Pulut Beras) 20%. Aksesi A2 (Pulut Beras) terlihat mempunyai produksi tertinggi dibandingkan aksesi A1 (Pulut Snack) dan A3 (Pulut Hibrida), namun mempunyai umur panen paling lama (12 minggu). Aksesi A1 (Pulut Snack) paling cepat panen (9 minggu), menyusul Aksesi A3 (Pulut Hibrida) 10 minggu. Secara umum perlakuan jarak tanam tidak berbeda nyata baik pada pertumbuhan maupun produksi jagung pulut, namun dapat disarankan untuk pemakaian jarak tanam rapat (60x20 cm) karena dapat meningkatkan produksi per luasan tertentu.

0591. **Setyowati, N. 2014**. Uji Kecepatan Tumbuh Blustru (*Luffa aegyptiaca*) pada Berbagai Perlakuan Biji sebagai Dasar Perbanyakan untuk Menunjang Program Diversifikasi Pangan. *Prosiding Seminar PERHORTI*, Bogor 9–10 Oktober 2013. Hlm. 559–565.

Abstrak

Blustru, sponge gourd (*Luffa aegyptiaca*) termasuk dalam famili Cucurbitaceae mempunyai prospek untuk menunjang program diversifikasi pangan apabila dapat dikembangkan dan dimasyarakatkan pemanfaatannya. Selain sebagai sayuran, tumbuhan ini juga berguna sebagai obat dan bahan baku industri. Namun, sampai saat ini blustru kurang dikenal bahkan dilupakan oleh masyarakat. Begitu juga belum banyak data-data penelitian dasar yang dapat dipakai sebagai acuan dalam penelitian lebih lanjut. Oleh karena itu, pada kesempatan ini dicoba dilakukan penelitian tentang 'uji kecepatan tumbuh blustru (*Luffa aegyptiaca*) pada berbagai perlakuan biji'. Penelitian bertujuan untuk mencari perlakuan yang sesuai agar benih cepat berkecambah, nantinya dipakai sebagai dasar untuk perbanyakan bibit untuk pengembangan budidaya blustru. Percobaan menggunakan Rancangan Acak Lengkap dengan 4 perlakuan yaitu kontrol, perendaman biji dengan air panas 80°C selama 5 menit, biji digunting, dan biji diampelas. Masing-masing perlakuan dengan 5 ulangan dan setiap ulangan terdiri dari 10 biji. Setelah biji diberi perlakuan kemudian dikecambahkan dalam petridis yang dialasi kertas tisu untuk menjaga kelembaban tiap hari dibasahi, kemudian diamati persen perkecambahannya. Untuk melihat *vigor* kecambah blustru, dilanjutkan dengan menanam bibit dalam *polibag* di rumah kaca, selama 1 bulan. Kemudian diamati tinggi tanaman, jumlah daun, berat basah tanaman dan berat basah akarnya. Hasil penelitian menunjukkan bahwa kadar air biji berkisar antara 7,38–7,60 %. Perlakuan biji dapat memengaruhi kecepatan berkecambah biji blustru. Pengguntingan ujung biji menye-

babkan awal berkecambah paling cepat yaitu dalam 2 hari biji sudah berkecambah, berikutnya perlakuan ampelas pada ujung biji 2,4 hari berkecambah dan perendaman air panas 3,8 hari, sedangkan tanpa perlakuan biji (kontrol) pada hari ke 18 biji baru mulai berkecambah. Perlakuan gunting dan ampelas menyebabkan biji dapat serentak berkecambah, dengan masa akhir berkecambahnya 5,4–8 hari, 50% biji berkecambah pada hari ke 3,2–4,5; persen berkecambahnya tinggi (78–96%) dan sedikit biji yang mati/busuk (4–22%), bila dibandingkan dengan kontrol (hanya 16% berkecambah). Namun, tidak berpengaruh nyata pada parameter vigor semai setelah ditanam dalam pot. Penelitian ini diharapkan dapat memberikan tambahan informasi penelitian dasar perbanyakan blustru untuk dikembangkan di masyarakat.

0592. **Setyowati, N., N.W. Utami** & **A.H. Wawo. 2014**. Influence of Temperature and Length of Storage on the Viability of Gayam (*Inocarpus edible*) Seeds. *Jurnal Teknologi Indonesia* 37(1): 1–8.

Abstract

Research of the 'influences of temperature and length of storage on the viability of Gayam (*Inocarpus edible*) seeds was carried out at Macropropagation Laboratory, Botany Devision, Research Centre for Biology, Cibinong Science Center. The research used Randomized Block Design with 3 factors and 3 replications, in which each replication had 5 samples. The first factor was length of storage with 4 levels i.e. 0 (before storage), 1, 2, and 4 weeks. The second factor was temperature of storage with 2 levels i.e. 20°C and 26°C. The third factor was treatment of seeds with 2 levels of unpeeled and peeled. The result showed that during the storage causes a decrease on water content, increase in value of ion leakage and decreasing of the viability of gayam seed. The storage at a temperature of 20°C was better than 26°C, in which the values of ion leakage were 25,599.04 and 34,662.85 μScm-1, with the seed viability of 83.33 and 80.4 %, respectively. Meanwhile, the viability of unpeeled seed was better than the peeled one, the viability of unpeeled and peeled seeds were 87.08^{a}%, and 76.66^{b}%, respectively. Gayam seeds could be stored up to 4 weeks, at 20°C without peeling of the seed with a high value of viability (86.66^{ab}%). The research on the water sorption of gayam seeds is necessary to determine the appropriate water content of Gayam seed storaging.

0593. Shahabuddin, P. Hidayat, S. Manuwoto, **W.A. Noerdjito**, T. Tscharntke & C.H. Schulze. **2010.** Diversity And Body Size of Dung Beetles Attracted to Different Dung Typeas Along A Tropical Land-Use Gradient in Sulawesi, Indonesia. *J. Tropical Ecology* 26: 1–13.

Abstract

Dung beetles are functionally important component of most terrestrial ecosystems, but communities change the habitat disturbance and deforestation. This study tested if dung beetles ensembles on dung of introduced cattle and of the endemic anoa, a small buffalo, are affected deferentially by habitat

disturbance. Therefore, this study exposed 10 pitfall traps, five baited with anoa and five baited with cattle dung, per site in six habitat types ranging from natural and selectively logged rain forest to three types of agro-forestry system (characterized by different management intensity) and open area (n=4 replicate sites per habitat type) at the margin of Lore Lindu National Park, Central Sulawesi, Indonesia. This study found 28 species, 43% of which were endemic to Sulawesi. Species richness, abundance, and biomass declined from natural forest towards open area. Large-bodied species appeared to be more sensitive to habitat disturbance and ratio of large to small-sized dung beetles declined with land-use intensity. Although selectively logged forest and cacao agro-forestry systems had lower species richness compared with natural forest, they appeared to maintain a high portion of species originally inhabiting forest sites. The similarity of dung beetles ensembles recorded at forest and agro-forestry sites reflects the high similarity of some habitat variables (e.g. vegetation structure and microclimate) between both habitat types compared with open areas, species richness, and abundances as well as species composition, which were characterized by decreases in mean body size, changed with land-use intensity, indicating that dung type is less important than habitat type for determining ensembles structure of these Indonesian dung beetles.

0594. Sharp, N.J., M.F. Newman, **Y. Santika,** Gufrin & A.D. Poulsen. **2012.** The Enigmatic Ginger *Alpinia melichroa* Rediscovered in Southeast Sulawesi. *Nordic Journal of Botany* 29: 001–005.

Abstract

Recent collection from Sulawesi allow an investigation of *Amomum* subgenus *Botryamomum* K. Schum. and its three species, *Amomum chrysogynia* K. Schum., *Amomum echinospaera* K. Schum., and *Amomum melichoum* K. Schum. It is concluded that this subgenus contains a single species, *Amomum melichoum* K. Schum. *Amomum* subgenus *Botryamomum* and *Amomum melichroum* are lectotypified and Schumann's classification of them as *Alpinia melichroa* (K. Schum.) K. Schum. in *Alpinia* sect. *Botryamomum* (K. Schum.) K. Schum. is accepted and amplified description including flowers and fruits is provided. *Alpinia melichroa* is narrowly distributed in southeastern Sulawesi; a conservation assessment is given.

0595. Shekele, M., R. Meier, I. Wahyu, **Wirdateti,** N. Ting. **2010.** Molecular Phylogenetics and Chronometrics of Tarsiidae Based on 12S mtDNA Haplotypes: Evidence for Miocene Origins of Crown Tarsiers and Numerous Species within the Sulawesian Clade. *International Journal of Primatology* 31(6): 1083–1106.

Abstract

This study reports new mitochondrial DNA sequence data from tarsiers sampled from several populations, including the extreme northeast and southwest of the range of the *Tarsius tarsier* species complex, the most extensive sampling

ever reported for this taxon. Study results provide the opportunily to produce the first ever molecular chronometric analysis of Tarsiidae. These results date the age of crown tarsiers, minimally, to the middle Miocene, and each of the 3 tarsier species groups, *Tarsius bancallus*, *T. syrichta*, and the *T. tarsier* complex, to the early or middle Miocene. Thus, each of these 3 species has evolved in isolation for a period of time that is consistent with that which would be expected for multiple speciation events. They analysis of the Tarsius tarsier complex reveals 5 subclades, each of which is interpreted to represent a haplo group at, or above, the species level, a result that is consistent with current hypotheses about numerous cryptic species within this species complex. The implications for conservation within the Sulawesi biogeographic region are that Sulawesi is subdivided into numerous subregions of endemism and that, by extrapolating the example of cryptic tarsier species to othertaxa, biodiversity may be underestimated by an order of magnitude. The practical realties of conservation in Sulawesi are such that it is most reasonable to assume that anthropogenic extinctions are occurring, and that some species will go extinct before they have even been identified.

0596. Shy, J-Y., **D. Wowor** & P.K.L. NG. **2013.** A New Record of the Giant Freshwater Prawn, *Macrobrachium spinipes* (Schenkel, 1902) (Crustacea: Decapoda: Palaemonidae) from Taiwan, with Notes on its Taxonomy. *Zootaxa* 3734: 45–55.

Abstract

The giant freshwater prawn *Macrobrachium spinipes* (Schenkel, 1902) is recorded from Taiwan for the first time and extends the distribution of the species to north of the Tropic of Cancer. The Taiwanese specimens differ slightly from material from Indonesian Papua in the density of the spination of the adult second pereipods, the relative length of the ridge of the posterior submedian plate of thoracite sternite 4, and the color of the carapace, abdomen and pleural condyles.

0597. Sidiyasa, K., **M. Mansur**, **T. Triono** & I. Rahman. **2010**. *Panduan Identifikasi Jenis-Jenis Ramin (*Gonystylus *spp.) Di Indonesia*: Hlm. 40.

Abstrak

Tidak ada abstrak

0598. **Sihotang, V.B.L., E.A. Widjaja &** D. Potter. **2012**. *Medicinal Plant Knowledge of Tolaki and Toraja in Tinukari Village and its surrounding. Proceedings of International Seminar: Strategies and Challenges of Bamboo and Potential Non Timber Forest Products (NTFPs) Management and Utilization*. 23–24 November 2011. Bogor, Indonesia. Center for Forest Productivity Improvement Research and Development, Bogor, Indonesia. Hlm. 175–182.

Abstract

A study of medicinal plants was conducted in the district of North Kolaka, South East Sulawesi, centered at Tinukari village and surrounding villages. Information about 46 species of medicinal plants was collected from Tolaki and Toraja people who live in Tinukari village and the surrounding area, by using interviews, field exploration, and a literature review. Medicinal plants are used to cure 17 types of disease, with the largest number used to cure diseases of the digestive tract, to heal wounds, and to assist the birth process. Only few species are reported to be used to cure cancer and internal diseases.

0599. **Sihotang, V.B.L. 2013.** The Dynamics of *Pandanus* Illustrations from a Historical Perspective. *Reinwardtia* 13 (5): 449–455.

Abstract

Pandanaceae is placed in the superorder *Pandaniflorae* and the order *Pandanales*, indicating its uniqueness when compared with the other seed plants. *Pandanaceae* contains three genera, *Pandanus, Sararanga*, and *Freycinetia*. Limited collections seem to be one reason why botanical illustrations are made, so that people can enjoy their "collections" from a picture painted on canvas. Botanical illustration is one type of record that can also give evidence about whether the plant exists. In addition, botanical illustration can give information about the growth of the plant and historical evidence can be traced. There is no doubt that *Pandanus* has also been well-illustrated. Later, further developments in *Pandanus* research obviously influenced the illustrations of *Pandanus*.

0600. **Simbolon, H.,** R. Dadi, A. Haag & J. Houterman**. 2012.** Sustainable Management of Tropical Peat-Land Ecosytem in Indonesia: A Resource Based Approach. *Proceeding of The International Workshop on "Sustainable Management of Bio Resources in Tropical Peat Swamp Forest".* 1–18.

Abstract

Indonesia posseses about 21 million ha peatland which account for about 57% of the world's tropical lowland peat lands and more than 80% of these are located in the tidal lowlands. These lowlands also hold the main potential for development in Indonesia when it comes to meeting targets set for food and industrial crop production. The rate of deforestation in peatlands during 1985–2000 is almost twice the rate of deforestation in mineral soil, i.e. 1.3% per year versus 0.7% in the mineral soil and increased to 1.5% per year after 2000. In 2005 deforestation in the peatlands was 26% of all deforestation in South East Asia. The coastal lowlands are also prone to subsidence after drainage and reclamation and hence are at an increased risk of the impact of sea level rise due to climate changes. With their huge amount of stored CO_2 and in places high biodiversity values the key to sound lowland management is to find the balance between conservation and development, taking into account the unique characteristics of these vulnerable ecosystems and the effect of climate change and sea level rise. Waclimad (a World Bank supported project

under Bappenas on Water Management for Climate Change Mitigation and Adaptive Development in Lowlands) is proposing Macro Zoning as the first step to sustainable management of tidal lowland in which more than 80% of peatland ecosystems are distributed. Macro Zoning is a resorces based approach at the landscape or delta level distinguishing between areas with clearly different bio physical separation of conservation and development zones on the basis of macro ecosystem and hydrological lowland landscape characteristics, to ensure that interventions associated with development, such as drainage in the development zone will not affect vulnerable peatland ecosystem and other valuable ecosystem of the conservation zone, within an eco hydrological landscape/delta. Basic principle of lowland management and methodology for macro zoning with an example of macro zoning in tidal lowland of Riau will be presented.

0601. **Simbolon, H.,** E. Suzuki & R. Susanti. **2012.** Some Vegetation Types Studies with the Same Methodology in Indonesia. *In* Shin-ichi, N., T. Yahara. T. Nakashizuka (eds.). 2012. *The Biodiversity Observation Network in the Asia-Pacific Region: Toward Further Development of Monitoring. Ecological Research Monographs*, DOI 10.1007/978-4-431-54032-8_7. Springer. Japan

Abstract

Indonesian natural resources have long attracted many botanists of the world—in fact, since Rumphius initiated the work of Herbarium Amboinense during the seventeenth century (Rumphius 1743, van Steenis 1950). Much botanical literature has appeared as the result of botanical explorations and expeditions during the Dutch colonization. Dilmy and Kostermans (1958) compiled studies on vegetation in Indonesia from before 1958, and Kartawinata (1990) reported the state of vegetation studies in Indonesia up to 1980. The general ecological studies in Indonesia were summarized and published in several books in The Ecology of Indonesia Series, including those on: Sumatra (Whitten et al. 1984), Sulawesi (Whitten et al. 1989), Kalimantan (MacKinnon et al. 1996), Nusa Tenggara (Monk et al. 1997), Java and Bali (Whitten et al. 1996), and Papua (Marshal and Beehler 2007). Riswan and Yamada (2006) reported on the progress of biodiversity research in Indonesia. Kartawinata (2005) summarized six decades of natural vegetation studies in Indonesia.

0602. Sinaga, N.I., R. Megia, A. Hartana & **A.P. Keim. 2010.** The Ecology and Distribution of *Freycinetia gaud*. (*Pandanaceae*; *Freycinetoideae*) in the Indonesian New Guinea. *Reinwardtia* 13(2): 189–197.

Abstract

The study mainly concerns with the species of *Freycinetia* that occurs in the Indonesian New Guinea, including the Province of Papua and Papua Barat. The study indicates that almost all species of *Freycinetia* in the Indonesian New Guinea prefer high humidity and abundantly occur along rivers, except for the members of the group of species with imbricate leaves, which inhabit

also secondary forests. Furthermore, the members of this group have never been found within the range of 1,700 to 3,000 m altitudes. This highest range of altitudes is specifically occupied by the members of the groups of species with semi imbricate and grass-like leaves. The costal forests are inhabited by the groups of species with semi and non imbricate leaves. Indonesian New Guinea shares many species with Papua New Guinea, except for the members of the group of species with semi imbricate leaves, which are more common in Indonesia New Guinea than in Papua New Guinea. On the contrary, the members of the group of species with grass like leaves are more common in Papua New Guinea and becoming rare toward the Indonesian site and becoming absent in the Vogelklop (Bird's head), except for *F. polyclada* which is commonly found in Sorong. Indonesian New Guinea possesses 34 species exclusively distributed in the area, while Papua New Guinea has 72 species. The two areas share 52 species. Only five species have extra New Guinean distributions, i.e. *F. exelcsa*, *F. funicularis*, *F. marginata*, *F. percostata* and *F. scandens*.

0603. Sinaga, N.I., **A.P. Keim**, & P. Puradyatmika. **2013**. The Unique Characters and Habitat of *Freycinetia* (Pandanaceae) with Seven New Species in Timika, West Papua, Indonesia. *Reinwardtia* 13(5): 405–418.

Abstract

This current study of *Freycinetia* was carried out in Timika, West Papua. Results indicate that species vary in both morphological characters and habitat preferences. Timika is unique as only in this area species with highest number of segments in a berry and of stigmatic remains are found. Exceptional characters regarding to auricles, areolas, and stigmatic remains are observed in many species in this area. The result of this current study suggests that the ability of species to adapt to the widespread forest disturbances in Timika leads to their differences in morphological features compare to other Papuan species. Subsequently, seven new species are described here.

0604. Sinaga, W., **Wirdateti**, E. Iskandar & J. Pamungkas. **2010.** Pengamatan Habitat, Pakan dan Sarang Tarsius (*Tarsius* sp.) Wilayah Sebaran di Sulawesi Tengah dan Gorontalo. *Jurnal Primatologi Indonesia* 6(2): 41–47.

Abstrak

Tarsier is an endemic primate species to the Indonesian sland of Sulawesi. It is important to find information on the type of habitat, use of nesting trees, natural food consumed, and distribution of tarsier in Central Sulawesi and Gorontalo. The study was implemented from June to August 2009 at five locations. Data collected consisted of habitat, nest or sleeping tres, type of vegetation, and natural food resources of tarsier. Observations of tarsier activities were started at 04.00–07.00 continued from 07.30–10.00 and at 16.00, every day for a period of three months. Distribution of tarsier was estimated by capturing the tarsier using a net of six, nine, and twelve meters. This study

showed that tarsier inhabits secondary forests, and crop fields belonging to local inhabitants. Vegetation used as sleeping trees or nets were bamboo (*Bambuseae* sp.), beringin (*Ficus* sp.), alang-alang (*Imperata cylindrica*), waru (*Hibiscus tiliaceus*), enau (*Arenga pinnata*), and liana (*Liana* sp.). In addition, tarsier also nested in stony crevices and holes in the ground wood. The distribution of tarsier encompases secondary forest, estates, agricultural land, fields, and brushes. Natural food consumed by tarsier were insects 81.2%, reptiles 12.5%, and young birds 1.3%. Mature tarsier consumed 12.76g/individual/day of edible dry matter or about 12% body weight and used 69.09 kkal/kg of energy. These number are considered sufficient to satisfy their needs for reproduction.

0605. Sinery, A.S., C. Boer, **W.R. Farida**. **2012.** The Population Condition and Availability of Feed of Cuscus in the Arfak Mountain Nature Reserve, West Papua. *Biodiversitas* 13 (2): 86–91.

Abstract

The cuscus is a pouched marsupial grouped in the Phalangeridae family, which is nocturnal, arboreal, herbivore, and in most cases the tail is prehensile. The animals are legally protected due to low reproduction, limited distribution area, and high rate of illegal hunting. The illegal hunting happened not only in the production forest areas but also in the reserve areas such as Nature Reserve of Arfak Mountain, directly or indirectly, affects the life quality of the ecosystem, mainly cuscuses population. Therefore, it is necessary to do efforts to have a better management of the region to ensure the sustenance of many components in it. This research is aimed to know the population density of cuscus in Arfak Mountain Nature Reserve and carried out for two months. The method used was descriptive by using direct and indirect observation. The result shows that cuscuses existing in the Arfak Mountain conservation area were northern common cuscus (*Phalanger orientalis*), ground cuscus (*Phalanger gymnotis*), and common spotted cuscus (*Spilocuscus maculatus*). The biggest individual number is of *P. orientalis* with 39 individuals consisting of 18 males and 21 females, the second is of *P. gymnotis* with 10 individuals consisting of 4 males and 6 females, and the smallest is of *S.maculatus* with 9 individuals consisting of 4 males and 5 females. From the total of 58 cuscuses, there are 38 adult and 20 young cuscuses. There are 20 forest plant species identified as feed resources of cuscus in Arfak Mountain Nature Reserve. The parts of forest plant consumed by cuscus are fruits and young leaves. *P. gymnotis* also consumes small insects such as grasshopper. The cuscuses spread from lowland forest to highland forest (2,900 m asl)

0606. Sinery, A.S., C. Boer, **W.R. Farida**. **2013.** Population Dynamics of Cuscus in Tourist Island of Ahe, District of Nabire, Papua. *Biodiversitas* 14(2): 95–100.

Abstract

Cuscus is a pouched herbivorous mammal of the family *Phalangeridae* which is arboreal and nocturnal. The animals are protected by law because, in addition to having a low reproduction and limited distribution area, they face a very high level of hunting. Hunting in the wild by people is done not only in production forest areas but also in forest conservation areas such as recreational forest of Table Mountain, Arfak Mountains Nature Reserve, and other places. Directly or indirectly, the hunting affects the quality of the ecosystem in these areas, especially the cuscus population. Better management efforts are required in these areas to ensure the survival of many organisms in it, especially the cuscus. This study aimed to determine the cuscus population in Ahe Island, and the method applied was descriptive method using direct observation. The study was conducted in one month. The results demonstrate that cuscus in Ahe Island consisted of common spotted cuscus (*Spilocuscus maculatus*) and eastern cuscus (*Phalanger orientalis*). The number of individuals of *S. Maculatus* was 24, consisting of 14 females and 10 males, whereas *P. orientalis* consisted of 2 individuals and both were males. The number of adult cuscus individuals was 16, while adolescents and children, were respectively 8 and 2. At least 10 plant species were identified as a source of food for cuscus in Ahe Island recreation area. Plant parts consumed by cuscus were fruit and young leaves, but based on level of need, most of the cuscus consumed fresh fruit because of its sweet taste and high water content that helps the digestive process.

0607. Sitepu, I.R., L. Ignatia, A. Franz, **A. Kanti**, D.M. Wong, S.A. Faulina, M. Tsui, & K. Boundy-mills. **2012**. An Improved High-throughput Nile Red Fluorescence Assay for Estimating Intracellular Lipids in a Variety of Yeast Species. *Journal of Microbiological Methods*, 2012.

Abstract

A rapid and inexpensive method for estimating lipid content of yeasts is needed for screening large numbers of yeasts samples. Nile red is a fluorescent lipophilic dye used for detection and quantification of intracellular lipid droplets in various biological system including algae, yeasts and filamentous fungi. However, a published assay for yeast is affected by variable diffusion across the cell membrane, and variation in the time required to reach maximal fluorescence emission. In this study, parameters that may influence the emission were varied to determine optimal assay conditions. An improved assay with a high-throughput capability was developed that includes the addition of dimethyl sulfoxide (DMSO) solvent to improve cell permeability, elimination of the washing step, the reduction of Nile red concentration, kinetic readings rather than single time-point read-ing, and utilization of a black 96-well microplate. The improved method was validated by comparison to gravi-metric determination of lipid content of a broad variety of ascomycete and basidiomycete yeast species.

0608. Sodhi, N.S., D.S. Wilcove, T.M. Lee, C.H. Sekercioglu, R. Subaraj, H. Bernard, D.L. Yong, Susan L.H. Lim, **D.M. Prawiradilaga** & B.W. Brook. **2010.** Deforestation and Avian extinction on Tropical Landbridge islands. *Conservation Biology* 24(5): 1290–1298.

Abstract

There are few empirical data, particularly collected simultaneously from multiple sites, on extinctions resulting from human-driven land-use change. Southeast Asia has the highest deforestation rate in the world, but the resulting losses of biological diversity remain poorly documented. Between November 2006 and March 2008, the writers conducted bird surveys on landbridge islands of Malaysia and Indonesia. These islands were surveyed previously for birds in the early 1900s, when they were extensively forested. The bird inventories of the islands were nearly complete, as indicated by sampling saturation curves and nonparametric true richness estimators. From zero (Pulau Malawali and Pulau Mantanani) to 15 (Pulau Bintan) diurnal resident landbird species were apparently extirpated since the early 1900s. Adding comparable but published bird extinction data from Singapore to our regression analyses, this study found there were proportionately fewer forest bird extinctions in areas with greater remaining forest cover. Nevertheless, the statistical evidence to support Indomalayan region, lay fewer eggs are heavier, and occupy a narrower habitat breadth, were most vulnerable to extinction on Pulau Bintan. This was the only island where sufficient data existed to analyse the correlates of extinction. Forest preservation and restoration are needed on these islands to conserve the remaining forest avifauna. This study of landbridge islands indicates that deforestation may increasingly threaten Southeast Asian biodiversity.

0609. Sodhi, N.S., T.M. Lee, C.H. Seckercioglu, E.L. Webb, **D.M. Prawiradilaga**, D.J. Lohman, N.E. Pierce, A.C. Diesmos, M. Rao & P.R. Erhlich. **2010.** Local People Value Environmental Services Provided by Forested Parks. *Biodiversity & Conservation* 19 (4): 1175–1189.

Abstract

Garnering support from local people is critical for maintaining ecologically viable and functional protected areas, However, empirical data illustrating local people's awareness of the importance of nature's services is limited; hence possibly impeding effective ecosystem (environmental)-services based on conservation efforts. Using data from five protected forests in four developing Southeast Asian countries, this study provides evidence that local people living near parks value a wide range of environmental services, including cultural, provisioning, and regulating services, provided by the forests. Local people with longer residency valued environmental services more educated as well as poor people.

0610. **Soedjito, H. 2010.** Kearifan Budaya Indonesia dalam Mengelola Sumber Daya Keanekaragaman Hayati dan Ekosistemnya. *Prosiding Seminar Nasional Biologi dalam Melestarikan Kearifan Masyarakat untuk Mendukung Pemanfaatan Sumber Daya Alam Berkelanjutan.* Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Padjajaran, Jatinangor. ISSN 2088-0286: 33–44

Abstrak

Indonesia dikenal sebagai negara mega diversiti secara biologi dan budaya. Kearifan budaya dalam mengelola sumber daya tercermin sebagai pengetahuan tradisional yang tersebar dalam kebhinekaan Indonesia. Sayangnya, keunikan dan kekayaan Bangsa ini kurang dipahami bahkan sering dilecehkan karena tidak ilmiah. Pelangi pengetahuan ini mendesak untuk diinventarisasi dan diilmiahkan. Kaidah ilmiah hanyalah prasyarat dapat dijelaskan secara kuantitatif yang cenderung terkotak-kotak. Pengetahuan ekologi tradisional dan kearifan lokal mempunyai karakter interkoneksi yang erat dengan lingkunganya. Kenyataan memajukan dan kehidupan nyata mencatat manfaat pengetahuan tradisional sering dapat menyelesaikan persoalan masyarakat sehari-hari. Masyarakat tradisional melestarikan sumber dayanya dan menghindari over konsumsi dengan aturan tabu dan sistem kepercayaan lainya. Pengelolaan ruang dan lahan dalam sekala lansekap dilembagakan dalam sistem adat yang dipegang teguh serta dipatuhi oleh segenap masyarakat anggotanya. Hasilnya adalah kehidupan yang harmonis antara manusia dan alam karena keseimbangan ekologi alamnya terjaga. Ini berarti menjaga budaya sekaligus melestarikan keanekaragman hayati. Studi pengetahuan tradisional dan kearifan lokal dalam mengelola keanekaragaman hayati belum terlalu lama dilakukan di Indonesia. Pemanfaatan sumberdaya hayati memang telah tercatat sejak pedagang Arab mencari kapur (*Dryobalamops champora*) ke pelabuhan Beras di pesisir barat Tapanuli Selatan tahun 627–643 M. Portugis pun awalnya mencari Kapur Barus pada 1.469 M lalu berbagai bangsa menuju Nusantara untuk mencari Cendana (*Santalum album*), Pala (*Myristica fragrans*), Lada (*Piper nigrum*), Cengkeh (*Syzygium aromaticum* syn *Eugenia aromaticum*), sampai akhir penjajahan Belanda untuk mengambil produk hutan bukan kayu (NTFP). Namun, belum mempelajari kaitan sumberdaya hayati ini dengan bagaimana mengelolanya. Kajian baru dimulai oleh Lembaga Biologi Nasional (LBN), LIPI pada tahun 1979 sampai 1982, terutama kerjasama dengan MAB Amerika Serikat yang berjudul "*Interaction Between People and Forests*". Kajian ini dilanjutkan oleh Pusat Penelitian Biologi LIPI dan pada tahun 1986 mendirikan Museum Etnobotani Indonesia. Lalu Universitas Padjajaran mendirikan INRIK (*The Indonesia Resource Center for Indigenous Knowledge*) dan Perhimpunan Masyarakat Etnobiologi Indonesia pada tahun 1998 mencanangkan "Mengilmiahkan Pengetahuan Tradisional" serta Komite Nasional MAB Indonesia menerbitkan kompilasi studi kearifan tradisonal pada tahun 2006 dan 2009.

0611. **Soeka, Y.S. 2010**. Optimasi dan Karakterisasi α-Amilase dari Isolat Aktinomisetes yang Berasal dari Kalimantan Timur. *Berita Biologi* 10(3): 361–367.

Abstract

Forty-one actinomycetes isolates from East Kalimantan held in Microbiology Division Collection-LIPI, and their ability to produce α-amylase has been assessed. Those 41 number of actinomycetes isolates performed amylolytic activity as shown by clear zone areal after pouring with iodium solution. The bacteria produced high α-amylase when they were grown in media containing starch soluble 2% the α-amylase activity in media containing 8.24 U/ml. The isolate (number 7) is the most active compared to another (number 100) and it was identified as *Nocardia*, the activity of this enzyme obtained was 12.93 U/ml (one unit activity is defined as mol of glucose produced per ml per minute). The maximum temperature for enzyme reaction was 40°C, optimum pH was pH 7.5 the α-amylase activity were 15.76 U/ml and 31.11 U/ml, respectively. From kinetic characterization study, it was found that enzyme showed Km and Vmax value of 7.62 % (b/v) and 71. 10^{-2} μmol/ml/minute respectively at condition (temp. 40°C, pH 7.5 and incubation time 10 minute)

0612. **Soeka, Y.S.** & **J. Sulistyo. 2010**. Biotransformasi Pirokatekol Glikosida Menggunakan Kultur Suspensi Sel *Solanum mammosum* L. *Biota* 15(2): 195–204.

Abstrak

A syntesis of pyrocathecolglucoside was carried out through biotransformation cell culture suspension from calusof *Solanum mammosum* L., on modified media of Murashige and Skoog (MS). A growth maximum volume at 15.5 ml of cell culture suspension of *S. mommosum* was achieved on day-8 incubation. The results showed that pyrocathecolglucoside as a biotransformation product that was obtained by application of Pyrocathecol at 50–200 ppm was determined by TLC and identified at *Rf* value of 0.82–0.83. The biotransformation products furthermore determined by HPLC had been obtained from the cell culture suspension at concentration of 200 ppm pyrocathecol contained reaction products those were according to standard solution. Peaks number 1, 2, and 3 with retention time 2.53 min, 4.62 min and 7.58 min were appropriate to the retention time cellobiose, glucose, and methyl α-glucoside, respectively. Meanwhile, peak number 4 with retention time 8.52 min reffered to pyrocathecol-glucobioside as a transfer by product, and peak number 5 with retention time 10.52 min reffered to pyrocathecol-glucoside agreed with the retention time of arbutin was the expected transfer product of this biotransformation.

0613. **Soeka, Y.S., E. Triana** & N. Setianingrum. **2010**. Aktivitas Aktinomisetes dari Bangka Belitung Koleksi Bidang Mikrobiologi, Pusat Penelitian Biologi-LIPI dalam Memproduksi Enzim Kitinase. *Jurnal Teknologi Lingkungan* 11(3): 417–423.

Abstract

The aim of the research was to know the capability of actinomycetes isolated from Bangka Belitung stored at Microbiology-LIPI Culture Collection in

producing chitinase enzyme. This isolate could produce chitinolitic enzyme signed by clear zone at medium contain 1% chitine. The chitinase activity of the isolate which incubated for 1–7 days in the room temperature was analyzed by spectrophotometer in λ 584 nm. The result of this experiment was highest chitinase activities with incubated for 3 days, were 1.66 . 10^{-2} U/ml. Maximum chitinase activities was found at 1% chitine substrate 2.83 . 10^{-2}, pH 8.0 and at 50°C condition were 9.3 . 10^{-2} and 12.98 . 10^{-2} U/ml respectively.

0614. **Soeka, Y.S.,** & **Sulistiani. 2011**. Seleksi, Karakterisasi, dan Identifikasi Bakteri Penghasil Enzim Kitinase yang Diisolasi dari Gunung Bromo Jawa Timur. *Jurnal Natur Indonesia* 13(2), Februari 2011. Akreditasi No. 65a/DIKTI/Kep./2008.

Abstract

Research on selection, characterization, and identification of bacteria produced chitinase enzyme which isolated from Bromo Mountain, East Java had been done. The 48 isolates were tested the capability on degradation the chitine qualitatively, semi quantitatively, and quantitatively. The result showed that 2 isolates such as B2-4 and NA S4-1 could degrade chitin, with the activity 4,8 . 10^{-3} and 3.1 . 10^{-3} U/ml, incubated for 1 and 2 days by using molecular characteristic partial sequence 16S rDNA and the primer 9F and 1510R. Both of the isolates were *Stenotrophomonas* sp.

0615. **Soeka, Y.S., S.H. Rahayu**, N. Setianingrum & **E. Naiola**. **2011**. Kemampuan *Bacillus licheniformis* dalam Memproduksi Enzim Protease yang Bersifat Alkalin dan Termofilik. *Jurnal Kesehatan* 21(2): 89–95.

Abstract

The aim of the research was to measure the production of protease enzyme in alkaline and thermophilic of bacteria *Bacillus licheniformis*. The protease enzyme was signed by clear zone arround the bacteria colonies on medium which contain 1% skimmed milk. The activities of protease enzyme were treated by the period of incubation, temperature, and pH, which measured by spectrophotometer at λ 280 nm. The results showed that the highest production of protease activity at 2 days incubation was 150,52 U/mL. At temperature 50°C and pH 10 they were 123,34 U/mL and 193,14 U/mL.

0616. **Soeka, Y.S. 2013.** Karakterisasi Enzim dan Identifikasi Isolat C_2 Penghasil α-Amilase Bersifat Alkalofilik. *Prosiding Semnas Biodiversitas Universitas Sebelas Maret*, Surakarta 10 November 2012, vol. 2/Februari/2013. ISSN: 2337-506X

Abstrak

Tidak ada abstrak

0617. **Soeka, Y.S. 2013.** Aktivitas Enzim Protease yang Bersifat Alkalin dari *Pseudomonas fluorescent*. *Prosiding Semnas Biodiversitas Universitas Sebelas Mare*t, Surakarta 10 November 2012, vol. 2/Februari/2013. ISSN: 2337-506X

Abstrak

Tidak ada abstrak

0618. Soisook, P., S. Karapan, C. Satasook, V. D. Thong, F. A. A. Khan, **I. Maryanto**, G. Csorba, N. Furey, B. Aul, and P. J. J. Bates. **2013**. A Review of the *Murina cyclotis* Complex (Chiroptera: Vespertilionidae) with Descriptions of a New Species and Subspecies. *Acta Chiropterologica* 15(2): 271–292.

Abstract

Until recently, the taxon *Murina cyclotis* was considered to be a widespread species, albeit one that exhibited considerable individual, sexual, and geographical variation. Subsequently however, it was recognised that this taxon was in fact a complex of species. As such, in 2012, two larger forms were recognised as separate and distinct species, namely: *M. peninsularis* in the Sunda region and *M. fionae* in Laos and Vietnam. In the current paper, a new cryptic species of the *cyclotis*-complex is described from peninsular Thailand based on a combination of external, craniodental, and genetic differences. In addition, the population previously referred to *M. cyclotis* from the Nicobar Islands is described as a new subspecies of this new species. Despite this work and the research of others, the taxonomy of *M. cyclotis* still requires further study. The description of *M. peninsularis* is emended and the extensive variation in its morphological characters is addressed. The diagnostic characters of each taxon, as well as the additional data on ecology, zoogeography, distribution, echolocation, and genetics, where available, are summarised and discussed.

0619. Sosromarsono, S., S. Wardoyo, S. Adisoemarto, **Y.R. Suhardjono** & **W.A. Noerdjito. 2010.** *Kamus Istilah Entomologi*. Perhimpunan Entomologi Indonesia. 2010: 213.

Abstrak

Buku ini merupakan hasil dari mengalihbahasakan istilah-istilah Entomologi dari bahasa Inggris ke dalam bahasa Indonesia menjadi istilah entomologi Indonesia. Istilah-istilah entomologi Inggris yang dialihbahasakan berasal dari glosari beberapa buku ajar berbahasa Inggris, yaitu Borror D.J. & D.M.DeLong 1964, *An Introduction to The Study of Insects.* Rev.ed.; Triplehorn, C.A. & N.F. Johnson 2005, Boror and DeLong's *Introduction to the study of Insects* 7th ed.; Romoser W.S. 1981, *The Science of Entomology*, 2nd ed.; Gullan P.J. & P.S. Cranston 1994,*The Insects: An Outline of Entomology* dan Stehr F.W. (ed.)1987, *Immature Insects.* Selain buku-buku tersebut digunakan juga De La Torre-Bueno J.R. 1989, *A Glossary of Entomology* sebagai rujukan pembanding. Rujukan ke buku-buku ajar tersebut dilakukan dengan maksud supaya istilah-istilah entomologi Indonesia itu dapat langsung berguna terutama dalam bidang pengajar-

an. Dalam pembentukan istilah Indonesia digunakan ketentuan yang tertulis dalam *Pedoman Umum Pembentukan Istilah* yang diterbitkan oleh Pusat Pembinaan dan Pengembangan Bahasa, Departemen Pendidikan Nasional, Republik Indonesia, 1992.

0620. Stelbrink, B., I. Stöger, **R.K. Hadiaty**, U.K. Schliewen & F. Herder. **2014.** Age Estimates for an Adaptive Lake Fish Radiation, Its Mitochondrial Introgression, and an Unexpected Sister Group: Sailfin Silversides of the Malili Lakes system in Sulawesi. *BMC Evol Biol*. 2014; 14–94.

Abstract

The Malili Lakes system in central Sulawesi (Indonesia) is a hotspot of freshwater biodiversity in the Wallacea, characterized by endemic species flocks like the sailfin silversides (Teleostei: Atherinomorpha: Telmatherinidae) radiation. Phylogenetic reconstructions of these freshwater fishes have previously revealed two Lake Matano Telmatherina lineages (sharpfins and roundfins) forming an ancient monophyletic group, which is however masked by introgressive hybridization of sharpfins with riverine populations. The present study uses mitochondrial data, newly included taxa, and different external calibration points, to estimate the age of speciation and hybridization processes, and to test for phylogeographic relationships between Kalyptatherina from ancient islands of New Guinea, Marosatherina from SW Sulawesi, and the Malili Lakes flock.

Results: Contrary to previous expectations, *Kalyptatherina* is the closest relative to the Malili Lakes Telmatherinidae, and Marosatherina is the sister to this clade. Palaeogeographic reconstructions of Sulawesi suggest that the closer relationship of the Malili Lakes radiation to Kalyptatherina might be explained by a 'terrane-rafting' scenario, while proto-Marosatherina might have colonized Sulawesi by marine dispersal. The most plausible analysis conducted here implies an age of c. 1.9 My for the onset of divergence between the two major clades endemic to Lake Matano. Diversification within both lineages is apparently considerably more recent (c. 1.0 My); stream haplotypes present in the sharpfins are of even more recent origin (c. 0.4 My).

Conclusions: Sulawesi's Telmatherinidae have most likely originated in the Sahul Shelf area, have possibly reached the island by both, marine dispersal and island/terrane-rafting, and have colonized the Malili Lakes system from rivers. Estimates for the split between the epibenthic sharpfins and the predominantly pelagic to benthopelagic roundfins in Lake Matano widely coincide with geological age estimates of this rift lake. Diversification within both clades clearly predates hybridization events with stream populations. For Lake Matano, these results support a scenario of initial benthic-pelagic divergence after colonization of the lake by riverine populations, followed by rapid radiation within both clades within the last 1 My. Secondary hybridization of stream populations with the sharpfins occurred more recently, and has thus most likely not contributed to the initial divergence of this benthic species flock

0621. **Subowo, Y.B. 2013**. The Effect of Biofertilizer Fungi on Ciherang Rice Growth at Some Level of Soil Salinity. *Journal of Biological Researches* 18(2): 106–110.

Abstract

A research about the effect of fungus contained biofertilizer on Ciherang rice that was growth on different level of soil salinity was conducted. One of the effect of global climate changes is the increase of sea water level. It leads to the expansion of sea water submerged land for agriculture. Salt intrution to the agriculture area considerably decrease soil fertility because of the high salinity. Some of microbes especially soil fungi such as Aspergillus sp and Penicillium sp. are able to grow at high salinity environment. Those fungi were also able to degrade lignocellulose, sollubilize in organic phosphate and provide organic phosphat and produce plant growth hormon especially IAA. Such activities benefit to improve soil fertility in high salinity land as a bio-fertilizer. The objective of this research was to know the growth of rice plant that treated with fungus contained bio-fertilizer on land with different level of salinity. The rice were planted in Green house of Cibinong Science Centre, Cibinong.The research was set up as complete random design with five replication. The rice were watered by 5 conditions: 50 persen of sea water, 100 persen of sea water, 100 persen sea water + 2 persen NaCl, fresh water + 5 persen NaCl and 100 persen fresh water as the control. Fertilizer was added to the medium twice. Ten grams of fertilizer were used per polybag (10g/7 Kg), 2 weeks after planting and before flowering subsequently. The observed parameters were plant height, number of tiller, leaves colour, biomass dry weight, soil organic carbon content, cellulosic and lignin degrading activities of the fungus, fungus phosphate-solubilizing potency and fungus production of IAA.

The watering treatment lead to 5 level of salinity i.e.: 5,93 dS/m (50 persen sea water), 9,15 dS/m (100 persen sea water), 10,42 dS/m (sea water + 2 persen NaCl), 12,43 dS/m (fresh water + 5 persen NaCl) and 0,74dS/m (fresh water). The result showed that among those 5 watering condition, the rice grew best on 5,93dS/m (watering 50 persen of sea water). This result was considered as the best since the plant height and number of tiller were not significantly different with those of the control. Plants height and number of tiller were 74,4 cm and 11 respectively. On the higher salinity level the plant growth was inhibited. The ability of rice to withstand the high salinity possibly were supported by the fungus activities of providing organic phosphate and IAA growth substance.

0622. **Suciatmih, Yuliar** & **Supriyati, D. 2011.** Isolasi, Identifikasi dan Skrining Jamur Endofit Penghasil Agen Biokontrol dari Tanaman di Lahan Pertanian dan Hutan Penunjang Gunung Salak. *Jurnal Teknologi Lingkungan* 12(2): 171–186.

Abstract

Isolation of Endophytic fungi was done to find alternative microorganisms as biocontrol agents againtst *Rhizoctonia solani* Kuhn, a soil pathogen on many

agriculture crops. The research objectives were 1) to isolate and identify endophytic fungi colonize plants growing on agricultural and mount Salak supporting forest land in the villages of Parakan Salak and Cimalati. Sukabumi, and 2) to screen for their biocontrol agent activity againt R. Solani. Diameter of R solani was measured on day 2 after inoculation and its percent inhibition of growth by endophytic fungi is calculated using formula Skidmore & Dickinson (1976). The result indicated that 214 isolates of endophytic fungi were isolated from 96 plant species that growing in both places. Endophytic fungi isolated including, in the group of *Aspergillus, Cladosporium, Colletotrichum, Curvularia, Drachslera, Fusarium, Gulgnardia, Mucor, Nigrosporia, Paecilomyces, Penicillium, Pestatotiopsis, Phoma, Phomopsis, Rhizoctonia* and endophytic fungi that have not been identified. . Of the 214 fungal isolates tested, 39 isolates (18.22%) could inhibit the growth of *R. solani* from 10.18% to 58.99% with a percent inhibition. The highest growth inhibition of *R. solani* were shown respectively by unidentified fungus isolated from *Hyptis capilata* Jack (58.99%), *Cladosporium* sp. isolated from Jeruk Bali (*Citrus grandis* (L) Osbeck (55.42%). *Pestalotiopsis* sp. Isolated from Pineapple (*Ananas comosus* (L) Merr. (53.85 %) and *Paecylomyces lilacinu* (Thom) Samson isolated from Banyan (*Ficus benyamina* L.) 51.81%.

0623. Sudarmono, H. M-Siregar**,** Purwantoro, R. Subekti & **Agusta, A. 2011.** Aktivitas Anti Bakteri dan Anti Jamur pada *Plectranthus javanicus* (Blume) Benth., *P. Galeatus* Vahl, dan *Scutellaria slametensis* Sudarmono & Conn (Lamiaceae). (The Activity of Anti Bacteria and Anti Fungi in *Plecranthus javanicus* (Blume) Benth., *P. galeatus* Vahl dan *Scutellaria slametensis* Sudarmono & Conn (Lamiaceae)). *Prosiding Seminar Nasional HUT Kebun Raya Cibodas ke-159 "Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan"*. 418–422.

Abstract

Anti bacteria and anti fungus activity of *Plectanthus javanicus*, *P. galeatus*, and *Scutellaria slametensis* (Lamiaceae) were tested by using *Bacillus subtilis* (for gram positive testing), *Pesudomonas aeruginosa* (for gram negative testing), and *Saccharomyces cerevisiae* and *Candida albicans* (for anti fungus testing). Leaves were extracted by using n-heksana, etil acetate and methanol (with the concentration of 50 $\mu g/\mu l$., 100 µg/µl and 200 µg/µl). The results showed that leaves extract of *P. javanicus* and *P. galeatus* (using etil acetate and methanol) have anti bacteria activity against *P. aeruginosa*. All extracts (using n-heksana, etil acetate and methanol, in concentration of 200 µg/µl) of *P. javanicus* leaves also showed anti bacteria activity on Bacillus subtilis, whereas the leaves of *S. slametensis* has anti fungus activity on *S. cerevisiae* in all concentrations of n-heksana (50 µg/µl, 100 µg/µl and 200 µg/µl) as well as anti bacteria activity on *P. aeruginosa* using methanol extract in the concentration of 100 µg/µl and 200 µg/µl.

0624. Sudarto, X.C. Lalu, J.D. Kosen, **A.H. Tjakrawidjaja**, R.V. Kusumah, B. Sadhotomo, Kadarusman, L. Pouyaud, J. Slembrouck & E. Paradis, **2010**. Mitochondrial Genomic Divergence in Coelacanths (*Latimeria*): Slow Rate of Evolution or Recent Speciation?. *Marine Biology International Journal on Life in Oceans and Coastal Waters* © Springer-Verlag 2010 doi 10.1007/s00227-010-1492

Abstract

Dating the divergence between the two known living species of coelacanths has remained a difficult issue because of the very ancient origin of this lineage of fish, which is more closely related to tetrapods than to other fishes. This study sequenced the complete mitochondrial genome of a recently captured individual of the Indonesian coelacanth in order to solve this issue. Using an approach based on loglinear models, this research studied the molecular divergence between the two species of coelacanths and three other pairs of species, one that has diverged recently (Pan) and two that have diverged more distantly in the past. The loglinear models showed that the divergence between the two species of coelacanths is not significantly different from the two species of Pan. A detailed gene by gene analysis of the patterns of nucleotide and amino acid substitutions between these two pairs of species further supports the similarity of these divergences. On the other hand, a molecular dating analysis suggested a much older origin of the two coelacanth species (between 20 and 30 million years ago). This study discusses the potential reasons for this discrepancy. The analysis of new individuals of the Indonesian coelacanth will certainly help to solve this issue.

0625. **Sudiana, I.M.** & **M. Rahmansyah. 2011.** Bacterial Seasoning in Tropical Peatsoil Sustaining Methane Reducing Activities. *ARPN Journal of Agricultural and Biological Science* 6(12), December 2011.

Abstract

Soil ecology of tropical peatsoil faced serious consequence of climate change. Microbial communities that have function for decomposing of organic matter in peatsoil might have role to reduce methane emission because of mutual occupancy within their ecologic niche to methanotrophic bacteria. Hence, key to consider microbial population in peatsoil, the bulk samples that gathered from peatsoil in Kalampangan, southern of central part of Borneo, were studied. The isolates belonged to its functional ability as amylolitic bacteria (ALB), phosphate solubilizing bacteria (PSB), and sulphate reducing bacteria (SRB) were determined, in addition, methanotrophic bacterial (MCB) activities were kept and revised. Those isolates were studied to understand their function in rations to methanotrophic actions. Four isolates from 15 of ALB isolates, 3 from 6 of PSB isolates, 2 from 6 of SRB isolates, and 4 from 6 of MCB were chosen further to revise as due to their vigorous growth. The selected isolates were also studied for genetic recognition (gen NirK, gen ow, and gen NifH), and also morphological distinctive of ALB-2 and PSB-1 which both were

producing phytohormone (indole acetic acid) metabolite. Methanotroph bacterial group in peatsoils samples were able to assimilate methane in this study, and it might be as due to nutritive availability produced by other groups of microbes in peatsoil.

0626. **Sudiana, I.M., A. Kanti**, S. Oktaviana, Helbert & Suprapedi. **2014**. Hydrolyses of Palm Oil Mill Effluent with Fungi and Yeast for Methane Production. *Journal of Applied Sciences in Environmental Sanitation* 9(2): 85–90.

Abstract:

Large amount of Palm oil mill effluent (POME) is generated annually in palm oil industry. The objective of this study was to evaluate the effect of fermentation stage on methane production. Hydrolyses and fermentation process of POME were expected from introduction of fungi, yeast, or co-culture of fungi and yeast, while methanogenesis was performed by inoculation of seed sludge. POME was collected from PTPN VIII, Malimping, West Java, Indonesia. Methane production was initiated with inoculation of 5% seed sludge into fermented POME. The microbial inoculants for hydrolyses and fermentation of POME were phylogenetically belong to *Candida* sp., and *Flavodon* sp. Co-culture of fungi and yeast was effective to enhance methane production. Fermentation process is effective to increase methane production, and worth implemented in wastewater treatment for generating energy and better effluent quality.

0627. **Sugiharto, A. 2010.** Uji Laboratorium dan Lapang Isolat Jamur Pelarut Fosfat Hasil Isolasi dari Habitat Ekstrim di Kalimantan Barat. *Proceeding Seminar Nasional Pemberdayaan Sektor Ekonomi dan Budaya Nasional Berbasis Lingkungan dan Inisiasi Pembentukan Ikatan Ahli Lingkungan Hidup Indonesia*. Hlm. 205. ISSN: 978-979-185-162-6.

Abstrak

Tanah dengan kondisi masam biasanya banyak dijumpai pada daerah yang mempunyai iklim tropik basah seperti Indonesia. Terbatasnya pengetahuan akan cara pemanfaatan tanah masam menjadi kendala dalam upaya pemanfaatannya, terutama dalam sektor pertanian.

Untuk mengatasi hal tersebut, berbagai usaha dapat dilakukan. Pemberian kapur merupakan cara yang umum dilakukan untuk mengurangi kemasaman tanah. Di samping itu, pemberian pupuk kimia biasanya kurang bermanfaat selama ketersediaan Al, Fe, dan Mn tanah tinggi. Pemberian pupuk organik serta pemanfaatan mikroba pelarut fosfat lebih mendekati pemecahan masalah yang dihadapi. Meskipun demikian, dasar tentang aplikasi mikroba pelarut fosfat telah banyak dilakukan, namun mengingat beragamnya kondisi lingkungan di Indonesia, kegiatan penelitian ke arah tersebut masih perlu banyak dilakukan.

Penelitian ini bertujuan untuk mendapatkan isolat-isolat jamur pelarut fosfat pada kondisi tanah ekstrim atau spesifik pada beberapa lokasi di Kalimantan Barat. Pengujian dilakukan baik pada skala laboratorium maupun lapangan. Informasi yang diperoleh dari hasil penelitian ini diharapkan dapat membantu pemanfaatan jamur tersebut sebagai biofertiliser dalam upaya meningkatkan kesuburan tanah guna menunjang usaha reklamasi lahan.

0628. **Sugiharto, A. 2010.** Pemanfaatan Mikroba Berpotensi untuk Revegetasi Lahan Kritis pada *Water Catchment Area* dengan Tanaman Alpukat. *Proceeding book: 7th Basic Science National Seminar*. Hlm. 236. ISBN: 978-602-96393-0-8.

Abstrak

Salah satu masalah utama terjadinya banjir yang melanda negeri tercinta ini adalah beralih fungsinya *water catchment area.* Kawasan yang seharusnya berfungsi sebagai penyangga datangnya air hujan, sudah tidak dapat berfungsi lagi dengan baik. Penyebabnya adalah tidak adanya tanaman penyangga pada daerah ini atau berubahnya fungsi lahan menjadi tempat pemukiman.

Saat ini beberapa kawasan pada *wáter catchment area* telah berubah menjadi lahan-lahan kritis yang hanya ditumbuhi belukar. Keadaan ini tentunya tidak bisa dibiarkan dan seharusnya menjadi salah satu prioritas yang harus dikerjakan bila ingin mengatasi banjir. Ada beberapa jalan keluar yang bisa dikerjakan untuk mengatasi masalah ini. Salah satunya adalah dengan menerapkan teknologi interaktif antara mikrob dengan tanaman untuk mempercepat revegetasi lahan. Pemilihan tanaman yang produktif dan bernilai ekonomi tinggi juga harus dijadikan pertimbangan. Beberapa tanaman budi daya sebetulnya sangat berpotensi dijadikan tanaman revegetasi, salah satu di antaranya adalah tanaman alpukat (*Persea americana*). Penelitian ini telah berhasil menggali potensi pemanfaatan mikrob untuk mempercepat revegetasi pada *water catchment area* melalui teknologi interaksi mikrob akar dengan tanaman alpukat.

0629. **Sugiharto, A. 2010.** Dinamika Jamur Pelarut *Phosphat* dalam Produksi dan Kemasan Pupuk Organik Penunjang Pertanian Organik yang Berkelanjutan di Jembrana, Bali. *Prosiding Seminar Nasional Pengelolaan Lingkungan Hidup, Universitas Diponegoro*. Semarang. 9–10 Juni 2010. Hlm. 380. ISBN: 978-979-704-924-9.

Abstrak

Jembrana adalah salah satu Kabupaten di Pulau Dewata yang siap menyongsong *go organic* untuk hasil pertanian, terutama padi. Berbagai persiapan baik teknis maupun non teknis sampai pada peraturan daerah (PERDA) disiapkan untuk kelancaran pelaksanaan. Salah satu sisi penting dalam kesiapan *go organic* ini adalah ketersediaan akan pupuk organik. Pabrik pupuk organik pun didirikan, dan mulai tahun 2005 kegiatan pertanian organik, khususnya untuk padi dimulai. Kini setelah 5 tahun, kegiatan terus berjalan, namun selama 5 tahun pula belum pernah dilakukan uji kualitas pupuk organik yang diproduksi.

Penelitian ini mengungkap dinamika jamur pelarut *phosphate* dalam produksi dan kemasan pupuk organik yang digunakan dalam kegiatan pertanian organik padi. Hasil penelitian ini sangat menunjang dalam peningkatan kualitas mutu pupuk organik. Dari hasil uji laboratorium diketahui bahwa jamur pelarut *phosphate* yang ditemukan dalam pupuk organik sangat kecil jumlahnya, tidak lebih dari 2 x 10^2 . Jumlah ini terus menurun sampai 50% pada pupuk organik yang sama setelah sampai di lapangan. Hal ini menunjukkan bahwa faktor pengemasan dan distribusi sangat berpengaruh pada kualitas pupuk organik, terutama keterdapatan jamur pelarut *phosphate*.

0630. **Sugiharto, A. 2011.** Eksplorasi dan Koleksi Jamur (*Mushroom*) pada Kawasan Taman Nasional Bogani Nani Wartabone, Sulawesi Utara. *Journal of Biological Researches* 15(2): 125–128.

Abstract

The exploration has been done to collect and to know variety and existence of edible mushroom in Torout Village, Boganinani Wartabone, National Park in North of Sulawesi. The result of study found 12 mushrooms at primary and secondary forest ecosystem. There are in genus of *Clitocybe, Ganoderma, Fomes, Piptoporus, Daldinia, Heterobasidium, Phellinus, Polyporus, Auricularia, Trametes,* and *Coltricia.* Only 2 edible mushroom become one of the food source for local society, *Clitocybe odora* and *Auricularia* sp.

0631. **Sugiharto, A. 2011.** Diversitas Jamur Pelarut P di Pulau Lelaki, Kepulauan Seribu. *Journal of Biological Researches* 4C: 1–6.

Abstract

Earlier researches have been done to know overflows of degradation fungi of phosphate at influenced area by salinity. The aim of this research was to find culture of potential fungi for phosphate degradation, which was estuary finally can be used as biofertilizer for the application of organic farming. Intake of sample was done in Lelaki island in Kepulauan Seribu area and its surroundings, which assumed can represent coastal ecosystem area, that is a ecosystem (specially agriculture) influenced by existence of sea ecosystem especially salinity. Result from laboratories test was found 4 culture of potential fungi type as degradation of phosphate that is from genus of *Aspergillus, Rhizopus, Fusarium* and *Penicillium.* This result indicated existence of forming of transparent zone at *Pikovskaya* media test. Genus of *Aspergillus* and *Rhizopus* show wide transparent or clear zone, 4 mm.

0632. **Sugiharto, A. 2012.** Phosphate Solubilizing Fungi Isolated from Buffer Zone of Gunung Salak National Park. *Berita Biologi* 11(1a): 25–32.

Abstract

Fungi plays important rolesin solubilization of both organic phosphate and inorganic P. The objective of this study is to explore specific diversity of

P-solubilizing fungi from buffer zone of Mt. Salak, National Park. This study isolated several fungi that also to solubilize both Ca-P and P bound phosphate. Two spesies belong to *Aspergilus* sp. and *Acremonium* sp. are able to stimulate plant growth both under laboratory condition and Green house experiment. The ability of these isolates to promote plant growth are important for the plant growth and maintain ecosystem health but also indicate that forest is very important genetic resources, and thus reinforce the importance of forest conservation.

0633. **Suhardjono & U. Hapid. 2011.** Hutan Mangrove di Pulau Moti. *Dalam*: I. Maryanto & H Sutrisno (eds.) 2011. *Ekologi Ternate*. Hlm. 199–217.

Abstract

A research on mangrove vegetation has been conducted in Moti, Tandenas, Tafaga, Subang Takofi, Tafamutu, and their surrounding areas. The results showed that the diversity of mangrove in Moti Island was relatively high. About 53 species of mangrove (41 genera and 31 families) has been recorded. Among them, 20 species were clasified as rare species based on IUCN list with status LR and CR. The result of vegetation analysis of the 10 transects which cover 11,800 m^2 of mangrove forest in this Island recorded 9 species of mangrove plants with level of density was 433–772 individual/ha and basal area was 19.38–48.92 m^2/ha. For the belta, the density was 154–1,039 individual/ha with its basa area 0.44–2.28 m^2/ha. Meanwhile the seedling density is up to 37619–107.242 individual/ha.

0634. **Suhardjono. 2012.** Keanekaragaman Tumbuhan Vegetasi Hutan Mangrove di Tumbu-tumbu, Lampeapi, dan Wungkolo, Pulau Wawonii, Sulawesi Tenggara. *Berita Biologi* 11(2): 221–230.

Abstract

Fifty four species belong to 32 families and 46 genera were recorded in mangrove areas of Tumbu-tumbu, Lampeapi, and Wungkolo (Wawonii Island, South East Sulawesi). Twenty four are included in IUCN (Anonim, 1997) list. The richest species diversity found in Lampeapi (48 species) followed by Tumbu-tumbu (39 spesies) and Wungkolo (29 species). The dominant species of those areas were *Rhizophora apiculata, R. mucronata*, and *Bruguiera gymnorrhiza*. The total average density of three was 268–742 individu/ha, with basal area 16.14–28.99 m^2/ha, sapling plant was 66–317 individu/ha will basal area 0.38–0.92 m^2/ha and seedling plant was 88,134–146,66 individu/ha.

0635. **Suhardjono. 2012.** Studi Vegetasi dan Keanekaragaman Jenis Tumbuhan Hutan Mangrove di Pulau Salawati, Kepulauan Raja Ampat, Papua Barat. *Berita Biologi* 11(1-a): 199–207.

Abstract

Study on mangrove vegetation and plant species diversity has been conducted in Samate, Salawati Island, Raja Ampat Distric, Papua Barat. The study recorded 50 species of mangrove plant diversity in Samate (33 genera and 28 families). Among them, 27 species are classified as rare species based on IUCN list with status CR, EN, and VU. The result of vegetation analysis of two transects which cover 4,000 m^2 of mangrove forest in this location recorded 10 species of mangrove plants with density level was 510–655 individual/ha and its basal area was 21.75–43.82 m^2/ha. For the sapling the density was 345–825 individual/ha and its basal area 1.15–2.38 m^2/ha. Meanwhile, the seedling density was up to 223,500–374,500 individual/ha.

0636. **Suhardjono. 2013.** Hutan Mangrove Cagar Alam Pulau Sempu, Jawa Timur (Mangrove Forest at Sempu Island Nature Reserve, East Java). *Jurnal Biologi Indonesia* 9(1): 121–130.

Abstract

Thirty species which belong to 18 families and 24 genera were recorded in mangrove areas of Ra'as, Air Tawar, and Teluk Semut (Sempu Island, East Java). Twelve are included in IUCN list (Anonymous, 1997). The richest species diversity found in Ra'as (23 species), followed by Teluk Semut (17 species) and Air Tawar (16 species). The dominant species of those areas were *Ceriops tagal, Rhizophora apiculata, R. mucronata, Aegiceras corniculatum, Xylocarpus granatum,* and *Excoecaria agallocha*.

0637. **Suhardjono. 2013.** Hutan mangrove di Kalitoko, Teluk Mayalibit, Pulau Waigeo, Kabupaten Raja Ampat, Propinsi Papua Barat. *Jurnal Biologi Indonesia* 9(1): 1–11.

Abstract

A reseach on mangrove vegetation has been conducted in Kalitoko, Mayalibit Bay, Waigeo Island, Raja Ampat Distric, Papua Barat Province. The results showed that the diversity of mangrove in Kalitoko was relatively high. About 65 species of mangrove (56 genera and 35 families) has been recorded. Among them, 21 species were classified as rare species based on IUCN list with status VU and CR. The result of vegetation analysis of one transect which cover 4,500 m2 of mangrove forest in this location recorded 18 species of mangrove plants with level density was 549 individual/ha and its basal area was 18.61 m2/ha. For the sapling the density was 1,514 individual/ha and its basal area 3.86 m2/ha. Meanwhile, the seedling density was up to 194,889 individual/ha.

0638. **Suhardjono** & **Rugayah**. **2013**. Daya dukung Bahan Anyaman Pandan yang Dimanfaatkan oleh Masyarakat Lokal di Sekitar Taman Nasional Ujung Kulon, Banten. *Prosiding Seminar Nasional Biodiversitas "Konservasi Keragaman Ha-*

yati Berbasisi Kearifan Lokal Masyarakat Indonesia" Kelompok Studi Biodiversitas Jurusan Biologi FMIPA UNS, Surakarta: 220–225.

Abstrak

Pandan merupakan salah satu bahan anyaman yang telah dimanfaatkan oleh masyarakat di Indonesia tidak terkecuali masyarakat di sekitar Taman Nasional Ujung Kulon. Di Taman Nasional Ujung Kulon, dilaporkan terdapat empat jenis Pandanus (*P. furcatus, P. odoratissimus, P. dubius* dan *P. basilocularis*), namun hanya satu jenis yaitu *P. odoratissiumus* yang dimanfaatkan sebagai bahan anyaman. Kajian etnobotani yang dilakukan oleh Mulyati dkk. (2008) di 3 desa yaitu Legon Pakis, Tanjung Lame, dan desa Ciundil menunjukkan bahwa masyarakat di dua desa pertama memanfaatkan daun pandan yang dipanen dari alam. Masyarakat di desa Ciundil telah melakukan budi daya, mereka memanen daunnya setelah tumbuhan berumur 2 tahun (setelah berdaun 15–19 lembar), dalam jangka waktu 2 bulan sekali. Studi populasi dengan metode plot untuk mengetahui kondisi populasi pandan di alam telah dilakukan di TN Ujung Kulon, pada tahun 2005. Hasil yang diperoleh menunjukkan kerapatan *P. odoratissiumus* cukup tinggi dapat mencapai 745.8 individu/ ha. Jenis ini tumbuh melimpah membentuk komunitas murni, dengan regenerasi yang cukup baik. Dari hasil cuplikan di 14 lokasi, jenis *P. odoratissimus* mencapai frekuensi hampir 50 persen (Suhardjono, Laporan Teknik 2006). Mengingat kemampuan masyarakat menghasilkan anyaman 10–15 tikar/ per bulan, setiap anyaman tikar dengan luas 1.20 x 2 m memerlukan 3 ikatan bahan baku yang berasal dari 20 lembar daun pandan/per 1 ikatan (memerlukan 3 x 20 daun pandan). Demikian pula masyarakat desa Ciundil telah melakukan budi daya, dengan mengetahui kemampuan regenerasi *P. doratissimaus* di alam yang baik maka bahan baku anyaman pandan dari alam di Taman Nasional Ujung Kulon untuk memenuhi kebutuhan kedua desa lainnya dapat dikatakan masih memiliki daya dukung yang cukup. Meskipun demikian, pemanfaatan secara rotasi perlu dilakukan.

0639. **Suhardjono. 2014.** Hutan Mangrove di Yanenas, Pulau Batanta, Kabupaten Raja Ampat, Propinsi Papua Barat (Mangrove Forest at Yenanas, Batanta Island, Raja Ampat District, West Papua Province). *Jurnal Biologi Indonesia* 10(1): 127–136.

Abstract

A reseach on mangrove vegetation has been conducted in Yenanas, Batanta Island, Raja Ampat Distric, Papua Barat Province. The results showed that the diversity of mangrove in Kalitoko was relatively high. About 78 species of mangrove (61 genera and 42 families) have been recorded among them, 27 species were classified as rare species based on IUCN list with status VU and CR. The result of vegetation analysis of six transect which cover 8,200 m^2 of mangrove forest in this location recorded 10 species of mangrove plants with level density was 834–1,244 individual/ha and its basal area was 35.38–123.53 m^2/ha. For the sapling, the density was 440–1,714 individual/ha and its basal

area 1.48–4.93 m^2/ha. Meanwhile, the seedling density was up to 86,364–222,500 individual/ha.

0640. **Suhardjono, Y.R.** & **R. Ubaidillah. 2010**. Serangga Indonesia: Perlukah dikonservasi? *Prosiding Seminar Nasional V. Pemberdayaan Keanekaragaman Serangga Untuk Peningkatan Kesejahteraan Masyarakat*. H. Sutrisno dkk. (17 orang editor) (Ed.). Diterbitkan oleh Perhimpunan Entomologi Indonesia, Cabang Bogor: 33–52.

Abstrak

Dari sekitar satu juta jenis serangga yang sudah dideskripsi di dunia, hanya sedikit serangga Indonesia yang sudah diketahui. Umumnya para entomologiwan Indonesia hanya memahami sekitar seribu spesies serangga Indonesia yang utamanya berkaitan dengan hama tanaman, vektor penyakit ternak, dan manusia. Di sisi lain, kerusakan ekosistem maupun degradasi habitat di Indonesia terjadi sangat cepat dan berpotensi sebagai salah satu penyebab kepunahan serangga, bahkan sebagian akan punah sebelum terdokumentasi. Sungguhpun demikian, perhatian kita masih tercurahkan kepada serangga yang merugikan yaitu hama dan vektor penyakit manusia dan sedikit perhatian kita terhadap serangga yang menguntungkan seperti penyerbuk, musuh alami hama, serangga estetika serta serangga yang mempunyai peran dalam ekosistem. Mempertimbangkan ancaman akibat kegiatan manusia yang terjadi dewasa ini maka perlu dipikirkan upaya untuk melakukan konservasi serangga Indonesia. Mengapa serangga perlu dikonservasi dan bagaimana melaksanakannya perlu didiskusikan.

0641. **Suhardjono, Y.R. 2012**. Bab 11. Ekorpegas. *Dalam* Suhardjono Y. R. & R. Ubaidillah (*eds*.). *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Jakarta: LIPI Press. 227–246.

Abstrak

Mengungkapkan jenis Collembola yang dapat dijumpai di dalam gua di Maros. Pada awalnya dikemukakan ciri-ciri utama Collembola dan bagaimana cara identifikasi serta karakter utama yang penting untuk mengenalnya. Tidak kurang dari 19 jenis diungkapkan, masing-masing dilengkapi dengan uraian singkat ciri utama, sebaran dan statusnya.

0642. **Suhardjono, Y.R. 2012.** Bab 1. Pendahuluan. *Dalam* Suhardjono Y. R. & R. Ubaidillah (*eds*.). *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Puslit Biologi-LIPI, Cibinong. Jakarta: LIPI Press. 1–11.

Abstrak

Dalam Bab Pendahuluan ini dikemukakan latar belakang mengapa diperlukan mempublikasikan buku tentang Fauna Karst dan Gua Maros. Definisi itu karst dan gua dan keistimewaan karst Maros diungkapkan dengan jelas. Peta sebaran karst di Indonesia dan keindahan ornamen gua Maros dikemukakan. Buku

ini juga menjelaskan tentang definisi biota gua, habitat dan biologi dari beberapa kelompok disinggung. Arti dan nilai fauna karst dan gua biota dalam ekosistem karst juga dikupas.

0643. **Suhardjono, Y.R., C. Rahmadi, H. Nugroho** & **S. Wiantoro. 2012.** Karst dan Gua. *Dalam* Suhardjono, Y.R. & R. Ubaidillah. *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Puslit Biologi-LIPI, Cibinong. Jakarta: LIPI-Press. 13–52.

Abstrak

Dalam bab Karst dan gua dibahas definisi karst dan gua. Nilai penting dan perlunya konservasi ekosistem karst. Diungkapkan pula beberapa gua yang di Maros mengenai deskripsi keadaan gua yang dilengkapi dengan petanya.

0644. **Suhardjono, Y.R.** & **R. Ubaidillah** (eds). **2012.** *Fauna Karst dan Gua Maros Sulawesi Selatan*. Jakarta: LIPI Press. 258 hlm.

Abstrak

Buku ini berisi tentang uraian tentang karst dan gua dan mengulas keistimewaan Karst Maros. Di samping itu, dibahas fauna yang dapat dijumpai di ekosistem karst Maros yang dikelompokan dalam setiap bab yaitu Kelelawar, Tikus, Ikan, Moluska, Krustase, Arthropoda, Collembola, Cacing, dan Trichoptera. Ungkapan setiap kelompok takson dilengkapi dengan cara pengenalan, habitat, status, dan sebarannya. Buku ini juga dilengkapi dengan daftar glosarium dan indeks.

0645. **Suhardjono, Y.R.**, L. Deharveng & A. Deharveng. 2012. *Collembola (ekorpegas): biologi, ekologi, klasifikasi*. PT. Vega Briantama Vandanesia, Bogor. xii, Hlm. 332.

Abstrak

Buku ini merupakan buku pertama dalam bahasa Indonesia yang membahas tentang biologi, ekologi dan klasifikasi Collembola yang ada di Indonesia. Buku ini dilengkapi dengan foto-foto beberapa jenis yang mudah dijumpai. Di samping itu, juga dilengkapi dengan glosarium dan indeks berdasarkan nama genus.

0646. **Suhardjono, Y.R.**, **T. Triono, I. Hidayat**, **P. Lupiyaningdyah** & **A. Sumadijaya**. **2012.** *Directory of Indonesian Taxonomists*. Jakarta: LIPI Press.

Abstrak

Buku ini berisi tentang daftar nama para pekerja taksonomi, kandidat taksonomiwan, parataksonomiwan, dan dosen yang mengajar taksonomi di Indonesia.

0647. **Suharna, N. 2013**. Analisis Potensi Bioaktif dari Dua Galur Terseleksi *Monascus purpureus* dengan Menggunakan Kromatografi Cair Kinerja Tinggi. *Prosiding*

Seminar Nasional "Biologi Untuk Kesejahteraan Manusia dan Lingkungan" Jurusan Biologi FMIPA Universitas Padjadjaran, Jatinangor, 22 Oktober 2013. Hlm. 383–388.

Abstrak

Studi fisiologis ini ditujukan untuk mengetahui potensi bioaktif dari dua galur terseleksi dari *Monascus purpureus* dalam menghasilkan sitrinin dan lovastatin yang dianalisis dengan menggunakan kromatografi cair kinerja tinggi (KCKT). Hasil analisis KCKT ekstrak angkak dari *M. purpureus* SKW2 dan *M. purpureus* Serasi berturut-turut adalah 13,033 μg/g dan 0 μg/g untuk kandungan sitrinin dan 38,5 mg/g dan 7,4 mg/g untuk kandungan lovastatin. Studi ini menunjukkan bahwa dua galur terseleksi *M. purpureus* sangat potensial untuk produksi angkak sebagai bahan nutrasetikal berdasarkan kandungan sitrinin yang rendah bahkan nol (*M. purpureus* Serasi) disamping kandungan lovastatin yang relatif tinggi (*M. purpureus* SKW2).

0648. **Suharna, N. 2013**. Efektifitas Kokultur *Monascus purpureus* Galur SKW2 dengan *Bacillus megaterium* dalam Penyediaan Angkak Non Sitrinin sebagai Bahan Nutrasetikal. *Prosiding Seminar Nasional "Biologi Untuk Kesejahteraan Manusia dan Lingkungan"* Jurusan Biologi FMIPA Universitas Padjadjaran, Jatinangor, 22 Oktober 2013. Hlm. 366–374.

Abstrak

Studi fisiologis ini bertujuan untuk mengetahui efektifitas kokultur *Monascus purpureus* strain SKW2 dengan *Bacillus megaterium* dalam penyediaan angkak non sitrinin sebagai bahan pangan nutrasetikal. *Bacillus megaterium* dikultur bersamaan (ko-kultur) dengan pertumbuhan *Monascus purpureus* pada media beras varitas IR46. Pemeriksaan kandungan sitrinin pada produk fermentasi ini dilakukan dengan menggunakan kromatografi cair kinerja tinggi (KCKT). Pengukuran pigmen kuning dan merah juga dilakukan dengan cara spektrofotometri pada ekstrak angkak yang dihasilkan. Hasil menunjukkan bahwa ko-kultur antara *M. purpureus* strain SKW2 dan *Bacillus megaterium* dilakukan pada hari 0, pertumbuhan *Monascus* mengalami penghambatan sehingga tidak terjadi pembentukan angkak, namun didominasi *Bacillus*. Namun, bila inokulasi *Bacillus* dilakukan setelah pada pertumbuhan *Monascus* mencapai umur tiga hari, pertumbuhan *Monascus* berlangsung dengan baik sehingga pembentukan angkak terjadi. Hasil analisis KCKT menunjukkan bahwa angkak yang berasal dari hasil fermentasi tunggal mengandung sitrinin13,03 μg/g. Sementara itu, angkak yang dihasilkan dari fermentasi ko-kultur menunjukkan tidak ada kandungan sitrinin (nol). Hasil spektrofotometri menunjukkan kandungan pigmen tidak menunjukkan perbedaan berarti antara yang kultur tunggal *Monascus* dan ko-kultur yaitu 2; 22,1 dan 2, 20,3 masing-masing untuk pigmen kuning dan merah dengan tingkat pengenceran 100x. Namun berbeda dengan pigmen, kandungan lovastatin mengalami penurunan pada kokultur yaitu 13,1μg/g, sedangkan kultur tunggal *Monascus* 38,5 μg/g. Hasil ini menunjukkan bahwa kokultur *M. purpureus* galur SKW2 dengan *B. megaterium* berhasil

menyediakan angkak yang non sitrinin. Walaupun lovastatin tergolong rendah, ko-kultur ini masih menghasilkan pigmen kuning yang tinggi yang diketahui mengandung bahan anti hiperlipidemik and bahan peningkat densitas tinggi kolesterol lipoprotein serta pigmen merah yang dapat dimanfaatkan sebagai alternatif penggunaan bahan pewarna sintetis untuk bahan makanan, minuman, dan kosmetik.

0649. **Suharna, N. 2013**. Phenotypic Characterization and Genetic Variation Detection Using Arbitrary Primed Polymerase Chain Reaction Finger. *Glob. J. Biol. Agric. Heal. Sci.* **2,** 59–64 (2013).

Abstract

The aim of this study was to know the phenotypic characters and also genetic variation by using arbitrary primed polymerase chain reaction finger printing of four wild *Monascus* spp. The phenotypic study showed *Monascus* sp. MYOT and *Monascus* sp. MYOM and *Monascus* sp. COEL had similar phenotypic characters. Meanwhile, *Monascus* sp. KTB was more different from the three *Monascus* isolates and considered different species. Although *M. pilosus* was regarded as the closest species, the four *Monascus* isolates seemed to be new species. The AP-PCR analysis of the four *Monascus* isolates produced 124 DNA bands recognized visually. The phylogenetic tree generated showed the differences among the four isolates studied. This study indicated that use of AP-PCR is more suitable for isolates or strains differentiation rather than species differentiation. Further molecular study is needed to be carried out to determine its species name for the four *Monascus* isolates such as by using ITS gene sequence or other structural genes.

0650. **Suharna, N. 2013**. Produksi Askospora *Monascus purpureus* Galur Terpilih Untuk Penyediaan Starter Untuk Produksi Angkak. *Prosiding Seminar Nasional "Biologi Untuk Kesejahteraan Manusia dan Lingkungan"*. Hlm. 375–382.

Abstrak

Studi ini dilakukan untuk mengetahui produksi spora pada galur terseleksi *M. purpureus* pada berbagai media agar termasuk beras, untuk memenuhi kebutuhan starter yang efektif untuk dimanfaatkan dalam produksi angkak sebagai bahan nutrasetikal. Hasil menunjukkan bahwa kultur dengan medium agar, produksi askospora adalah rendah bahkan tidak teramati pada medium Ekstrak Yeast Sukrosa (EYS) dan Agar Nitrat (AN). Hasil pengamatan juga menunjukkan bahwa spora aseksual banyak dijumpai kecuali pada medium AN dan Agar Monosodium Glutamat (MSG). Produksi askospora yang melimpah dijumpai pada kultur dengan medium beras. Hasil ini menunjukkan bahwa beras IR46 adalah medium terbaik untuk produksi askospora sehingga cocok untuk pembuatan starter. Pembuatan starter dari medium beras yang dipanen pada hari ke 5, 7, 9, 12, and 14 mengandung jumlah askospora/gram berturut-turut adalah 3,6 x 105, 5,6 x 105, 6,1 x105, 6,5 x 105, dan 3,2 x 105. Hasil ini menunjukkan bahwa produk starter yang dipanen pada hari ke-5 atau 7 hari

periode inkubasi sudah mencukupi untuk digunakan sebagai *starter,* sehingga penambahan hari untuk masa inkubasi tidak diperlukan lagi. Studi ini juga memperlihatkan hasil fotografi SEM Hitachi TM3000 askospora pada serbuk starter pada 2.000X pembesaran yang tervisualisasi dengan cukup baik.

0651. **Suharna, N. 2014**. Providing a Single Starter for Supplying Functional Food with Low Citrinin Content by Using a Selected *Monascus purpureus* Strain. *Glob. J. Biol. Agric. Heal. Sci.* **3,** 134–140.

Abstract

This physiological study was aimed at providing *Monascus* starter for supplying functional food with low citrinin content. This study included microscopic observation on ascospore production and bioactive analysis by using high performance liquid chromatography (HPLC) and measurement of pigment spectrophotometrically on angkak product. Starter or angkak was made by using rice IR46 as its substrate and a selected strain of *Monascus purpureus* was used for its source of inoculum. The highest ascospores production of angkak as starter was at 12 days of harvest (6.5 x 105 ascospores/g) and it reduced its production at 14 days of harvest at 3.2 x 105 ascospores/g. Actually, the presence of ascospores at various day of harvest was abundant in angkak. During microscopic examination there was only sexual spore (ascospores) observed under light or scanning electron microscopy. The scanning electron micrograph showed the good shape of Monascus's ascospores. HPLC analysis result showed that angkak harvested at day 12 was the lowest of citrinin content at 115 ppb and the highest was at day 10 which reached at 14.181 ppb. The highest of lovastatin content of angkak was 0.32% at 10 days of harvest and reduced at 12 and 14 days of harvest. The highest absorbance of red pigment content of angkak showed at 10 days of harvest (OD500=0.5560). The red pigment content reduced after 10 days incubation period. At 12 and 14 days of harvest of angkak, the OD was 0.2370 and 0.1525 respectively. The similar measurement result of yellow pigment content showed at the 10 days of incubation of angkak which the highest absorbance reached 0.555. The yellow pigment content then also reduced after 10 day incubation period. At 12 and 14 days of harvest of angkak, the OD was 0.1925 and 0.106 respectively. This result indicated that the supply of starter could be achieved by high ascospore production of this selected *M. purpureus* strain used in this study. The potential use of the starter for providing functional food with low content of citrinin, although lovastatin content was low, it was retained by high content red pigment and particularly the yellow pigment.

0652. Suherlina, T., **A. Leksonowati** & **Witjaksono. 2010.** Pengaruh Umur Biak dan Posisi Daun terhadap Morfogenesis dari Daun Kentang Hitam (*Solenostemon rotundifolius* (Poir) JK Morton) *in vitro. Berkala Penelitian Hayati*

Abstract

Plant regeneration via somatic embryogenesis or organogenesis is a key for manipulation of somatic cells in vitro. Organogenesis from leaf inoculum, petiole, and stem segments of in vitro black potato (*Solenostemon rotundifolius* (Poir) JK Morton) is influenced by the balance of the concentration of BA and NAA in the culture medium. However, organogenesis could also be affected by factors inherent to the inoculums. This paper reports the influence of leaf position on the in vitro shoots and culture age on the formation and production of shoot adventives from leaf inoculum. Leaves excised from shoots of 3–8 week-old culture and leaf position 1–5 from apical to basal was used as inocula. The highest percentage (83.3%) of adventitious bud develops at cultures age of 5 weeks with the average number of shoots 6.1. The highest percentage of bud development occurs at leaf position number 2–4, with the percentage of buds of 83.3, 76.2 and 76.2, respectively with the average number of shoots of 3.19, 2.10, dan 2.38 respectively. Organogenesis that produces the highest shoot production of 18.6 per Petri dish was obtained from leaves derived from the 2nd leaf from apical of 5 week-old culture inoculated on MS medium enriched with 5 mg/l BA and 0.1 mg/l NAA.

0653. **Sukamto, L.A. 2010.** Kultur *in vitro* Endosperma, Protokol yang Efisien untuk Mendapatkan Tanaman Triploid secara Langsung. *Jurnal Agro Biogen* 6(2): 107–112.

Abstrak

Tanaman triploid adalah sangat vigor dan menguntungkan karena menghasilkan buah tanpa biji, bunga yang lebih besar, dan volume kayu yang lebih besar dibandingkan tanaman normal diploid. Tanaman triploid dapat diperoleh dari persilangan tanaman diploid dengan tetraploid, tetapi cara ini memerlukan tenaga dan waktu yang lama. Kultur endosperma secara *in vitro* adalah cara alternatif untuk memperoleh tanaman triploid secara langsung. Keberhasilan kultur endosperma tergantung pada banyak faktor, yaitu umur endosperma, adanya embrio zigot, medium kultur, zat pengatur tumbuh, pencoklatan dan lama dikultur serta jenis tanamannya. Umumnya, inisiasi endosperma yang tua memerlukan penyertaan embrio untuk menginduksi pembelahan sel, tetapi endosperma yang muda tidak memerlukan embrio untuk pembelahan selnya. Kebanyakan endosperma tanaman parasit membentuk suatu organ secara langsung tanpa melalui pembentukan kalus. Tanaman hasil kultur endosperma kebanyakan adalah triploid, walaupun ada beberapa tanaman yang memiliki tingkat ploidi yang lain.

0654. **Sukamto, L.A., F. Ahmad** & **A.H. Wawo. 2010.** Pengaruh Oryzalin terhadap Tingkat Ploidi Tanaman Garut (*Maranta arundinacea* L.). *Buletin Tanaman Rempah dan Obat* 2(2): 93–102**.**

Abstrak

Tanaman garut diperbanyak secara vegetatif hingga keragaman genetiknya sangat sempit. Keragaman genetik yang sempit dapat diperluas melalui manipulasi ploidi. Oryzalin dapat menginduksi tingkat ploidi kromosom dan memperluas variasi genetik tanaman. Peningkatan jumlah kromosom biasanya berhubungan dengan peningkatan stomata, umbi, dan kandungan patinya. Tujuan penelitian ini untuk memperluas keanekaragaman genetik tanaman garut dengan penggandaan kromosom dan mencari individu-individu tanaman yang berpotensi poliploid dan dapat meningkatkan hasil. Penelitian dilakukan di Kebun Percobaan Cibinong Science Center, Februari–Desember 2009. Potongan umbi sepanjang 5 ruas direndam dalam larutan Oryzalin 0, 10, 20, 30, 40, 50, dan 60 µM selama 6 hari dan dibilas dengan air, ditanam di polibag yang berisi tanah dan kompos (1:1) di lapang dengan naungan 30% paranet. Perlakuan Oryzalin konsentrasi tinggi (≥30 µM) pada umbi garut menghambat, tetapi pada konsentrasi rendah (10 µM) meningkatkan pertumbuhan tanaman. Beberapa tanaman garut hasil perlakuan dengan Oryzalin merupakan tanaman potensial poliploid, stomatanya lebih besar/ panjang, daunnya berwarna hijau tua, lebih membulat, lebih tebal, dan lebih bergelombang dibanding dengan tanaman kontrolnya.

0655. **Sukamto, L.A.** & Mujiono. **2010.** In vitro Culture of *Rafflesia arnoldii* R. Brown. *Buletin Kebun Raya* 13(2): 79–85.

Abstrak

Potongan kuncup bunga digunakan sebagai eksplan yang ditumbuhkan pada media dasar Murashige and Skoog (MS) dengan tambahan 0; 0,1; 0,5; 1; and 5 mg/l 2,4-D atau Picloram dan 2 mg/l phytagel. Eksplan tumbuh menjadi kalus pada media yang ditambahkan 0,1 dan 1 mg/l 2,4-D atau 0,5 dan 1 mg/l Picloram. Kultur kalus tersebut dipelihara pada media MS + 1 mg/l 2,4-D. Kemudian kalus ditumbuhkan pada medium dengan penambahan 1, 3, 5, dan 10 mg/l 2,4-D atau Picloram. Setelah dua bulan 66,67%–100,00% kultur membentuk kalus. Semua kalus berstruktur kompak. Beberapa kalus yang diperlakuan dengan 5–10 mg/l 2,4-D menumbuhkan benang-benang putih pada permukaannya. Perlakuan Picloram menghasilkan kalus yang lebih banyak, tetapi 2,4-D menghasilkan kualitas kalus yang lebih baik. Kalus *R. arnoldii* tidak membentuk somatic embrio dengan penambahan 0,1 mg/l Zeatin dalam media kultur. Ini adalah laporan pertama kali tentang pembentukan kalus dari kultur *R. arnoldii* secara *in vitro.*

0656. **Sukamto, L.A. & Saefudin. 2010.** Pengaruh Radiasi dan Lokasi Tumbuh terhadap Pertumbuhan dan Penyakit Hawar Daun Talas kv. Ketan. *Berita Biologi* 10(1): 123–128.

Abstract

Taro (*Colocasia esculenta* (L.) Schott) is an important tuber crop, grown widely in humid tropics and a source of carbohydrate for many people in Asia, Africa,

and the Pacific islands. The leaves and stalks of taro are used as vegetable, as they contain a high protein that is useful for peoples diet in developing countries. Taro is underutilized plant that has potency as an alternative food. Plant propagation of taro is usually done by using its rhizome or stolon so that the genetic diversity is very limited. In vitro and irradiated techniques can increase its genetic diversity and multiply the plant that has superior quality and quantity. Taro "Ketan" grown tissue culture that have been irradiated with gamma rays 5 Gy and 10 Gy were planted on two different environmental locations. There were many variants as the results of these treatments. Gamma rays and environmental locations caused genotype changes that were stolon number, plant height, corm fresh weight, and leaf blight disease. Gamma rays caused morphological changes that were orientation, undulation, outline of sinus, margin of lamina, and petiole color.

0657. **Sukamto, L.A. 2011.** Effects of Concentration and Duration of Colchicine Treatments on Growth of *Dendrobium lineale* Hybrid in vitro Culture. *Proceedings of the 1st ACIKITA International Conference of Science and Technology (AICST)* Jakarta: 447–453.

Abstract

Dendrobium lineale hybrid is a good potential for ornamental orchid. Protocorm like bodies (PLBs) of *Dendrobium lineale* hybrid were treated with 0, 25, 50, 100, and 200 ppm colchicine for 6 and 14 days, cultured on half strength of semi-solid Murashige and Skoog (1962). Plantlet height of *D. lineale* hybrid was the highest on control for 6 days and higher for 14 days. Shoot number of the plantlets was higher on colchicine at 200 ppm for 6 days of 5 month cultures and higher on control for 14 days of 1.5 month cultures. The leaf number was the highest on control for 6 days of 2.5 month cultures and 14 days of 1.5 month cultures and higher for 14 days of 3.5 month cultures. The root number was the highest on control for 6 days of 2.5 month cultures, higher on control for 6 days of 5 month cultures, control for 14 days of 1.5 month and 3.5 month cultures.

0658. **Sukamto, L.A. 2011.** Effects of Position and Plant Growth Regulators on Morphogenesis and Growth Rate of Coconut Endosperm in vitro. *Kasetsart J.* (Nat. Sci.): 977–984.

Abstract

Endosperm position (antipodal and micropylar) and plant growth regulators were investigated for morphogenesis and growth rate of coconut endosperm cultured in vitro. This experiment was conducted at Tissue Culture laboratory, Horticulture Department-University of Hawaii at Manoa, USA. Embryo companion and plant growth regulators were not necessary to induce callogenesis. Coconut endosperm explants started to form callus after three weeks of culture. Callogenesis occurred in 98.83% of all treatments on 31 weeks of culture. Endosperm positions and plant growth regulators did not affect significantly

growth rate of endosperm culture. Concentration of 2,4-dichlorophenoxyacetic acid (2,4-D) and 4-amino-3, 5, 6-trichloropicolinic acid (Picloram) at 10^{-3}M affected significantly growth rate on 9 weeks of culture but did not inhibit thereafter. Growth rate of control was the quickest on 31 weeks of culture. Addition of 6-benzylaminopurine (BAP) did not affect significantly growth rate of endosperm culture. Growth rate of tissues increased substantially but decreased on 31 weeks of culture. Embryo-like structures appeared from antipodal position calli treated with 10^{-6}M Picloram. It is the first report that embryo-like structures occurred on coconut endosperm culture in vitro.

0659. **Sukamto, L.A. 2011.** Effect of Physiological Age and Growth Regulators on Callus Browning of Coconut Endosperm in vitro Culture. *Biotropia* 18(1): 31–41.

Abstract

The possibility of physiological age and grow regulators affected callus browning of coconut endosperm was investigated. Solid endosperm explants of four coconut fruits from same brunches of two coconut cultivars "Samoan Dwarf" were grown on modified Murashige and Skoog (MS) formula with addition of 10 mg l^{-1} putresine, 2.50 g l^{-1} activated charcoal (AC), 1.70 g l^{-1} phytagel, 0, 10^{-6}, 10^{-5}, 10^{-4}, 10^{-3} M 2,4-dichlorophenoxyacetic acid (2,4-D) or 4-amino-3,5,6-trichloropicolinic acid (Picloram) and 10^{-5}M 6-benzylaminopurine (BA). There were a significantly different callus browning between different physiological age (antipodal and micropylar tissues) of coconut endosperm on 9,26 and 31 weeks of culture (WOC), but no significant difference on 16 and 21 WOC. Auxins of 2,4-D and Picloram did not affect significantly callus browning of endosperm cultures. Auxin doses at 10^{-6}, 10^{-5}, and 10^{-4}M decreased significantly callus browning on 9 and 16 WOC but at 10^{-6}M was less significantly browning than other doses on 21 WOC and 10^{-3} M was less significantly browning than other doses on 31 WOC. The addition of BA decreased significantly callus browning on 9 WOC, but did not affect callus browning thereafter.

0660. **Sukamto, L.A. 2011**. Induksi Tanaman Cendana (*Santalum album* L.) Triploid Melalui Kultur Endosperma Secara *in vitro*. *Widyariset* 14(2): 393–397.

Abstrak

Tanaman cendana (*Santalum album* L.) mengalami penebangan yang berlebihan yang menyebabkan populasinya mengalami penurunan secara drastis. Penelitian dilakukan untuk mendapatkan tanaman triploid dengan menggunakan kultur biji yang masih muda. Biji yang masih muda dikupas dan ditumbuhkan pada media padat formulasi Murashige and Skoog (MS) dengan atau tanpa tambahan zat pengatur tumbuh α-napthaleneacetic acid (NAA), 2,4-dichlorophenoxyacetic acid (2,4-D), 6-benzylaminopurine (BA) atau kinetin (K). Biji muda tidak membentuk tunas, tetapi endospermanya membentuk kalus. Endosperma memproduksi kalus 26,67% pada media dengan tambahan BA 1 mg/l, tetapi tidak memproduksi kalus pada media tanpa tambahan zat pengatur

tumbuh. Produksi kalus terbaik pada media dengan tambahan NAA 2 mg/l dan BA 1 mg/l. Pembentukan embrio somatik terbaik pada perlakuan media NAA 1 mg/l + BA 1 mg/l dan pembentukan tunas terbaik pada perlakuan media 2,4-D 1 mg/l + K 1 mg/l. Tunas tanaman yang tumbuh dari endosperma dipercaya adalah tanaman triploid.

0661. **Sukamto, L.A. 2011.** Partenokarpi: Buah Tanpa Biji-Apa, Mengapa, dan Bagaimana. *Berita Biologi* 10(4): 549–555.

Abstract

Fruit growth and development occurred in plant for producing the offspring. Pollination and fertilization will form embryo and seed, which produce and supply plant growth regulators (PGR) for fruit growing. The role of seed can be exchanged with supply of PGR exogenously and produce seedless fruit. Seedless fruit could be produced from triploid plant by crossing between tetraploid x diploid plants, in vitro culture of endosperm/irradiated pollen, and genetic engineering or treated diploid plant by using PGR, pollen stress, chemical agent/ antibiotic, and environment/plant control. The benefit of triploid plant is quicker growth and produce of seedless fruits directly, whereas diploid plant could produce seedless fruits after fruit induction with special treatment. The other advantages of seedless fruit on certain plants are increased yield, fruit size/weight, carotene and total sugar contents, decreased harvest period, yield fluctuation, and blossom-end rot. Seedless fruit is preferential for consumer and gives a higher price than that of seeded fruit. Recently, seedless fruits of tomato, grape, citrus, cucumber, and watermelon have been produced in commercial industries.

0662. **Sukamto, L.A. 2011.** Pengaruh Eksplan dan ZPT terhadap Pertumbuhan *Nepenthes albomarginata* Secara in vitro. *Jurnal Teknologi Lingkungan* 12(1): 103–109.

Abstract

Nepenthes albomarginata Lobb ex Lindl. is a carnivorous plant, distributes in several regions in Indonesia. The plant population decreases drastically because of over exploitation and ruining natural habitat. Plant propagation by nature and cutting are not enough to rehabilitate its population. In vitro culture of *N. albomarginata* was carried out using plantlets grown from the seeds in vitro. Plantlets were cut to become two part explants, consisted of shoot tip and under-shoot tip cuttings. These cutting explants were grown on Murashige & Skoog (MS) media with addition of plant growth regulators of 6-benzylaminopurine (BA), combined with or without ∝-naphthalene acetic acid (NAA) or 2,4-dichlorophenoxyacetic acid (2,4-D) at 1 mg/l. Shoot tip cuttings of *N. albomarginata* formed double multiple shoot 25.00% on control; formed triple multiple shoots 25.00% on BA 1 mg/l treatment; formed callus 37.50%, triple or quartet shoots 25.00%, and rooted plantlets 25.00% on BA 1 mg/l + NAA 1 mg/l treatment. The under-shoot tip cuttings of *N. albomarginata*

formed double–triple shoots 25.00% and rooted plantlets 37.50% on control; formed double–triple shoots 25.00% and rooted plantlets 12.50% on BA 1 mg/l treatment; formed callus 12.50%, double-pentacle shoots 37.50% and rooted plantlets 25.00% on BA 1 mg/l + NAA 1 mg/l treatment. 2,4-D 1 mg/l or its combined with BA 1 mg/l treatment caused deadly shoot tip or under-shoot tip explants. The combination of BA 1 mg/l + NAA 1 mg/l was the best treatment for producing callus, multiple shoots and rooted plantlets of *N. albomarginata*.

0663. **Sukamto, L.A.,** D. Mujiono & V. Henuhili. **2011.** Shoot Tip Culture of *Nepenthes albomarginata* secara *in vitro. Jurnal Biologi Indonesia* 7(2): 251–261.

Abstrak

Kultur Pucuk Tanaman *Nepenthes albomarginata* Lobb ex Lindl. secara *In Vitro*. *N. albomarginata* adalah kantong semar kerah putih (*white collared pitcher plant*), salah satu tanaman pemakan serangga yang sangat menarik sebagai tanaman hias. Tanaman ini terancam punah karena pengambilan dan kerusakan habitatnya. Penelitian perbanyakan secara *in vitro* dilakukan dengan menggunakan pucuk tanaman *N. albomarginata* pada media formulasi setengah Murashige and Skoog (1/2 MS) dengan tambahan zat pengatur tumbuh 6-benzyladenine (BA) 1 mg l^{-1} dengan atau tanpa kombinasi dengan α -naphthalene acetic acid (NAA) atau 4 amino 3, 5, 6, trichloropicolinic acid (Picloram) 0.5, 1, 1.5, and 2 mg l^{-1}. Perlakuan kombinasi BA 1 mg l^{-1} dengan NAA 0.5 mg l^{-1} menghasilkan pertambahan tinggi tanaman terbesar. Tanaman menghasilkan jumlah daun terbanyak pada kontrol. Perlakuan BA 1 mg l^{-1} menumbuhkan tunas aksilar terbanyak, sedangkan kombinasinya dengan NAA 1.5 mg l^{-1} merupakan perlakuan yang dapat menghasilkan tunas adventif. Kombinasi BA 1 mg l^{-1} dan NAA 2 mg l^{-1} menginduksi kalus terbaik. Tanaman yang dihasilkan belum membentuk akar, tetapi pertumbuhan lebih lanjut dapat membentuk perakaran dan dapat hidup di luar botol kultur setelah diaklimatisasi.

0664. **Sukamto, L.A.,** E.D. Rahayu & E. Sandra. **2011.** Characteristics between *Anoectochilus setaceus* and *Anoectochilus formosanus* by Application of TDZ *in vitro*. *Proceedings of the 1st ACIKITA International Conference of Science and Technology (AICST) Jakarta:* 454–461.

Abstract

Anoectochilus setaceus and *A. formosanus* are beautiful orchids and have almost the same morphology. *A. setaceus* originates from East Java and the population decrease drastically recently because of over exploitation and disturbed forest. *A. formosanus* originates from Taiwan and is famous for ornamental and medicinal purposes. An experiment was carried out to compare the effect of N-phenyl-N'-1, 2, 3-thiadiazol-5-ylurea (thidiazuron/ TDZ) on the growth of both orchids in vitro. *A. formosanus* was better responses and required higher level concentration than *A. setaceus* to TDZ treatments in vitro. The surviving percentage of *A. setaceus* cultures was the best on TDZ at 0.1 mg/l, whereas

those of *A. formosanus* cultures were at 0.5 mg/l. The highest leaf number of *A. setaceus* cultures occurred on TDZ at 0.001 mg/l, whereas those of *A. formosanus* cultures on TDZ at 0.005 mg/l TDZ treatments. The highest shoot number was produced on TDZ at 0.01 mg/l in *A. setaceus* but those on TDZ at 0.05 mg/l in *A. formosanus*. The highest root number of *A. setaceus* was on TDZ at 0.001 mg/l, whereas those of *A. formosanus* were on TDZ at 0.005 mg/l treatments.

0665. **Sukamto, L.A. 2012**. Cotyledon, Hypocotyl, and Epicotyl Cultures of Dragon Fruit *in vitro*. *J. Teknologi Indonesia* 35(1): 40–46.

Abstrak

Tanaman buah naga biasanya diperbanyak dengan biji atau setek batangnya. Perbanyakan buah naga dengan biji memerlukan waktu yang lama karena pertumbuhannya lambat, sedangkan perbanyakan dengan cara setek batang, dapat merusak pohon induknya dan bibit yang diperoleh sangat terbatas. Percobaan perbanyakan tanaman buah naga secara in vitro dilakukan dengan menggunakan kotil, hipokotil dan epikotil dari biji yang ditumbuhkan secara in vitro. Media yang dipergunakan adalah formulasi Murashige dan Skoog (MS) yang unsur hara makro dan mikronya dikurangi setengahnya dan tambahan zat pengatur tumbuh (ZPT) 6-Benzylaminopurine (BA) yang dikombinasikan dengan α-Naphthaleneacetic acid (NAA) untuk eksplan kotil dan hipokotil, thidiazuron (TDZ) untuk eksplan epikotil. Eksplan kotil membentuk kalus terbaik pada media dengan tambahan ZPT BA 3 mg/l + NAA 2 mg/l, dan membentuk akar terbaik pada media yang mengandung BA 0 mg/l + NAA 5 mg/l; eksplan hipokotil membentuk kalus terbaik pada media dengan tambahan ZPT BA 1 mg/l + NAA 4 mg/l atau BA 3 mg/l + NAA 2 mg/l dan membentuk akar terbaik pada media kontrol; sedangkan eksplan epikotil membentuk kalus terbaik pada TDZ 1 mg/l, pembentukan tunas, tinggi tunas dan pembentukan akar terbaik pada media kontrol. Jumlah tunas terbanyak pada perlakuan TDZ 0,001–0,01 mg/l. Epikotil merupakan eksplan terbaik dibanding kotil maupun hipokotil dalam perbanyakan secara *in vitro* buah naga, terutama pada kontrol yang dapat menghemat biaya tanpa pemakaian ZPT.

0666. **Sukamto, L.A. 2012.** Perbanyakan *Dischidia platyphylla* Schlecther secara *in vitro*. *Prosiding Seminar Nasional Proses Biologi dan Kimia dalam Industri yang Berwawasan Lingkungan.* Hlm. 268–275.

Abstrak

Dischidia platyphylla Schlecther merupakan tanaman unik sebagai sarang semut yang mengembangkan hubungan simbiose, yaitu tanaman memodifikasi daunnya yang menyediakan tempat tinggal dan berkembang biak semut, sedangkan semut memberikan perlindungan dan makanan kepada tanaman. Tanaman ini berpotensi sebagai tanaman obat dan hias yang eksotik. Perbanyakan tanaman dapat dilakukan dengan biji atau stek, tetapi hasilnya kurang memuaskan.

Percobaan perbanyakan *D. platyphylla* secara *in vitro* dilakukan dengan menggunakan beberapa bagian tanaman, yaitu daun, ruas, dan buku sebagai eksplan material penelitian. Eksplan-eksplan tersebut ditumbuhkan pada media Murashige dan Skoog (MS) yang dimodifikasi, yaitu kandungan hara makro dan mikronya dikurangi setengahnya dengan tambahan sukrosa 20 g/l, agar 20 g/l, dan zat pengatur tumbuh (ZPT): 6-benzylaminopurine (BA), yang dikombinasikan atau tanpa α-naphthaleneacetic acid (NAA) atau 2,4-dichlorophenoxyacetic acid (2,4-D). Eksplan daun, buku, dan ruas tidak membentuk kalus pada kontrol, tetapi membentuk kalus pada semua perlakuan ZPT. Pembentukan kalus terbaik terjadi pada eksplan buku dengan perlakuan kombinasi ZPT BA 1 mg/l dengan NAA 0,5 mg/l atau BA 2 mg/l dengan NAA 0,5 mg/l. Pembentukan tunas terbaik terjadi pada eksplan buku dalam media kontrol. Pembentukan akar hanya terjadi pada kontrol dari eksplan daun. Buku merupakan eksplan terbaik dibanding daun dan ruas dalam pembentukan kalus maupun tunas, sedangkan daun merupakan eksplan terbaik dalam pembentukan akar *D. platyphylla*.

0667. **Sukamto, L.A**, R. Lestari, & W.U. Putri. **2014**. The Effect of Bio-Fertilizers on Plant Growth and Growth Rate of Grafted Avocado (*Persea americana* Mill.). IJASEIT 4 (4): 1–10.

Abstract

Avocado (*Persea americana* Mill.) is considered the most nutritious of all fruits. Avocado fruit contains high unsaturated fat, protein, and energy. It could be eaten fresh for food, drinks, cooking, and cosmetics. Recently, it has become a significant commodity in international trade. Indonesia is the 2nd avocado producing country, but only little quantity of avocado fruits could be exported. The farmers usually grow avocado plants from the seeds, without proper fertilizers in their backyards or small gardens. The problems could be solved by using grafted plants, proper fertilizers, and growing in a large scale of areas. This research was conducted to find out the effect of two liquid bio-fertilizers namely Mega Rhizo and Beyonic StarTmik on the plant growth and growth rate of grafted avocado plants. Some plant growths and growth rates of grafted avocado were influenced significantly by genotype accession, kind of bio-fertilizer, and weather (temperature). Plant growth and growth rate of most avocado accessions were not significant differences to bio-fertilizer applications, but some avocado accessions on certain months were significant differently. Growth rate ranks of plant height based on accession were no. 10, 28, 13, 1, 5, 2, and 14 consecutively. Those of canopy width were no. 28, 10, 1, 2, 14, 5, and 13 consecutively. Those of trunk diameters were no. 28, 10, 2, 5, 1, 13, and 14 consecutively. All growth rate ranks based on bio-fertilizer were Mega Rhizo, Beyonic StarTmik, and control consecutively.

0668. Sukiman, H., S.J.R. Lekatompessy, L. Nurjanah & **K. Kramadibrata. 2013.** Sustainability of VA-Mycorrhizae after Inoculated to A*ltingia excelsa, Maesopsis*

emenii, and *Enterobolium cyclocarpa* growing at Bodogol forest, Gede Pangrango National Park. *Proceedings International Conference on Biotechnology 2012, Biotechnology-Bridging Biodiversity to Industry*; ISBN: 978-602-9042-86-3. pp. 251–258.

Abstract

Bio-VAMycorrhizae is one of LIPI Bioproducts which has been used as biofertilizer for growing forest trees. Research had been done to use the Bio-VAMycorrhizae on supporting the growth of three forest trees namely *Altingia excels* Noronhae (Rasamala), *Maesopsis emenii* Engl. (Kayu Afrika), and *Enterobolium cyclocarpa* Griseb (Sengon Buto). These forest trees were commonly used in forest rehabilitation program since it was identified that Gede Pangrango National Park become the most important of tropical forest in Java and the function of the forest nowadays reduced because of people disturbance. Reforestration program at buffer zone area becomes very important on supporting the people's life so reforestration of critical area surrounding the national park is urgently needed. Application of Bio-VAMycorrhizae to the seeds had been done earlier during nursery level. To understand the present of applied mycorrhizae, observation had been done by collecting and identification of mycorrhizae spore under the Rasamala, Kayu Afrika, and Sengon Buto. Soil samples were taken and spore isolation including the percentage of root infection rate was done followed by identification of species. The aim of this study are to conserve the biodiversity of VAMycorrhizae under the species of forest trees and to produce biomass of spore for inoculums product. Besides, it is to apply the *mycorrhizae* inoculum to seed forest tree.

0669. **Sulandari, S.** & **M.S.A. Zein. 2012.** Mitochondrial DNA Variation of the Sumatran elephant in Sumatera. *International Jurnal Biotropia* 19(2): 92–102.

Abstract

A research on Mitochondrial DNA analysis of genetic diversity in Sumatran elephant (*Elephas maximus sumatranus*) was conducted in this study. A 630 bp segment of mitochondrial DNA was amplified on 105 samples of Sumatran elephant from 5 locations in Sumatera (Bentayan, Sugihan, Bukit Salero Lahat, Seblat, and Way Kambas) using a set of primers: MDL3 (5'-CCCACAATTAATGGGCCC-GGAGCG-3') and MDL5 (5'-TTACATGAATTGGCAGCCAACCAG-3'). The objectives of this study are to generate mitochondrial DNA D-loop sequences for all the Sumatran elephant samples under this study and to provide information haplotypes and nucleotide diversity of Sumatran elephant populations.

A total of 105 PCR product were successfully sequenced, with an average length of about 616 base pairs. However, mitochondrial DNA fragments for this analysis used the first 601 bases. Results showed six haplotypes (BP, BT, BS, BR, BX and BY) identified in Sumatera. The most of the sampled individuals are the haplotipe BT. BX and BY are most likely new haplotypes. All haplotypes, except for the haplotipe BP, are belonging to the Sumatera clade.

The haplotipe BX was derived from the haplotipe BT, while the haplotype BY was derived from the haplotipe BS by one transversion respectively. The other substitutions in this network were the transitions. The haplotype BP is widely distributed from Sri Lanka, Sumatera, Peninsular Malay, and China. Although reported that the haplotype BU distributed Sumatera and Peninsular Malay, BU haplotype was not detected in this study.

Genetic distances within populations in Bentayan, Bukit Salero Lahat, Seblat, Sugihan, and Way Kambas ranged from 0.0000–0.0003, and the genetic distance between the populations that is 0.0000-0.0022. The distance between haplotypes of Sumatran elephant's population is low.• The diversity of haplotypes and nucleotide in Sumatera island is low, the highest is in the region of Buki Salero Lahat and, the lowest is in Bentayan and Sugihan. Overall, the results of analysis of Fu and Li's F * test statistic indicate that the population of Sumatran elephants in Sumatra is-0.78871, which means there is no inbreeding, but not significant at P> 0:10.

0670. **Sulandari, S.** & **M.S.A. Zein. 2012.** Molecular Techniques for Sex Identification of birds: Implication for Captive Breeding Program in Indonesia. *HAYATI Journal of Biosciences* 19(4): 183–190.

Abstract

Visually identifying the sex of a bird can be difficult. It cannot be done in half the world's species when they are adults, and virtually none can be sexed as chicks. Despite of this, the sex of a bird is vital for breeding. An increased number of birds are being sexed using DNA amplification techniques that differentiate between unique nucleic acid sequences found in the W and Z chromosomes. A male bird has two Z sex chromosomes, whereas the female has a Z and a W chromosomes. Consequently, the presence of a W unique DNA sequence will identify a bird as female. Two (2) established primer pairs were used for sex identification of Indonesian birds. One hundred and ten (110) birds were sexed using the first pair of primers: P8 (5'-CTCCCAAGGA TGAGRAAYTG-3') and P2 (5'-TCTGCATCGCTAAATCCTTT-3'); PCR products were separated by electrophoresis, visualized by ethidium bromide staining and photographed. Sexing results indicated that 90 bird samples (81.8%) were successfully determined, 14 bird samples (12.7%) could not be amplified, and 6 bird samples (5.5%) could not be distinguished on a 3% agarose gel because of showing thick band. The thick band resulted in false negatives. The second method was applied to 150 birds using PCR prime pairs of 2,550F (5'-GTTACTGATTCGTCTACGAGA-3') and 2,718R (ATTGAAA TGATCCAGTGCTTG-3'). It is confirmed that molecular technique to distinguish a male from a female bird is an effective way and it is suggested to use a pair of 2,550F and 2,718R primers. This method is simple, fast, cheap, and universal system for molecular sexing. Determination sex correctly is needed to be implicated in bird captive breeding in Indonesia.

0671. **Sulandari, S.**, **M.S.A. Zein**, **H. Sutrisno**, A.B. Dharmayanthi, & I. Natalia. **2013.** *Tahapan Kerja dalam DNA Barcode* (BAB 2). *Dalam* M.S.A. Zein &D.M. Prawiradilaga (eds.). *DNA Barcode Fauna*. Penerbit Kencana, Prenada Media Group.Edisi I, ISBN 978.602.7985.26.1 590: 242.

Abstrak

DNA *barcode* adalah teknik untuk mengkarakterisasi jenis suatu organisme menggunakan sekuen pendek dari bagian DNA mitokondria (DNA yang berasal dari mitokondria). Sebagaimana dianjurkan Hebert (2003), bagian DNA mitokondria yaitu unit penghasil energi yang dapat ditemukan di semua sel digunakan sebagai DNA barcode. Ia memilih gen cytochrome c oxidase subunit 1 atau CO1 karena gen ini cukup kecil, mudah diurai, namun memiliki variasi cukup untuk mengatakan sebagian besar spesies hewan terpisah. Uraian berikut adalah contoh versi sekuen pada 2 orang manusia, yaitu 2 orang manusia akan memiliki versi sekuen CO1 yang berbeda, tetapi mereka akan cukup mirip untuk menunjukkan bahwa mereka berdua adalah manusia dan bukan simpanse. Rantai analitik DNA *barcode* yaitu dimulai dari koleksi spesimen sampai menghasilkan data sekuen. Berdasarkan gambar tersebut sebagai langkah awal dan terpenting adalah mengumpulkan spesimen.

Langkah selanjutnya yaitu melakukan koleksi data seperti memotret spesimen dan mengumpulkan data, seperti tanggal, nama spesies, nama kolektor, lokasi sampling, dan data pendukung lainnya. Setelah koleksi data selesai, dilanjutkan koleksi material DNA dari spesimen tersebut. Koleksi spesimen/material DNA untuk keperluan DNA *barcode* sebaiknya minimal 5 hingga 10 individu pada setiap jenis. Hampir semua bagian tubuh hewan dapat digunakan sebagai materi/material DNA, yaitu materi penentu sifat-sifat makhluk hidup sehingga sifat makhluk hidup dapat diwariskan kepada keturunannya. Material DNA tersebut dapat berupa darah, jaringan, akar rambut (mamalia berambut), akar bulu (burung), gigi, tulang, sel kulit, organ otot, saliva (air liur), mucosa, kuku, urin, atau kotoran.

Untuk itu, pada bab ini akan diuraikan tentang bagaimana teknik pengambilan dan pengawetan material DNA. Setelah sampel material DNA dikoleksi maka tahapan kerja DNA *barcode* berikutnya adalah ekstraksi DNA, pemilihan primer, amplifikasi PCR (Polymerase Chain Reaction), visualisasi produk PCR melalui elektroforesis, sekuen, menyunting data, dan analisis data sekuen. DNA *Barcode* dapat mengidentifikasi suatu spesimen yang tidak diketahui jenisnya jika sekuen dari spesimen tersebut sangat cocok dengan sekuen yang ada di reference library of DNA *barcodes* (pustaka referensi sekuen DNA *barcode* dari individu-individu yang telah diketahui jenisnya).

0672. **Sulandari, S., M.S.A. Zein, E.A. Arida** & **A. Hamidy. 2014.** Molecular Sex Determination of Captive Komodo Dragons (*Varanus komodoensis*) at Gembira Loka Zoo, Surabaya Zoo, and Ragunan Zoo, Indonesia. *HAYATI Journal of Biosciences* 21(2): 65–75.

Abstract

Captive breeding of endangered species is often difficult, and may be hampered by many factors. Sexual monomorphism, in which males and females are not easily distinguishable, is one such factors and is a common problem in captive breeding of many avian and reptile species. Species-specific nuclear DNA markers, recently developed to identify portions of sex chromosomes, were employed in this study for sex determination of Komodo dragons (*Varanus komodoensis*). Each animal was uniquely tagged using a passive integrated micro-transponder (TROVAN 100A type transponders of 13 mm in length and 2 mm in diameter). The sex of a total of 81 individual Komodo dragons (44 samples from Ragunan zoo, 26 samples from Surabaya zoo, and 11 samples from Gembira Loka zoo) were determined using primers Ksex 1for and Ksex 3rev. A series of preliminary PCR amplifications were conducted using DNA from individuals of known sex. During these preliminary tests, researchers varied the annealing temperatures, number of cycles, and concentrations of reagents, in order to identify the best protocol for sex determination using our sample set. The writers thus developed their own PCR protocol for this study, which resulted in the amplification of band A in females and band C in males. Results from band B, however, turned out to be non-determinative in this study because for females, band B was not always visible, and for males sometimes is similar, but lighter band was also amplified, making interpretation difficult. In this study, sex determination was based mainly on the difference in size between the female-specific 812 bp fragment and the homologous, longer fragment amplified for males.

0673. **Suliasih. 2010**. Pengaruh Pupuk Mikrob dalam Memacu Pertumbuhan Seedling *Gmelina Arborea* di Rumah Kaca. *Berkala Penelitian Hayati* Nomor 4A: 103–107. 1 April 2010

Abstract

Seven isolates of soil microbes (*Enterobacterliquefaciens*, *Serratia rubidaea* 1, *Citrobacter* sp., and *Nitrosomonas* sp.1, *Enterobacter* sp., *Serratia rubidaea* 2, *Nitrosomonas* sp2) have been collected from Kebun Raya Cibodas in order to study the effect of biofertilizer to stimulate the growth of *Gmelina arborea*. A Green house experiment is conducted in Microbiology Division, Research Center of Biology, Indonesian Institute of Sciences, Cibinong.

The aim of this experiment is to find out an effective and suitable inoculant used as biofertilizer. The experiment is designed in Complete Randomized Design (CRD) with three replications.

The result shows that all isolates under study released inorganic phosphate from tricalsium phosphate indicating potential of these isolates to release soluble inorganic phosphate from fixed phosphate sources for plant uptake. *Serratia rubidaea* 1 is found to solubilizer greatest amounth of tricalsium phosphate. Furthermore, also the plants inoculated with *Serratia rubidaea* 1 gives the best result on the growth of a plant.

0674. **Suliasih. 2010.** Keberadaan Bakteri Pelarut Fosfat dan Aktivitas Enzim Fosfatase Tanah Daerah Perakaran Tanaman Obat dari Kebun Raya Cibodas. *Jurnal Rekayasa Lingkungan* Volume 6, No.3: 303–309, November 2010.

Abstract

A study was undertaken to investigate to occurance of phosphate solubilizing bacteria from rhizosphere soil samples of medicine plants in Cibodas Botanical Garden. 13 soil samples of medicine plants are collected randomly. The result shows that 71 isolates of phosphate solubilizing bacteria were isolated and 10 species of these organism were identified as *Azotobacter* sp., *Bacillus* sp., *Chromobacterium* sp., *C. violaceum*, *Citrobacter* sp., *Enterobacter* sp., *E. liquefaciens*. *Nitrosomonas* sp., *Serratia rubidaea, Sphaerotillus natans*, *Azotobacter* sp., and *Bacillus* sp. are found in all of soil tested. Conversely, *Serratia rubidaea* is only in the sample from rhizosphere of Plantago mayor. The activity of acid alkaline phosphatase in soil tested ranged from 0.78–60,18 ug p nitrophenole/g/h, with the higest values being recorded in soil sample from rhizosphere of "Lavender".

0675. **Suliasih, S. Widawati** & A. Muharam. **2010**. Aplikasi Pupuk Organik dan Pupuk Hayati untuk Meningkatkan Pertumbuhan Tanaman Tomat dan Aktivitas Mikrob Tanah. *Jurnal Hortikultura* 20(3): 241–246.

Abstract

The use of organic matter on tomato cultivation is focused to decrease the utilization of chemical subtances for minimizing environmental degradation. An experiment was conducted in Cidawu village, Cibodas, Cianjur (1,250 m asl) to determine the suitable and effective inoculant to increase the growth of tomato plants, and also to stimulate soil microbial activities. The tomato variety used was Gondo. The organic fertilizers were composed, chicken-dung plus rise husk, and Phosphate Solubilizing Bacteria (PSB), as biofertilizer. The aim of the experiment was to find the suitable and effective inoculant on the tomato and it was expected to increase the growth of the plant. A Randomized Block Design with three replications was utilized in experiment. The treatments consisted of without organic fertilizers or PSB (control)(K), inoculation of PSB (P1), application of compost (P2), application of chicken dung plus rise husk (P3), application of chemical fertilizer (NPK)(P4). The result showed that the application organic fertilizer and PSB increased the growth of tomato plant and also PSB population, acid, and alkaline phosphatase activities in the soil after harvesting. The inoculation of PSB resulted in highest plant height (108.3 cm) compared to control (72.3 cm) and also the highest tomato yield compared to the control treatment (88.2%), and even it was higher than the yield caused by the application of the chemical fertilizer. The highest increase of PSB population and the activities of acid and alkaline phosphatase enzymes in soil after harvesting of the PSB inoculant compared to the other treatments. The application of organic fertilizer and PSB for wide scale cultivation of tomato

expectantly plays an important role for increasing production, productivity, and quality of tomato to fulfill market demand for the product.

0676. **Suliasih. 2011**. Toleransi Salinitas dari Bakteri Penambat Nitrogen yang Di-isolasi dari Perairan Laut Pulau Seribu dan Kemampuannya dalam Melarutkan Fosfat. *Berkala Penelitian Hayati* (Journal of Biological Researches) No. 4C: 7–12, April 2011

Abstract

Isolates of nitrogen fixing bacteria (*Rhizobium, Azotobacter,* and *Azospirillum*) were isolated from coastal mangrove in Pulau Seribu. The aim of this experiment is to find out isolates of nitrogen fixing bacteria which were tolerant to salinity and is able to dissolve inorganic phosphate. The isolates can be used as biofertilizer for improving crop yield in coastal agricultural field. 14 isolates of nitrogen fixing bacteria (*Rhizobium, Azotobacter,* and *Azospirillum*) from coastal mangroves were tested for their ability to grow at media which were contained 1%, 2%, and 3% of NaCl consentration and for their ability to dissolve inorganic phosphate (($Ca_3PO_4)_2$ and rock phosphate).

The result showed that bacterial numbers indicated by viable counts were ranged from 0.05 10^4–64 10^4 for *Rhizobium*, 0.5 10^4– 148 10^4 for *Azotobacter* and 0.02 10^4–65 10^4 for *Azospirillum*. There were 9 isolates of *Rhizobium* and 4 isolates of *Azotobacter* which were tolerant to grow at 1%, 2% and 3% NaCl.

From a total of 14 rhizobial isolates tested for phosphate solubilization by the formation of visible dissolution halos on agar plates, 12 and 6 of the isolates of *Rhizobium* solubilized $(Ca_3PO_4)_2$ and rock phosphate, respectively. There were 2 isolates of konsentrasi 1%–3% *Azospirillum* and 5 isolates of *Azotobacter* solubilized $(Ca_3PO_4)_2$ and rock phosphate. In the liquid Pikovskaya medium, nitrogen fixing bacteria released an average 1.41–8.52mg L^{-1} of P after 3 days incubation.

0677. **Suliasih. 2012.** Diversity of Phosphate Solubilizing Bacteria in Forest Affected Fire and its Possible Role in Ecosystem Recovery. *Berita Biologi* 11(1-a): 157–163.

Abstract

The purposes of this research is to assess the effect of wildfires on populations, spesies diversity of Bacterial Phosphate Solvents (BPF), and phosphatase enzyme activity (acid and alkaline) of forest land in Bukit Bangkirai, East Kalimantan. Soil were taken from three permanent plots i.e. Plot K (control–no burning of native forests), Plot LD (lightly fire) and Plot HD (heavy fire). Soil selected from 10 points of each plot were taken from two different depths of the top soil (0–20 cm) and sub soil (>20 cm). Results show the influence of forest fires and soil depth on BPF activity are characterized by declining populations of bacteria, acid and alkaline phosphatase activity in line with the level of forest fires and soil depth. Range of BPF populations and activities of acid and

alkaline phosphatase were also calculated. Of the 33 BPF isolates obtained, 9 spesies are identified to as *Azotobacter* sp., *Bacillus* sp., *Chromobacterium* sp., *Escherichia coli, Klebsiella* sp., *Listeria* sp., *Nitrosomonas* sp., and *Serratia* sp. Due to the BPF population and activity has been strong in post-fire soil of Bangkirai, BPF is expected to increase the activity of soluble phosphate mineralization from the soil to become available to plants, so as to stimulate growth.

0678. **Suliasih. 2012.** Uji Salinitas dari Bakteri Pelarut Fosfat yang Diisolasi dari Beberapa Ekosistem di Bali dan Kemampuannya dalam Melarutkan Fosfat. *Prosiding Seminar Nasional XXI Perhimpunan Biologi Indonesia,* Cabang Aceh. 448–451.

Abstract

Isolates of phosphate solubilizing bacteria (PSB) isolated from several ecosystem in Bali were tested for their ability to salinity and for their ability to dissolve insoluble phosphate $Ca_3(PO4)_2$ in-vitro. The aim of this experiment is to find out isolates of phosphate solubilizing bacteria which were tolerant to salinity and able to dissolve insoluble phosphate. The isolates can be used as biofertilizer for improving crop yield in coastal agricultural field.

15 isolates of PSB were tested for their ability to salinity in media which were contained 0% (control), 2%, 4%, and 6% of NaCl consentration and for their ability to dissolve insoluble phosphate in pikovskaya's agar media and pikovskaya's broth. Bacterial phosphorus solubilization trait was analyzed by determining the diameter of P solubilization (Diameter total–diameter of bacterial growth).

The result showed that from a total of 15 phosphate solubilizing bacteria isolates tested for phosphate solubilization by the formation of visible dissolution halos on agar plates, 10 isolates were able to solubilize $Ca_3PO_4)_2$ and there were 6 isolates which were tolerant to grow at 2%, 4%, and 6% NaCl. In the liquid Pikovskaya medium, PSB released an average 0.12–3.99mg L^{-1} of P after 7 days incubation.

0679. **Suliasih. 2012.** Pelarutan Batuan Fosfat oleh Bakteri Pelarut Fosfat dan Kemampuannya dalam Meningkatkan Pertumbuhan Tanaman Sengon Buto (*Enterolobium cyclocarpum*). *Jurnal Teknologi Lingkungan*, Edisi Khusus "Hari Bumi"; hlm. 21–29.

Abstract

Nine isolates of phosphate solubilizing bacteria isolated from rhizosphere soil were investigated for their ability to solubilize rock phosphate in vitro. All of isolates tested showed the ability to solubilize rock phosphate in both solid and liquid medium. The solubilization in solid medium showing the formation of visible dissolution halos on agar plate with solubilization efficiency ranged from 128–216. The solubilization of rock phosphate ranged from 2.53 $mg.l^{-1}$–5.61 $mg.l^{-1}$ in liquid medium.

Pot culture with nine isolates using Sengon buto (*Enterolobium cyclocarpum*) as the test plant and rock phosphate as the phosphorus source was conducted at green house of Microbiology Division, Research Center of Biology, Indonesian Institute of sciences, Cibinong. Experiment laid out as factorial based on randomized complete design with tree replication. Two levels of rock phosphate fertilizer consisted of 50 kg ha^{-1} and 100 kg ha^{-1} and ten levels of isolates (consisted of Control without inoculation, T, Y, C, W, E, J, L, S and O isolates) were treatments.

The result showed significant increase growth of Enterolobium cyclocarpum seedling compared with the uninoculated control. Total culturable phosphate solubilizing bacteria count was increased by inoculation. The phosphomonoesterase, the available P contents of the soil were stimulated by the inoculation with the phosphate solubilizing bacteria. Among the isolates, the best effect on yield was obtained with E isolat.

0680. **Suliasih. 2014.** Penggunaan Bakteri Pemacu Pertumbuhan Tanaman Toleran Garam pada Tanaman Padi yang Ditanam di Tanah Salin. *Prosiding Seminar Nasional Biologi FMIPA UNPAD* (Mei 2014). Hlm. 514–520.

Abstract

The use of salt-tolerant plant growth promoting bacteria (nitrogent fixing bacteria and phosphate solubilizing bacteria) on growth rise cultivated in saline soil was conducted under green house experiment. The aims of the experiment is to find out the effect of nitrogent fixing bacteria and phosphate solubilizing bacteria which were tolerant to high salinity to the growth of paddy. The bacteria can be used as a biofertilizer to support coastal agriculture. The experiment was a 5x7x3 complete factorial which was comprised of 7 inoculation treatments and NaCl treatments with 3 replicates for each treatment. The pots were arranged in a green house of Microbiology Division, Research Center of Biology, Indonesian Institute of Sciences. The first factor is the level of NaCl (0 (control), 2. 3, 5, and 9 dS/m). The second factor is inoculation treatments (P1.control without inoculation, P2. control N, P fertilizer without inoculation, P3. Azospirillum1 bacteria, P4. Azospirillum2 bacteria, P5. Azotobacter bacteria, P6. Phosphate solubilizing bacteria, and P7. Mixed inoculants).The result revealed that the inoculants treatment increased the growth and yield of paddy in the all of level of NaCl compared with control without inoculants.

0681. **Suliasih. 2014.** Produksi IAA dan Pelarutan Fosfat secara In-Vitro oleh Bakteri Penambat Nitrogen yang diisolasi dari Tanah Sawah Cilacap. *Prosiding Seminar Nasional Biodiversitas*: *Studi, Pemanfaatan, dan Konservasi Keanekaragaman Hayati Nusantara dalam Bidang Kesehatan.*

Abstract

A total of twenty one nitrogen fixing bacteria (Azotobacter, Rhizobium, and Azospirillum) were isolated from different location of Cilacap by dilution plate

technique. These isolates were screened in vitro for their ability to dissolve and mineralization of inorganic phosphate Ca3(PO4)2 and organic phosphate respectively, and tested for the production of Indole Acetic Acid (IAA). All isolates were capable to solubilize Ca3(PO4)2 in solid medium with various solubilization index ranged from 1.14–1.50 and 0.26 ug/ml to 4.79 ug/ml in liquid medium. All isolates also produce acid and alkaline phosphatase about 0.07–0.173 ug/ml p-nitrophenol/hour and 0.06–0.45 ug/ml p-nitrophenol/hour respectively. IAA was produced by 21 isolates nitrogen fixing bacteria after 3 days incubation in the range of 0.23–8.95 ug/ml.

0682. **Sulistiarini, D. 2010.** Pemanfaatan Tumbuhan oleh Masyarakat Desa Cikedung, Kecamatan Mancak, Serang-Banten. *Prosiding Seminar Nasional Peran Biosistematika dalam Pengelolaan Sumberdaya Hayati Indonesia*. 741–747.

Abstract

The investigation of plant utilization by local people had been conducted on Cikedung village, around Tukung Gede Natural Reserve, Serang–Banten. The information was gathered by interview with field guide, medical woman, local people who utilize those plants. It is recorded approximately 121 species plant that have been variously used by local people for medicines (48 species), foods (30 species), ornamental plants (38 species), stimulant (3 species), aromatic plants (1 species), poison for plant disease (2 species), and the other use. Complete information will be presented in this paper.

0683. **Sulistiarini, D. 2011**. Keanekaragaman Tumbuhan Berpotensi Obat di Kawasan Cagar Alam Gunung Tukung Gede, Serang-Banten. *Berkala Penelitian Hayati edisi Khusus* 4D: 17–23.

Abstract

The investigation of plant medicinal by local people had been conducted on Tukung Gede Natural Reserve, Serang. The locations were Curug Lawang, Gunung Nyungcung, Buniara, Gunung Budha, and Gunung Cibunar. This study selected these locations because there were not any data of medicinal plants from these areas. The information was gathered by interview with field guide and the social life who utilized those plants for medicine. It was recorded 85 species which have been used by local people to treat 33 pains. The plants were 81 species Phanerogam and 5 species Cryptogam. Complete information about pains and plants medicine is presented in this paper.

0684. **Sulistiarini, D. 2011.** Persebaran dan Keragaman Anggrek *Pecteilis susannae* (L.) Rafin di Indonesia. *Prosiding Seminar Nasional "Konservasi Tumbuhan tropika: Kondisi terkini dan Tantangan ke Depan" Kebun Raya Cibodas, 7 April 2011.*

Abstract

Pecteilis susannae (L.) Rafin. Is a terrestrial orchid that was categorized as an endangered species. Herbarium specimens of this species stored in the Herbarium Bogoriense have been studied. Available data and information found on the label for each specimen were investigated and described in order to understand the diverse characters of the species. There are 45 sheets of specimen where 5 of them collected from overseas. Meanwhile, other 40 sheets were collected from Indonesia such as Celebes, Java, include Madura, Sumba, Timor and Moluccas. Out of all specimens examined, only specimen collected from Semarang has significantly bigger than others both in leaves and flowers as well.

0685. **Sulistiarini, D. 2012**. The Orchids Genus *Dilochia* in Indonesia. *Reinwardtia* 13(4): 379–387.

Abstract

Five species of *Dilochia* (*D. cantleyi, D. longilabris, D. parviflora, D. rigida,* and *D. wallichii*) have been recognized in Indonesia. One species from Sumatra is proposed as new species. Descriptions and identification key to all species based on morphological characters are presented.

0686. **Sulistiarini, D. 2013.** Koleksi Anggrek Ternate di Herbarium Bogoriense**.** *Prosiding Seminar Nasional Biodiversitas Vol. 1.* Universitas Sebelas Maret Surakarta: Jurusan Biologi Fakultas Matematika dan Ilmu Pengetahuan Alam.

Abstract

Ternate is included in the small area island which is one of the targets of research program in Indonesia to express the biodiversity. The island became attractive to be exposed because Alfred Russel Wallace for the first time explored and collected fauna flora in Indonesia which then formed the basis of Charles Darwin's theory about the origin of Species. Research about orchid on the island were not yet known and exposed. From the observation of herbarium collections, it was recorded 31 species of orchids, mostly Beguin collection from Foramadiahi beetween the years of 1920 to 1921. It was also recorded 8 species endemic ternate, they are Bulbophyllum languidum, B. ternatense, Diplocaulobium aduncilobum, *Flickingeria paucilaciniata*, *Malaxis sagitiflora*, *M. ternatensis*, *Pseudovanilla ternatensis,* and Robiquetia anceps. Description about the species is presented in the paper.

0687. **Sulistiarini, D. 2014.** Some Orchids *Eria* spp. Potentially as a medicine plant. *Prosiding Seminar Nasional Biodiversitas*: 27–29. 2014.

Abstrak

Ada sekitar 370 jenis Eria (Orchidaceae) yang telah teridentifikasi di Asia Tropik, Australia, dan kepulauan Pasifik. Marga Eria tidak sepopuler *Dendrobium* dan *Phalaenopsis,* terutama dalam potensinya sebagai tanaman hias.

Namun dari hasil eksplorasi, pengamatan specimen herbarium dan penelusuran pustaka, diketahui ada dua jenis yang berpotensi sebagai obat yaitu *Eria javanica* dan *E. pannea*. Namun dari hasil eksplorasi diketahui, *E. javanica* merupakan rekaman baru tentang kegunaanya sebagai obat yaitu sebagai obat tidur oleh penduduk di sekitar Cagar Alam Gunung Tukung Gede, Serang-Banten, sedangkan *E. pannea* telah diketahui di Semenanjung Malaya untuk obat demam.

0688. **Sulistinah, N.** & **B. Sunarko. 2010**. Penapisan Mikrob Penghasil Enzim untuk Biotransformasi Senyawa Nitril. *Berkala Penelitian Hayati* (*Journal of Biological Researches*). Edisi Khusus No. 4F: 13–18.

Abstract

A number of potential microbes have been isolated from contaminated area by toxic compound. The isolates were assayed to know best consisted of capability in degradation of acetonitrile. Screening of microbe was done with microtitter plate method based on growth ability tested by INT (Iodonitrotetrazoliumchloride) reagent and product of the degradation was determined by GC. Five isolates of bacteria (TPIK, GLB5, LP3, 26 A2, and 23 A2) was capable of utilizing acetonitrile as sole source of carbon and nitrogen. Isolate bacteria of TPIK was potential for bioremediation compared to the other isolates because the isolate the lowest residual acetonitrile as much as 89.76 mM from initial concentrationof 1,000 mM. Isolate bacteria of TPIK had biotransformation pattern in parallel, between growth, activity, and ammonium as biotransformation product. Potential microbes had capability for transformation of nitrile compound were TPIK, LP3, and GLB5. The objectives of this study were screen of microbes as enzyme producer for biotransformation of nitrile, and biotransformation patterns of the microbes to acetonitrile

0689. **Sulistinah, N**. **2010**. Kemampuan *Flavobacterium* sp. NUB1 dalam Menggunakan Senyawa Nitril Alifatik untuk Pertumbuhan. *Jurnal Teknologi Lingkungan* 11(3): 425–433.

Abstract

A bacteria isolate which is capable of utilizing 1% (v/v) acetonitrile and butyronitrile as the sole source of carbon and nitrogen was isolated from industrial effluents of PT Petrokimia-Gresik and was identified as *Flavobacterium* sp. NUB1. The bacteria isolate was able to grow in both acetonitrile and butyronitrile at concentration up to 4% (v/v). The highest growth was reached at 1% concentration of acetonitrile and butyronitrile. The specific growth rate (μ) of the isolate was $0.029h^{-1}$. The major objectives of this study were to explore the abilities of the isolate to utilize some aliphatic nitriles and then further to evaluate the metabolite product of the nitrile degradation.

0690. **Sulistinah, N.** & **B. Sunarko. 2010**. Kinetika Biotransformasi Suksinonitril oleh *Pseudomonas* sp. *Berita Biologi* 10(1): 85–91.

Abstract

Succinic acid ($HOOC(CH_2)_2COOH$) is a commercial compound that primarily used in food products. This compound is also used in textile industry for colouring process, drug industry, paint, pernist, and photography slice. Succinic acid is usually produced in industry by chemical reaction and produces cyanide acid as by product. The objectives of this research were to study the utilization of *Pseudomonas* sp. in producing succinic acid acid and to characterize the involved enzymes. The results showed that the enzyme was optimally produced in log phase. The production rate of the acid formation was 0.982 mM/ml.h with the decrease of substrate consumption 1.235 mM/ml.h. The yield of succinic acid during 81 hours was 81%, and the optimum pH, temperature, Km and Vmax were 7. 27°C, 90 mM and 0.0002 mM/ml.h.

0691. **Sulistinah, N.** & **B. Sunarko. 2010**. Konsorsia Bakteri Pengurai Sianida yang diisolasi dari Buangan Industri Pengolahan Emas. *Jurnal Teknologi Lingkungan* 11(3): 451–457.

Abstract

Bacterial consortium capable of growing and utilizing cyanide as a source of nitrogen was isolated from effluent of gold mining industry. The isolation was conducted using liquid enrichment medium contained potassium cyanide and glucose as nitrogen and carbon source, respectively. These consortium could tolerate and were able to grow on KCN at concentration of up to 1,000 ppm. Bacterial consortium LP3 were also able to degrade potassium cyanide and ammonium as product of the degradation. The degradation rate was 9.0 μM per minute. The cyanide-degrading bacteria found in this consortium were identified as *Bacillus*, *Corynebacterium*, and *Serratia.*

0692. **Sulistinah, N.** & **R. Riffiani. 2010**. Isolation and Screening of Bacteria-Degrading Polycyclic Aromatic Hydrocarbon (PAHs) in Raja Ampat, Papua. *Proceeding International Conference On Biological Science,* 632–636.

Abstract

Polycyclic aromatic hydrocarbons (PAHs) are important environmental contaminants in soil and water. These compounds have a potential risk to human health, as many of them are carcinogenic and toxic to marine organisms such as diatome, gasthropode, mussel, and fish. PAHs are composed of fused aromatic rings in linear, angular, or cluster arrangements and are produced during the pyrolysis of organic material. Although some PAHs are toxic, carcinogenic, or teratogenic, a variety of bacteria can degrade certain PAHs completely to CO_2 and metabolic intermediates, enroute gaining energy and carbon for cell growth. Phenanthrene is one of the hazardous hydrocarbon compounds. The purpose of this research was to characterize microbial strains from Waigeo

district, Raja Ampat Papua Island and their ability to remove penanthrene. An artificial sea water mineral salt medium (ONR7a) was used for sublimation test to see the ability of pure culture to degrade certain PAHs. The isolate degrades the PAHs shown by clear ring zone on ONR7a medium. Five isolates were identified for their characteristics based on the composition of nitrogen base. Molecular identification based on 16S rRNA gene sequences indicated that bacteria had the highest similarity with *Pseudomonas stutzeri*, *Caulobacterium* sp., *Rhodobacteraceaebacterium*, *Rhodovulum adriaticum*, and *Roseobacter* sp. RW37 16S

0693. **Sulistinah, N.** & **R. Riffiani. 2011.** Mikrob Laut Penghidrolisis Senyawa Nitril di Sekitar P. Moti, Ternate. *Ekologi Ternate*. Hlm. 303–310

Abstract

Nitrile compounds are distributed widely in the environment as a result of anthropogenic activity or industrial synthesis. Nitrile-hydrolyzing microorganisms play an important role to degrade the compound. Microorganisms usually convert nitriles through two hydrolytic pathway. The potential biotechnological application of the nitrile-hydrolyzing enzymes are becoming common place in the synthesis of commodity chemical, pharmaceuticals, and also useful for bioremediation application. In this experiment, 33 isolates of marine bacteria were isolated from sponge in Ternate Island. All isolates were tested for their ability to utilize acetamide (aliphatic amide) and benzamide (aromatic amide) as a sole source of carbon and nitrogen. Screening of nitrile-hydrolyzing bacteria was done using microtitter plate with added by Iodonitrotetrazolium. Based on their growth pattern, eleven isolates were able to utilize acetamide (100 mM) as the source of carbon and nitrogen, and only six isolates were able to grow on benzamide (25 mM). One of them is *Lysobacter* sp showed the highest growth on the acetamide. Resting cell of *Lysobacter* sp was capable of hydrolyzing acetonitrile. Acetic acid and ammonia as the end product of hydrolyzis.

0694. **Sulistinah, N.** & **R. Riffiani. 2011**. Studi Degradasi Dibenzothiophene oleh *Sphingomonas paucimobilis* Bakteri *Indigenous* Muara Baru-Teluk Jakarta. *Jurnal Teknologi Lingkungan* Vol.12(3): 269–276.

Abstract

Dibenzothiophenef is one of PAHs compounds which is known toxic in the environment. Most of PAHs are carcinogenic and persistent in the environment. Biostimulation technique was used for isolating the indigenous bacteria from Muara Baru which is capable of degrading DBT. The main purpose of this study were to isolate and investigate the selected marine bacteria-degrading DBT. The results showed that the bacteria isolate M4 (*Sphingomonas paucimobilis*) which was able to grow optimum at 30°C with 1.6 x 109 cell/ml and the doubling time (td) is 6 h. Growth of *Sphingomonas paucimobilis* on 2% NACl with 2.6 x 109 cell/ml and the doubling time is 11 h. DBT degradation

showed that Km and Vmax for KNO3 are 0.0307 $^{h-1}$ and 12.27 mg/l/h. KNO_3 and NH_4NO_3 are suitable source of a nitrogen and were able to accelerate biodegradation speed of *Sphingomonas paucimobilis*. The efficiency of the degradation are 62.5% and 57.6%.

0695. **Sulistinah, N., R. Riffiani** & **B. Sunarko. 2014**. Pengembangan Sistem Deteksi Senyawa Sianogen dalam Ubi Kayu (*Manihot esculenta* Crantz) dengan Pendekatan Enzimatis. *Jurnal Biologi Indonesia*, 10(1): 77–82.

Abstract

Picrate paper test kit for the semi-quantitative determination of cyanogenic potential was developed in this experiment. The method is relatively simple, easy to use, and might be applicable in the field by unskilled person. Paper test was attached on tubes containing sample (100 mg) in aquadest (0.5 mL) and then was immediately covered tightly and incubated overnight at room temperature. The colour of picrate paper test changed gradually towards reddish brown, and its colour was compared to standart colour chart which included 0–800 ppm cyanide that was also developed in this study. The reddish brown colour of paper test was correlated with cyanide concentration on the sample. In order to obtain a more accurate detection of cyanogenic compound, the paper test was eluted with 5 mL water or aquadest and the absorbance was measured at 510 nm.

0696. **Sulistyadi, E. 2010**. Kemampuan Kawasan Nir-Konservasi dalam Melindungi Kelestarian Burung Endemik Dataran Rendah Pulau Jawa Studi Kasus di Kabupaten Kebumen. *Jurnal Biologi Indonesia* 6(2): 237–253.

Abstract

Indonesia region is inhabited by 1,598 birds in which 372 Indonesian endemic birds and 56 species of them are Java endemic. Amongs of java endemic birds, 19 species are lowland occupant. Indeed, the birds play important roles in ecosystem as agents of pest population control, pollination, and seed dispersal. In lowland area of Java, intensive transformation of land use exacerbated by no conservation area may threaten presence of the endemic birds. This study aims to assess caring capacity of disrupted area in low lands for preserving endemic birds of Jawa. The study was conducted in Bedegelon river covering northern mountaneus area of Kebumen district from October–November 2007 using encounter rates method. Survey was carried out in three farm types: agroforestry (wanatani), intercropping agriculture area (tumpangsari), and mixed area of vegetation-settelment area (sempadan sungai). Result shows that four spesies Java lowland endemik birds were found in observed area. *Lonchura leucogastroides* and *Dicaeum trochileum* found at all farm type, *Prinia familiaris* was found at intercropping agriculture area (tumpangsari). *Alcedo coerulescens* was observed at agroforestri area (wanatani) and mixed of vegetation-settelment area (sempadan sungai) farm type.

0697. **Sulistyadi, E. 2012**. Komunitas Mamalia Besar Gunung Slamet. *Dalam Ekologi Gunung Slamet: Geologi, Klimatologi, Biodiversitas dan Dinamika Sosial.* xiv + 261. ISBN 978-979-799-700-7. Jakarta: LIPI Press

Abstract

Research of mammals community of Slamet Mountain was performed in May 2008 at south slope forest and in March 2010 at east slope of Slamet Mountain. The observation was conducted by line transect method. Data registry was done based on direct observation and indirect observation. At least 15 species were found with proportion seven spesies including ordo Carnivora, four Primata specieses, two Artiodactyla's specieses and two Rodentia's specieses. Largely, mammal was distributed on primary forest and secondary forest elevation 700 to 900 asl.

0698. **Sulistyaningsih, L.D. 2010.** Keanekaragaman Pisang-Pisang Liar di Gunung Salak, Taman Nasional Gunung Halimun Salak. *Buletin Pusat Informasi Konservasi Alam* IX(5): 28–30.

Abstract

Penelitian untuk mengetahui keanekaragaman pisang-pisang liar (*Musa* spp.) di kawasan konservasi Gunung Salak, Taman Nasional Gunung Halimun-Salak (TNGHS) telah dilakukan. Pisang-pisang liar yang telah ditemukan di kawasan ini adalah *Musa acuminata* Colla var. *cerifera* (Back.) Nasution, *M. acuminata* Colla var. *malaccensis* (Ridl.) Nasution, *M. acuminata* Colla var. *nakaii* Nasution, *M. acuminata* Colla var. *zebrina* (v. Houtte) Nasution, *M. salaccensis* Zoll., dan *M. acuminata* Colla var. *malaccensis* (Ridl.) Nasution merupakan pisang liar yang mendominasi kawasan Gunung Salak.

0699. **Sulistyaningsih, L.D.** & Irawanto. **2011.** Penyebaran *Musa campestris* Becc. var. *sarawakensis* Häkkinen di Cagar Alam Raya Pasi-Kalimantan Barat. *Berkala Penelitian Hayati (Journal of Biological Researches). Edisi Khusus* 5A: 121–124.

Abstract

Distribution study of *Musa campestris* Becc. var. *sarawakensis* Häkkinen in Nek Rokon hill, Raya Pasi Natural Resource Area, Singkawang–West Kalimantan is presented. The objective of this study was to give information about the distribution of this plant. The methods was specific explorative with plot 2x2 m for assosiative plants. Population of *Musa campestris* Becc. var. *sarawakensis* Häkkinen almost appeared in foothills with altitude about 55 m dpl and pH 6.2 on open space. Some species that had high association with this variety were *Aleurites moluccana* (L.) Willd., *Arenga pinnata* Merr., *Lygodium circinatum* Sw., *Artocarpus elasticus* Reinw., and *Donax cannaeformis* Rolfe.

0700. **Sulistyaningsih, L.D.** & **A.H. Wawo. 2011.** Kajian Etnobotani Pisang-pisang Liar (*Musa* spp.) di Malinau, Kalimantan Timur. *Biosfera* 28(1): 43–47.

Abstract

Ethnobotany studies of wild banana species in Malinau, East Kalimantan has been done. There are two varieties of wild banana species in Malinau, e.g. *Musa borneensis* Becc. var. *flavida* Häkkinen & Meekiong and *Musa acuminata* Colla var. *microcarpa* Nasution. They have an important role in the customs of the local communities in Malinau, Punan tribes as land certificate. In addition, young pseudostem of *M. borneensis* Becc. var. *flavida* is often used as food in the traditional parties. The description and the uses of *M. borneensis* var. *flavida* and *M. acuminata* var. microcarpa are presented here.

0701. **Sulistyaningsih, L.D.**, R. Megia, & **E.A. Widjaja. 2014**. Two New Records of Wild Bananas *(Musa balbisiana* and *Musa itinerans)* from Sulawesi. *Makara J. Sci.* 18(1) (2014): 1–6.

Abstract

The diversity of wild banana species in Sulawesi was investigated based on the morphological characteristics of herbarium specimens collected in Sulawesi and deposited in the Herbarium Bogoriense, Bogor, Indonesia (BO). New specimens were collected from Central, North, South, and Southeast Sulawesi, and digital type specimens were also used in this study. The aim of this study was to describe the diversity of wild banana species in Sulawesi as most *Musaceae* specimens stored at BO have not been identified. By examinating 110 sheets of herbarium specimens, five species of *Musa,* including two infraspecific taxa of *M. acuminata* housed in Sulawesi, were identified. *Musa acuminata, M. celebica,* and *M. textilis* were previously reported from Sulawesi. However, *M. balbisiana* and *M. itinerans* are two new records of wild banana species in Sulawesi. Identification keys, descriptions, distribution maps, and line-drawing illustrations of these two species are provided.

0702. **Sulistyo, J**., **Y.S. Soeka,** & **R.D. Rahayu. 2012**. Perfective on Biofuel Based Biodiesel Production. *Berita Biologi* 11(1-a): 63–67.

Abstract

The purpose of this study is to explore the potential of algal oil for production of fatty acid methyl ester (FAME) through enzymatic transesterification. The use of algal biomass that had been freeze-dried to produce algal oil amounted to 35–40% (v/w bimass) with the content of fatty acid reached 50–60%. Fatty acid that was extracted from *Scenedesmus dimorphus*, *Chlorella vulgaris,* and *Spirulina fusiformis* can produce methyl ester as algal biodiesel by transesterification, using microbial lipase which serves to increase the reaction speed and yield in the presence of anhydrous methanol. In this enzymatic transesterification, a large amount of methanol was used to shift the equilibrium right sides so as to produce more methyl esters as a final product. The maximum

conversion (± 85%) of oil into esters occurs when the molar ratio between oil and methanol is 1:10 at a temperature of about 65°C.

0703. **Sulistyo, J., Y.S. Soeka, R.D. Rahayu, S. Purwaningsih, E. Naiola** & **A. Dinoto. 2012.** Potensi LST Alga sebagai Penghasil Biodiesel Melalui Reaks-transesterifikasi Enzimatik Mikroba. *Proceeding Seminar Nasional XXI.* 2012, Hlm. 282–285. ISBN 978-602-19435-0-2.

Abstrak

Beberapa jenis mikroalga mampu menghasilkan biomassa mengandung asam lemak dalam jumlah tinggi sehingga berpotensi sebagai bahan baku untuk memproduksi Lemak Sel Tunggal (LST). Kualitas biodiesel dari LST alga dapat ditingkatkan melalui modifikasi asam-asam lemak melalui reaksi transesterifikasi menggunakan akseptor metanol dengan katalis kimia dan biokatalis enzimatik. Pada penelitian ini dilaporkan bahwa hasil reaksi transesterifikasi menggunakan pelarut heksan-isopropanol menghasilkan kandungan *fatty acid methyl esters* (FAME) yang tinggi. LST hasil ekstraksi biomasa alga berpotensi menghasilkan biodiesel melalui transesterifikasi menggunakan akseptor alkohol anhidrat serta katalis yang dapat meningkatkan kecepatan reaksi dan rendemen metil ester yang dihasilkan. Penggunaan enzim sebagai biokatalis menunjukkan rendemen yang lebih tinggi dibandingkan katalis berupa sel dalam keadaan utuh (*whole cell).* Berdasarkan hasil tersebut, penelitian ini bertujuan untuk mengoptimasi hasil ekstraksi LST dan reaksi transesterifikasi enzimatik untuk memproduksi biodiesel sebagai sumber energi "baru dan terbarukan".

0704. **Sulistyo, J.**, & **R.D. Rahayu. 2013**. Aktivitas Antimelanogenesis Senyawa Polifenol Glikosida Hasil Reaksi Transglikosilasi Enzim CGTase dari *Xantomonas campestris*. *Prosiding Seminar Nasional Biologi–IPA 2013*, ISSN: 978-979-028-573-6

Abstract

Xanthomonas campestris is known as xanthan gum biopolymer producing bacteria which is useful as thickener, stabilizer, and suspending agent in the food industry. The mechanism of the synthesis of xanthan gum which is thought to involve enzymatic metabolism is quite complex, so that research on that existence of enzymes that play a role in the synthesis of biopolymer is important to expose. This study is aimed to test the ability of X. campestris culture that has transglycosylation activity as a producer of cyclodextrin glucanotransferase (CGTase) on acceptor of resorcinol and corn flour as its substrate to produce polyphenol glycosides as transfer products that may have antimelanogenesis activity. Reaction products was analyzed by thin layer chromatography. The study was focused to test and to purify polyphenol glycoside using ODS coloum chromatography eluted with methanol and 1% formic acid as gradient eluent. Result showed that the polyphenol glicoside, arbutin, and resorcinol at a concentration of 5 mM had potentially inhibitory effect that suppressed against activity of enzyme tyrosinase that might be presumably

playing a role in the synthesis of melanin in a mechanism of melanogenesis, amount to 10.57%, 5.69%, 13.90% respectively.

0705. **Sulistyo, J**., **R.D. Rahayu, H. Julistiono**, **A. Dinoto**, **S. Purwaningsih** & **S. Saputra**. **2013**. Pemanfaatan Starter Enzimatik untuk Produktivitas Pakan Ternak Fermentasi. *Prosiding Seminar Nasional Teknologi Peternakan "Membangun Center of Excellent untuk Pengembangan Industri Peternakan Menuju Swasembada Daging Nasional*." Jakarta, 3 Juni 2013**.** ISBN: 978–602–98275–1–4. Hlm. 141–149.

Abstrak

Bioaktivator sebagai starter enzimatik mengandung karotenoid sel tunggal (KST), protein sel tunggal (PST), dan probiotik, hasil pengembangan di Laboratorium Bioprospeksi, Bidang Mikrobiologi, Puslit Biologi LIPI, masing-masing diproduksi dari biakan *Phaffia rhodozyma*, *Lactobacillus plantarum,* dan *Saccharomyces cerevisiae.* Pembuatan stater enzimatik berbentuk padat, diproduksi menggunakan substrat dedak padi dengan penambahan ketiga macam starter cair sebanyak 2,5% (v/w) dan 5% (v/w). Produksi pakan ternak konsentrat yang difermentasi, dilakukan menambahkan stater padat sebanyak 1% (w/w) terhadap bahan baku pakan konsentrat yang berasal dari sumberdaya lokal. Hasil analisis menunjukkan bahwa kandungan protein pakan konsentrat yang difermentasi menggunakan starter yang mengandung bioaktivator 2,5% adalah 13,50%, sedangkan hasil fermentasi menggunakan starter mengandung bioaktivator 5% adalah 14,60%. Adapun hasil analisis kandungan protein pada pakan konsentrat yang tidak difermentasi adalah 8,11%. Hasil uji coba pemanfaatan pakan konsentrat yang telah difermentasi menunjukkan hasil yang cukup signifikan. Rata-rata peningkatan bobot badan sapi (ADG) mencapai 1,102 kg per hari setelah diberi pakan selama 72 hari pengujian.

0706. **Sumadijaya, A.** & J.F. Veldkamp. **2011.** *Bothriochloa* (Poaceae: Andropogoneae) in Malesia. *Gardens Bulletin Singapore* 63(1&2): 71–76.

Abstract

In Malesia there are four spesies of *Bothriochloa* (Poaceae: Andropogoneae). Andropogoneae modesta is lectotypified.

0707. **Sumadijaya, A. 2012.** Grass as Human Footprint. *Berita Biologi* 11(1a): 9–13.

Abstract

Combination of literature and randomly observed area in Indonesia show ecosystems transformation. Changes were dominated by grass intervention due to human activities. Each individual could act as independent dispersal agent and bring grass diaspores by purpose or unnoticedly, and made geographical distribution become blurry. Contribution of human transportation in dispersing grass occurred on settlement, transportation, plantation, and tourism spot.

0708. Sumarmo, S. & **D. Girmansyah. 2012.** Kondisi Kawasan Hutan Alam Gunung Slamet, Jawa Tengah. *Dalam Ekologi Gunung Slamet (Geologi, Klimatologi, Biodiversitas dan Dinamika Sosial).* Lembaga Ilmu Pengetahuan Indonesia (LIPI). Pusat Penelitian Biologi. LIPI Press. Hlm. 41–61.

Abstract

The condition of Nature Forest Area of Slamet in this research at height of>1.000 m asl, was obtained from available map. Ground check was conducted by collection of plant at height of 1,000–3,000 m asl on east angle of pitch. It is discovered that forest, mixture garden, and dry agricultural field are the main land use systems at this area. It is also found that 119 species of plant (159 specimens) comprise of 84 generas from 56 family. Nature forest area Slamet Mt. is regarded as the last habitat of real mountain plant type in Java. Research and improvement of this forest area is needed to ensure the exixtence of this area in the future.

0709. Sumiasri, N. & **N. Setyowati**. **2011**. The Study about Potency of '*Belimbing Wuluh*' (*Averhoa belimbi* L.) as a Medicinal Plant to Develop '*Toga*' in Jember regency. *Proceedings of the 1st ACIKITA International Conference of Science and Technology* (AICST), Jakarta, 26–27 July 2011. Hlm. 463–469.

Abstract

The study about potency of '*belimbing wuluh*' (*Averrhoa bilimbi* L.) as medicinal plant to develop '*Toga*' in Jember regency was carried out. Four villages selected for the study were Cangkring, Tempuredjo, Mlokoredjo, and Ambulu. The objective of the study was to know the traditional utilization of this plant in this area, especially for developing of '*Toga*' (Families Medicinal Park). The study was conducted by survey during February to March 2010. The data were collected by random on 10 (ten) respondents of '*KK*' ('*kepala keluarga*'/ head of families) in Jember regency. The primary data were collected by direct observation in the field and secondary data were collected by literature study and internet orientation. The data were analyzed by D and D method. Data result showed that almost of all the part from the plant can be used for medicinal plant. The potencies were to control the enemy like coach, hypertension, bleeding gums, acne and scorbutic (used the fruit), stomach ache, rheumatism fever, and diabetes (used the leaf). The petiole is meanwhile, for mump, and the flower is for maag ill and defecate is not fluent.

0710. Sumiasri, N. & **N. Setyowati. 2011**. Variasi Plasma Nutfah Tumbuhan Secara Lekat Lahan di Pekarangan: Studi Kasus Kecamatan Jenggawah, Jember. *Prosiding Seminar Nasional Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan*. Hlm. 277–283.

Abstract

A study to determine germplasm variation at home gardens as on farm conservation practices was carried out in Jenggawah District, Jember. This study was

conducted from January to February 2011 using random sampling method to respondents from three (3) villages, which are Cangkring, Kemuningsari Kidul, and Jenggawah with a total of ten (10) KK (head families) as respondents each village. Data analysis was conducted using Diagnose and Design method. There were 82 species, planted at home gardens in three villages observed at Jenggawah District, are generally species with economic values. Based on their function to human being, the home gardens species observed were classified as food, medicinal, ornamental, shelter, industrials, and ecosystem services plants.

0711. **Sunarti, S. 2011.** Keanekaragaman Tumbuhan Berkhasiat Obat di Pulau Moti, Provinsi Maluku Utara. *Dalam I. Maryanto & H. Sutrisno.* 2011. *Ekologi Ternate*. Hlm. 251–266.

Abstract

A study on medicinal plants has been conducted in Moti Island. About 42 species of medicinal plants from this island were recorded. The description, habitat, distribution, and how to use them were discussed in this paper.

0712. **Sunarti, S. 2011.** Penelitian Vegetasi Hutan di Wilayah Cadas Gantung dan Cadas Pagar, Cagar Alam Gunung Tukung Gede, Serang. *Edisi Khusus Jurnal Berkala Penelitian Hayati* 5A: 109–119.

Abstract

Tukung Gede Mountain Nature Reserved (TGMNR) covered almost 1.700 ha area. This includes four administrative districts of Serang Regency (Pabuaran District, Mancak District, Anyer District, and Cinangka District). This research was conducted in the western part of Nature Reserved with main sites in the Cadas Gantung Mountain and Cadas Pagar. The aim of the study was to investigate the Nature Reserved vegetation. Plot about 0.2 ha has been made in each location and names, tree diameter, tree total height, dbh and its position of every tree with the diameter ≥ 10 cm and sapling with the diameter ≥ 2 cm are recorded. This study discovered during the study that there was one vegetation type in Cadas Gantung and Cadas Pagar (the lowland rain forest). It was noted that the density in 1 hectare was 310 trees. The composition of trees species in all plot was relative deferent and the diversity of the trees species in plot II was the highest. The forest structure scored in B to D strata and the potential of regeneration were good.

0713. **Sunarti, S. 2013.** Keanekaragaman Jenis Tanaman Pekarangan di Pulau Moti, Propinsi Maluku Utara**.** *Prosiding Seminar Nasional Biodiversitas 2013, Konservasi Keanekaragaman Hayati Berbasis Kearifan Lokal Masyarakat Indonesia*. Hlm. 249–253.

Abstract

Pulau Moti merupakan salah satu pulau kecil di Propinsi Maluku Utara dan termasuk dalam wilayah kecamatan Moti. Sumber daya alam di pulau ini masih

banyak yang belum terungkap. Hal ini di dasari dari tidak adanya data tentang tumbuhan di pulau tersebut. Dalam era pemanasan global dan perubahan iklim global dewasa ini, pulau-pulau kecil merupakan kawasan lingkungan laut yang rawan tergerus karena abrasi yang dapat mengakibatkan hilangnya keanekaragaman hayati di dalamnya. Oleh karena itu, sebelum terjadinya kepunahan tumbuhan asli maka pada tahun 2010 telah dilakukan eksplorasi dan survei pekarangan di wilayah tersebut.

Dari hasil eksplorasi tercatat 328 jenis tumbuhan (Girmansyah & Sunarti, 2011), sedangkan hasil survei keanekaragaman jenis tanaman pekarangannya tercatat 172 jenis yang dapat dikelompokkan menjadi 6 kelompok tanaman (perdagangan, pangan, rempah, obat, hias, dan lainnya). Sementara itu, dari hasil pengelompokan tersebut, yang mempunyai jumlah jenis terbanyak berasal dari kelompok tanaman hias (107 jenis). Adapun jenis-jenis yang selalu dijumpai di setiap kelurahan dan desa yaitu *Cactus* sp., *Codiaeum variegatum, Jatropha panduraefolia, Hibiscus rosasinensis, Cocos nucifera, Pandanus tectorius, Artocarpus heterophyllus, Averrhoa carambola, Musa paradisiaca, Psidium guajava, Citrus aurantium, Annona muricata, Mangifera indica, Syzygium aqueum, Cymbopogon citratus*, dan *Ocimum basilicum.* Jenis-jenis tersebut umumnya ditanam di halaman rumah maupun di pekarangan.

0714. **Sunarti, S. 2014.** Suatu Tinjauan Mengenai Tumbuhan Obat *Decaspermum fruticosum*. P*rosiding seminar nasional biodiversitas vol.* 3 (1): 194–197. ISSN: 2337-506x.

Abstrak

Decaspermum fruticosum atau sering dikenal dengan nama daerah Ipis Kulit adalah termasuk suku Myrtaceae (Jambu-jambuan). Hasil tinjauan menunjukkan bahwa jenis ini merupakan salah satu jenis tumbuhan obat yang digunakan sebagai obat disentri, malaria, diare, dan sariawan. Di samping itu, nama *Decaspermum fruticosum* sendiri sudah dikenal sejak dahulu, namun Scoot pada tahun 1980 dan 1985 telah merevisinya menjadi *Decaspermum parviflorum* dan *D. bracteatum*. Hasil penelusuran pustaka sampai sekarang masih tetap menggunakan nama *D. fruticosum*. Oleh karena itu, agar supaya tidak terjadi kesalahan yang berlanjut dalam penyitiran nama ilmiah maka dilakukan penelitian ini.

0715. **Sunaryo. 2010.** Kajian Superparasit dan Preferensi Inang Benalu *Viscum articulatum* Burm. f. (Viscaceae) di Kebun Raya Purwodadi dan Cibodas. *Berita Biologi* 10(1): 99–103.

Abstract

Superparasite is a parasitic plant that lives on other parasitic plant. *Viscum articulatum* Burm. f. (Viscaceae) is a parasitic species of mistletoe that grows on other parasitic species of mistletoes, thus a superparasite. In Purwodadi Botanic Gardens, East Java, *V. articulatum* grows on *Dendrophthoe pentandra*

and *Macrosolen tetragonus*. In Cibodas Botanic Gardens, West Java it grows on *D. pentandra* and *M. cochinchinensis*. *Dendrophthoe pentandra* is the most infected species. The infected mistletoes are regarded as the first stage hosts. The living collections at both Botanic Gardens parasited by the three mistletoes are regarded as the second stages host. Investation preference for first and second host stages is studied in this research.

0716. **Sunaryo. 2010.** Keanekaragaman Jenis-Jenis Tanaman Koleksi di Kebun Raya Purwodadi, Bali, dan Cibodas yang Diserang Benalu *Dendrophthoe pentandra* (L.) Miq. (Loranthaceae) [The Diversity of Attacked Plants by Mistletoe *Dendrophthoe pentandra* (L.) Miq. (Loranthaceae) in Botanical Gardens at Purwodadi, Bali and Cibodas]. *Buletin Kebun Raya* 13(2): 69–78.

Abstract

Botanic Garden represents an ecosystem area in which in it also there are parasite plants, not aside from mistletoes. Mistletoe of *Dendrophthoe pentandra* (L.) Miq. (Loranthaceae) parasites various plants was collected in Botanic Gardens of Purwodadi, Bali, and Cibodas. The mistletoe noted by parasite was counted to 143 host species which are included into 48 tribe in three Botanic Gardens. The most attacked host plants are belonged into Family Moraceae, especially species of *Ficus*. Meanwhile, next is tribe of Myrtaceae, especially genus of *Syzygium*. Its Ability of parasite various plants species assure that mistletoe of *D. pentandra* do not chosen certain host plants, but almost most plants species earn its parasite. Parasitism study of mistletoe *D. pentandra* is also reported in this paper.

0717. **Sunaryo & E.F. Tihurua. 2010.** Catatan Jenis-jenis Tumbuhan Asing dan Invasif di Taman Nasional Gunung Gede Pangrango, Jawa Barat. *Berita Biologi* 10(2): 267–269.

Abstract

Study on invasive alien species was conducted in Gunung Gede Pangrango National Park, Bodogol Resort. Vegetation analyses in two different heights location was carried out by making of plots. First location was established at 700 m a.s.l., while second site was located at 800 m a.s.l., with 0.14 ha each plot. The result showed that 10 trees species of 7 families and 29 saplings species of 14 families were found in the first plot, whereas 12 trees species of 10 families and 48 saplings species of 28 families were located in the second plot. Three invasive species which threatened ecosystem in this study region were *Maesopsis eminii, Calliandra calothyrsus,* and *Austroeupatorium inulifolium.*

0718. **Sunaryo & T. Uji. 2010.** Keanekaragaman Jenis Benalu Pemarasit pada Tanaman di Kebun Raya Baturraden dan Sekitarnya. *Jurnal Teknologi Lingkungan* 11(2): 205–212.

Abstract

Benalu is one of the parasitic plant groups which have been atacked too many plants species in Baturraden Botanical Garden and its vacinity. Exploration and collection of parasitic plants species in this area are conducted. Five parasitic plants species, i.e. *Dendropthoe curvata, Dendropthoe pentandra, Macrosolen cochinchinensis, Scurrula lepidota,* and *Scurrula parasitica* are recorded to parasiting 18 plants species in this area. *Dendropthoe pentandra* is reported as the highest population species to parasiting plants species. Meanwhile, the plants species of Myrtaceae and Lauraceae families are also reported as the highest species parasited. Parasitism study of mistletoe and its control is also reported in this paper.

0719. **Sunaryo, T. Uji** & **E.F. Tihurua. 2012**. Jenis Tumbuhan Asing Invasif yang Mengancam Ekosistem di Taman Nasional Gunung Gede Pangrango, Resort Bodogol, Jawa Barat. *Berkala Penelitian Hayati* 17(2): 147–152.

Abstract

Study on invasive alien species was conducted in Gunung Gede Pangrango National Park, Bodogol Resort. Vegetation analysis in two different heights location was carried out by making of plots. First location was established at 700 m a.s.l., while second site was located at 800 m a.s.l., with 0.14 ha each plot. The result showed that 10 trees species of 7 families and 29 saplings species of 14 families were found in the first plot, whereas 12 trees species of 10 families and 48 saplings species of 28 families were located in the second plot. Three invasive species which threatened ecosystem in this study region were *Maesopsis eminii, Calliandra calothyrsus,* and *Austroeupatorium inulifolium*.

0720. **Sunaryo, T. Uji** & **E.F. Tihurua. 2012**. Komposisi Jenis dan Potensi Ancaman Tumbuhan Asing Invasif di Taman Nasional Gunung Halimun Salak, Jawa Barat. *Berita Biologi* 11(2): 231–239.

Abstract

A study on species composition and potential threat of invasive plant species was conducted in the Gunung Halimun-Salak National Park, Cidahu Resort, West Java. This study developed two plots of different altitudes. The result showed that there were four invasive alien species possessing potential threat to the ecosystem and native species in the National Park, i.e. *Piper aduncum* (Piperaceae, with an Important Value of 20,70); *Calliandra calothyrsus* (Mimosaceae, IV = 9,11), *Austroeupatorium inulaefolium* (Asteraceae, IV = 18,77), and *Clidemia hirta* (Melastomataceae) as shrub. The threats of invasive plants happen in open forest area and could occur from the residential or public places.

0721. **Sundari, S.**, H. Yamada, T. Hirano, K. Kusin & S. Limin. **2013**. Effects of Fires and Drainage on Dissolved Organic Carbon Leaching Through Groundwater

Flow in Tropical Peat Swamp Forests. *Proceeding of International Symposium Wild Fire and Carbon Management in Peat-Forest in Indonesia,* 24–26 September 2013, Palangkaraya. pp. 36–42.

Abstract

The objectives of this study were to evaluate the effects of disturbances by fires and drainage on the DOC leaching through groundwater flow and to assess DOC flux in tropical peatlands. To achieve the objectives, DOC fluxes were measured for more than one year in an undrained peat swamp forest (UF), a drained peat swamp forest (DF) and a drained burnt swamp forest (DB) in Central Kalimantan, Indonesia. Using such field data, DOC flux in tropical peatland ecosystems were assessed, and the effects of disturbances on them were investigated.

0722. Suneetha, M.S., **J.S. Rahajoe,** K. Shoyama, X. Lu, S. Thapa & A.K. Braimoh**. 2011.** An indicator-based Integrated Assessment of Ecosystem Change and Human-Well-Being: Selected Case Studies from Indonesia, China and Japan. *Ecological Economics* 70(11): 2124–2136.

Abstract

The paper highlights the findings of a study from selected ecosystems in Indonesia, China, and Japan. The study sought to trace changes to productive resources of ecosystems over a period of 50Â years; and trace the dependence of well-being of local populations on the ecosystems for the same time period. Data were collected from land-use maps, records, and participatory rapid/rural appraisal (PRA) surveys in multistakeholder forums. To illustrate the changes, an indicator-based assessment framework was developed to integrates data from biophysical and socio-economic parameters. This study observed that the approach (1) provides a better representation of the preferences of different stakeholders of ecosystem services, (2) fosters validation of data between the different stakeholders and (3) enables a communication and planning process among the stakeholders to sustainably utilize and manage their ecosystems. The use of spatial maps validates the relevance and utility of diachronic observations of communities and other stakeholders directly dependent on ecosystems. At the same time, they can be used to strengthen local planning processes for the development of services in the ecosystem. Such research thereby also acts as a catalyst to a social process of coordinated action to address local issues of global relevance.

0723. **Supriyati, D**. **2010.** Akumulasi Polyhydroxybutirate (PHB) oleh Bakteri Laut L3 dan L7. *Proceeding Book. 7th Basic Science national Seminar*.

Abstract

Marine microorganim ability has been explored in biocoversion of dangerous compound and to synthesis PHB. Marine water is one of media that is potential to support microorganism growth and marine ecosystem which also has unli-

mited genetic resources. The ability of marine microorganism especially to produce PHB has not been reported. The aim of this research is to know the ability of marine microorganism in producing PHB Bacteria L3 and L7 were isolated from Kepulauan Seribu, grown in media with sucrose, glucose, and Na asetat as carbon source. In medium with sucrose as carbon source, bacteri L3 grow with doubling time (t_d) 11.577 hours and specific growth time (μ) 0.0585 h^{-1}.and accumulated PHB 51,42% of total biomass, with glucose t_d = 11.975 hours, μ= 0.0956 h^{-1} and accumulated 38,4% of total biomass,and with Na asetat as carbon source t_d = 21.3658 hours, μ= 0.0956 h^{-1}, accumulated PHB 42.04% of total biomass. Bacteria L7 in medum with sucrose as carbon source grew with source t_d = 8.41 hours, μ=0.082 h^{-1}, accumulated PHB 84,42 of total biomass.With glucose t_d = 9.067 hours, μ= 0.0761 h^{-1}, accumulated PHB 47,88 of total biomass and with Na Asetat as carbon source t_d = 8,17 hours, μ= 0,0844 h^{-1}, accumulated PHB 64,19 of total biomass.

0724. **Supriyati, D**. **2010**. Bakteri M2 Penghasil PHB (Polyhydroxybutirate) yang Diisolasi dari Pulau Laki, kepulauan Seribu. *Jurnal Teknologi Lingkungan* 11(2): 213–219.

Abstract

PHB is one of very important materials for production of biodegradable of plastic, and physiologically it is important electron sink in anaerobic-aerobic process. PHB accumulating bacteria M2 was isolated from mangrove of Pulau Laki, Kepulauan Seribu. The bacteria was able to produce PHB from glucose, acetat, and Sucrose. Strain M2 was produced PHB (79.9% of biomass) by using acetad as sole carbon source. The strain was also able to grow at 3% to 5% salinity with doubling time of 10.9 and 21.04 hours and specific growth rate (0.0633 h^{-1} and 0.0328 h^{-1}) The ability of strain M2 to produce PHB and its salinity tolerance implying that this strain is not only importance for PHB production but also ecologically importance microbe.

0725. **Supriyati, D.** & **D. Agustiyani. 2010**. Efek Penggunaan Pupuk Organik dan Inokulan Mikrob terhadap pertumbuhan Jati Super (*Tectona grandis* L.F) pada Lahan Bekan *Tailing Pond* Penambangan Emas di Cikotok. *Jurnal Teknologi Lingkungan* 11(3): 363–371.

Abstract

Experiment using organic fertilizer and microbial community to support the growth of *Tectona grandis* L.f in the cyanide contaminated soil has been conducted in gold tailing pond cikotok. Microbe used in this experiment were mixed of cyanide degrading bacteria, Nitrogen fixing bacteria, and Phosphat solubilizing bacteria.The results show that microbe given in the *Tectona grandis* L. Plantation was significantly supporting the growth of the plants and reduced cyanide from the contaminated soil, but did not influence the microbe population of the soil.

0726. **Supriyati, D**. **2011**. Produksi PHB (Polyhydroxybutirate) dari Bakteri Laut *Microbacterium xylanilytricum* L6 pada Media Air Laut dengan Sumber Karbon Sukrosa, Glukosa, dan Na Asetat. *Berkala Penelitian Hayati* 5: 45–49.

Abstract

As a result of increasing public awareness and accumulating of plastic waste, some of developed countries have started to produce biodegradable plastic such as PHB. Some bacteria have been reported able to produce PHB, but marine bacteria has not been studied intensively. One of the marine bacteria is *Microbacterium xylanilytricum* L6, that was isolated from marine of Pulau Laki, Kepulauan Seribu. The aim of this experiment was to know the ability of *Microbacterium xylanilytricum* L6 to produce PHB and its salinity tolerance, impliying that this strain was not only important to produce PHB but also ecologically important microbe. The research showed that the bacteria could use sucrose, glucose, and Na acetad as carbon source to accumulate biomass and PHB. The highest biomass and PHB accumulation was achieved when *Microbacterium xylanilytricum* L6 grew on medium with Na Acetat as carbon source

0727. **Supriyati, D**. & **R.D. Rahayu. 2011.** Study Potensi Bakteri *Labrenzia aggregate* G3 dan *Alpha proteobacterium* G4 yang diisolasi dari Laut kepulauan Seribu. *Jurnal Penelitian Hayati*. Edisi Khusus**,** No 4C tahun 2011. Hlm. 13–18.

Abstract

Marine ecosystem which has unlimited genetic resources and microbes is one of these communities that has not been explored intensively. To collect and explore the potential of marine microbes is very important, especially to solve the pollution problems. One of the pollutans that contaminate marine ecosystem is a component of oil such as phenanthrene. Two marine bacteria, *Labrenzia aggregate* G3 and *Alpha proteobacterium* G4 from Kepulauan Seribu, were tested on their ability to grow and degrade phenanthrene using sea water media with different salinity, temperature, and pH. The experiment was conducted in microbiology laboratory CSC. The result showed that bacteria *Labrenzia aggregate* G3 dan *Alpha proteobacterium* G4 grow well in media with salinity 3%, temperature 300^{o}C, and pH 7.5, and able to use phenanthrene as source of carbon. These bacteria degrade 52–55% phenanthrene after 12 hours incubation

0728. **Supriyati, D. 2012**. Pengaruh perbedaan Kondisi Lingkungan Terhadap Kemampuan Bakteri 1 Tumbuh dan Memproduksi Polyhydroxybutyrate. *Jurnal Teknologi Lingkungan*. Edisi Khusus "Hari Lingkungan Hidup". Hlm. 147–155.

Abstrak

Polyhydroxybutirate (PHB) disintesis oleh bakteri sebagai energi cadangan untuk menghadapi kondisi ekstrim. Kondisi ekstrim bagi bakteri bisa berupa sumber karbon, salinitas, maupun pH yang tidak sesuai dengan keinginannya.

Untuk itu dilakukan percobaan untuk menguji kemampuan bakteri 1 tumbuh dan memproduksi PHB pada media dengan sumber karbon, salinitas dan pH yang berbeda. Sumber karbon yang digunakan Glukosa, sukrosa, dan Na asetat, salinitas berupa penambahan NaCl 1%, 2%, 3%, 4%, dan 5% serta pH 3, 5, 7 dan 9. Hasilnya menunjukkan bahwa pertumbuhan Bakteri 1 paling baik pada media air laut dengan penambahan NaCl 1% dan 2%, sumber karbon Na Asetat, dan pH 7 dan 9, sedangkan prosentase PHB yang dihasilkan oleh Bakteri 1 dibandingkan dengan berat biomassanya, yang tertinggi ada pada media air laut dengan penambahan NaCl 2% dan 5% dengan sumber karbon Sukrosa dan glukosa pada pH 3 dan 9.

0729. **Supriyati, D. 2013.** Aktivitas Antibakteri dan kandungan Fluor dari larutan fermentasi daun sirih. *Prosiding Seminar Nasional Biologi*. Hlm. 702–706.

Abstrak

Dilakukan penelitian untuk mengetahui aktifitas anti bakteri *Streptococcus mutans* sebagai penyebab terjadinya gangguan pada gigi. Fluor dilaporkan memiliki kemampuan untuk memperkuat struktur email gigi, menurunkan kadar asam yang dihasilkan bakteri plak, dan mengurangi jumlah bakteri dalam plak. Daun sirih (*Piper bittle*) diketahui mempunyai kemampuan sebagai anti bakteri karena adanya zat aktif Fluor. Dengan variasi jumlah daun sirih, lama fermentasi, dan penambahan KAS (Konsorsium Acetobad Sacharomyces), hasilnya menunjukkan bahwa aktifitas anti bakteri dan kandungan fluor tertinggi dicapai oleh fermentasi daun sirih 6,6 gram/l.

0730. **Supriyati, D. 2013**. Pengaruh Kandungan NaCl pada Media Terhadap Produksi Hormon IAA (Indole Acetic Acid) Beberapa Bakteri Penambat N (Azotobacter). *Prosiding Seminar nasional Biologi*. Hlm. 21–25. ISBN 978-979-028-573-6

Abstract

Four isolates Azotobacter from Manado (AZT1, AZT2, AZT3, and AZT4), were grown on media consisting of 5 grams carbon source (Glucoce, sucrose, and Na acetat), 0.5 gram Yeast Extract, and the addition of different concentration NaCl (0, 1, 2 and 4%). Their ability to growing and produce hormone IAA were tested. The observation was done every day, from 0 until 3 days. The result showed that the fastest growing rate of isolates were AZT 1 and AZT 3, achieved on media with addition 4% NaCl each in growth rate (μ) = 0.202 h^{-1} and 0.667 h^{-1}, isolates AZT 2 on media with addition 1% NaCl (μ = 0.284 h^{-1}) and AZT4 reached the fastest grow on media with out NaCl addition (μ = 0.356 h^{-1}). The production of hormone IAA was analyzed by Salkowski method. The highest hormone IAA was produced by isolate AZT 1 (4 ppm) on media with addition 4% NaCl, and AZT2 (2.48 ppm) on media without addition NaCl, after 3 days incubation. The highest hormone IAA production of isolates were AZT 3 and AZT 4 reached on media with addition 2% NaCl after 2 days incubation, each 2.86 ppm and 6.62 ppm.

0731. **Supriyati, D. 2014.** Kemampuan Beberapa Bakteri Pelarut Fosfat Menghasilkan Hormon IAA (Indole Acetic Acid) pada Media dengan Kandungan NaCl Berbeda. *Prosiding Seminar Nasional Jurusan Biologi FMIPA UNPAD*. 2014.

Abstrak

Enam isolat bakteri pelarut Fosfat yang diisolasi dari Manado diuji kemampuannya untuk tumbuh dan memproduksi hormon IAA (*Indole Acetic Acid*) pada media dengan penambahan NaCl masing-masing 0, 1, 2, dan 4 persen. Penelitian ini dilakukan untuk mendapatkan mikroorganisme yang dapat digunakan sebagai agen pupuk hayati untuk pertanian organik di tepi pantai. Isolat bakteri ditumbuhkan pada media TSB 50 persen dan analisis produksi dilakukan dengan metode pewarnaan Salkowski. Inkubasi dilakukan di atas shaker selama 3 hari dan pengamatan dilakukan setiap hari. Pertumbuhan 5 dari 6 isolat bakteri (PK1, PK2, PK3, PK4, dan PK5)tumbuh paling cepat dengan laju pertumbuhan masing-masing td 2,771 jam, td 1,554 jam, td 1,4082 jam, td 2,3232 jam dan td 2,6336 jam serta memproduksi hormon IAA tertinggi masing-masing 2,5 ppm, 2,658 ppm, 2,60 ppm, 2,749 ppm, dan 2,452 ppm pada media dengan penambahan 4 persen NaCl. Satu isolat yaitu PK6 tumbuh paling cepat (td 3,0103 jam) dan menghasilkan hormon IAA paling tinggi (2,391 ppm) pada media dengan penambahan 1 persen NaCl. Diharapkan 5 dari 6 isolat yang dicoba dapat digunakan sebagai agen pupuk hayati pada pertanian organik di tepi pantai.

0732. **Susanti, R.,** E. Suzuki & J. Miyamoto. **2010.** Differences in Beach and Mountain *Pandanus* Species. *Proceeding of the 57th annual meeting of the Ecological Society of Japan*. *Tokyo.*

Abstract

Pandanus species distribute in tropical and some subtropical areas, from coast to the mountain. Comparison among beach species (*Pandanus odoratissimus*) in tropical and subtropical areas and mountain species (*P. furcatus* and *P. nitidus*) was conducted to understand their growth strategy from 2007 to 2009. Transects were established in West Java, Indonesia; Tokunoshima, Japan, and Mt. Gede Pangrango, Indonesia. All individuals in transect were labeled and parameters of their morphological characters were measured. Stem elongation was measured. Beach and mountain *Pandanus* had different structure of population. In the beaches, large and dense populations were established and many seedlings were produced from seeds. *P. odoratissimus* in tropical area grew faster than that in the subtropics. In the mountain area, species had scattered distribution and rarely became dominant species. They made few fruits. Seedlings originated mainly from sprouts but rarely from seeds. *P. furcatus* and *P. nitidus* grew in same habitat, and similar in the stem elongation rate. The former tended to have stout and vertical stem, while the latter had slender stem with many branches. This difference in morphology may enable their coexistence. *Pandanus* species may reach 100 years rather long lived plants in monocots.

0733. **Susiarti, S. 2010.** Pandan (*Pandanus* spp.) yang Berpotensi sebagai Tanaman Hias di Indonesia. *Dalam* Nuryanto, A, I.Budisantoso, dkk. (Editor): 192–194. *Prosiding Seminar Nasional Biologi 'Peran Biosistematika dalam Pengelolaan Sumberdaya Hayati Indonesia'*. Hlm. 192–194.

Abstrak

Pandanaceae terdiri 3 marga di Malesia yaitu *Pandanus, Freycinetia* dan *Sararanga.* Pandan (*Pandanus* spp.) selain keanekaragamannya tinggi juga mempunyai berbagai manfaat antara lain sebagai tanaman hias. Pandan dapat tumbuh mulai dari pantai sampai pegunungan. Pengamatan dilakukan di beberapa daerah di Indonesia. Perawakan pandan biasanya berbentuk pohon besar, namun ada juga yang mulai tren akhir-akhir ini sebagai tanaman hias di antaranya *Pandanus tectorius* dan *Pandanus dubius.* Pandan hias ini dapat ditanam dalam pot, di halaman rumah, halaman perkantoran, dan bahkan di perumahan mewah. Keanekaragaman pandan yang tinggi ini dimungkinkan adanya jenis lain yang berfungsi sebagai tanaman hias.

0734. **Susiarti, S.** & **M. Rahayu. 2010**. Kajian Etnobotani Pandan Samak (*Pandanus tectorius* Sol.) di Kabupaten Tasikmalaya, Jawa Barat. *Berita Biologi* 10(1): 113–121.

Abstrak

Members of the genus *Pandanus* (Pandanaceae) are used by Indonesian people as food, medicinal, and handicraft materials. Three species of *Pandanus*, namely: pandan wangi (*P. amaryllifolius*), *cangkuang* (*P. furcatus*) and *pandan samak* (*P. tectorius*) are known in Tasikmalaya, West Java. Pandan samak which has several different local names is the cultivated ones. This species is well-known as handycraft from Tasikmalaya and had been exported to other countries. Incomes from the handycraft product is the second biggest source after agriculture sector.

0735. **Susiarti., S.** & **R. Polosakan. 2011**. Ekstraktivisme Madu Alam dan Aspek Sosial Ekonominya di Jambi. *Dalam* Purwanto et al. (Eds). Valuasi Hasil Hutan Bukan Kayu. Kawasan Lindung PT Wirakarya Sakti Jambi. LIPI, MAB & Sinar Mas Forestry. Hlm. 180–188.

Abstrak

Studi kegiatan ekstraktivisme madu alam dan aspek sosial ekonominya dilakukan dalam rangka studi valuasi hasil hutan bukan kayu di hutan bekas logging. Hasil hutan bukan kayu yaitu madu alam merupakan salah satu hasil hutan yang mempunyai peran ekonomi rumah tangga masyarakat Melayu yang tinggal di sekitar kawasan hutan. Kegiatan ekstraktivisme madu alam berkembang menjadi mata pencaharian utama bagi beberapa anggota masyarakat Melayu. Hal ini dipicu oleh semakin banyaknya sarang madu yang dapat ditemukan di hutan yang dilindungi di kawasan konsesi perusahaan HTI. Dalam studi ini, dibahas tentang kegiatan ekstraktivisme, produksi madu, pemasaran, sistem

perdagangan, dan perannya dalam menunjang perekonomian masyarakat pengekstrak madu.

0736. **Susiarti, S., Rugayah** & **Suhardjono. 2011.** Pemanfaatan Jenis-Jenis Tumbuhan oleh Masyarakat Madura, Mandar dan Bajau di Pulau Sepanjang, Sumenep, Jawa Timur (Utilization of Plant Species by Comunity: Madura, Mandar and Bajau in the Sepanjang Island, Sumenep, East Java). *Dalam:* Didik Widyatmoko dkk. (Penelaah). *Prosiding Seminar Nasional Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan*, Hlm. 345–351.

Abstract

Sepanjang Island is the second largest island in Kangean Islands, East Java. It is categorized as small island which is usually poorly known in plant diversity and their utilization. The island unhabitant by local community comprises of three tribes namely Madura, Mandar, and Bajau. Method use were ethno-directed sampling and open–ended interview with community. They use approxymately 112 plant species includes 94 genera and 51 families in their daily life and activities as food, deys, toxins, and crafts. Ceriops tagal is one of plants which is used for dyes and is included as endangered categorized plant.

0737. **Susiarti, S., F.M. Setyowati** & **M. Rahayu. 2011**. Keanekaragaman Jenis Hasil Hutan Bukan kayu sebagai Bahan Pangan & Sayuran. *Dalam* Purwanto *et al*. (Eds.). Pp. 78–112. *Keanekaragaman Jenis Hasil Hutan Bukan Kayu. Kawasan Lindung PT Wirakarya Sakti, Propinsi Jambi*. LIPI, MAB & Sinar Mas Forestry.

Abstrak

Tidak ada abstrak

0738. **Susiarti, S.** & **Rugayah. 2012**. Potency of Pitcher Plant (*Nepenthes ampullaria* Jack.) by Community in West Kalimantan & West Sumatera. In: Purwanto & Mizuno (Eds.): 137–140. *Proceed. International workshop on "Sustainable management of Bio-resources in Tropical Peat-swamp Forest"*. MAB LIPI & Kyoto Univ. CSC-Cibinong, 19 Juli 2011.

Abstract

Sixty four species of pitcher plants are recorded in Indonesia, 32 of which occur in Borneo and the other 29 species in Sumatera. The plant groups are commonly growing in peat swamp, wet land, as well as in dry land. Ethno botanical research has been carried out in Mandor (Dayak Kendayan ethnic), West Kalimantan, and Harau (Malays ethnic) in West Sumatera. Method used in this study is ethno–directed sampling and open–ended interview with the local community. The plant groups have several uses as ornamental plant, cordage, and traditional medicines. One of those species, namely *N. ampullaria*

was used by two ethnics as a kind of wrapping to make traditional cake known as 'godah' (Malays). Preparation to make traditional cake is presented.

0739. **Susiarti, S., N. Setyowati** & **Rugayah. 2012**. Etnobotani *Tacca leontopetaloides* (L.) O. Kuntze sebagai Bahan Pangan di Pulau Madura dan Sekitarnya, Jawa Timur. *Majalah Pangan* 21(2): 161–170.

Abstract

Dependence of the community as a staple of rice is very high, leading to food self-sufficiency lately difficult to achieve. Therefore, diversification of foodstuffs should be encouraged. *Tacca leontopetaloides* (L.) O. Kuntze was selected as one species for food diversification researchs. Ethno botanical study of *Tacca leontopetaloides* was conducted on Madura islands and the surrounding areas using open-ended interview methods, field observations, and purposive sampling. *Tacca leontopetaloides* is still not much known and utilized by the local people in East Java. The plant has different local names in each region, such as in Madura known as "lorkong" and "oto'o", while in Java, known as "kecondang". In Sumenep district, local people utilized tuber of the species to extract the flour in certain process. The tuber flour as a substitute for wheat flour used as an ingredient in the form of snacks, for example: porridge, cakes "serpot". The leaves are also used as livestock feed. In the research locations, the species is commonly grown in wild, but in the Langsar village, Saronggi, this plant has been cultivated.

0740. **Susiarti, S., T. Djarwaningsih,** & **A.P. Keim. 2013.** Pandan (Pandanaceae) in Flores Island, East Nusa Tenggara, Indonesia: An Economic-Botanical Study. *Reinwardtia* 13(5): 433–439.

Abstract

The people in the Indonesian province of Nusa Tenggara Timur (then East Lesser Sunda Islands) consist of many ethnic groups, each with their own local languages. The island of Flores is the second largest island within the East Lesser Sunda Islands. The island is inhabited by 10 ethnic groups, in which four are regarded as the dominant groups: Flores, Ende, Lio, and Manggarai. The pandan flora of the island is still largely unknown; the same is for their ethnobotany. The aim of this current study is to know the traditional usages and potential uses of pandan flora in the Flores Island. The study was carried out in three regencies: Ende, Nagekeo, and Manggarai. The result of this study shows that there are four species of *Pandanus* (*P. amaryllifolius*, *P. dubius*, *P. kaernbachii*, and *P. tectorius*) and one species of *Freycinetia* (*F. insignis*) are recorded from the areas understudy. The presence of *P. kaernbachii* in Flores Island is a new record. The people also recognise the diversity of *Pandanaceae*, especially from the genus *Pandanus*, in which they are known by local names such as "panda", "re'a", "waku", and "mbojo". Main usages of *Pandanus* are as material sources for handicrafts (mats, coffee bowls, and hats), dye, flavourings, funeral offering, and ornamental plant.

0741. **Susiarti, S.** & **M.F. Royyani. 2013**. Keanekaragaman Bahan Pangan dan Pengetahuan Lokal Masyarakat di Lembah Behoa, Sulawesi Tengah. *Dalam:* Sugiyarto dkk. (Penyunting): 242–244. Vol2. *Prosiding Seminar Nasional Biodiversitas. Konservasi Keragaman Hayati Berbasis Kearifan Lokal Masyarakat Indonesia*.

Abstrak

Penelitian Etnobotani tentang keanekaragaman jenis bahan pangan oleh masyarakat di Lembah Behoa, Sulawesi Tengah telah dilaksanakan pada bulan Agustus 2012. Pengumpulan data dilakukan dengan cara pengamatan langsung di lapangan dan wawancara terbuka dengan tetua adat dan terutama masyarakat yang mengerti tentang tumbuhan. Masyarakat Behoa ini cukup dekat dengan lingkungan di sekitarnya. Lembah Behoa merupakan salah satu penyangga Cagar Biosfer Lore Lindu, Sulawesi Tengah. Didapatkan bahwa tidak kurang dari 70 jenis tumbuhan dimanfaatkan sebagai bahan pangan, selain bahan pangan yang merupakan sumber karbohidrat juga, buah, sayuran dan kacang-kacangan. Jenis-jenis tersebut selain dari kebun dan sekitar pemukiman juga dari hutan. Masyarakat yang berada di sekitar hutan ini mengenal padi lokal baik sawah maupun ladang juga ada yang menanam tumbuhan yang biasanya tumbuh jauh di hutan.

0742. **Susiarti, S. 2014.** Etnobotani *Tacca leontopetaloides* (L.) O.Kuntze sebagai Bahan Pangan di Pulau Kangean, Jawa Timur. *Dalam* Yudiarti dkk (Eds.). Pp. 1599–1606. *Widyakarya Pangan dan Gizi* X. Jakarta: LIPI Press.

Abstrak

Ketergantungan masyarakat akan beras sebagai bahan pokok yang sangat tinggi menyebabkan swasembada pangan akhir-akhir ini sulit dicapai. Oleh karena itu, diversifikasi bahan pangan perlu digalakkan. *Tacca leontopetaloides* (L.) O. K. terpilih sebagai salah satu jenis untuk penelitian diversifikasi bahan pangan. Penelitian etnobotani tumbuhan *Tacca leontopetaloides* dilakukan di Pulau Kangean dengan metode wawancara *open ended*, observasi di lapangan, dan *purposive sampling* serta analisis kimia. Tumbuhan *Tacca leontopetaloides* masih belum banyak dikenal masyarakat juga pemanfaatannya di Jawa Timur. Tumbuhan ini memiliki nama daerah yang berbeda di setiap lokasi penelitian, seperti di Madura dikenal dengan *lorkong* dan *oto'o*, sedang di Pulau Kangean dikenal dengan *To'toan*. Masyarakat di Pulau Kangean memanfaatkan umbi tumbuhan ini untuk diambil tepungnya melalui proses tertentu. Tepung tersebut digunakan sebagai bahan dasar membuat penganan, misal bubur, kue *serpot* (semprit), *eped-eped* (dadar), dan sebagai pengganti tepung terigu. Di lokasi penelitian, jenis *Tacca* ini pada umumnya tumbuh liar juga di kebun jati. Hasil analisis proksimat dan mineral umbi *Tacca leontopetaloides* sebagai berikut: kadar abu 2,67%; protein 7,84%; lemak 0,43%; serat kasar 0,60%; karbohidrat 82,65%; energi 365,83 kkal/100g; magnesium 173.665 mg/100g; zat besi 8,69 mg/100g; kalsium 87,72 mg/100g; kalsium 904,86 mg/100g; fosfor 270,46 mg/100g.

0743. **Sutrisno, H. 2010.** The Impact of Human Activities to Dynamic of Insect Communities: a Case Study in Gunung Salak, West Java. *HAYATI Journal of Biosciences* Vol 17, No 4 (2010).

Abstract

Huge areas of diverse tropical forest are lost or degraded every year with dramatic consequences for biodiversity. Human activities such as deforestation, fragmentation, over-exploitation, and monoculture practices are the main drivers of tropical forest biodiversity loss. Investigating of these threats with focusses on changes in species richness or species diversity will be able to minimize any impact of human activities at the early stage in a certain region. Therefore, to know the impact of human activities to dynamic of insect communities in Gunung Salak, West Java, this study measured moth diversity and their structure within communities by comparing the index diversity, species richness, and species composition across five different habitat types. The results showed that the habitat changes due to human activities had changed not only to the moth diversity, but also to their structure within communities. The number of moth species decreased significantly as well as the number of lower taxa (family) in the disturbed forest (secondary forest, *Agathis* forest, and transition area) within ranges: 20–50 and 10–20%. The composition of the two main families, Geometridae and Noctuidae also showed a major change, family Geometridae decreased within ranges 10–50% in the disturbed area, but Noctuidae increased up to 50% in those areas. Indeed, habitat lost due to human activities such as illegal logging, change of land use, and land clearing are the main threats to decrease on macro-moth diversity and change their structures within communities.

0744. **Sutrisno, H. 2012.** A Preliminary Study on Macro-Moth Diversity at the Base of Foja Mountain Nature Reserve: Kwerba Village Membrano Raya, Papua. *Zoo Indonesia* 21(1): 1–7.

Abstract

A preliminary study on moth diversity with focus on macro-moths was conducted at Kwerba, the base of Foja mountain, membrano Raya from 1st to 29th November, 2008 (10 night effectives). The aims of the study were to acquire information of macro-moth diversity and to access the composition of the species at this area. The result showed that a short collecting time (10 nights) records only about 83% estimated value in this area (178 of 214 species). Index diversity based on Fisher's α was low, 83.17. In addition, the number of families recorded from this forest was also low, 19 families, or about one third of the moth families that occur in Indo-Malayan region. In general, Pyralidae, Geometridae, and Noctuidae dominated at this area. This low diversity correlates with plant species in this area. Land clearing and illegal logging have caused the decrease on species tree but increase on its density since young trees and liana trees grow everywhere. Only about 300 species trees were recorded in this area. Of course, there are more species of plants if the writers go up to

the Foja mountain since there are more conserved area and less disturbed area at the higher altitude due to its geographical position and its access limitation. Therefore, this diversity of this area should not be used to conclude the moth diversity on the Foja mountain area. More study is needed to cover all the whole Foja mountain from the lowest up to the top forest of the mountain.

0745. **Sutrisno, H. 2012.** Short Communication: The Impact of Storage Times of Museum Insect Specimens on PCR Success: Case Study on Moth Collections in Indonesia. *HAYATI Journal of Biosciences* 19(2): 99–104.

Abstract

Museum specimens are vast repositories of genetic information of interests to biological researchers. Since a new method in DNA extraction, a non destructive method, has been reported to be successful in extracting DNA of museum specimens even fossils without any morphological damages. Using museum specimens as resources of genetic information for molecular studies is becoming popular recently. However, the PCR success depends on the quality of the specimens. To evaluate the impact of the storage times of museum specimens on PCR success, This study conducted DNA extraction of 14 dry museum specimens of the moths collected from 1992 to 2010 by using a non destructive method. The results showed that the DNA specimens museum were fragmented into various sizes (100–1,000 bp) depending on the storage times. On the other hand, fresh specimens preserved within absolute ethanol were almost not fragmented. The specimens of < 6 years old (2005–2010) succeeded to amplify in 650 bp amplicon but for some specimens of 7 years old (2 of 3 specimens) resulted in a very weak amplification. These specimens, however, were able to amplify strongly in 300 bp amplicon. The results also showed that specimens of 1–19 years old were success to amplify in 100 bp amplicon.

0746. **Sutrisno, H., M.S.A. Zein,** & **S. Sulandari. 2013.** *DNA Barcode* (BAB 1). *Dalam* M.S.A. Zein &D.M. Prawiradilaga (eds.). *DNA Barcode Fauna*. Penerbit Kencana, Prenada Media Group. Edisi I, ISBN 978.602.7985.26.1 590: 242.

Abstract

DNA barcode adalah sebuah teknik identifikasi organisme dengan menggunakan potongan gen tertentu yang telah teruji kemampuannya untuk membedakan pada tingkat jenis. Berbeda dengan teknik identifikasi secara konvensional yang hanya dapat dilakukan dengan menggunakan spesimen yang utuh dan dewasa, teknik *barcode* dapat digunakan untuk mengidentifikasi semua bentuk tingkatan kehidupan mulai dari telur, larva, pupa sampai dewasa, bahkan mampu digunakan juga untuk *fragmen* tubuh yang tidak diketahui asalnya. Teknik ini akan mampu menjembatani keadaan saat ini di mana ahli taksonomi semakin langka. Di sisi lain, laju kerusakan habitat sangat tinggi dapat menyebabkan hilangnya banyak organisme yang belum kita ketahui jenisnya. Namun demikian, teknik *barcode* ini relatif mahal untuk negara yang sedang berkembang seperti Indonesia. Oleh karena itu, diperlukan skala prioritas

terutama untuk tujuan yang langsung bermanfaat untuk masyarakat kita. Prioritas yang dapat dikerjakan berdasarkan tujuannya antara lain: untuk tujuan karantina, konservasi, pencegahan penyakit menular, dan sebagainya.

0747. **Sutrisno, H. 2014**. Molecular Phylogeny of Indonesian *Lymantria* Tussock Moths (Lepidoptera: Erebidae) Based on CO I Gene Sequence. *Journal of Species Research* 3(1): 7–16.

Abstract

Many species of *Lymantria* are important forestry pests, including *L. dispar* which is wel-known distributed from Asia to North America as an invasive species. Like most of other genera of moths, the systematic of this genus is still in dispute, especially on the monophyly and the relationship within this genus due to the fact that genus is very large and varied. This genus was morphologically defined only by a single aphomorphy. To clarify the monophyly of the genus *Lymantria*, to reveal the phylogenetic relationship among the Indonesian species, and to establish the genetic characters of Indonesian Lymantria, this study analyzed 9 species of Indonesian *Lymantria* involving 33 other species distributed around the world based on nucleotide sequence variation across a 516–bp region in the CO I gene. The results showed that the base composition of this region was a high A+T biased (C: 0.3333). The results also showed that the monophyly of *Lymantria* was not supported by bootstrap tests at any tree building methods. Indonesian species was distributed into four different groups but the relationship among them was still in dispute. It indicates that relationships among the basal nodes (groups) proposed here were least valid due to the fact that the number of species may not be enough to represent the real number of species in the nature. Moreover, CO I gene sequences alone were not able to resolve their relationships at the basal nodes. More investigations were needed by including more species and other genes that is more conserved.

0748. **Sutrisno, H.,** Suputa, H. Purnomo, S. Polandono, C. Waluyo, **R. Ubaidillah**, Darmawan, Ismail, **I. Hidayat,** & **N. Widyastuti**. **2013.** Short Communication: Notes on Some Biological Aspects of *Arctornis riguata* Snellen (Lepidoptera: Lymantriidae). *HAYATI Journal of Biosciences* 20(1): 47–50.

Abstract

Arctornis riguata Snellen is one of lymantriids which attacked a vast range of mango trees in Probolinggo at the beginning of 2011. About 1.2% mango trees from nine sub-districts have been defoliated by the larvae of this species. The larvae of this genus have been reported to forage at Anacardiacea as well; however, they have never been reported to forage at cultivated mango trees in Indonesia. Since there is no biological information of this species, thus, a study on some biological aspects of this species is needed. This study was conducted in the field as well as in the laboratory during 4 months (March-July 2011). The diagnostic characters of this species are black scale at dorsal antenna

on both male and female and slightly setae particularly at the costal angle of valve on the male genitalia. Life span of this species is in the range of 30–37 days. This study also found four natural enemies of *A. riguata* i.e.: *Bleparipa* sp. (Diptera: Tachinidae), *Euagathis* sp. (Hymenoptera: Brachonidae), *Theronia* sp. (Hymenoptera: Ichneumonidae), and *Brachymeria lasus* (Hymenoptera: Chalcididae). Moreover, a single fungal pathogen of this species also was identified, i.e. *Isaria fumosorosea* Wize. Having these results, this study considered that to control *A. riguata*, one need to conserve the native natural enemies by manipulating their environment.

0749. **Suwito, A.** & H. Watabe. **2010**. Discovery of the *Drosophila* (*Drosophila*) *robusta* Species Group (Diptera, Drosophilidae) from Southeast Asian tropics, with the Descriptions of Six New Species. *Entomological Science* Vol. 13: 381–391.

Abstract

Six new species of the *Drosophila robusta* species group are described from Southeast Asian Islands, Kalimantan, and Sunda Islands lie east of Bali, from which *Drosophila barobusta* sp.nov and *D. uncinata* sp.nov belong to the lacertosa subgroup, and *D. sungaicola* sp.nov, *D. baliensis* sp.nov, *D. hitam* sp.nov and *D. subaquatica* sp.nov to the okadai subgroup. The robusta group from Southeast Asian tropics exclusively inhabits streamsides in mountainous highlands with an elevation of more than 600 m from the sea level.

0750. **Suwito, A**., T. A. Ishida, K. Hattori & M.T. Kimura. **2012**. Territorial and Mating Behaviours of Two Flower Breeding *Drosophila* species, *D. elegans* and *D. gunungcola* (Diptera: Drosophilidae) in Cibodas, West Java, Indonesia. *Treubia* 39: 75–83.

Abstract

Drosophila elegans and *D. gunungcola* are closely related flower-breeding species, mainly exploiting Ipomoea flowers. Here, this study reports their territorial and mating behaviours in Ipomoea indica flowers at Cibodas, West Java, Indonesia. Flies of both species were almost absent from newly opened flowers in the early morning, and the number of individuals in flowers increased thereafter. Territorial males of these species fought against intruders of both species, but the frequency of fighting was significantly lower when intruders were heterospecific. Territorial males usually showed intensive courtship to conspecific females, but rarely to heterospecific females. Intensive courtship to conspecific females often led the females to desert the flowers, possibly because male's courtship was annoying. The frequency of desertion was lower in *D. gunungcola* than in *D. elegans*. This difference may be attributable to the difference in sexual size dimorphism. Thorax size was smaller in males than in females in *D. gunungcola,* but did not differ between the sexes in *D. elegans*, and therefore male courtship may be less annoying for females in *D. gunungcola* than in *D. elegans*. Copulation duration was shorter in *D. elegans* than in *D.*

gunungcola, while the unreceptive period of females after copulation is shorter in *D. elegans* than in *D. gunungcola*.

0751. **Suwito, A**. **2013.** Teknik Menggambar Spesimen Fauna Secara Digital. *Fauna Indonesia* 12(2): 52–60.

Abstract

Qualified scientific drawings are not just pieces of scientific work with art value but are also of potential historical value such as Darwin's and Audubon's illustrations. A series of steps to produce digital scientific drawings will be briefly discussed in this paper. (e line drawings are inked using Adobe Illustrator CS4 which producing vectors of lines, curves or shapes independent on picture resolution. Overall, this paper will provide useful basic of digital scientific drawings to those working with taxonomy.

0752. **Suwito, A**., H. Watabe & M.J. Toda. **2012.** Review of the *Drosophila (Drosophila) quadrisetata* species group (Diptera: Drosophilidae), with Descriptions of Three New Species from the Oriental Region. *Entomological Science* 16(1): 66–82.

Abstract

A review of the *Drosophila* (*Drosophila*) *quadrisetata* species group is provided on the basis of samples collected from tropical to warm–temperate areas of the Oriental Region and the collection records so far accumulated for all known species. Three new species, *Drosophila* (*Drosophila*) *aotsukai* Suwito & Watabe **sp.nov**., *Drosophila* (*Drosophila*)) *rinjaniensis* Suwito & Watabe **sp.nov.,** and *Drosophila* (*Drosophila*) *sundaensis* Suwito & Watabe **sp.nov.**, are described, and new distribution records and supplementary, revised descriptions are given for known species. A multiple-entry key, based on a character database, to all species of this species group is constructed and uploaded to the Internet.

0753. **Suwito, A**., M.J. Toda, H. Takamori, K. Harada & H. Watabe. **2014**. Revision of Asian species of the *Drosophila melanica* Species Group (Diptera: Drosophilidae), with a Description of a New Species from Vietnam. *Entomological Science* 17(1): 75–85.

Abstract

A new species of the *Drosophila (Drosophila) melanica* species group (Diptera: Drosophilidae), *Drosophila denruoi* Suwito & Watabe, **sp.nov**., is described from northern Vietnam. It is proved by crossing experiments that reproductive isolation is complete between this species and other morphologically similar species. Larval ganglion cells of *D. denruoi* possess 2n = 12 chromosomes, comprised of four pairs of acrocentric, one pair of metacentric, and one pair of micro-chromosomes. This is the largest number of acrocentric chromosomes in the group and implies that the species has the most primitive chromosomal configuration in the melanica group. Based on the results of crossing experiments

and close morphological examination, *Drosophila pengi* Okada & Kurokawa, 1957 from central Japan, once regarded as a synonym of *Drosophila tsigana* Burla & Gloor, 1952, is shown to be distinct from *D. tsigana*. *Drosophila pengi* is thus resurrected as a member of the melanica group. This study synonymizes *Drosophila bisetata* Toda, 1988, described from central Myanmar, with *D. pengi.* In addition, a population from Guizhou, southwestern China, once regarded as *D. tsigana*, is also identified as *D. pengi*. These populations from central Myanmar and southwestern China share the diagnostic characters of *D. pengi*. At the same time, it is reconfirmed that the Hokkaido population is conspecific with European *D. tsigana.* Furthermore, another species, *Drosophila longiserrata* Toda, 1988 described from central Myanmar, is synonymized with *Drosophila after* Tan, Hsu & Sheng, 1949 from China, based on their having identical karyotypes and external morphology.

0754. **Suyanto, A. & S. Wiantoro. 2012.** Kelelawar. *Dalam* Suhardjono, Y.R. & R. Ubaidillah. *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Jakarta: LIPI-Press. Hlm. 53–76.

Abstrak

Tidak ada abstrak

0755. Suzuki, H., M. Nunome, G. Kinoshita, K.P. Aplin, P. Vogel, A.P. Kryukov, M-L. Jin, S-H. Han, **I. Maryanto**, K. Tsuchiya, H. Ikeda, T. Shiroishi, H. Yonekawa & K. Moriwaki. **2013.** Evolutionary and Dispersal History of Eurasian House Mice *Mus musculus* Clarified by More Extensive Geographic Sampling of Mitochondrial DNA. *Heredity* 111: 375–39.

Abstract

This study examined the sequence variation of mitochondrial DNA control region and cytochrome b gene of the house mouse (*Mus musculus* sensu lato) drawn from ca. 200 localities, with 286 new samples drawn primarily from previously unsampled portions of their Eurasian distribution and with the objective of further clarifying evolutionary episodes of this species before and after the onset of human-mediated long-distance dispersals. Phylogenetic analysis of the expanded data detected five equally distinct clades, with geographic ranges of northern Eurasia (*musculus*, MUS), India and Southeast Asia (castaneus, CAS), Nepal (unspecified, NEP), western Europe (domesticus, DOM) and Yemen (gentilulus). Our results confirm previous suggestions of Southwestern Asia as the likely place of origin of *M. musculus* and the region of Iran, Afghanistan, Pakistan, and northern India, specifically as the ancestral homeland of CAS. The divergence of the subspecies lineages and of internal sublineage differentiation within CAS were estimated to be 0.37–0.47 and 0.14–0.23 million years ago (mya), respectively, assuming a split of *M. musculus* and *Mus spretus* at 1.7 mya. Of the four CAS sublineages detected, only one extends to eastern parts of India, Southeast Asia, Indonesia, Philippines, South China, Northeast China, Primorye, Sakhalin and Japan, implying a dramatic

range expansion of CAS out of its homeland during an evolutionary short time, perhaps associated with the spread of agricultural practices. Multiple and non-coincident eastward dispersal events of MUS sublineages to distant geographic areas, such as northern China, Russia and Korea, are inferred, with the possibility of several different routes.

0756. Syakti, A.D., M. Yani, N.V. Hidayati, A.S. Siregar, P. Doumenq, & **I.M. Sudiana. 2013.** The Bioremediation Potential of Hydrocarbonoclastic Bacteria Isolated from a Mangrove Contaminated by Petroleum Hydrocarbons on the Cilacap Coast, Indonesia. *Bioremediation Journal* 17(1): 11–20.

Abstract

The main purposes of the study were to isolate strains of bacteria capable of degrading hydrocarbons from contaminated mangroves and to investigate the ability of the isolated bacteria to degrade total petroleum hydrocarbons (TPH) in a microcosm model of an oily sludge. The potential use of these bacteria strains as environmental clean-up agents was tested by culturing them with six different polyaromatic hydrocarbon (PAH) compounds (phenothiazine, fluorene, fluoranthene, dibenzothiophene, phenanthrene, and pyrene). Six viable and culturable bacteria were isolated, and the 16S rDNA sequence for each was amplified using the primers 9F and 1510R. Sequence results were compared using the National Center for Biotechnology Information (NCBI) BLAST program and, combined with phenotypic and phylogenetic data, were used to identify three strains that belonged to the *Bacillus* genus and were most closely related (98–99%) to *Bacillus aquimaris*, *Bacillus megaterium*, and *Bacillus pumilus*. The other three strains were closely related (98–100%) to *Flexibacteraceae bacterium*, *Halobacilus trueperi*, and *Rhodobacteraceae bacterium*. Two isolates, BA-PZN and BM-PFFP, which were related to *Bacillus aquimaris* and *Bacillus megaterium*, respectively, were further characterized and showed great potential for the removal of more complex hydrocarbon compounds in the oily microcosm model.

0757. **Syarif, F.** & **N.W. Utami**. **2012.** Pertumbuhan dan Pembungaan Beberapa Aksesi Bayam Petik (*Amaranthus hybridus* L.) Asal Jawa Barat. *Prosiding Seminar Nasional Pekan Inovasi Teknologi Hortikultra Nasional Buku 1*. Hlm. 161–168.

Abstrak

Telah dilakukan penelitian mengenai pola pertumbuhan dan pembungaan dua belas aksesi bayam petik (*Amaranthus hybridus* L.) yang dikoleksi dari Kabupaten Kuningan dan Kabupaten Bogor. Hal ini dimaksudkan untuk menyeleksi nomor-nomor bayam petik yang potensil untuk dikembangkan lebih lanjut. Kriteria seleksi adalah berdasarkan penampakan agronomis dan rasa daun. Sebagai pembanding dilakukan pula pengamatan terhadap bayam cabut dari varietas Giti Hijau, Kartika, dan Alabama. Hasilnya menunjukkan bahwa dari dua belas nomor bayam petik yang ditanam, pertumbuhan yang tersubur

adalah bayam dari Kuningan dengan kode RBG, batang paling tinggi (122,6 cm), jumlah daun terbanyak (142,4), dan diameter terbesar (3,02 cm). Pertumbuhan yang terkecil pada bayam dari Kuningan dengan kode KRP2, tinggi batang 66,2 cm, dan diameter 2,03 cm. Penampilan bayam RBG paling besar dibandingkan dengan bayam lainnya walaupun sudah fase generatif masih kelihatan pertumbuhan tinggi batang bertambah. Panjang daun mencapai 21 cm dan lebar daun rata-rata 14,7 cm merupakan daun paling lebar dan besar. Saat daun tumbuh dari tangkai daun akan muncul warna daun kekuningan merata dan membulat dan bagian luar daun berwarna hijau. Akan tetapi, setelah daun membesar warna kekuningan pada helaian daun akan menghilang perlahan-lahan. Daun hijau tua dan mengkilat. Pada fase generatif dilakukan pengamatan fenologi bunga masing-masing benih bayam. Hasilnya menunjukkan bahwa bunga pada jenis bayam petik muncul lebih awal yaitu 3 Minggu Setelah Tanam (MST), sedangkan pada bayam cabut, bunga muncul pada 4 MST. Hasil seleksi menunjukkan aksesi bayam petik yang potensial di kembangkan adalah RBG, Ciaruteun, dan Ciparigi

0758. **Syarif, F.** & **T. Juhaeti. 2013**. Mengungkap Potensi dan Budi daya Beberapa Aksesi Bayam kakap (*Amaranthus hybridus* L.) dari Brebes dan Cilacap. *Prosiding Seminar Nasional Biodiversitas*. Konservasi Keanekaragaman Hayati Berbasis Kearifan Lokal Masyarakat Indonesia. Kelompok Studi Biodiversitas Jurusan Biologi Fakultas Matematika dan Ilmu Pengetahuna Alam Universitas Sebelas Maret Surakarta 2013. Hlm. 151–156.

Abstract

Bayam Kakap (*Amaranthus hybridus* L.) merupakan salah satu sayuran *indigenous* yang tersisih oleh kehadiran bayam cabut (*Amaranthus tricolor*). Padahal dari segi kandungan gizi dan rasa, bayam kakap tidak kalah dibandingkan bayam cabut, budi dayanya mudah, penampilannya menarik sehingga dapat menjadi tanaman hias di pekarangan. Pengetahuan turun temurun tentang sayuran *indigenous* harus dilestarikan dengan cara menggali kembali kekayaan jenis sayuran tersebut baik melalui budi daya, kandungan gizi, kuliner, dan pemasarannya. Bayam kakap dibudidayakan masyarakat di beberapa desa di Cilacap dan hasil panennya dijual ke pasar setempat, begitu pula d Kaligua Bumiaya Brebes. Penelitian dilakukan untuk mengetahui potensi dan budi daya beberapa aksesi bayam kakap asal Brebes dan Cilacap. Aksesi yang diteliti adalah Adi Mulya, Ciputih 1, Dukuh Putri, Sijampang 1 dan Sijampang 2. Kelima aksesi ditanam di kebun percobaan Bidang Botani Pusat Penelitian Biologi-LIPI, Cibinong Bogor dengan pemberian pupuk organik hayati cair 50 cc/liter/plot tanaman. Parameter yang diamati adalah pembungaan, biomasa panen pertama dengan cara dipotong seluruh bagian tajuknya (ditebas), kandungan besi (Fe), dan kandungan nitrat (NO_3).

Hasil menunjukkan bahwa bunga muncul paling cepat pada aksesi Sijampang 1, umur (43 hari setelah semai HSS) dan paling lama aksesi Sijampang 2 (86 HSS). Bobot basah biomasa terbanyak pada aksesi Ciputih 1 (183,57 g/tanaman) diikuti aksesi Sijampang 2 (165,43 g/tanaman). Aksesi Ciputih memiliki cabang

terpanjang (43,67 cm), jumlah daun terbanyak (102,67 helai/tanaman), ukuran daun terpanjang (16,2 cm), daun terlebar (11,37 cm), diameter batang terbesar (1,72 cm). Sijampang 2 memiliki ukuran cabang terpanjang, jumlah daun terbanyak, ukuran daun terpanjang, terlebar dan diameter batang masing-masing (34 cm, 88 helai, 15,67 cm, 11,8 cm, dan 1,49 cm. Kandungan Fe bervariasi pada berbagai aksesi bayam kakap panen pertama, yakni Ciputih 1 (470 ppm), Dukuh Putri (708 ppm), Sijampang 1 (694 ppm). Sementara itu, pada aksesi Adi Mulya panen ke 2 (622 ppm) dan Sijampang 2 (381 ppm), Giti Hijau (bayam cabut) menunjukkan kandungan Fe terbanyak 2.273 ppm. Kandungan nitrat untuk masing-masing aksesi Giti Hijau (0,291 mg/g), Adi Mulya (0,315 mg/g), Ciputih 1 (0,413 mg/g), Dukuh Putri (0,360 mg/g), Sijampang 1 (0,309 mg/g), dan Sijampang 2 (0,319 mg/g).

0759. **Syarif, F.** & **T. Juhaeti**. **2014.** Potensi Produksi Biomasa dan Kandungan Nitrat Beberapa Aksesi Bayam Petik (*Amaranthus hybridus*. L). *Prosiding Seminar Ilmiah Perhorti 2013*. Membangun Sistem Baru Agribisnis Hortikultura Indonesia pada Era Pasar Global. Volume II, Tanaman Sayuran. Penerbit: Perhimpunan Hortikultura Indonesia (PERHORTI) 2014. Hlm. 546–553.

Abstract

Upaya diversifikasi konsumsi sayuran (*Amaranthus hybridus*. L) perlu diperhatikan karena memiliki nilai gizi tinggi. Di lain pihak, genus *Amaranthus* juga diketahui mengandung nitrat yang merupakan salah satu zat antinutrisi. Telah dilakukan penelitian untuk mengetahui potensi produksi biomassa (berupa cabang dan daun muda layak konsumsi) dan kandungan nitrat pada 7 aksesi bayam petik dan 3 varietas bayam cabut (Alabama, Giti hijau dan Kartika). Dari ketujuh aksesi bayam petik tersebut, sebanyak 3 aksesi berasal dari Bogor (Cimanggu, Ciparigi, dan Ciaruteun), 2 aksesi dari Ciamis (Ciamis2 dan Rajapolah 1) dan 2 aksesi dari Cianjur (Gentur dan Sindanglaka). Benih bayam terlebih dahulu disemai, setelah tumbuh bibit selanjutnya ditanam di petakan dengan jarak tanam 50 x 50 cm. Panen biomasa dilakukan 4 kali terdiri dari satu kali panen tebas dan 3 kali panen petik. Panen tebas dilakukan pada umur 42 hari setelah semai (HSS), dengan cara memotong seluruh tajuk tanaman dengan tetap menyisakan 3 mata tunas pada batang utama tanaman untuk dibiarkan tumbuh kembali membentuk tunas baru yang akan dipanen kemudian dengan cara dipetik (panen petik). Panen petik dilakukan 3 kali dengan interval waktu 1 minggu. Peubah yang diamati saat panen adalah jumlah cabang, panjang batang, jumlah daun, panjang daun terbesar, lebar daun terbesar, bobot biomassa panen, dan kandungan nitrat daun. Hasil penelitian menunjukkan bahwa aksesi Gentur dan Rajapolah 1 menghasilkan biomassa paling tinggi saat panen tebas (261,5 gram dan 217,07 gram). Kandungan nitrat bayam cabut Kartika menunjukkan angka paling tinggi (0,459 mg/g), yaitu pada panen petik ketiga. Kandungan nitrat bayam petik Ciaruteun menunjukkan angka paling rendah (0,125 mg/g), yaitu saat panen tebas. Aksesi Gentur merupakan bayam petik dengan hasil kandungan nitrat stabil tiap kali periode panen dengan nilai cukup rendah 0,134 mg/g.

0760. Takeuchi, W. & **D. Arifiani. 2010.** A Synopsis of New Plant Distributional Records from the Foja Mountains of Papua province, Indonesia. *Harvard Papers in Botany* 15(1): 41–50.

Abstract

Plant distributional records are reported from Conservation International's Foja expeditions. The floristic range extensions are compiled from alluvial lowland forest and cloudy upland habitats to 1,900 m. Sixteen taxa are briefly discussed, including of 4 ferns, 1 monocot, and 11 dicots. Synonymies are newly proposed for *Embelia kuborensis* (Myrsinaceae), *Medinilla sapoiriverensis* (Melastomataceae), and *Pneumatopteris subappendiculata* (Thelypteridaceae).

0761. Takaku, G., **S. Hartini**, **D. Dwibadra** & L. A. Corpuz-Raros. **2012.** Macrochelid mites (Acari: Gamasida: Macrochelidae) in the Philippines. *Journal of the Acarological Society of Japan* 21(2): 95–124.

Abstract

Twenty one spesies of macrochelid mites belonging to the genera *Glyptholaspis*, *Holostaspella*, and *Macrocheles*, were collected in the Philippines. Of these, 3 species were described as new to science, and 9 species were recorded from the Philippines for the first time. In total, 23 species are known from the Philippines to date, including *Holostaspella stenaspis* Krantz, 1967 and *Glyptholaspis cariasoi* De Jesus and Rueda, 1990, which were not collected in this research.

0762. Takano, K.T., **A. Suwito**, J.J. Gao & J.T. Yin. **2011**. Molecular Phylogeny of the Cristata Species Group of the Genus *Colocasiomyia* (Diptera: Drosophilidae). *Low Temperature Science* 69: 19–28.

Abstract

Flies of the *Colocasiomyia cristata* species group depend their life cycles on specific host plants of the family Araceae and play important roles as species-specific pollinators in return. A pair of 'stamenicolous' and 'pistillicolous' species cohabit in the same inflorescence and such pairs have been reported from different host species and different geographical regions. To understand the evolution of host selection and cohabitation and the divergence between stamenicolous and pistillicolous species in the *C. cristata* group, this study conducted molecular phylogenetic analyses. The mitochondrial ND2 sequences (maximum 858 base pairs) of 27 OTUs were analysed. Phylogenetic relationships reconstructed by the neighbour-joining, maximum parsimony and maximum likelihood methods, were summarised in a consensus network. The resolution in the inferred phylogeny was higher than those in the previous cladistic studies based on the morphological characteristics. This research recognised three main clades: the *C. colocasiae-alocasiae, C. diconica-xenalocasiae,* and *C. cristata-sulawesiana* clades. Comparisons of ecological traits among species on their phylogenetic relationships have revealed that the origins of cohabitation and

stamenicolous and pistillicolous breeding habits are more complicated than thought in the previous hypothesis. Since the number of the species is limited in this study, more biogeographic information and comparative ecological studies based on reliable phylogenetic trees with 3 comprehensive taxon sampling of both Colocasiomyia flies and their host plants will be necessary.

0763. Tanzier, R., F. Emmanuel, A. Taoussaint, **Y.R. Suhardjono,** M. Balke & A. Reidel. **2013**. Multiple Trasgressions of Wallace's Line Explain Diversity of Flightless *Trigonopterus* Weevils in Bali. *Proc R Soc B* 281: 2528.

Abstract

The fauna of Bali, situated immediately west of Wallace's Line, is supposedly of recent Javanese origin and characterized by low levels of endemicity. In flightless *Trigonopterus weevils*, however, this research finds 100% endemism for the eight species here reported for Bali. Phylogeographic analyses show extensive in situ differentiation, including a local radiation of five species. A comprehensive molecular phylogeny and ancestral area reconstruction of Indo-Malayan–Melanesian species reveals a complex colonization pattern, where the three Balinese lineages all arrived from the East, i.e. all of them transgressed Wallace's Line. Although East Java possesses a rich fauna of *Trigonopterus*, no exchange can be observed with Bali. This study asserts that the biogeographic picture of Bali has been dominated by the influx of mobile organisms from Java, but different relationships may be discovered when flightless invertebrates are studied. Our results highlight the importance of in-depth analyses of spatial patterns of biodiversity.

0764. Tennent, W.J., C.H. Muller, & **D. Peggie. 2014**. Two New Butterflies (Lepidoptera, Lycaenidae) from the Collections of the Museum Zoologi Bogor, Indonesia. *Tropical Lepidoptera Research* 24(1): 10–14.

Abstract

Two new species of butterfly, *Epimastidia suffuscus* **sp.nov.,** and *Paraduba tenebrae* **sp.nov.** (Lycaenidae), are described from the collections of the Museum Zoologi Bogor (MZB), Indonesia. The probable provenance, almost certainly West Papua, is discussed in detail.

0765. Thomson, V., K.P. Aplin, A. Cooper, S. Hisheh, H. Suzuki, I. **Maryanto**, G. Yap & S.C. Donnellan. **2014.** Molecular Genetic Evidence for the Place of Origin of the Pacific Rat, *Rattus exulans*. PLoS One. 2014 Mar 17;9(3):e91356

Abstract

Commensal plants and animals have long been used to track human migrations, with *Rattus exulans* (the Pacific rat) as a common organism for reconstructing Polynesian dispersal in the Pacific. However, without knowledge of the homeland of *R. exulans*, the place of origin of this human-commensal relationship is unknown. This study conducted a mitochondrial DNA phylogeographic

survey of *R. exulans* diversity across the potential natural range in mainland and Island Southeast Asia in order to establish the origin of this human-commensal dyad. This research also conducted allozyme electrophoresis on samples from ISEA to obtain a perspective on patterns of genetic diversity in this critical region. Finally, this study compared molecular genetic evidence with knowledge of prehistoric rodent faunas in mainland and ISEA. It was found that ISEA populations of *R. exulans* contain the highest mtDNA lineage diversity including significant haplotype diversity not represented elsewhere in the species range. Within ISEA, the island of Flores in the Lesser Sunda group contains the highest diversity in ISEA (across all loci) and also has a deep fossil record of small mammals that appears to include *R. exulans.* Therefore, in addition to Flores harboring unusual diversity in the form of *Homo floresiensis,* dwarfed stegodons and giant rats, this island appears to be the homeland of *R. exulans.*

0766. **Tihurua, E.F.**, I.A. Astuti & J.R. Witono. **2011**. Anatomi Daun Piperaceae dari Kawasan Gunung Slamet, Jawa Tengah. *Buletin Kebun Raya* 14 (2): 53–68.

Abstract

Leaf anatomy slides of Piperaceae from Gunung Slamet, Central Java was prepared using standard paraffin and paradermal method. The results showed that Piperaceae has dorsiventral leaf, hypostomatic or amphistomatic, tetracytic and cyclocytic stoma type. Hypoderm tissue exists in upper and/or lower part of leaf, mesophyll was arranged by 1–2 layers of palisade and 2–7 layers of sponge tissue. There are 3 type of trichomes i.e. glandular trichome which had globose cell with short stalk, bicellular glandular trichome, and multicellular & uniseriate non-glandular trichome. The shape of the crystal of Piperaceae from mount Slamet are sand, needle, drusse or prismatic which distributed in hypodermis, mesophyll, and midrib. Piperaceae petiole was arranged by opening or sometimes closing circle vascular bundles. These open vascular bundles were crescent shape or resemble to U and V shapes.

0767. **Tihurua, E.F., A. Leksonowati, Witjaksono** & **Sunaryo**. **2011**. Studi Histologi Regenerasi Tunas pada Inokulum Daun Kentang Hitam (*Solenostemon rotundifolius*). *Prosiding Seminar Nasional XXI PBI*: 159–161.

Abstrak

Pembuatan irisan melintang inokulum daun kentang hitam (*Solenostemon rotundifolius*) telah dilakukan untuk mengetahui struktur histologi inokulum daun dan tunas yang terbentuk. Daun kentang hitam yang digunakan adalah daun *in vitro* dari eksplan yang berumur 0 sampai dengan 6 minggu yang ditanam di medium MS dengan penambahan BA 5 mg/l dan NAA 0,1 mg/l, serta daun muda dan dewasa yang telah ditanam di *green house*. Material daun tersebut difiksasi dengan larutan FAA, diiris dengan ketebalan 14 µm, dan diwarnai dengan larutan safranin dan fast green. Hasil yang didapatkan yaitu struktur histologi daun muda dan dewasa tidak berbeda dengan inokulum

daun kentang hitam, yaitu bertipe dorsiventral. Mesofil tersusun oleh jaringan tiang dan jaringan bunga karang yang terletak di bawah jaringan tiang, empat macam trikoma tersebar di permukaan atas dan bawah daun. Pada inokulum daun kentang hitam, perkembangan sel-sel meristem mulai terlihat pada inokulum daun minggu I, selanjutnya terbentuknya tunas mulai terlihat pada minggu II. Pada minggu III sudah terlihat adanya sel-sel berukuran besar di sekitar daun yang tersusun tidak teratur, sedangkan minggu IV sel-sel epidermis mulai sulit untuk diamati dan digantikan dengan sel-sel isodiametris (menyerupai sel penyusun jaringan bunga karang) dan mulai minggu V sudah dapat terlihat calon daun yang terbentuk dengan jelas.

0768. **Tihurua, E.F**., I.P. Astuti & **Rugayah. 2012**. Anatomi Helaian Daun *Murraya* spp (Rutaceae) di Jawa. *Berita Biologi* 11(3): 411–419.

Abstrak

Pengamatan terhadap anatomi helaian daun empat jenis *Murraya* (Rutaceae) telah dilakukan guna mencari karakter anatomi yang dapat dijadikan data pendukung yang baik untuk mengklasifikasikan. Daun *Murraya* spp bertipe dorsiventral. Dinding antiklinal sel epidermis lurus-bergelombang dan bentuk sel epidermis bersegi empat-tidak beraturan. Stomata bersifat anomositik, tersebar hanya dipermukaan bawah daun saja, sedangkan trikoma yang bertipe sederhana terletak di kedua permukaan daun kecuali pada *M. crenulata* (Turz) Oliv. yang terbatas dipermukaan bawah daun. Mesofil terdiri dari 2 lapis atau lebih jaringan tiang di sisi atas daun dan jaringan bunga karang dibawahnya kecuali *M. exotica* L. yang memiliki jaringan tiang di kedua bagian daum. Kelenjar minyak terletak di mesofil. Kristal bertipe prisma dan drus.

0769. Tobe, H., W. Shinohara, **N. Utami, H. Wiriadinata, D. Girmansyah**, K. Oginuma, H. Azuma, T. Tokuoka, E. Kawaguchi, M. Kono, & M. Ito. **2010**. Plant Diversity on Lombok Island, Indonesia: An Approach at Identification Using DNA Barcodes. *Acta Phytotaxonomica at Geobotanica November 61(2): 93–108.*

Abstract

Plant diversity is poorly known on most tropical Asian islands, where many native species are under threat due to the rapid increase in non-indigenous plants. The writers conducted field work on survey plant diversity on Lombok Island, Indonesia, an island where floral diversity has been poorly documented. Among more than 800 angiosperm collections, 492 leaf fragments preserved for molecular analyses were identified using *rbcl* sequences as barcodes. Using *Basic Local Alignment Search Tool* (BLAST) searches against the entire DNA Data Bank of Javan (DDBJ) data set yielded 314 haplotypes and 289 species in 265 genera and 87 families, determined by 96–100% sequence identity. Meanwhile, only 27 (8.6%) of the collection showed 100% sequence identity, the remining (91,4%) exhibited less than 99% sequence identity. Those collection likely represent described or undescribed species, whose *rbcL* sequences have

not yet been investigated. Since at least one species in every collection had a high similarity in the *rbcL* sequence, this method of species identification is of great use as fast approach for surveying and analyzing largerly unexplored tropical island floras.

0770. **Triana, E., N. Nurhidayat, T. Yulinery, E. Kasim** & **R.M. Dewi. 2010**. Identifikasi Gen Selenometil Transferase (*smt*) pada isolat *Geonacillus* sp. 20K yang Resisten terhadap Selenium. *Berita Biologi* 10(3): 323–328.

Abstract

The trace element Selenium is toxic at high consentration. Most of organisms living in selenium rich environment are selenium resistant. One of the resistance mechanisms is methylation, in which selenium is methylated and transformed to non-toxic selenium compound. The methylation is catalyzed by seleno methyltranferase (SMT) coded by smt gene. The gene are expressed by selenium tolerant plants. However, there was no available report yet on such specific gene in the bacterial genome. This study was carried out to determine smt homologous gene on selected selenium accumulator bacteria, *Geobacillus* sp. 20k, the smt gene of was determined by amplifying target DNA and analyses its sequences through homology search (BLAST). The result showed that the DNA and its protein part of thermophilic enzyme involve selenium metabolism.

0771. Tweedley, J.R., D.J. Bird, I.C. Potter, H.S. Gill, P.J. Miller, G.O. Donovan & **A.H. Tjakrawidjaja. 2013.** Species Compositions and Ecology of the Riverine Ichthyofaunas in Two Sulawesian islands in the Biodiversity Hotspot of Wallacea. *Journal of Fish Biology* 82: 1916–1950.

Abstract

This account of the riverine ichthyofaunas from the islands of Buton and Kabaena, off southeastern mainland Sulawesi, represents the first detailed quantitative checklist and ecological study of the riverine fish faunas in the biological hotspot of Wallacea. The results are based on analysis of samples collected by electrofishing at a wide range of sites from July to September in both 2001 and 2002. The fauna was diverse with the 2179 fishes caught comprising 64 species representing 43 genera and 22 families, while the catches were dominated by the Gobiidae (26 species and 25% by numbers), Eleotridae (seven species and 27% by numbers), Zenarchopteridae (three species and 22% by numbers) and Anguillidae (two species and 12% by numbers). The most abundant species were the eleotrids *Eleotris* aff. *fusca-melanosoma* and *Ophieleotris* aff. *aporos*, the anguillid *Anguilla celebesensis*, the zenarchopterids *Nomorhamphus* sp., *Nomorhamphusebrardtii,* the gobiids *Sicyopterus* sp., and *Glossogobius* aff. *celebius-kokius*. The introduced catfish *Clarias batrachus* was moderately abundant at a few sites. Cluster analysis, allied with the similarity profiles routine SIMPROF, identified seven discrete groups which represented samples from sites entirely or predominantly in either Buton (five clusters) or Kabaena (two clusters). Species composition was related to geographical

location, distance from river mouth, percent contribution of sand and silt, altitude, and water temperature. The samples from the two islands contained only one species definitively endemic to Sulawesi, *i.e. N. ebrardtii* and another presumably so, *i.e.Nomorhamphus* sp., contrasting starkly with the 57 species that are endemic to Sulawesi and, most notably, its large central and deep lake systems on the mainland. This accounts for the ichthyofaunas of these two islands, as well as those of rivers in northern mainland Sulawesi and Flores, being more similar to each other than to those of the central mainland lake systems. This implies that the major adaptive radiation of freshwater fishes in Sulawesi occurred in those lacustrine environments rather than in rivers.

0772. **Uji, T., Sunaryo, E. Rachman** & **E.F. Tihurua. 2010**. Jenis Flora Asing Invasif di Taman Nasional Gunung Gede Pangrango, Jawa Barat. *Biota* 15(2): 167–173.

Abstract

Ecological study of Invasive Alien Species (IAS) at two altitudes in Mount Gede Pangrango National Park was carried out by using quadrate method. The studied plots located at altitude 1,400 m and 1,500 m a.s.l. in 0.2 ha each. The result shows that 45 species of trees, 77 species of saplings, and 48 species of seedlings were recorded. Five species (i.e. *Bartlettina sordida*, *Austroeupatorium inulaefolium, Cestrum aurantiacum, Brugmansia suaveolens,* and *Passiflora suberosa*) are catagorized as IAS which threaten the ecosystem and natural species.

0773. Ukuwela, K.D.B., A. de Silva, **Mumpuni,** B.G. Fry, M.S.Y. Lee & K.L. Sanders. **2013.** Molecular Evidence That the Deadliest Sea Snake *Enhydrina schistosa* (Elapidae: Hydrophiinae) Consists of Two Convergent Species. *Molecular Phylogenetics and Evolution* 66(1): 262–269.

Abstract

This study presents a striking case of phenotypic convergence within the speciose and taxonomically unstable Hydrophis group of viviparous sea snakes. *Enhydrina schistosa*, the 'beaked sea snake', is abundant in coastal and inshore habitats throughout the Asian and Australian regions, where it is responsible for the large majority of recorded deaths and injuries from sea snake bites. Analyses of five independent mitochondrial and nuclear loci for populations spanning Australia, Indonesia, and Sri Lanka reveal that this 'species' actually consists of two distinct lineages in Asia and Australia that are not closest relatives. As a result, Australian "*E. schistosa*" are elevated to species status and provisionally referred to *Enhydrinazweifeli*. Convergence in the characteristic 'beaked' morphology of these species is probably associated with the wide gape required to accommodate their spiny prey. Our findings have important implications for snake bite management in light of the medical importance of beaked sea snakes and the fact that the only sea snake anti-venom available is raised against Malaysian *E. schistosa*.

0774. **Utami, N.** & **H. Wiriadinata. 2010**. *Impatiens mamasensis* (Balsaminaceae), a New Species from West Celebes, Indonesia. *Reinwardtia* 13(2): 211–212.

Abstract

Impatiens mamasensis Utami & Wiriad. (Balsaminaceae) is described as a new species.

0775. **Utami, N. 2011**. *Impatiens kunyitensis* (Balsaminaceae), a New Species from Sumatra, Indonesia. *Kew Bulletin* 66(1): 187–190.

Abstract

Summary A new species of *Impatiens*, *I. kunyitensis* from Kerinci Seblat National Park, West Sumatra, Indonesia is described and illustrated. It has a unique combination of characters, including red and green stems and white flowers in which the lower sepal is bucciniform and abruptly constricted into a curved, short, violet spur. This combination of characters makes determining the relationships of *I. kunyitensis* difficult.

0776. **Utami, N. 2012**. *Impatiens talakmauensis* (Balsaminaceae), a New Species from Western Sumatra, Indonesia. *Acta Phytotaxonomica Geobotanica* 63(1): 51–54.

Abstract

Impatiens talakmauensis Utami (Balsaminaceae), a new species from Pasaman (Mt. Talakmau) western Sumatra, Indonesia, is newly described. It is characterized by yellow flowers, united lateral petals, reddish purple flushed veins of the lateral petals and the lower sepal. The lower sepal deeply navicular and abruptly constricted into a curved, short, pale yellow spur. The species was found in limestone areas of Mt. Talakmau, western Sumatra.

0777. **Utami, N. 2012**. Three New Species of *Impatiens* (Balsaminaceae) from Sumatra, Indonesia. *Kew Bulletin* 67(4): 731–737.

Abstract

Three new species of *Impatiens* from West Sumatra, Indonesia, are proposed: *Impatiens ekapaksiana, I. tribuana* and *I. wirabraja*. A description, illustration and IUCN conservation status is provided for each species.

0778. **Utami, N. 2013**. *Impatiens kerinciensis* (Balsaminaceae), a New Species from Sumatra, Indonesia, *Kew Bulletin* 68(4): 687–688.

Abstract

Impatiens kerinciensis from Mt Kunyit, West Sumatra, Indonesia, is newly described and illustrated. The species is characterised by a yellow flower with a red spot on the two lower petals and hairs on the lower sepal, the dorsal petal, and the two lateral sepals. This combination of morphological characters

was previously unknown. The species is considered local, rarely encountered, and clearly an endemic of Sumatra.

0779. **Utami, N.W. 2010.** Aplikasi GA_3 dalam Memecahkan Dormansi Bici *Picrasma javanica* Estela Penyimpanan pada Berbagai Suhu Simpan. *Jurnal Teknologi Lingkungan* 11(2): 139–145.

Abstract

Picrasma javanica is one of the medicinal plants that has an anti malaria potency and it belongs to Simaroebaceae family. The aim of this research is to know the effect of GA3 on broken dormancy of *P. javanica* seed after storaged in the various temperature to enhance and increase seed germination. The experiment was carried out in the Macropropagation Laboratory, Cibinong Science Center, Research Center for Biologi LIPI, using a Complete Randomized Design with two factors in three replication. The first factor is condition of storage i.e. room (28 ± 1°C, RH 80%), incubator (20°C, RH 90%), incubator (5°C, RH 95%) dan deep freezer (-20°C, RH 65%). The second factor is long of storage i.e. 1, 2, 3, 4, 5 and 5 months. GA3 100 ppm was used for broken seed dormancy. The result showed that there was no interaction between temperature and long of storage. GA3 solution can be broken on seed dormancy before and after storage in the various temperature excepted in deep freezer (-20°C, RH 65%), there are no seed germinate since 1 month storage. *Picrasma javanica* seed that storage in incubator 5°C is the best method and after 5 month the germination percentage is still high (73,3%) with GA3 but only 18.33% without GA3. On the other treatments the germination percentage is less than 50%. The highest germination value (14,1) that was recorded in the seeds that storage in incubator (20°C, RH 95%).

0780. **Utami, N.W.** & Diyono. **2011.** Pengaruh Intensitas Naungan, Varian, dan Umur Panen terhadap Pertumbuhan dan Produksi Ganyong (*Canna edulis*). *Jurnal Teknik Lingkungan* 12 (3): 333–343.

Abstract

Ganyong is crop that usually grows on the light area such as/like under the tree, on the other hand its growth ability had not been studied yet. Study of growth response of 4 ganyong variants in different microclimate condition had been done in Experimental Garden, Botani Division, Cibinong Science Center. The study was done in Factorial Randomized Block Design consisting of 3 factors in which the 1st factor was shading intensity 0% (without shading) 50% and 70%, 2nd factor was ganyong variants (red, pink, green, and white corm), while the 3rd factor was harvest time (9 and 11 month). The results showed that every factor which were light intensity, variants, and harvest time significantly affected on the growth and production of ganyong. The best shading intensity was 50% that significantly different from 0% and 70% light intensity in term of number of shoots, fresh and dry weight of leaf and stem, length of corm, the fresh and dry weight of corm. White variant of ganyong produced

the longest of corm size, the highest fresh weight of leaf and stem, the highest of fresh and dry weight of corm compared to other variants. 11 months of harvest time resulted in the longest corm, the highest dry weight of corm, compared to 9 months of harvest. The best combination of treatment was white ganyong variants, 50% shading intensity, and 9 months of harvest time which resulted in significantly increasese of production parameters such as the biggest corm diameter (4,8 cm), the highest fresh and dry weight of corm 8454 g and 1,134 g/plant respectively. The chemical content of corm was affected by variant and harvest time. The highest carbohydrat content was found at 9 month harvest time, while the highest fibre, fat and protein content was found at 11 month harvest time.

0781. **Utami, N.W., N. Setyowati** & **A.H. Wawo. 2011.** Studi Stimulasi Perkecambahan Biji Gayam (*Inocarpus fagiferus). Seminar Nasional Biologi PBI XXI 'Peran biologi dalam mengantisipasi dampak pemanasan global melalui pelestarian keanekaragaman hayati'. Aceh, 26–27 November 2011. PBI Banda Aceh. Lab. Biologi Lt. II. Gedung Baru FKIP Unsyiah, Darussalam, Banda Aceh*.

Abstract

Indonesia is known as one of distribution area of gayam (*Inocarpus fagiferus)* so that gayam is also named "Nusantara plant". Carbohydrate content in gayam seed reach up to 76% of dry weight so that gayam have potential as source of alternative food. Study on seed germination stimulation of gayam (*I. fagiferus)* was conducted in the green house of Macropropagation Laboratory, Botany Division, Research Centre for Biology-LIPI, Cibinong Science Center. Experiment was design in Completely Randomized Design with seven treatments i.e (1) control (without treatment, seed was directly planted), (2) scarification (seed coat scarified), seed was soaked in KNO_3 solution for 24 hours at the concentration of (3) 1000 ppm, (4) 2000 ppm and (5) 3000 ppm, seed was soaked in water for: (6) 3 days and (7) 6 days. The result showed that stimulation treatment of gayam seed could improved its germination. Gayam seed begun to germinate in the range of 21–33 days after sowing, while germination percentage be reached in the range between 43.33%–83.33%. The best treatment in this study are, soaking seed in 3000 ppm of KNO_3 solution during 24 hours and soaking in water during 3 days. Both treatments posses the highest of Germination value are 1.48 and 1.38.

0782. **Utami, N.W.** & **F. Syarif**. **2012.** Pola Pertumbuhan 3 Aksesi Kangkung (*Ipomoea* spp) pada Berbagai Komposisi Media Tanam. *Prosiding Seminar Nasional Pekan Inovasi Teknologi Hortikultra Nasional Buku 1.* Pusat Penelitian dan Pengembangan Hortikultura Badan Penelitian dan Pengembangan Pertanian Kementerian Pertanian. Hlm. 106–115.

Abstrak

Kangkung merupakan sayuran yang banyak diminati oleh masyarakat dari semua golongan ekonomi (bawah, menengah maupun atas) karena mudah

dijumpai di pasar tradisional maupun supermarket dengan harga yang terjangkau dan mempunyai nilai gizi yang baik. Penelitian untuk mempelajari pola pertumbuhan dan biomassa beberapa aksesi kangkung pada berbagai komposisi media tanam, telah dilakukan di kebun percoban Bidang Botani, Pusat Penelitian Biologi-LIPI, Cibinong. Penelitian ini menggunakan Rancangan Kelompok Acak Lengkap dengan 2 faktor sebagai rancangan percobaannnya. Faktor pertama adalah aksesi kangkung terdiri dari 3 level yaitu Warudoyong (W), Kemang (K) dan Menalung (M): faktor kedua adalah komposisi media tanam terdiri dari Tanah+Pupuk kandang (2:1), Tanah +Kompos (2:1), Tanah+ Kompos+Pukan (2:1:1) dan Tanah+Pasir+Kompos+Pukan (1:1:1:1). Masing-masing perlakuan 4 ulangan setiap ulangan 2 tanaman. Hasil penelitian menunjukkan bahwa pola pertumbuhan dari 3 aksesi kangkung bervariasi mulai saat bertunas (2–4 HST), pertambahan jumlah cabang 2–8 (3 MST), pertumbuhan panjang cabang 8,5–39,67 (3 MST), bakal bunga (14–63 HST), kuncup bunga (25–70 HST), bunga mekar (28–76 HST), bunga layu (30–74 HST) sampai terbentuknya buah (41–57 HST). Komposisi media campuran tanah+ pasir+kompos+pupuk kandang=1:1:1:1 (TPKK) adalah yang paling baik untuk pertumbuhan kangkung yaitu menghasilkan jumlah daun yang paling banyak (1529,78), biomassa daun+batang paling tinggi (1160,95 g). Aksesi Warudoyong menghasilkan biomassa daun+batang tertinggi (1137,62 g), aksesi Kemang memiliki ukuran daun paling panjang (10,06 cm) dan paling lebar (7,63 cm). Kombinasi perlakuan aksesi Warudoyong dengan media TPKK menghasilkan biomassa daun+batang paling tinggi yaitu 1455,56 g. Aksesi Kemang dengan media TPKK memiliki ukuran daun paling adalah panjang (11,89 cm) dan paling lebar (8,41 cm).

0783. Utaminingrum, H.I.P. & **E. Sulistyadi. 2010.** Kajian Hubungan Tutupan Vegetasi dan Sebaran Burung di Pulau Moti, Ternate, Maluku Utara. *Jurnal Biologi Indonesia* 6(3): 443–458.

Abstract

Study on the relationships between vegetation coverage and bird distribution in Moti Island, Ternate, North Moluccas. This study about relationships between vegetation coverage and bird distribution in Moti Island, Ternate, Moluccas was conducted on May 2010. The objective of this research is to understand the bird species occurrence on a vegetation type as an indicator for environment quality determination in small Moti Island. Data on the occurrence of bird species in the every vegetation type were collected and recorded using exploration method. The bird species were identified for the scientific name, local name, their activities, location or coordinate position, and their vegetation or habitat. The data were then compiled and tabulated for the spatial analyses using Ikonos image and topographic (SRTM) maps data. The data output from the spatial analyses were then analyzed using Principle Component Analyses (PCA) to get the most important factors of vegetation cover types that influenced the occurrence of the bird species. The results showed that about 34 bird species, belong to 20 families and 29 genera have occurred in Moti

Island. About 13 vegetation types were recorded as natural sites of bird species for feeding, playing, and breeding grounds. Analyzing data using PCA showed that at least 3 vegetation types have played as important sites for bird species in this area. The sites were mangrove, secondary forest, and mixed gardens. The roles of both three important vegetation types and bird species as environment quality indicators were in detail discussed in this paper. The discussion also includes how to develop fisherman villages in Moti Island using its own natural resources and biodiversity.

0784. Utaminingrum, H.I.P. & **Roemantyo. 2011.** Analisis Tutupan Lahan Kawasan Pulau Moti, Ternate, Maluku Utara. *Dalam* I. Maryanto & H. Sutrisno (eds.*). Ekologi Ternate.* Hlm. 187–198.

Abstract

Moti Island, like other small islands in Indonesia, is lacking the natural resources data especially, on biodiversity and spatial information. It causes the potential resources of this island has not been well explored yet. The goal of this research is to classify the land cover of the Moti Island as a basic information for understanding the ecosystem types of this island. Discussion about the area and distribution of every land cover and ecosystem types in the Moti Island were presented in detail in this paper.

0785. Vari, R. & **R.K. Hadiaty. 2012.** The Endemic Sulawesi Fish Genus *Lagusia* (Teleostei: Terapontidae). *The Raffless Bulletin of Zoology* 60(1): 121–126.

Abstract

Lagusia micracanthus, originally described from three specimens collected in a river near Lagusi in southern Sulawesi, is redescribed in detail based on an extensive series of specimens ranging from small juveniles through adults, and its phylogenetic position is reevaluated. Information on life colouration, habitat, and ontogenetic transitions in dark pigmentation in small juveniles through adults is provided for the first time. Females of the species have ripe ovaries with large numbers of well-developed eggs by at least 56 mm SL and the species thus matures at one of the, if not the, smallest body sizes in the Terapontidae.

0786. Voskamp, A., E.J. Rode, C.N.Z. Coudrat, **Wirdateti**, Abinawanto, R.J. Wilson, K. Anne-Isola Nekaris. **2014**. Modelling the Habitat Use and Distribution of the Threatened Javan Slow Loris *Nycticebus javanicus*. *Species Research* Vol. 23: 277–286.

Abstract

The Javan slow loris *Nycticebus javanicus* is threatened by habitat decline and is classified as Critically Endangered on the IUCN Red List. Information on its distribution and habitat preferences is still lacking, and so far the distribution of the Javan slow loris has only been quantified via ecological niche modelling

based on museum specimens and remotely derived environmental layers. This study aimed to refine the modelled predictions and to verify the distribution of the Javan slow loris by collecting up-to-date occurrence data, which are fundamental for conservation and management of the species. Furthermore, this research identifies variables that predict its presence and give recommendations for future survey sites and conservation actions. From April to June 2012, the writers collected data on species presence, habitat preferences, and levels of disturbance at priority sites throughout Java. This study presents a map of the predicted distribution of *N. javanicus* based on a maximum entropy model. The researchers investigated habitat preferences using R (v. 2.14.1). During the study, sighted 52 lorises in 9 out of 14 investigated areas. The amount of bamboo in a forest had a positive effect on the encounter rates. Furthermore, this research made 86 persen of sightings in forest plantations and agricultural areas located outside protected areas, with the majority located in areas with measured high levels of disturbance. This study suggests that further ecological studies are needed to understand if and why densities may be higher in anthropogenically disturbed areas.

0787. **Wahyudewantoro, G**. **2010.** Kajian Potensi Ikan di Lahan Gambut Tasik Betung Riau. *Bionatura* 12(2): 57–62.

Abstrak

Telah dilaksanakan survei ikan di lahan gambut di Tasik Betung, Siak-Propinsi Riau. Penelitian bertujuan mengkaji jenis-jenis ikan berdasarkan keragaman, kekayaan jenis, dan potensinya. Jenis ikan yang terkoleksi 30 jenis, yang termasuk dalam 14 famili dan 21 genus. Cyprinidae merupakan famili dengan jenis terbanyak (9 jenis), kemudian Belontiidae (4 jenis) dan Channidae (3 jenis). Sebagian besar jenis adalah ikan hias (43%), konsumsi (40%), dan potensi ganda (17%)

0788. **Wahyudewantoro, G., Haryono** & J. Subagja. **2010.** Pengaruh Suhu Angkut terhadap Kelangsungan Hidup Benih Ikan Sidat (*Anguilla bicolor*). *Prosiding Seminar Nasional Ikan VI dan Kongres Masyarakat Iktiologi.* Hlm. 239–245.

Abstrak

Ikan sidat merupakan komoditi ekspor yang sangat potensial, namun selama ini belum dapat dibudidayakan. Penelitian ini dilaksanakan pada bulan Maret 2008 di Laboratorium Ikan, Pusat Penelitian Biologi-LIPI Cibinong. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh suhu angkut terhadap kelangsungan hidup benih ikan sidat (*glass eel*). Metode yang digunakan adalah dengan 4 perlakuan suhu (1 kontrol), masing-masing 4 ulangan. Hasil yang diperoleh menunjukkan bahwa tidak ada mortalitas (P>0.05) selama proses pengangkutan. Selanjutnya pada waktu pemeliharaan, tingkat kelangsungan hidupnya relatif tinggi (86,96%).

0789. **Wahyudewantoro, G.** & **Haryono. 2011.** Ikan Kawasan Mangrove pada Beberapa Sungai di Sekitar Taman Nasional Ujung Kulon, Pandeglang: Tinjauan Musim Hujan. *Bionatura* 13(3): 217–225.

Abstrak

Telah dilakukan penelitian di perairan mangrove pada beberapa sungai di TNUK, Pandeglang-Banten. Penelitian ini bertujuan mengungkap jenis-jenis ikan mangrove pada musim penghujan. Ikan dikoleksi dengan jala (mata jaring 1,5 dan 2,5 cm), jaring insang (diameter 1 cm) dan serokan ikan. Hasil yang diperoleh adalah 32 jenis ikan yang tergolong ke dalam 27 marga dan 20 suku. Sungai Citamanjaya memiliki keanekaragaman tertinggi H = 1,999, d = 2,543 dan E = 0,834.

0790. **Wahyudewantoro, G. 2012.** Ragam Ikan Mangrove di Muara Sungai Bojong Langkap dan Sungai Ciperet, Segara Anakan-Cilacap. *Zoo Indonesia* 21(1): 9–15.

Abstrak

Telah dilakukan penelitian di Muara sungai Bojong Langkap dan Ciperet, Segara Anakan Cilacap. Penelitian ini bertujuan untuk menentukan ragam jenis ikan mangrove. Dari hasil penelitian tersebut berhasil ditemukan 28 jenis ikan yang termasuk ke dalam 24 marga dan 19 suku. Suku Gobiidae tergolong dominan, dengan 5 anggota jenisnya yang tersebar di seluruh stasiun penelitian. Sebanyak 37% jenis ikan berpotensi sebagai ikan hias.

0791. **Walujo, E.B. 2010.** Uncovering Traditional Knowledge and Local Wisdoms in Relationship between Ethnic Groups and Plant Using Holistic Scientific Approach. *International Workshop Plant Ecology and Diversity Observation Network and Capacity Building in Indonesia, Denpasar, July 16–19, 2010.*

Abstract

Indonesia is located between two main earth's biogeographic regions: Indo-Malaya and Oceania. The Indo-Malaya region comprises the west: Sumatra, Kalimantan, Java, and Bali, while the Oceanic region to the east: Sulawesi, Mollucas, the eastern Sunda Islands, and West Papua. Indonesia has also more tropical forest than any other single Africa or Asia country, and is second to Brazil in terms of tropical forest endemism. This country also presents at least forty seven distinct natural and man made ecosystems. Beside it high biological diversity, Indonesia also possesses high cultural diversity. More than four hundred Indonesian ethnic groups are dispersed in different regions. Such ethnics have specific knowledge or have specific pattern in how to manage their surrounding environment and biodiversity. Every ethnic has specific culture, knowledge, local wisdom, and techniques to adapt their various environmental conditions. In the diversity of culture, biodiversity should also recognize "bio-culture" as an important element, especially concerning traditional way of life of diminishing disturbance to Indonesian forests. This

bio-cultural richness has provide ethnobotanical researchers with endless research opportunities that related to forest conservation and sustainable use of biodiversity. This makes ethnobotanical research in Indonesia progress steadily. In this study, the researchers would like to convey some important points about the progress of research ethnobotany in Herbarium Bogoriense.

0792. **Walujo, E.B. 2011**. Keterlibatan Manusia dan Konservasi Sumberdaya Alam di Indonesia (Human Involvement and Biodiversity Conservation in Indonesia. *Buletin Kebun Raya* 14(1): 1–7.

Abstrak

Sejarah kehidupan menunjukkan bahwa mikrob memprakarsai munculnya kehidupan, yang kemudian diikuti oleh tanaman berhijau daun, hewan, dan manusia. Meskipun manusia sebenarnya muncul setelah bentuk-bentuk kehidupan lainya, namun pada kenyataanya, manusia telah mengalami evolusi sebagai makhluk yang paling sempurna. Karena evolusi seperti itu, manusia dapat mengembangkan peradaban sehingga mampu mengubah gaya hidupnya. Dalam hal ini, teori adaptasi dan integrasi menjadi penting dalam menjaga stabilitas hubungan antara organisme satu dengan lainnya dalam sebuah ekosistem. Dengan demikian, ekosistem dengan segala relung dan isinya adalah realitas yang dinamis dan terus menerus berubah. Dalam artikel ini akan diuraikan dan dijelaskan hubungan keterkaitan antara kebudayaan di Indonesia dalam konteks konservasi sumberdaya alam dalam studi ekologi manusia (*human ecology*).

0793. **Walujo, E.B. 2011.** Sumbangan Ilmu Etnobotani dalam Memfasilitasi Hubungan Manusia dengan Tumbuhan dan Lingkungannya (Ethnobotany Contributes to the Understanding of Human Relationship with Plant and Their Environment). *Jurnal Biologi Indonesia* 7(2): 375–391.

Abstract

The scope of ethnobotanical research has been developed to a broader scope from the originated word of ethnobotany was coined. This discipline attempts to explain reciprocal relationships which occur between local societies and its natural world, in extant, between local societies and their cultures reflected in the archeological records. Ethnobotany is also very closely related to the domestication of plants such as the species domesticated, where these species domesticated, the purpose of domestication, the manner and the status of the domesticated plants today. Ethnobotany also concerns to the role of plants in ecology, environment, and phytogeography as conceived by tradition or by the local communities. In addition to its traditional role in economic botany and the exploration of human cognition, ethnobotanical research has been applied to the practical areas such as biodiversity prospecting and vegetation management. Thus ideally, ethnobotany should include rules and categorization acknowledged by local communities. Rules and categorization are used to appropriately face daily social situations in recognizing, interpreting, and

utilizing plant resources in their environment. In summary, the scope of research in ethnobotany is interdisciplinary and ethnoscience as mentioned earlier and these scopes will be the main focus of discussion in this article particularly in its relation to the strategic position of Indonesia based on wealth, diversity of plants, species, ecosystems, and socio cultural life.

0794. **Walujo, E.B. & M. Rahayu. 2011.** Studi Etnobotani Masyarakat Melayu di Sekitar Kawasan PT Wirakarya Sakti, Provinsi Jambi. *Dalam* Purwanto, Y., E. B. Walujo & A. Wahyudi (eds*). Valuasi Hasil Hutan Bukan Kayu Kawasan Lindung PT Wirakarya Sakti Jambi.* Unesco, MAB, LIPI & Sinarmas Forestry: 91–120.

Abstract

Ethnobotanical study on Malay society who lives in surrounding P.T. Wirakarya Sakti area was done in 2003–2004. The objective of this study is to know the local knowledge of useful plant diversity, exploitation method, their management, and other related aspects to environmental change. An adaptation technique in order to answer the ecosystem change is also carried out in this study. Result of this study is important to be used as basic information of valuation study of non timber forest products (NTFPs) from ex forest logging since 20 years ago. It is noted that more than 300 plant species used by Malay society around this area and about 5% of them are used in their daily life, such as: firewood, food, construction, equipments, local technology, medicinal, ritual, and other.

0795. **Wardah** & **F.M. Setyowati. 2010.** Medical Plant Biodiversity in Dayak Communities Living in Kahayan Hulu Utara, Gunung Mas Regency, Central Kalimantan. *Dalam Proceedings of International Conference on Medicinal Plants*, Surabaya, July 21–22, 2010: 503–512.

Abstract

Central Kalimantan has 15.38 millions areas with various ecosystems and considerable biodiversity, particularly medicinal plant species. The species were considered as one of forest commodities groups with fast genetic erosion. This was due to habitat damage caused by legal or illegal exploitation. There were 78 species of medicinal plants found to be used as aphrodisiac (7 species), postparturition medicine (18 species), tonicum (9 species), liver (5 species), diarrhoea medicine (4 species), medicine for malaria, cancer and increase of mother milk content others (3 species), low back pain (lumbago), break bone, cosmetic and headaches others (2 species) and others each of 1 species. Four of those species were categorized as endangered species, such as tikang siau (*Eurycoma longifolia*), sesendok (*Fius deltoidea*), plawi (*Alstonia scholaris*), and bajaka bahendak (*Arcangelisia flava*). Further study was still required for finding out appropriate dosage, quality analysis, and its phytochemical properties.

0796. **Wardah. 2011.** Diversity and Potential Flora in Forest Areas of Boganinani Wartabone National Parks, North Sulawesi. *Prosiding Seminar Nasional Biologi,* Hlm. 731–740.

Abstract

This research studies on diversity and potential flora in forest area of Bogani Nani Wartabone National Parks and protected forest area of North Sulawesi. Result of interviewing local communities revealed that there were 154 plant types that are potential as medicine materials (75 species), foodstuffs (41 species), construction materials (17 species), ritual (3species), ornamental plants (6 species), and other potentials (12 species). Of 154 plants types, 5 species were economically potential, that are cempaka (*Elmerrillia ovalis*), boniok (*Orophea celebica*), telutu (*Pterocymbium javanicum*), olunan (*Celtis philippensis*), and dangi (*Dillenia serrata*). There were also 6 plant types categorized as rare species, that are tali kuning (*Arcangelisia flava*), kayu telur (*Alstonia scholaris*), garu cempaka (*Gonystylus macrophyllus*), uoi batang (*Calamus zollingeri*), pulasari (*Alyxia reinwarrdtii*), and mengkiutoy (*Ficus minahasae*).

0797. **Wardah. 2011.** Utilization of Kolesom (*Codonopsis javanica*) as a Tonic at Gunung Jampang Village, South Garut. *Biopharmaca*, Research center Bogor Agriculture university, 2011

Abstract

Gunung Jampang village, South Garut including one that is left in the village in West Java. This is due to physical facilities and infrastructure which are not yet qualified to go through four-whell vehicles or motor cycle. This study was conducted using exploratory survey and interviews with selected people. The result of this study found one species of plant that is *Codonopsis javanica* of the family Campanulaceae that are used as ingredients of wine making, known as ginseng wine or kolesom wine. Processing and utilization by local communities will be described in this paper.

0798. **Wardah & F.M. Setyowati. 2011.** Medicinal Crops and Its Potential in Forest Areas of Pujiharjo Village, South Malang, East Java. *Proceeding The 1st ACIKITA International Conference of Science and Technology*. Jakarta, July 25–27 2011.

Abstract

Forest is highly valuable in supporting human health, especially after the existence of tropical forests being degraded and going to extinct. Tropical natural forests in Indonesia, culture and traditional knowledge or local wisdom of various ethnics with forest ecosystem are valuable nation heritage for development. Protected forest areas of Pujiharjo Village has medicinal germplasm source which could be used as economic source to increase community income. To find out the potential and to conserve the germplasm of medicinal plants in forest areas of Pujiharjo Village, an exploration, inventory, and characteriza-

tion of the medicinal plants have been carried out. The result revealed that there were 35 species of 18 families that are potential as natural medicinal material sources. Of 32 plant species found, 3 species were regarded as rare medicinal crops, namely kedawung (*Parkia roxburghi*), pule (*Alstonia scholaris*), and sintok (*Cinnamomum sintoc*).

0799. **Wardah** & **F.M. Setyowati. 2011.** Peran Tumbuhan sebagai Pewarna Alami pada Masyarakat lokal di Indonesia/Role Of Dye Plants as Natural Dyes Used in Local Communities in Indonesia. *Prosiding Seminar Nasional "Konservasi Tumbuhan Tropika: Kondisi terkini dan tantangan kedepan*" UPT Balai Konservasi Tumbuhan Kebun Raya Cibodas-LIPI: 479–485.

Abstract

Color is a form of human cultural expression which has started to use since the centuries along with the development of human civilization. The presence of the dye materials in nature completes the diversity in human interaction with the environment, giving special nuances thereby increasing fondness on color in all aspects of life. Natural colors have been used with intent to beautify and improve the visual appeal, color material or goods for all purposes, namely food, beverages, textiles, furniture, drugs, and cosmetics. Interviews with selected resource persons both as craftsmen, batik makers, food makers, and others, revealed 33 species of natural dye-producing plants. Two of those species were catagorised as endangered species, such sana (*Pterocarpus indicus*) and tali kuning (*Arcangelisia flava*) Processing and utilization in daily life in local communities are described in this paper.

0800. **Wardah. 2013.** Etnobotani Masyarakat Dayak Ot'Danum dalam Pengelolaan Hutan dan Pemanfaatan Sumber Daya Alam. *Prosiding Seminar Nasional Biologi 2012, Peran Biologi dan Pendidikan Biologi dalam Pengembangan Karakter Konservasi 30 Oktober 2012*. Jurusan Biologi Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Negeri Semarang. 2013.

Abstract

Research on ethnobotany of Dayak Ot Danum communities in forest management and utilization of natural resources and environment in Tumbang Miri Central Kalimantan had been conducted. Aspects observed were geography, diversity of plants, ethnology, socio-economic, and farming systems. The results of this study revealed the forest management performed by local community manifested in managing natural resources which has the function of plant conservation and socio-economic programs in region.

0801. **Wardah. 2014.** Tumbuhan Liar Berpotensi sebagai Sumber Vitamin dan Mineral Salah Satu Alternatif Pencukupan Gizi Masyarakat di Taman Nasional Gunung Halimun Salak. *Prosiding Seminar Nasional Jurusan Biologi FMIFA*

UNPAD: *Biologi Untuk Kesejahteraan Manusia dan Lingkungan*. Jatinangor. 2014

Abstrak

Di Indonesia masih terdapat masyarakat yang menggantungkan hidupnya secara langsung pada sumber daya lingkungannya. Masyarakat yang demikian rentan terhadap perubahan mendadak yang kurang sejalan dengan kemampuannya untuk mengadaptasikan dirinya. Itulah sebabnya, kemiskinan, rawan pangan, dan gizi menjadi salah satu masalah besar bagi bangsa Indonesia. Masalah gizi ditengarai karena ketidakmampuan rumah tangga mengakses pangan, baik kerena masalah ketersediaan pada tingkat lokal, kemiskinan, pendidikan, dan pengetahuan akan pangan dan gizi, serta perilaku masyarakat. Masyarakat sekitar kawasan Taman Nasional Gunung Halimun sangat bergantung pada sumber daya tumbuhan sekitarnya sebagai kebutuhan pangan lokal. Sumber-sumber bahan pangan tersebut perlu digali agar dapat dimanfaatkan untuk memenuhi kebutuhan mereka sebagai sumber karbohidrat, protein, vitamin, dan mineral. Dari hasil penelitian, ada 5 jenis tanaman liar yang digunakan sebagai sayuran lokal yang berpotensi sebagai sumber vitamin dan mineral, yaitu tespong (*Oenanthe javanica*), jotang (*Spilanthes acmella*), jonge (*Emelia sonchifolia*), reundeu (*Staurogyne elongata*), pohpohan (*Pilea trinervia*), dan picung (*Pangium edule*). Hasil analisis aspek dan etnobotani tanaman ini dibahas dalam makalah ini.

0802. **Wardah** & **E.N. Sambas. 2014**. Ethnobotany of Local Wisdom of Toro Customary Community Around the Area of Lore Lindu National Park on the Utilization of Natural Resources in Central Sulawesi. *Prosiding Seminar Nasional Biodiversitas*, UNS. Surakarta. Hlm. 150–156.

Abstract

Traditional wisdom of Toro customary community is the knowledge inherited descendently owned by them to manage natural resources and environment. Society highly put respect on wisdom, so that many natural resources can be maintained. Local wisdom of society in utilizing available natural resources were recorded as 62 plant species consisting of 37 genera and 29 families as main food (14 species), fruits (18 species), seasonings (4 species), and other uses (2 species).

0803. **Wardani, W., A. Hidayat**, **E.F. Tihurua, A. Kartonegoro**, **L.D. Sulistyaningsih**, **E.S. Kuncari** & **E.B. Walujo**. **2012**. Endemic Plants of Mt. Rinjani: An outlook to the Conservation Strategy. *Floribunda* 4(5): 107–112.

Abstract

Mount Rinjani, lies in the island of Lombok, is believed as the major source of plant diversity in the island today. This is caused primarily by the rapid land conversion to the less steep plains for agricultural industries. Although in the sum of less than 50% of the estimated native plant species, the endemic

inhabit the mountain area is of important in conservation since very limited information known to these species. At the same time, the habitat is threatened by tourism activities, mainly on the tracks lead to caldera. There is an urgent need to establish a working conservation strategy to ensure the sustainability of them. In this paper, the occurrence of endemic species based on herbarium records and literatures with the proposed conservation strategy is discussed.

0804. **Wardani, W., A. Hidayat** & **D. Darnaedi. 2013.** The New Pteridophyte Classification and Sequence Employed in The Herbarium Bogoriense (BO) for Malesian Ferns. *Reinwardtia* 13(4): 367–377.

Abstract

BO followed sequences written in the first Flora Malesiana series II for Malesian fern specimen arrangement and flora listing, which then updated as revision for pteridophyte families done successively. However, the sequence in this incomplete flora to some extent is problematic. Recent advancement in pteridophyte classification is available and expected to stabilize delimitation of families and genera. The paper reviews the two sequences and presents a consensus for specimen arrangement and flora listing of Malesian fern.

0805. **Wardani, W.** & Jaenudin. **2013.** A Preliminary Study on Pteridophyte of Lombok: List of the species. *Proceeding the 4th International Conference on Global Resource Conservation & 10th Indonesian Society for Plant Taxonomy Congress, Brawijaya University, February 7–8th 2013.*

Abstract

The last publication on fern of Lombok that was able to be retrieved is written on 1939. The account, compiled by Dr. O. Posthomus, is listing all fern species recorded in some important herbarium, for Southeast Asia at the time, collected from the Lesser Sunda Islands. Since this publication, the researchers have not found works to renew it. This paper presents an update on the list of the pteridophyte species from Lombok, with additional information on the taxonomical status and some of their ecological preferences.

0806. Wardi, **W.R. Farida**, & H.C.H. Siregar. **2011.** Tingkah Laku Harian Landak Raya (*Hystrix brachyura*) pada Siang Hari di Penangkaran. *Berkala Penelitian Hayati* No. 4B: 21–25.

Abstract

Information about malayan porcupine (*Hystrix brachyura*) is still limited, whereas in fact porcupine behaviour could give a lot of information about feeding and drinking, grooming, locomoting, urinating, defecating, and resting which is useful for malayan porcupine in captivity. The aim of this research was to observe, study, and analyze the behaviour daily activity of malayan porcupine at captivity small Mammal, Zoologi Division, Research Center of Biology LIPI Cibinong used to support productivity of porcupines. This

information is used to handle better pet system so malayan porcupine (*Hystrix brachyura*) population as proximately can be kept, developed, and exploited. The behaviour was observed with one zero sampling method. Two porcupines aged two years in different sex were used in this experiment. They were observed every 15 minutes from 6 a.m. untill 6 p.m. The data were analyzed descriptively. Point one would be given if any activity conducted and zero when there was no activity. The temperature and relative humidity were 22–31°C and 64.1–82.2% respectively. The observation showed that resting was the most activity (51.71%) followed by locomoting (20.25%), grooming (13.5%), feeding (9.24%), agonistic (3.2%), urinating (1.62%), drinking (0.36%), and defecating (0.11%). The porcupines were given kangkung (*Ipomoea aquatica Forsk*), sweet corns (*Zea mays* L.), guava (*psidium guajava* L.), sweet potatos (*Ipomoea batatas Pair*), and yumbean (*Pachyrhizus erosus* L.) with cafetaria system. The sequence of feed election was sweet corns, sweet potatoes, guava, yumbean, and kangkung.

0807. **Wawo, A.H. 2010.** Pengaruh Naungan dan Lama Penyimpanan Stek pada Pertumbuhan Jarak Pagar (*Jatropha curcas* L) dan Jarak Merah (*Jatropha gossypiifolia* L). *Buletin Kebun Raya* 13(1): 19–26.

Abstrak

Terdapat 2 jenis jarak yang terdapat di Nusa Tenggara Timur yaitu jarak pagar (*Jatropha curcas L*) dan jarak merah (*Jatropha gossypiifolia* L). Kedua jenis jarak ini memiliki potensi sebagai obat tradisional. Perbanyakan jarak dengan menggunakan biji/benih tidak dapat dilakukan sepanjang tahun karena tanaman jarak berbuah pada waktu-waktu tertentu saja. Pada musim kering tahun 2005 telah dilakukan penelitian di Desa Teun, Kabupaten Belu, NTT yang berjudul 'Pengaruh Naungan dan Penyimpanan Stek pada 2 Jenis Jarak'. Penelitian ini dirancang secara faktorial dengan 2 ulangan dan memiliki 12 perlakuan. Hasil riset menunjukkan bahwa pertumbuhan stek jarak pagar lebih baik daripada stek jarak merah. Naungan ringan dengan intensitas cahaya 70% merangsang pertumbuhan tunas, daun, dan akar pada stek yang terlihat pada 60 hari setelah tanam. Stek yang ditanam tanpa naungan menghasilkan perbedaan yang tidak nyata pada pertumbuhan tunas, daun, dan akar, pada stek jarak antara yang langsung ditanam dan yang disimpan selama 4 hari. Stek jarak yang disimpan selama 4 hari dan ditumbuhkan di bawah naungan ringan (intensitas cahaya 70%) menghasilkan pertumbuhan tunas yang lebih tinggi dan akar yang lebih panjang dibandingkan jika ditumbuhkan pada naungan berat dengan intensitas cahaya 30%.

0808. **Wawo, A.H., H. Wiriadinata, Sudaryanti,** Budiarjo, **A. Saim,** Wardi & G. Soebiantoro**. 2010.** *Potensi Flora dan Fauna Taman Nasional Kelimutu Ende, Flores, NTT*. Penerbit: LIPI Press. Hlm. 110. ISBN 978-979-799-563-8

Abstrak

Tidak ada abstrak

0809. **Wawo, A.H.** & **N. Setyowati. 2011.** Studi Keanekaragaman Flora dan Kajian Potensi Pekarangan sebagai Tapak Pelestarian Cendana di Desa Teun, Belu, dan Lokomea, Timor Tengah Utara-NTT. *Biosfera* 28(2): 50–61.

Abstract

The study of plant diversity and investigation of home garden potency as conservation site for sandalwood at Teun and Lokomea villages had been carried out at East Nusa Tenggara Province. The result showed that home garden in Teun village has 24 species of plant and Lokomea village has 31 species of plant. Diversity index in both locations are 1.163 and 1.151 with similarity index is 0.80. Based on purpose of flora at home gardens in both villages, they are divided into 3 groups are fruit, commercial (estate crops), and vegetable crops. Majority of the local people in both villages have planted mango, coconut, banana, tamarind, and sandalwood at their home gardens. Result of investigation of home garden potency showed that home garden in both villages have 3 points of strength, that are ecological, economical, and social cultur potency so that home garden in both villages can be developed as conservation site for sandalwood.

0810. **Wawo, A.H.,** N. **Setyowati** & **N.W. Utami. 2011**. Studi Persebaran dan Pemanfaatan Gayam [*Inocarpus fagifer* (Parkinson ex Zollinger)] pada Beberapa Lokasi di Provinsi Daerah Istimewa Yogyakarta. *Biosfera* 28(3): 140–151.

Abstract

Study on 'Distribution and Utilization of gayam *Inocarpus fagifer* (Parkinson ex Zollinger) Fosberg on several locations in Special Territory of Yogyakarta (DIY)' was carried out from 15 until 20 September 2010. The method of this study were Purposive Random sampling and interview with local communities. The results showed that the DIY province was location of natural distribution of gayam. The population of gayam from each location is different, depending on soil condition and communities activities. The communities in Bantul, Sleman and Kulon Progo regencies have conserved gayam, by maintaining gayam seedling which grow under gayam tree. Gayam grow well in sandy loam soil and silty loam soil with pH from acid till neutral. Generally, this plant grows in moist soil i.e. near water resource, a long of river bank and cannal. The chemical content of gayam seed consists of 74.87% carbohydrate, 11.63% protein, and 2.15% fat. The seed from Banjar Asri, Kulon Progo has the highest of carbohydrat (77.70%) from fresh fruit. Gayam is multipurpose plant *i.e.* for food, fodder, fuel wood, erosion control, herbal pesticides, and habitat for bird and bet.

0811. **Wawo, A.H.** & **L.A. Sukamto. 2011**. Kajian Cara Perbanyakan dan Pertumbuhan Garut (*Maranta arundinacea* L) pada Kondisi Ketersediaan Cahaya yang Berbeda. *Jurnal Rekayasa Lingkungan*. 7(2): 127–136.

Abstrak

Studi cara perbanyakan dan pertumbuhan garut (*Maranta arundinacea* L) pada kondisi cahaya berbeda. Garut merupakan merupakan tanaman herba, yang rimpangnya berpotensi sebagai sumber karbohidrat. Tujuan penelitian ini adalah untuk menetapkan jumlah ruas yang efisien sebagai bahan perbanyakan dan ketersediaan cahaya yang sesuai untuk pertumbuhan dan produksi garut terbaik. Penelitian meliputi 2 faktor yaitu jumlah ruas rimpang dan naungan dan terdiri dari 6 perlakuan gabungan. Penelitian dipolakan secara Faktorial menurut Acak Lengkap dengan 3 ulangan. Hasil penelitian menunjukkan bahwa bahan terbaik untuk menghasilkan rimpang tertinggi untuk perbanyakan adalah dengan menggunakan 3 ruas rimpang. Garut yang berada di bawah naungan tumbuh lebih tinggi daripada yang tanpa naungan. Tanaman garut tanpa naungan menghasilkan bobot rimpang segar tertinggi dibandingkan dengan naungan 30% untuk kondisi Bogor.

0812. **Wawo, A.H., N.W. Utami**, & **F. Syarif. 2014**. Konservasi Tumbuhan Bernilai Ekonomi Tinggi Melalui Pengembangan Model Agroforestri. *Prosiding Seminar Nasional Agroforestri*. Kerja sama antara Balai Penelitian Teknologi Agroforestri, Fakultas Pertanian Universitas Brawijaya, World Agroforestry Center & Masyarakat Agroforestri Indonesia. Malang 21 Mei 2013. Hlm. 99–106.

Abstract

Sandalwood (*Santalum album*) and agarwood (*Aquilaria* sp) are indigenous plants to Indonesia. Both plants possess high economic value, but now the existence of those plants have become rare. Two models of agroforestry have been developed to conserve sandalwood in Belu district, East Nusa Tenggara Province and agarwood in Malinau district, East Kalimantan Province. Name of both models are ABC model (Agroforestry model based on Sandalwoods) and MAG (Agroforestry model based on agarwood).

The function of sandalwood in ABC model is as hedges plants. The sandalwood seedling were planted together with its secondary host plants like acacia (*Acacia vilosa*), soursop (*Annona muricata*), and guava (*Psidium guajava*). During 4 years after planting, it showed that the number of sandalwood seedling that are still alive in ABC Model were more than 70 persen of total planted seedling. All sandalwood seedlings are well-growth in ABC model. The great number of alive seedlings of santalum were determined by participation of local people. Local people as farmers always maintained alley crops (maize, carrot, bean, onion, and vegetable crops) and sandalwood seedling in ABC model.

Developing of MAG in Malinau district was adapted to land's topography and traditional agroforestry. The topography of Dayak 's garden in Malinau divided into 3 parts (plot), they are Irang, Fuar-Fuar, and Abak. Irang is the upper land used for planting wood and fruit trees as durian and chempedak. Agarwoods and some local durians were planted together at Irang part. About 1,000 seedlings of agarwood have been planted in MAG in Malinau District.

Rate of height growth of agarwood seedlings are faster than seedlings of local durians like lai, duyan, madui, picang, and tungen.

0813. Webb, O.C., J.W.F. Slik & **T. Triono. 2010.** Biodiversity Inventory and Informatics in Southeast Asia. *Biodiversity and Conservation* 19(4): 955–972.

Abstract

Rapidly changing land use in Southeast Asia threatens plant diversity and reduces the time left to document it. Despite over 200 years of scientific plant exploration, many plant species have yet to be discovered. Moreover, the researchers still have a very poor understanding of the distribution of known taxa in this biogeographically complex region. This study reviews the current state of biodiversity exploration, using plants in Indonesia as an example. Traditional methods of collecting and describing species have provided a solid foundation for research understanding of plant biodiversity, but are insufficient for the pragmatic task of rapidly discovering and documenting today's biodiversity before it is gone because general collecting expeditions tend to be infrequent, and documentation of most new species must await taxonomic revisions many years in the future. Solutions to this exploration and documentation crisis (i) are use the abundant resource of enthusiastic, networked, national biology students, (ii) employ biodiversity informatics tools to efficiently engage both specialists and parataxonomists, and (iii) require adoption of new types of [alpha]-taxonomy, utilizing increasingly low-cost molecular methods and high resolution photographs. This research describes emerging technologies that will facilitate this taxonomic development. The researchers believe that a new golden age of biodiversity exploration may be dawning, just as biodiversity itself is most threatened, and are hopeful that increasing knowledge of biodiversity will be a positive force to slow its loss.

0814. Weygoldt, P., **C. Rahmadi** & S. Huber. **2010**. Notes on the Reproductive Biology of *Phrynus exsul* Harvey, 2002 (Arachnida: Amblypygi: Phrynidae). *Zoologischer Anzeiger* 249(2): 113–119.

Abstract

Mating behaviour and spermatophore morphology of the only Old World species of the Phrynidae, *Phrynus exsul* Harvey, 2002, are described and compared to the reproductive biology of other whip spiders. Mating behaviour and spermatophore morphology clearly show that *P. exsul* is correctly included in the Phrynidae. However, some details and other characters suggest that *P. exsul* has no close relation with any of the Neotropical species of *Phrynus* Lamarck, 1793, probably having been evolutionary distinct for a long time from the Neotropical species of *Phrynus*. Its occurrence on the Indonesian Island Flores which remains an enigma is *P. exsul,* a relic from a more global distribution of the genus *Phrynus* in the past or the result of prehistoric rafting across the ocean.

0815. Weista, M., T. Tscharntkea, M.H.Sinaga, **I. Maryanto**, & Y. Clougha. **2010.** Short Communication: Effect of Distance to Forest and Habitat Characteristics on Endemic Versus Introduced Rat Species in Agroforest Landscapes of Central Sulawesi, Indonesia. *Mammalian Biologi* 75 (2010) 567–571.

Abstract

No abstract available

0816. **Wiantoro, S. 2011**. Bats of Waigeo Island. *Journal of Tropical Biology and Conservation* 8: 13–26.

Abstract

A bat survey on Waigeo Island was conducted in May–Jun. 2007 as a part of Widya Nusantara Expedition. A total of 15 species of bats comprising ten Megachiropterans and five Microchiropterans were recorded. Five species are new records for Waigeo Island, i.e. *Pteropus conspicillatus*, *Dobsonia* cf. *minor*, *Nyctimene* cf. *cyclotis*, *Paranyctimene raptor,* and *Hipposideros papua*. Based on this survey and previous published records, 24 species of bats are found on Waigeo Island. The record of the montane species *N.* cf. *cyclotis* in a lowland area gives new information relating to its ecology and systematics.

0817. **Wiantoro, S.** & **A.S Achmadi. 2011.** Kelimpahan dan Keragaman Kelelawar (Chiroptera) dan Mamalia Kecil di Pulau Ternate. *Dalam* I. Maryanto & H. Sutrisno. *Ekologi Ternate* 43–55. Jakarta: LIPI Press.

Abstract

A study on small mammals in Ternate Island has been conducted from July 28 to August 9, 2009. A total of ten species of bats comprising 9 species of fruit bats and one species of insect bat were recorded. *Nyctimene albiventer* and *Macroglossus minimus* were the most abundant species, while *Pteropus hypomelanus* was the lowest abundant species with only one individual was recorded. The correlation regression analysis showed that the abundace and diversity of bats were not effected by air temperature and wind speed. Five species of rats were also recorded in this study comprising three common species, *Rattus rattus, R. norvegicus, R exulans*; one namely, endemic species; *R morotaensis;* one unidentified species: *Rattus* sp. Moreover, two species of insectivore (*Crocidura monticola* and *Suncus murinus*) and protected small mammal (*Phalanger orientalis*) were also recorded.

0818. **Wiantoro, S. 2012.** Diversity and Roosting Characteristic of Bats in Buni Ayu Cave, Sukabumi Limestone area, West Java. *Zoo Indonesia* 21(1): 33–37.

Abstract

A study on the diversity and roosting characteristic of bats in Buni Ayu Cave, Cipicung village, Nyalindung District, Sukabumi, West Java was conducted to see if there were any specific characteristics of species' roosting sites. Misnetting,

hand collecting, and observations were used to identify species and observe their roosting sites. Temperature and relative humidity was recorded at each roost site. A total of 504 individuals from four species of bats were recorded. The species were *Hipposideros diadema, Hipposideros galeritus, Rhinolophus affinis,* and *Miniopterus magnater.* The physical shape of the cave passage was found to be the main factor for the choice of a roosting site. Microclimate results showed that the mean air temperature was around 26.67–28.46^{0}C and the relative humidity was 81.5 to 84.48%. The small range in the temperature and relative humidity indicated that they did not influence the roosting behavior and within the range shown is suitable for bats.

0819. **Wiantoro, S., I. Maryanto** & M.T. Abdulah. **2012.** Phylogeny and Phylogeography of *Myotis muricola* (Gray, 1846) (Chiroptera: Vespertilionidae) from the West and East of Wallace's Line Inferred from Partial MtDNA Cytochrome b Gene. *PERTANIKA Journal of Tropical Agricultural Science* 35(2): 81–102.

Abstract

Myotis muricola is a widespread species covering the Malay Archipelago through the West and East of Wallace's Line. The genetic analysis based on partial cytochrome b gene, shows the high genetic variation within *M. muricola*. Phylogenetic analysis indicated that *M. muricola* in the Malay Archipelago are monophyletic. Members of the *M. muricola* Eastern are grouped together independently of the *M. muricola* Western and both groups are distantly related. On the other hand, *M. muricola* Western and *M. muricola* Eastern are distinct species and sister taxa to *M. mystacinus*. Based on the high genetic distance (26.8% to 38.5%) and the Genetic Species Concept (Baker and Bradley, 2006) it can be concluded that *M. muricola* Western and *M. muricola* Eastern should be considered as two distinct species. Furthermore, two subgroups within *M. muricola* Western, namely Sumatra–Asian and Bornean subgroups are recognised as distinct subspecies (genetic distance of 5.1% to 10.8%). The evidence from molecular data indicated *M. muricola* Eastern as the ancestor of *M. muricola* species complex in the Malay Archipelago which diverged into the western region during the Pliocene. Geographical conditions during Pleistocene gave more chance for fauna to diversify. It is predicted that *M. muricola* diverged in the western part of the Malay Archipelago during the Pleistocene when the sea level dropped and produced some landbridges among islands in the Sundaland. The hypothetical dispersal routes of *M. muricola* are related to the ancient Sunda River systems that produced gallery forest corridors for migration and as Pleistocene refuges during migration.

0820. **Widawati, S**. **2010.** Aktivitas Enzim Pelarut Fosfat dan Efektivitas Mikrob Asal Wamena untuk Menunjang Pertanian Ramah Lingkungan pada Daerah marginal. *Jurnal Teknologi Lingkungan* 11 (3): 481–491.

Abstract

This study is about the activity of phosphate solubilizing enzyme and the effectivity of microbe from Wamena for supporting agriculture of environmental friendliness at marginal area. Phosphate dissolution of enzyme by microbial effective in compost plus from Wamena forest stored in the freezer for 4 years, have been conducted in Ecofisiology laboratory, Microbiology devision, Research Center for Biology, Indonesian Institute of Science. This research was conducted to know the microbial affectivity and the activity of phosphate solubilizing enzyme of 20 microorganisms in inoculants stored 4 years in refrigerated room and to support soil fertility and biofertilizer agent in organic farming system. This research used plate count method for counting the amount of microbial population, Scinner method was used to analize enzyme of alkaline and acid PME-ase, and for statistical analysis used Duncan method. The storage of 20 inoculants invected 20 microorganisms for 4 years in refrigerated room showed that the microbial activity is still high with the amount of mean population 107 and the activity of phosphate solubilizing enzyme with mean diameter of clear zone (holozone) 1 cm–2 cm. The effectivity and the highest activity of phosphate solubilizing enzyme were: *Azotobacter indicus (A), Bacillus panthothenticus (D), Bacillus megaterium (M), Bacillus thuringiensis (O), Ceratia sp. (R), Chromobacterium lividum (G), Chromobacterium violaceum (S), Flavobacterium breve (T), Klebsiella aerogenes (H), Pseudomonas fluorescent (J), Rhizobium legurxinosarium (L),* while the lowest was: *Streptomyces sp. (I)* .

0821. **Widawati, S**. **2010**. Introduksi Inokulan Mikrob Tanah sebagai Pemacu Pertumbuhan Tanaman Legume pada Tanah Marginal. *Berkala Penelitian HAYATI*. Edisi Khusus No, 4F:37–42.

Abstrak

The objective of this study is to evaluate the effect of microbial inoculants on the growth on legume plants (*Parkia speciosa* Hassk., *Enterobacterium cyclocarpum* (Jacq.) Griseb, *Paraserianthes falcataria*, and *Erythrina chrystagali* L.) in the marginal soil. The experiment was conducted in Banjaran, West Java (S 7°.04'.363"; E107°31'.963"). Bacterial inoculants used *Paeudomonas fluorescens, Azotobacter indicus, A. aerogenes, Azopsirillum* sp., *Bacillus pantothenticus, B. megaterium, B. thuringiensis, dan Rhizobium leguminosarium*. The result showed that bacterial inoculation stimulate plant growth: *Parkia speciosa* (T=81.9%; ϕ=86%), *Enterolobium cyclocarpum* (T=49.1%; ϕ=44.2%), *Paraserianthesfalcataria* (T=51.1%; ϕ=49.2%), *Pithecellobium jiringa* (T=14.6%; ϕ=30.1%), and *Erythrina chrysta-gali* L. (T=51%; ϕ=58%), which implies that microbial inoculants were advantageous to promote plant growth at marginal soil.

0822. **Widawati, S., Suliasih**, & A. Muharam. **2010**. Pengaruh Kompos yang Diperkaya Bakteri Penambat Nitrogen dan Pelarut Fosfat terhadap Pertumbuhan Tanaman Kapri dan Aktivitas Enzim Fosfatase dalam Tanah. *Jurnal Hortikultura* 20(3): 207–215**.**

Abstract

The use of organic materials on cultivation of vegetable crops has some advantages, especially for maintaining suitable soil condition and decreasing the utilization of inorganic fertilizers. The research was carried out at Cidawu Village, Cibodas (1,250 m asl.), cianjur, West Java, from January to December 2007. Soil samples were collected from some different areas in Pontianak, West Kalimantan. The research was aimed to determine the effect compost enriched with mixed phosphatase solubilizing bacteria (PSB) on the growth of peas and on the activity of phosphate enzymes in the soil. A randomized block design with five treatments were the addition of fertilizers consisted of (A) without any fertilizer, (B) with inorganic fertilizers i.e. TSP + KCl + Urea, (C) with chicken dung + rice husk, (D) with compost plus (compost enriched with symbiotic nitrogen fixing bacteria/SNFB, nonsymbiotic nitrogen fixing bacteria/ NSNFB, and PSB). The result showed that the mixed bacteria isolated from peat soil in west Kalimantan in the compost plus (treatment E) properly adapted in soil conditions at the site of the of the experiment. The total populations of SNFB, NSNFB, and PSB were increased upto 9.15 x 10^8, 9.34x10^8, and 9.35x10^8 cell/g soil, respectively. The ocurrence of the mixed bacteria increased the activity of acid and alkaline phosphatases in the soil. The highest activities of acid and alkaline phosphomonoestarase enzymes in the soil were achieved by the treatment of compost plus. The treatment increased the fresh weigh of pess compared to control (75.32 %), to the chemical fertilizers (45.48 %), to chicken dung + rice husk (31.19 %), and to compost (15.60 %). The widely application of the mixed PSB in compost is hopefully established in cultivation of peas in the organic farming (OF) system, then it will confidently support on the increase of peas production, and the decrease in organic fertilizers as well

0823. **Widawati, S**. **2011.** Diversity and Phosphate Solubilization by Bacteria Isolated from Laki Island Coastal Ecosystem. *BIODIVERSITAS, Journal of Biological Diversity* 12(1): 17–21.

Abstract

Soil, water, sand, and plant rhizosphere samples collected from coastal ecosystem of Laki Island-Jakarta were screened for phosphate solubilizing bacteria (PSB). While, the population was dependent on the cultivation media and the sample type, while the highest bacterial population was observed in the rhizosphere of *Ipomea aquatica*. The PSB strains isolated from the sample registered 18.59 g-1L-1, 18.31 g-1L-1, and 5.68 g-1L-1 of calcium phosphate (Ca-P), Al-P and rock phosphate solubilization after 7-days. Phosphate solubilizing capacity was the highest in the Ca-P medium. Two strains, 13 and 14, registered highest Phosphomonoesterase activities (2.01 μgNP.g-1.h-1 and 1.85NP μg.g-1.h-1) were identified as *Serattia marcescens*, and *Pseudomonas fluorescense,* respectively. Both strains were isolated from the crops of *Amaranthus hybridus* and *I. aquatica,* respectively, which are commonly observed in coastal ecosystems. The presence of phosphate solubilizing microorganisms and their ability to

solubilize various types of phosphate species are indicative of the important role of both species of bacteria in the biogeochemical cycle of phosphorus and the plant growth in coastal ecosystems.

0824. **Widawati, S**. **2011.** Populasi, Kompatibilitas, dan Aktivitas Enzim Bakteri Pelarut Fosfat yang Diisolasi dari Beberapa Tipe Ekosistem di Bali. *Berkala Penelitian HAYATI* (journal of Biological researchers). Edisi Khusus No, 4C:43-50.

Abstract

The research activities of isolation, population, compatibility test, salinity test, and Phosphomonoesterase of phosphate solubilizing bacteria isolated from several ecosystem types have been carried out. The research aimed to investigate the potential role of PSB as a plant growth promoter in coastal ecosystem, low temperature, and extreme environmental conditions. The treatments were arranged in Randomized Complete Design (RCD) with 3 replications for: the population of PSB, the salinity test of PSB, the compatibility between BPF and ***Rhizobium,*** the qualitative ability test of PSB, the quantitative ability test of PSB, the pH analysis of PSB in liquid inoculants, and the PME ase acid and base activity of PSB in liquid inoculants. The result showed that phosphate solubilizing bacteria isolated from dry and wet ecosystems are potential organisms to enhance the organic farming in the highly saline areas. The highest bacterial population ($1.5x10^7 CFUg^{-1}$), tolerant to grow at 3% NaCl, and compatible with ***Rhizobium*** were encountered in the rhizosphere of ***Salacca zalacca***. Several important PSB strains were found in this rhizosphere that are able to solubilize calcium phosphate up to 473.920 $mg.l^{-1}$ with pH 3.65 after 8 days incubation. Phosphate solubilizing capacity was the highest in Ca-P medium. Strain No. 1 has the highest Phosphomonoesterase acid and base activities about 1.21 $\mu gNP.g^{-1}.h^{-1}$ and 0,206 $\mu g.g^{-1}.h^{-1}$.

0825. **Widawati, S.** & **Suliasih. 2011**. The Role of Phosphate Solubilizing Bacteria and Free Living Nitrogen Fixing Bacteria on the Growth and Adaptation of *Gmelina arborea* Roxb. Grown on Degraded Land. *Jurnal Rekayasa Lingkungan* (Journal of Environmental engeeniring) 7(1): 89–95.

Abstrak

The potential of phosphate solubilizing bacteria (*Bacillus pantothenticus, B. megaterium, B. thuringiensis*) and free living nitrogen fixing bacteria (*Azospirillum lipoferum, Azotobacter chrococcum,* and *A. indicus*) were used as biofertilizer to increase microbial population and stimulate the growth of *Gmelina arborea* Roxby. An experiment was conducted at DAS Citarum area, west Java. The aim of this experiment is to find out an effective and suitable inoculants used as biofertilizer in degraded soil. The treatments were arranged in Randomized Block Design (RBD) with 10 replications. The population of phosphate solubilizing bacteria and free living nitrogen fixing bacteria from degraded soil after 6 months were monitored. The result showed that after 6 months, bacterial

inoculation increased the population of phosphate solubilizing bacteria and free living nitrogen fixing bacteria from 10^3–10^5 to 10^7–10^8, and stimulated *Gmelina arborea* Roxb. growth of about 46–48%. Microbial innoculant was clearly advantageous promoting plant growth at degraded soil. *Gmelina arborea* Roxb. is one of good plants for rapid re-vegetation of degraded land.

0826. **Widawati, S**. & **Suliasih**. **2011**.Bakteri Pelarut Fosfat sebagai "Plant Growth Promoting" pada Tanaman Buah. *Prosiding seminar Nasional Biologi* yang diadakan di fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Pajajaran yang diselenggarakan tanggal 6 Desember dan memperoleh ISSN: 2088-0286 bulan Februari 2011 dan di prosiding April 2011

Abstract

Phosphate solubilizing bacteria/PSB (*Pseudomonas fluorescent*, *Bacillus panto-thenticus*, *B. megaterium, B. thuringiensis, B. polymyxa*) were used as biofertilizer to stimulate the growth of avocado (*Persea americana*), durian (*Durio zibetinus*), sukun (*Artocarpus altilis*), and keluwih (*Artocarpus cinensis*) seedlings in degradated soil. An experiment was conducted at DAS citarum area, west Java. The aim of this experiment is a suitable inoculant used as biofertilizer in degradated soil. The treatments were arranged in Randomized Block Design (RBD) with 10 replications. The result showed (until 6 months) that biofertilizer bacteria (PSB) to stimulate avocado growth and diameter were 21.4 % and 19.1% (H: 4.5 cm/month; ϕ: 0.74 cm/month); durian growth and diameter were 23 % and 13.2 % (H: 3.15 cm/month; ϕ: 0.057 cm/month); sukun growth and diameter were 43.7 % and 23.8 % (H: 0.07 cm/month; ϕ: 0.875 cm/month); and kelewih growth and diameter were 35.7 % and 27.65 % (H: 5.8 cm/month; ϕ: 0.117 cm/month). It implies that biofertilizer bacteria were advantageous promoting plant growth at marginal soil. Avocado, durian, sukun, and kelewih are plant which are good to revegate soil degradated.

0827. **Widawati, S. 2012.** Isolasi dan Uji Kemampuan Bakteri Penambat Nitrogen dalam Melarutkan Fosfat serta Potensinya sebagai Pemacu Pertumbuhan *Sesbania Grandiflora* Poi. *Prosiding seminar nasional BIOLOGI 2012. Peran Biologi dan Pendidikan Biologi dalam Pengembangan Karakter Konservasi.*

Abstract

Isolation of symbiotic (*Rhizobium)*, and non-symbiotic nitrogen-fixing bacteria (*Azotobacter* dan *Azospirillum)* was carried out from rhizospheres of highland plants in Salak montain. This experiment was aimed to determine symbiotic and non-symbiotic bacteria which are capable to support the availability of nitrogen (N) and phosphorus (P) in relatively low temperature conditions in highland. Ten to 15 collected samples were shown to have characters of fixing N and solubilizing P as well. The capability test for solubilizing P was conducted by growing isolates of *Rhizobium* sp., *Azotobacter* sp. and *Azospirillum* sp. in a medium containing $Ca_3(PO_4)_2$. The result of the laboratorial experiment indicated that population numbers of *Rhizobium* and *Azotobacter* were ranged

3.3 x 10^4-4 x 10^6, and of *Azospirillum* 5.2 x 10^4-6 x 10^6. All N-fixing bacteria (*Rhizobium, Azotobacter* dan *Azospirillum*) were capable to solubilize P on $Ca_3(PO_4)_2$ in solid pikovskaya medium and the highest of efficiency P solubilizing was originated from tea rhizosphere i.e 333.33 (*Rhizobium*), 223.33 (*Azotobacter*), and 233.33 (*Azospirillum*). One of non-symbiotic N-fixing bacteria from tea rizosphere identified was *Azotobacter chrococcum.* Combination of the bacterial isolates were able to increase the growth of *Sesbania grandiflora* plants up to three times compared to control plants. Based on the result of this experiment it can be concluded that *Rhizobium, Azotobacter,* dan *Azospirillum* are potential as Plant Growth Promoting bacteria.

0828. **Widawati, S. &** A. Muharam**. 2012.** Uji Laboratorium *Azospirillum* sp. yang Diinokulasi dari Beberapa Ekosistem. *Jurnal Hortikultura* 22(3): 258–267.

Abstrak

Beberapa mikrob yang bersifat nonpatogenik dan nonsimbiotik yang efektif menambat nitrogen dari udara serta mampu melarutkan P terikat pada Ca, Al, dan Fe dalam tanah, dapat hidup dalam berbagai ekosistem di alam. Sebagian bakteri tersebut dapat diisolasi dari daerah perakaran tanaman hortikultura. Penelitian ini bertujuan mengetahui peran *Azospirillum s*p, yang potensial sebagai pendorong pertumbuhan tanaman pada ekosistem pantai dan kondisi lingkungan yang ekstrim. Pengujian terhadap isolat bakteri yang dikumpulkan dari berbagai kondisi ekosistem dilaksanakan di laboratorium Ekofisiologi di Pusat Penelitian Biologi-LIPI, dari bulan Januari sampai dengan Desember 2011. Sebanyak 34 isolat *Azospirillum* sp. diuji dengan berbagai metode, yaitu (1) uji kualitatif kemampuan isolat *Azospirillum* sp. dalam menambat (fiksai) nitrogen dan kemampuan hidup pada media Okon padat yang mengandung NaCl, (2) uji kualitatif kemampuan isolate *Azospirillum* sp dalam melarutkan P terikat pada $Ca_3(PO_4)_2$ dalam media Pikovskaya padat dan indeks efisiensi pelarutan fosfat, (3) uji kualitatif kemampuan isolate *Azospirillum* sp dalam melarutkan P terikat pada media Pikovskaya cair dan aktivitas enzim PME-ase asam dan basa, serta kondisi pH selama inkubasi 7 hari pada kultur murni (pH asal= 7), dan (40 analisis kemampuan *Azospirillum* sp dalam memproduksi *indole acetic acid* (IAA). Hasil penelitian menunjukkan bahwa: *(1)* semua isolat bakteri yang diuji mampu menambat nitrogen dan media Okon padat; *(2)* isolat B2, B4, B6, B12, PS2, FR13 mampu melarutkan P dari $Ca_3(PO_4)_2$ dalam media Pikovskaya padat dengan masing-masing indeks efisiensi pelarutan sebesar 120, 160, 140, 110, 120, dan 100; *(3)* isolat B1, B2, B3, B4, B6, B14, B17, PS1, PS2,PS3, FR1, FR5, FR7, FR8, FR10, FR12, FR13 mampu tumbuh dalam media Okon dengan kandungan NaCl sebesar 0, 2, 4, atau 6%; *(4)* konsentrasi tertinggi P terlarut dihasilkan oleh isolate B4 (5,80 mg/l), B6 (5,84 mg/l), dan PS2 (5,45 mg/l) dengan PME-ase sebesar 0,58 u m/l; 0,58 u m/l; 0,57 u m/l (asam); 0,52 mg/l; 0,50 mg/l; 0,48 mg/l (basa), dan dengan pH: 4,20; 4,30; dan 4,22; dan *(5)* isolate B4 dan B6 yang diisolasi dari pertanaman padi di pantai Rambut Siwi, bali mampu memproduksi IAA tertinggi, yaitu masing-masing sebesar 0,6749 dan 0,4694 ppm pada hari pertama setelah

perlakuan. Berdasarkan hasil penelitian ini terbukti bahwa isolat *Azospirillum* sp. berpotensi sebagai *plant growth promoter* untuk ekosistem di daerah pesisir atau pantai. Bakteri tersebut sangat penting untuk pengayaan nutrisi pada lahan di daerah dataran rendah atau pantai dalam rangka pengembangan tanaman termasuk komoditas hortikultura.

0829. **Widawati, S., I.M. Sudiana,** E, Sukara, & A. Muharam. **2012.** Teknologi Budi Daya Tanaman Tomat Melalui Inverted Gardening dan *Conventional Gardening* Berbasis Pemanfaatan Bakteri Indigenus. *Jurnal Hortikultura* 22(3): 224–323.

Ab strak

Inokulan padat Azzofor-wd3 merupakan campuran 16 isolat bakteri indigenus lahan gambut (*Rhizobium, Azotobacter, Azospirillum,*dan bakteri pelarut fosfat), masing-masing empat isolat digunakan sebagai pupuk hayati untuk meningkatkan produksi tomat dalam *inverted* dan *conventional gardening*. Penelitian bertujuan mengetahui peran potensial inokulan padat Azzofor-wd3 sebagai *plant growth promoter* dalam kondisi lingkungan ekstrim, khususnya lahan gambut. Penelitian dilaksanakan di Pusat Penelitian Biologi, LIPI, dari bulan Januari sampai dengan Desember 2011. Penelitian menggunakan rancangan acak lengkap dengan 28 perlakukan penambahan media pupuk pada media tanam dengan tiga ulangan atau pot. Media dasar ialah gambut (50%), dan pupuk hayati (50%). Perlakuan tambahan media pupuk mencakup: (1) gambut sebagai control, (2) sekam kotoran ayam, (3) kompos, (4) pasir halus, (5) kapur, (6) Azzofor-wd3, (7) sekam kotoran ayam + pasir halus, (8) sekam kotoran ayam + kapur, (9) sekam kotoran ayam + Azzofor-wd3, (10) kompos + pasir halus, (11) kompos + kapur, (12) kompos + Azzofor-wd3, (13) pasir halus + kapur, (14) pasir halus + Azzofor-wd3, (15) kapur + Azzofor-wd3, (16) sekam kotoran ayam + pasir halus, (17) sekam kotoran ayam + kompos + kapur, (18) sekam kotoran ayam + kompos + Azzofor-wd3, (19) sekam kotoran ayam + kompos + pasir halus + kapur, (20) sekam kotoran ayam + pasir halus + Azzofor-wd3, (21) sekam kotoran ayam + kapur + Azzofor-wd3, (22) sekam kotoran ayam + kompos + pasir halus+ kapur, (23) kompos + kapur + Azzofor-wd3, (24) pasir halus + kapur + Azzofor-wd3, (25) sekam kotoran ayam + kompos + pasir halus, (26) sekam kotoran ayam + kompos + pasir halus + Azzofor-wd3, (27) kompos + pasir halus + kapur + Azzofor-wd3, (28) sekam kotoran ayam + kompos + pasir halus + kapur + Azzofor-wd3. Hasil penelitian menunjukkan bahwa produksi tomat tertinggi setelah 3 bulan, yaitu pada perlakuan media gambut + sekam kotoran ayam + kompos + pasir halus + kapur + Azzofor-wd3 pada *inverted* dan *conventional gardening*, masing-masing sebesar 63,9 dan 65,9 g/pot. Terdapat perbedaan pengaruh perlakuan yang nyata antara *inverted* dan *conventional gardening* dalam hal P-tersedia, populasi bakteri, dan aktivitas PME-ase. Namun demikian, tidak ada pengaruh perlakuan nyata terhadap produksi tomat antara *inverted* dan *conventional gardening.* Hasil penelitian ini menunjukkan bahwa Azzofor-wd3 merupakan bakteri pendorong pertumbuhan tanaman yang potensial untuk tanaman tomat yang dibudidayakan pada lahan gambut. Aplikasi jenis bakteri tersebut sangat

bermanfaat dalam pengayaan tanah gambut untuk pembudidayaan tanaman sayuran.

0830. **Widawati, S. 2013.** The Effect of Sea Water to the Population of Biofertilizer Bacteria, Available P in the Soil and Growth of Bayam (*Amaranthus* Sp.). *Prosiding Seminar Nasional Jurusan Biologi FMIPA Universitas Padjadjaran*. Diterbitkan oleh Jurusan Biologi FMIPA-UNPAD. ISBN: 978-979-99089-2-6. ISSN: 2355-6048. Mei 2014.

Abstract

This study aimed to determine the extent of phosphate solubilizing bacteria and nitrogen fixing bacteria which are non-symbiotic resistant to salinity and are still able to provide P and N for spinach growth. This research used completely randomized design, repeated 3 times with biofertilizer bacteria namely: A, B, C, D, E, F, G, H, I, J and 6 control (K1= sea water, without fertilizer and fresh water without fertilizer; K2 = sea water with compost and fresh water with compost; K3 = sea water with chemical fertilizer and fresh water with chemical fertilizer). One and four weeks after transplanting (DAT), then it measured plant height, fresh weight, soil pH, soil salinity, bacterial populations, PME-ase enzyme, and available P in the soil (pot). The results showed that the bacterial biofertilizer from H and J inoculants are better than bacteria biofertilizer from A, B, C, D, E, F, G, I inoculants and K1, K2, and K3 (control). The results are: plants which are watered by sea water and fostered H inoculants have salinity level = 2.25 Ms ; pH = 7.48, available P = 5.62 ppm ; PME-ase = 0.53 μg pnitrofenol/mL; and bacterial population = 7.9 x 10^6 cells/gram of soil; plant height of spinach = 21:50 cm ; and weight of fresh spinach = 79.56 gram/10 spinach plants/pot. Meanwhile, the plants which are watered by freshwater have salinity level = 0.64 Ms; pH = 7.18, available P = 8.81 ppm; PME-ase = 0.73 μg pnitrofenol/mL; bacterial populations = 2.00 x 10^7 cells/gram soil, and plant height of spinach = 25.17cm, and weight of fresh spinach = 121.00 Gram/10 spinach plants/pot. Plants which are watered by sea water and fostered H inoculants, has salinity level = 1.66 Ms ; pH = 7.45; available P = 4.58 ppm; PME-ase = 0.54 μg pnitrofenol/mL; and bacterial population = 8.8 x 10^6 cells/gram of soil; plant height of spinach = 25.83 cm; and weight of fresh spinach = 102.63 gram/10 spinach plants/pot. Meanwhile, the plants which are watered by freshwater, have salinity level = 0:43 Ms; pH = 7.34; available P = 8.69 ppm; PME-ase = 0.69 μg pnitrofenol/mL; bacterial populations = 2.00 x 10^7 cells/gram soil, and plant height of spinach = 26.83 cm, and weight of fresh spinach = 128.36 Gram/10 spinach plants/pot.

0831. **Widawati, S. 2014.** The Effect of Salinity to Activity and Effectivity Phosphate Solubilizing Bacteria on Growth and Production of Paddy. *Proceeding International Conference on Biological Science Faculty of Biology Universitas Gadjah Mada* 2013 (ICBS BIO-UGM 2013). ISBN: 978-979-8969-10-2. Published by: Faculty of Biology UGM, First edition, March 2014.

Abstract

This study aimed to determine the extent of phosphate solubilizing bacteria resistant to salinity and still be able to provide P for paddy plant. Research using completely randomized design with fertilizer treatments: (A) Bakteri *Aerobacter aerogenes* + *Azotobacter indicus* (B) Bakteri *Bacillus thuringiensis* + *B. megaterium* + *Pseudomonas fluorescens*, (C) Bakteri *Nocardia mesentrica* + *Spirillum lipoferum*, (D) Mix bakteri *Pseudomonas fluorescens*, *Bacillus thuringiensis*, *B. megaterium*, *Nocardia mesentrica*, *Aerobacter aerogenes*, *Spirillum lipoferum*, dan *Azotobacter indicus*, and (E) control (without inoculant), and salinity (NaCl): (1) 0% (0 g/7 kg soil), (2) without 0.1% (7 g/7 kg soil), (3) 0.2% (14 g/7 kg soil), (4) 0.3% (21 g/7 kg soil), and (5) 0,4% (28 g/7 kg soil). Thirty and one hundred days after transplanting (DAT), and then measured plant height, number of tillers, number and dry weight of whole grain paddy. The results showed that 0,1 % (7 gram/7 kg tanah) salinity is very good for the growth, activity and effectiveness of phosphate solubilizing bacteria and production of paddy, but 0.4% salinity (28 gr/7kg land) is still safe on the growth, activity and effectiveness of phosphate solubilizing bacteria (*Pseudomonas fluorescens, Bacillus thuringiensis, B. megaterium, Nocardia mesentrica, Aerobacter aerogenes, spirillum lipoferum* and *Azotobacter indicus*) as biofertilizer or growth promoting rhizobacteria on growth and production of paddy.

0832. **Widawati, S. 2014.** Pengaruh Air Laut terhadap Populasi Bakteri Biofertilizer, P Tersedia dalam Tanah, dan Pertumbuhan Bayam (Amaranthus sp.). *Prosiding Seminar Nasional Jurusan Biologi FMIPA Universitas Padjajaran*. 2014.

Abstrak

Penelitian ini bertujuan untuk mengetahui sejauh mana bakteri pelarut fosfat dan bakteri pengikat nitrogen non simbiosis tahan terhadap salinitas dan masih dapat memberikan P dan N untuk pertumbuhan bayam. Penelitian menggunakan rancangan acak lengkap, diulang 3 kali dengan bakteri pupuk hayati, yaitu: A, B, C, D, E, F, G, H, I, J dan 6 kontrol (K1 = air laut, tanpa pupuk, dan air tawar tanpa pupuk; K2 = air laut dengan kompos dan air tawar dengan kompos, K3 = air laut dengan pupuk kimia dan air tawar dengan pupuk kimia). Satu dan empat minggu setelah tanam (HST), kemudian diukur tinggi tanaman, berat basah, pH tanah, salinitas tanah, populasi bakteri, PME-ase tanah, dan P tersedia dalam tanah (pot). Hasil penelitian menunjukkan bahwa bakteri *biofertilizer* dari inokulan H dan J lebih baik dari bakteri *biofertilizer* inokulan A, B, C, D, E, F, G, I dan K1, K2, dan K3 (control). Hasil tersebut adalah: Tanaman yang disiram air laut dan dipupuk inokulan H, mempunyai salinitas = 2,25 Ms; pH = 7,48; P tersedia = 5,62 ppm; PME-ase= 0,53 mg pnitrofenol/mL; dan populasi bakteri = 7,9 x 106 sel/g tanah; serta tinggi tanaman bayam = 21,50 cm; dan bobot bayam segar = 79.56 g/10 tanaman/pot. Sementara itu, tanaman yang disiram air tawar mempunyai salinitas = 0,64 Ms; pH = 7,18; P tersedia = 8,81 ppm; PME-ase= 0,73 mg pnitrofenol/mL; dan populasi bakteri = 2,00 x 107 sel/gram tanah; serta tinggi tanaman bayam = 25.17cm; dan bobot bayam segar = 121,00 g/10 tanaman/pot. Tanaman yang dipupuk dengan

inokulan J dan disiram air laut mempunyai salinitas =1,66 Ms; pH =7,45; P tersedia = 4,58 ppm; PME-ase= 0,54 mg pnitrofenol/mL; dan populasi bakteri = 8,8 x 106 sel/gram tanah; serta tinggi tanaman bayam = 25,83 cm; dan bobot bayam segar = 102,63 g/10 tanaman/pot. Sementara itu, tanaman yang disiram air tawar mempunyai salinitas = 0,43 Ms; pH = 7,34; P tersedia = 8,69 ppm; PME-ase= 0,69 mg pnitrofenol/mL; dan populasi bakteri = 2,00 x 107 sel/g tanah; serta tinggi tanaman bayam = 26,83 cm; dan bobot bayam segar = 128,36 g/10 tanaman/pot.

0833. **Widawati, S. 2014.** Penggunaan Inokulan Bakteri *Pseudomonas Fluorescens* dan *Serratia Marcescen* (*Growth Promoting Rizobacteria*) untuk Pertumbuhan Padi pada Tanah Salin. Seminar Biologi. *Prosiding Seminar Nasional Biodiversitas*. ISSN: 2337-506x, Februari 2014.

Abstract

This study is about the use of plant growth promoting rhizobacteria or PGPR, namely *Pseudomonas fluorescens* and *Serratia marcescen* for paddy growth in high salinity ecosystem. This experiment was aimed to determine the effectiveness of functional microbe, namely *Pseudomonas fluorescens* and *Serratia marcescen* to stimulate of paddy in high salinity areas and the technology utilizing biological fertilizers based on functional microbes as plant growth promoting rhizobacteria agents on coastal ecosystem. The experiment used a Completely Randomized Design or CRD and the treatments were arranged in factorial with 3 replications. The factor of treatments are biofertilizer of two Phosphate Solubilizing Bacteria or PSB namely *Pseudomonas fluorescens* and *Serratia marcescen* and watering type. The biofertilizer treatments are: (1) Phosphate solubilizing bacteria inoculant (*Pseudomonas fluorescens* and *Serratia marcescen*), (2) Composit + phosphate solubilizing bacteria inoculant, (3) Control (only soil), (4) Compost. (5) Chemical fertilizers (Nitrogen, Phosphate, and Potassium), (6) Phosphate solubilizing bacteria inoculant + Compos with Chemical fertilizers (Nitrogen, Phosphate, and Potassium). The watering type for all treatment are: (A) fresh water, (B) 50% fresh water + 50% sea water, (C) sea water, (D) sea water + 2% NaCl, (E) fresh water + 5% NaCl. The result of the experiment showed that the watering of type D (sea water + 2% NaCl) in the treatment of paddy plant (1, 2, 3, 4, 5, 6) makes paddy plants cannot grow even it lead to death. The inoculant of Plant Growth Promoting Rhizobacteria or PGPR (*Pseudomonas fluorescens* and *Serratia marcescen*/Phosphate Solubilizing Bacteria), generally can stimulate "high growth", "seedlings number", and "grain", although it is not optimal. The results of this experiment can be concluded, that the watering of type D (sea water + 2% NaCl) in all treatments of paddy plants (1, 2, 3, 4, 5, 6) made of paddy plants to die. Plant Growth Promoting Rhizobacteria inoculant (*Pseudomonas fluorescens* and *Serratia marcescen*), generally can stimulate the growth of plant, the number of tillers, and the number of grains, although not optimal. The highest value of 100 days after planting in the statistics of this experiment were: Plant height = 80.80 cm/pot, number of tillers paddy = 14 plants/pot, and plant dry weight of paddy

= 42.26 g/pot. Those results were found in a pot of phosphate solubilizing bacterial fertilizer and watered with 50% fresh water +5% NaCl. Expected Phosphate Solubilizing Bacteria (*Pseudomonas fluorescens* and *Serratia marcescen*) could potentially trigger the growth of bacteria that are resistant rice plants salinity in coastal areas.

0834. **Widiyono, W. 2010.** Inventarisasi Jenis Tumbuhan dan Kesesuaian Lahan untuk Konservasi Daerah Tangkapan Sumber Mata Air Wetihu Desa Baudaok, Kecamatan Tasifeto Timur-Belu. *Jurnal Teknologi Lingkungan* 11(3): 353–361.

Abstract

Water defisit is the main constraint to develop agriculture in the border area, Belu District**,** East Nusa Tenggara Province. However, some wells in this area need to be conserved by planting of selected species at the watershed area so that the water can be available continually during a year. To understand the native and crop species that is suitable to plant conservation of the survey at the watershed of *Wetihu*, Baudaok-Belu was conducted in 2008. The aim of survey was to do inventory of the species and to understand land suitability based on its soil fertility and microclimate condition. Watershed landscape of *Wetihu* in Baudaok Village, Belu District are characterized by rolling to hilly altitude, coral reef, and limestone of soil material and the low soil fertility. Micro-climate in this area resulted the marginal land watershed and due to this problem the crop almost can not be planted by the local people. The observation on the distance of 1.5 km from Baudaok well to the southern found 39 wild and crop species. Some species which are able to adapt to the drought ecosystem and are potential to plant as economic crops are recommended to be selected, i.e.: the main food (*Zea mays*, *Cajanus cajan*), fruits (*Musa paradisiaca*, *Mangifera indica*), cattle feeding (*Leucaene leucocephala, Sesbania grandiflora*), handmade material (*Bambusa* sp.), fire wood, wind break trees, and cover crops (*Zizyphus mauritiana, Alstonia scholaris, Erythrina orientalis, Gmelina arborea*, *Schleichera oleosa*), perfume oil producer (*Santalum album*).

0835. Widiyono, W. 2010. Konservasi Daerah Tangkapan Air Embung sebagai Model Antisipasi terhadap Perubahan Iklim Global di Kawasan Beriklim Kering NTT. *Limnotek* 17(1): 1–7.

Abstrak

Untuk menanggulangi keterbatasan air, telah dibangun 334 embung kecil oleh Pemda Provinsi Nusa Tenggara Timur, yang dapat menampung air 8.318.152 m^3 dan melayani 31.597 keluarga, 105.522 ternak, dan pertanian 1.319 ha. Setiap embung ini memiliki daerah tangkapan air seluas antara 3 dan 40 ha; dan sehingga dari total embung yang ada dapat mencakup luasan 3.281 ha. Embung besar (irigasi) dan waduk mempunyai daerah tangkapan air hingga ratusan hektar. Daerah tangkapan air embung menghadapi kendala rendahnya tutupan vegetasi, laju aliran permukaan dan erosi yang tinggi, gangguan ternak serta kegiatan pertanian masyarakat di sekitar. Nusa Tenggara Timur merupa-

kan salah satu wilayah prioritas untuk kegiatan aforestasi/reforestasi dalam rangka proyek pembangunan bersih (CDM). Mengingat konservasi daerah tangkapan air merupakan tindakan yang mutlak harus dilakukan dalam mempertahankan fungsi eko-hidrologis embung maka kegiatan ini perlu ditingkatkan peranannya sebagai kegiatan aforestasi/reforestasi dalam rangka mekanisme pembangunan bersih. Pengkajian dan upaya awal aforestasi/reforestasi pada daerah tangkapan air embung akan didiskusikan.

0836. **Widiyono, W. 2010.** Pengaruh Kerapatan Populasi, Tanaman Sela dan Mulsa Plastik terhadap Pertumbuhan dan Hasil Jagung. *Biosfera* 27(1): 9–16.

Abstract

Influence of population density, intercropping, and mulching to the growth and yield of maize. Research of plant population density and intercropping of *Cajanus cajan* L. and plastic mulching on maize were carried out in field research of R & D Centre for Biology, Indonesian Institute of Sciences, Cibinong in October 2008 to Februari 2009. The aim of research was to understand the effect of plant population density, intercropping, and mulching to the growth and yield of maize. Research showed that population density is intercropping and mulching effect to the vegetative growth. However, in this research the maize yield was not influenced by population density; but it was influenced by intercropping and mulching. Mulching increased maize production, but intercropping by using *C. cajan* effect decreases production.

0837. **Widiyono, W. 2010.** Prospek Pengembangan Kacang Tanah untuk Menunjang Ketahanan Pangan: (Studi Kasus Uji Varietas di Desa Makamenggit, Kabupaten Sumba Timur, NTT). *Jurnal Rekayasa Lingkungan* 6(2): 187–197.

Abstract

To understand the prospect of groundnut development (*Arachis hypogaea*) for supporting food security in semi arid area, survey and experiment of groundnut varieties were undertaken in Makamenggit Village, East Sumba District, the East Nusa Tenggara Province. The aim of research was to understand natural resources (soil, climate, and water) and production potency based on cased study of 6 (six) varieties of groundnut which was cultivated under manure treatment. The six groundnut varieties, i.e. Tupai, Komodo, Zebra, Gajah, Bogor variety and Makamenggit local variety were cultivated in vertisol soil type, organic manure of buffalo feces, irrigation manually from water river in dry season. Parameters of plant height, leave number and leave cover of each individual plant were observed every week for 5 weeks until 12 weeks after planting. Survey indicated that agro-climate and hydrology of East Sumba was very potential to support groundnut development is not only in the short period of rainy season (3-4 months), but also in the dry season by utilization of the existence of water resources (some river and *embung-embung*). Result of research showed that six varieties of groundnut had good vegetative growth. The Makamenggit local variety which showed vegetative growth in good

performance was potential to be promoted as a national superior seed. It was obvious that organic manure could increase groundnut vegetative growth (and also reproductive yield) at the vertisol soil type. To develop groundnut cultivation in East Sumba area, the utilization of organic manure, cultivation in dry season by irrigation of limited water, and seed diversity need to be socialized continuously to the farmers.

0838. **Widiyono, W. 2010.** Survei Ekohidrologi untuk Pembangunan Embung-Embung di Nusa Tenggara Timur: Studi Kasus Embung Oemasi Kupang. *Jurnal Hidrosfer Indonesia* 5(1): 9–16.

Abstract

Ecohidrological survey is the first important step that is always be conducted before development of *embungs* in the East Nusa Tenggara Province (NTT). The study consisted of agro-ecosystem around watershed; soil and topographic; hydrologic network of watershed; climatologic aspect, especially rainfall; and social as water user (included human, cattle and agriculture). Since the first project in 1986 in Besipae, Southern Central of Timor District as a basecamp until 2006, a number of 334 *embungs* were developed in the East Nusa Tenggara Province. Due to the various soil tipe, climate, and topographic in this area, *embungs* construction were distributed, i.e.: in West Timor island (236 *embungs*), Sumba island (25 *embungs*), and around Flores island (72 *embungs*). In this paper, *embung* of Oemasi, Kupang as the best *embung* in NTT was used as a case study of *embung* model. The Oemasi *embung* that was developed in 1992 untill 2009 were still well-function to deliver water for household consumption, cattle feeding, and irrigation in small scale.

0839. **Widiyono, W. 2010.** Upaya Peningkatan Efisiensi Pemanfaatan Air Embung NTT: Studi Kasus Embung Oemasi Kupang. *Jurnal Hidrosfer Indonesia* 5(3): 149–153.

Abstract

Effort to increase water used efficiency is one of the important aspects in the integrated *embung* management. The others are watershed and water storage management. The problem in water used efficiency how to deliver water from the embung storage to the water utilization area (village) and how to use water for people consumption, cattle feeding, and plant irrigation efficiently. Since the Oemasi *embung* was built in 1991/1992 until in 2010, some aspects were developed related to the increase of people population in this area, i.e. development of water tanks for people water consumption, cattle and irrigation and application of water used efficiency for cultivation of horticulture plants by using polybag potting system and pipe network rehabilitation programme. The Oemasi *embung* problem and solution during the 20 years of *embung* maintainance are very valuable experience that can be used as a case study to manage 333 *embungs* that were built in the East Nusa Tenggara Province.

0840. **Widiyono, W. 2011.** *Embung* di Nusa Tengara Timur: Konsep Problem, dan Prospeknya. *Limnotek* 18(2): 1–12.

Abstract

This research is about a man-made water reservoir in the East Nusa Tenggara: concept, problem, and its prospect. East Nusa Tenggara (ENT) Province is known as an area which has critical problem of water almost along the year. Rainy season took place in the short period (three to four months), while the dry season took place in the long period (eight to nine months). Topography generally is hilly and just part of the area is flat. The above condition forms savanna ecosystem with endemic species of flora and fauna. To anticipate the shortage water problem, ENT Government built *embungs*. *Embung* is a man-made water reservoir to collect surplus water in the rainy season and to use it during the deficit water in the dry season. A number of 350 *embungs* were built by Regional and National Government in this area since 1982 until 2010. *Embungs* problem consists of the lack of land-use and land-cover management, high of run off and erosion rate, breaking and landslide of dam, and inefficiency of water use. To develop and maintain *embungs*, the integrated management is needed, i.e. catchment area biophysics management (flora, fauna, and land-use); water storage management (rainfall, runoff, evapo-transpiration, and percolation); agronomic and social water use management efficiently (water delivery and water distribution).

0841. **Widiyono, W. 2011.** Konservasi Daerah Tangkapan Sumber Air Berbasis Diversitas Flora dan Kearifan Budaya Lokal di Kabupaten Trenggalek-Jatim. *Berkala Penelitian Hayati Edisi Khusus, Fakultas Sains dan Teknologi, UNAIR* 5F: 33–37.

Abstract

Trenggalek is known as a relatively dry area in East Java Province, eventhough, high intensity of rainfall sometimes took place. The low of vegetation cover in watershed area, the unstabil of soil type with the mother material of lime stone, hilly topographic with the sharp of slope resulted soil in this area is sensitive to landslide. The lack of watershed area management resulted some of the water sources dries up in the dry season. From the survey of some water sources were found some local species that potential to conserve watershed area. One of the local wisdom that was needed to develop is consciousness of farmers to conserve watershed area by using *Ficus* spp., is called thousand of *Ficus* (*Waringin Sewu*), in Suruh Village, Trenggalek. Aim of *Ficus* spp. community conservation are to decrease of runoff, to prevent of soil erosion and landslide, and to preserve water continually. This local wisdom is very needed to appreciate by the local government and it can be used as one asset of science and technology to conserve water sources in East Java Province.

0842. **Widiyono, W. 2011.** Manajemen Sumber Daya Air untuk Efisiensi Irigasi Tanaman Budi Daya. *Jurnal Hidrosfer Indonesia* 6(3): 139–144.

Abstract

Water management to improve water use efficiency of crop cultivation is a part of the integrated water management system, particularly in the downstream area. In the integrated water management system, water collected of the catchment (upstream area) and stored, such as in the *embung-embung,*/a man-made water reservoir (middle area), have to be used efficiently in the field (downstream area). Water management have to be adjusted based on the surplus and the deficit of water availability so that the crop can escape from the stress condition and production can be obtained optimally. Water management based on crop water requirement is very useful to be applied in the farming system of Indonesia as a country which has diversity of plant, soil, and climate.

0843. **Widiyono, W. 2011.** Potensi Sumber Daya Alam dan Lingkungan untuk Sistem Pertanian Terpadu Pembangunan Berkelanjutan di Kabupaten Trenggalek-Jawa Timur. *Berkala Penelitian Hayati Edisi Khusus, Fakultas Sain dan Teknologi, UNAIR* 7F: 7–10.

Abstract

Integrated agricultural system is the urgent priority to apply for ecosystem conservation due to the serious problem of flooding, drought, land-slide, and soil degradation in Trenggalek District. Integrated agricultural system principally is how to use the natural resources and environment wisely to find the recycling process based on organic material input and to minimize external input. Natural resources and environment conservation are the very important activities that should be conducted in the integrated agricultural system to obtain sustainable development. The activities are (1) conservation of water resources to insure perennial water availability; (2) rehabilitation of soil degradation to decrease erosion and sedimentation risk and to improve soil fertility; and (3) conservation of flora, fauna, and microbial to preserve sustainable ecosystem. From the researchers appraisal of secondary data and survey, it can be showed, i.e.: (1) In this area there are 27 rivers and 313 springs that are very potential to use and conserve for irrigation efficiently; (2) Critical land is up to 19.41% of the total area that is very risky to soil erosion, sedimentation, and land degradation; (3) Food crop is enough to serve food security with the cassava for the highest of all production (up to 400,000–450,000 ton/year); Potential Cattle to develop respectively are goats, fattening and breeding cows and milk producer cows. The resources are very potential to develop as an integrated agriculture from the upstream to the down stream area.

0844. **Widiyono, W.** & R. Ridwan. **2011.** Aplikasi Teknologi Usaha Tani Ternak Sapi Program Iptekda-LIPI Menuju Ekosistem Pertanian Terpadu di Desa Suruh, Trenggalek-Jatim. *Berkala Penelitian Hayati Edisi Khusus, Fakultas Sain dan Teknologi, UNAIR* 7F: 11–15.

Abstract

To obtain conservation ecosystem in sustainable development program, the Integrated agricultural system based on cattle farming was carried out by using science and technology for regional development program of Indonesian Institute for Sciences (saintech-rdp-LIPI), in Trenggalek District, 2010. The program was conducted by a group of farmers that facilitated by the non government organization as an intermediation institution. The aims of this project are (1) to transfer the technology from LIPI as a science-technology source to farmers as users; (2) to assist small capital in order to increase farmers income and improve economic development in village area. The proven technology which were transferred, i.e. (1) superior cattle of Limousin and Ongole breed; (2) the health of cattle stable; (3) imitation of insemination; (4) monitoring of fertilization; (5) silages as a fermented cattle feeding; (6) syrup of local fresh fruit; (7) concentrate of local resources; (8) cultivation of *Pennisetum purpureum* breed (king grass); (9) compost of manure; and (10) biogas installation. The initial program was expected as a model to promote development of integrated agricultural system based on cattle farming in upland area of Trenggalek-East Java.

0845. **Widiyono, W. 2013**. Potensi Embung untuk Pengembangan Budi Daya Pertanian Mencapai Pembangunan Ramah Lingkungan di Provinsi Nusa Tenggara Timur. *Prosiding Seminar Nasional Pertanian Ramah Lingkungan*. Hlm. 441–451

Abstrak

Permasalahan pembangunan pertanian di Provinsi Nusa Tenggara Timur, terkait dengan faktor alam, seperti keterbatasan air, kondisi lahan sub optimal, dan iklim serta faktor sosial dan budaya. Faktor-faktor utama tersebut mengakibatkan pengembangan pertanian dilaksanakan berdasarkan budaya masyarakat yang cenderung tidak ramah terhadap konservasi lingkungan. Pertanian dengan sistem tebas bakar dengan metode yang ekstensif masih banyak dilakukan oleh petani di pedesaan NTT. Pemeliharaan ternak dengan membiarkannya terlepas di kebun-kebun berakibat merusak pertumbuhan rumput dan vegetasi penutup tanah lainnya, yang mengakibatkan tanah peka terhadap erosi. Praktik pertanian dan pemeliharaan ternak dengan sistem seperti tersebut di atas berdampak serius terhadap degradasi lingkungan. Untuk mengantisipasi permasalahan yang disebabkan oleh faktor alam dan faktor sosial tersebut, Pemda NTT membangun embung-embung sejak tahun 1985 hingga saat ini (tahun 2013). Sejak awal pembangunannya hingga saat ini, telah terbangun sebanyak 400 embung-embung di NTT. Dari hasil pengamatan dan penelitian, ditunjukkan bahwa embung bukan hanya berperan untuk penyediaan air minum masyarakat, tetapi juga irigasi pertanian, pemeliharaan ternak, dan sangat potensial untuk pengembangan budi daya ramah lingkungan. Penelitian ini menyampaikan konsep pembangunan pertanian terpadu berbasis embung, yakni pengembangan intensifikasi pertanian dengan sistem paronisasi di pekarangan penduduk sebagai solusi dari sistem budi daya peternakan di lepas di kebun-

kebun; pengembangan budidaya pertanian secara hemat air (menggunakan plastik *polibag*); penanaman rumput dan jenis tanaman lokal untuk penyediaan pakan ternak dan konservasi lahan. Untuk meningkatkan pertumbuhan dan produksi, budi daya pertanian terpadu yang mengadopsi konsep agroforestri perlu dilengkapi dengan inovasi teknologi dari hasil-hasil penelitian, seperti penggunaan benih dan bibit unggul, penggunaan pupuk organik hayati, dan pengendalian hama secara hayati.

0846. **Widiyono, W.** & **F. Syarif. 2014**. Managemen Air Embung untuk Budidaya Cabai pada Lahan Sub Optimal Nusa Tenggara Timur: Studi Kasus Desa Oemasi-Kupang. *Prosiding Seminar Ilmiah Perhorti* 2013. Membangun Sistem Baru Agribisnis Hortikultura Indonesia pada Era Pasar Global. Volume II, Tanaman Sayuran. Penerbit: Perhimpunan Hortikultura Indonesia (PERHORTI) 2014. Hlm. 307–313.

Abstrak

Sebagai upaya adaptasi terhadap kondisi wilayah sub optimal berlahan kering dan iklim kering, pemerintah daerah membangun embung-embung. Sebuah embung NTT memiliki kapasitas tampung lebih kurang 30.000 m^3 air, daerah tangkapan sekitar 15 ha, dan dimanfaatkan oleh 50–70 KK (250–350 jiwa). Sejak pembangunan embung tahun 1985 s/d 2012, tercatat tidak kurang dari 415 embung-embung telah terbangun di NTT. Neraca air embung desa Oemasi Kupang menunjukkan, dari sebuah embung berkapasitas tampung maskimum 30.000 m^3 (dengan kedalaman 9,8 m) memberikan suplai air rata-rata ke perkampungan penduduk sebesar 22,86 m^3/hari (8,344 m^3/tahun) dengan evapotranspirasi 5 mm/hari (1,866 m/tahun). Beberapa petani di Desa Oemasi Kupang-NTT memanfaatkan air embung untuk budi daya tanaman cabai dengan media tanah dan pupuk kandang, di dalam kantong plastik *polibag*. Metode tersebut dapat menghemat penggunaan air hingga 50%, yakni hanya 1 liter/tanaman/hari, dibandingkan penanaman pada lahan bedengan yang membutuhkan air 2 liter/tanaman/hari. Dari hasil tanaman cabai rata-rata 0,3 kg/pot dengan harga Rp7.000,-/kg (tahun 2010), diperoleh keuntungan Rp1.500 hingga Rp2.000,-/pot. Petani memiliki kemampuan menanam 500–1.000 tanaman cabai dalam pot/KK. Selain untuk budi daya tanaman cabai, masyarakat di Desa Oemasi juga memanfaatkan air untuk tanaman sayuran lainnya, yaitu terong, tomat, buncis, dan kacang panjang. Menurut petani, tanaman sayuran di dalam pot, selain ditanam pada musim kemarau juga menguntungkan ditanam pada musim hujan, ketika di sentra produksi lain produksi menurun akibat merebaknya gangguan hama dan penyakit (*off season).* Informasi neraca air embung dan pemanfaatan air untuk budidaya tanaman oleh beberapa orang petani di Desa Oemasi-Kupang tersebut dapat digunakan sebagai dasar analisis pemanfaatan potensi sumberdaya air embung untuk pengembangan budi daya tanaman hortikultura di Provinsi Nusa Tenggara Timur. Program tersebut juga sebagai upaya meningkatkan kualitas gizi, nilai ekonomi, dan ketahanan pangan masyarakat lokal.

0847. **Widjaja, E.A., I. Maryanto, D. Wowor** & **S.N. Prijono** (Editors). **2011**. Status Keanekareagaman Hayati Indonesia. Puslit Biologi–LIPI.

Abstrak

Status Keanekaragaman hayati flora dan fauna di Indonesia dikemukakan dengan menunjukkan jumlah jenis pada setiap pulau yang ada. Di samping itu, diberikan juga jumlah endemik jenis per pulau. Jumlah jenis alien invasif juga ditemukan ditambah dengan jumlah jenis yang dilindungi, baik oleh Peraturan pemerintah, Undang-undang maupun oleh IUCN. Data ini setiap tahun akan berubah karena ditemukannya jenis baru.

0848. **Widjaja, E. A. 2012.** *The Utilization of Bamboo: At Present and for the Future. Proceedings of International Seminar: Strategies and Challenges of Bamboo and Potential Non Timber Forest Products (NTFPs) Management and Utilization.* 23–24 November 2011. Bogor, Indonesia. Center for Forest Productivity Improvement Research and Development, Bogor, Indonesia. Pp. 79–85.

Abstract

Bamboo is one of the non-forest timber products (NTFP) which is spread over the world, especially in the tropical to subtropical region. The uses of bamboo in each country are different from one to another based on their culture diversity which is related also to their bamboo diversity. The Asia country use bamboo more than other area because the uses of bamboo are related to their culture. Furthermore, the diversity of bamboo in Asian region is higher than in other area part of the world.

Indonesia has 160 species of bamboo (about 12% of the world bamboo) grow in this area, which consists of introduced species (38 species), origin species (122 species). Among this species, 88 species is endemic and only 76 species (about 50% of the total species) is used by local people for their daily life. From 76 species locally used, 910 species among them is commonly or commercially used. Bamboo seems to have followed many ancient maritime spice routes between China, Indonesia, Sri Lanka, and India, sometimes making it difficult to establish the centre of origin for some species (Soderstrom and Calderon, 1979).

According to Lobovikov et al. (2007), there are 37 million hectare of bamboo in the world (1% of the global forest area) and 24 million hectare found in the sixteen Asian countries. Therefore, it can be said that Asia has the highest population of bamboo (65%) compared to Africa (7%) and America (28%). Indonesia is the third larger bamboo population (5%) in Asia after India (30%) and China (14%) compared to the total forest area in each country. The estimation of bamboo forest area in Indonesia is based on the assumption that there are 31 clumps bamboo per hectare because the sympodial bamboo grow scatteredly. Besides, most of the bamboo forest (67%) in Indonesia belongs to the farmer, only 30% of them grow in the government land. This number of bamboo forest has not well-recorded, so it seems that

the highest owner is the private sector, while natural bamboo forest has not been included.

Bamboo has been utilized for a long time ago for the peoples welfare and their daily life. With the new modern technology, it can influence the utilization of bamboo such as bamboo fiber for textile, bamboo chemist for antibacterial, bamboo for biomass energy, bamboo for hand and body soap, paper etc. When the technology has been applied, more utilization can be developed. Looking back to the history of the Edison bulb light, it can be said that he has developed light from the bamboo fiber. Therefore, the bamboo can be used since the birth of child to the dead of people. They have been used to cut the umbillicord, circumcision, and also when a person died to tap the water come from the corpse. Then, people also use bamboo to make kitchen utensils as well as household furniture. The recent product made of bamboo is bamboo textile for cloth, shirt, even sock which has an advantage to prevent the bacteria found in the fingers. The recent use is bamboo liquid.

0849. **Widjaja, E.A.** & K. Kartawinata. **2013**. Economic Botany in Indonesia from the Herbarium Amboinense to the Plant Resources of Southeast Asia. *Allertonia* 13: 56–71.

Abstract

The earlist records of Javanese plants were carved in the reliefs of the Borobudur "temple" built in the 8th–9th centuries. Van Linschoten was the very first Dutchman and plant explorer who discovered the direct route to the East, apparently prompting the establishment of VOC to explore the East for tradeable plants and other resources. Rumphius join the VOC in 1652, did research, and wrote the flora and fauna of Ambon and vicinity. In 1815, King Willem I was aware that the Dutch East Indie was rich in unknown biological resources, instructed Reinwardt to uncover natural treasure for economic uses to enrich the kingdom, and in 1817 he established the Bogor Botanical Garden to strengthen the mission, at which time the Natural Science Commission was founded. Botany was adopted as the basis of development, hence, in this context, Blume and subsequent botanists attempted to write the Flora of the Dutch East Indies. This idea eventually and ultimately led to the initiation of the Flora Malesiana project in 1949 to promote botanical sicence for the welfare of people of Indonesia and neighboring countries. The project broadened research perspectives beyond plant taxonomy, emphasizing plant researcher for agricultural development, economic botany, and chemistry of natural products. In line with this, Heyne did research and synthesized data for his book on useful plants of the Dutch East Indies. In 1983, the Jakarta Office of UNESCO initiated to build database for a project on useful plants of Southeast Asia. A project to write books on the Plant Resources of South East Asia (PROSEA) was established, concluding with publication of 19 volumes and 24 books. On 18 May 1983, Indonesian Institute of Sciene established the Museum of Ethnobotany in Bogor with the objective of promoting informal education

on the importance, utilization, and conservation of plant resources of Indonesia and their relationships with culture and welfare of the people. Ethnobotanical research has been promoted, including collaborative research undertaking with overseas institutions.

0850. **Widjaja, E.A.** & B.A. Pratama. **2013.** Flora Diversity Loss in the Bioregion of Sulawesi. Forest and Biodiversity. *Proceeding International Conference*. Manado 5–6 July 2013: 301–320.

Abstract

Indonesia is one of the biggest biodiversity areas in the world after Brazil, which has about 35,000–42,000 species, however, this data need to be confirmed. The database of the Indonesian Flora is based on the Herbarium Bogoriense and based also on the specimens which were kept since 1871. The richness of the Indonesian flora is very important for the decision makers, especially on how to prevent the flora diversity get loss. Sulawesi as one of the biggest islands in Indonesia (182,870 km2 with the collecation rate 23 species/ 100 km2) has also high endemism flora species. The flora expedition to Sulawesi has been done since 1687 when Dampier visited and collected specimens from Buton. According to Steenis (1955), the total number of specimens collected from Sulawesi is 32,500 specimens, which was collected by Blume (1825–1827), Miquell (1855), and Koorders (1898). Keßler et al. (2002) has mentioned on this publication that there are 120 species of trees found in ulawesi. Widjaja et al (2011) mentioned on her book *The State of Indonesian Biodiversity* that Sulawesi has 6,796 species, among this species it was listed that 292 species of 57 family are endemic to Sulawesi. Based on the study done since 2010, it is found that only 38 species was found in the field. When the locality of endemic species was laid on the land cover map, it was found that there are some species which no longer grow in the forest anymore because the area was changed into housing area, plantation area, paddy field area or industry. The endemic species grows in specific soil characters and certain altitude. Because of that, the endemic species usually never grows in another habitat. Mapping of each endemic species will be drawn in Land cover, soil, and also climate maps.

0851. Widyastuti, Y., **T. Khusniati, &** E.S. Rahayu. **2013**. Food: Production Properties and Quality. *In* Visakh. P. M, Sabu Thomas, Laura B. Iturriaga, and Pablo Daniel Ribotta (eds.) *Advances in Food Science and Technology*, (185–200) Scrivener Publishing LLC. p:185–199

Abstract

Food is any solid or liquid material consumed by a living organism for maintaining life and keeping healthy. Food production is mainly from land and follows the Good Agriculture Practises. The sources of foods are generally derived from plants and animals and basically contain a lot of nutrition which is good for human health. Plant source foods are rich in carbohydrate and

good source of dietary proteins, vitamins, minerals, and fiber. Animal source foods are excellent source of highly quality and easily digested protein and are considered the highest quality available, as they contain a full complement of essential amino acids. The properties of foods were basically related to water activity and affected by the treatments of the foods. Processing and preservation will certainly affect food properties. Food quality, particularly safe and healthy foods, are a priority for meeting the requirements and expectations of the customer.

0852. **Windadri, F.I. 2010**. Keanekaragaman Lumut di Kawasan Cagar Alam Dungus Iwul, Jasinga, Jawa Barat. *Biota* 15(3): 400–406.

Abstract

Exploration and collection of the mosses species in Dungus Iwul Nature Reserve were conducted. Thirty eight species including 26 genera and 11 families were recorded. Three species had categories as endemic species, *i.e Fissidens teysmannianus* and *Orthomnion javense* as endemic species in Java, while *Hyophila javensis* as endemic species in Malesia. *Ctenidium lychnites* was recorded also as new species record in Java.

0853. **Windadri, F.I. 2010**. Keanekaragaman Lumut di Taman Nasional Bukit Barisan Selatan, Provinsi Lampung, Sumatra. *Berita Biologi* 10(2): 159–166.

Abstract

A survey on mosses diversity has been carried out in Bukit Barisan Selatan National Park at Lampung Province, Sumatera. Results of this study indicated that there were 37 species of mosses included in 3 genera and 11 families. Five species were considered as new records to Sumatera *i.e. Arthrocormus schimperi, Calymperes moutleyi, Fissidens perpusillus, Ectropotheciella distichophylla,* and *Taxithelium lindbergii.* Two species were suggested as new records to Indonesia *i.e. Ectropothecium ferrugineum* and *Mnium laevinerve.* When *Ectropothecium ferrugineum* was found in the research area, its endemic status was changed and the distribution area become more spread.

0854. **Windadri, F.I., I. Haerida,** T. Yamaguchi & H. Shimizu. **2010**. Keragaman Lumut Daun di Hutan Bekas Terbakar Bukit Bangkirai, Kalimantan Timur. *Jurnal Teknologi Lingkungan* 11(2): 265–270.

Abstract

Bukit Bangkirai is a public recreation forest in East Kalimantan. During the long dry season in 1982–1983 and 1997–1998, some parts of the forest have burnt out, only small part was escaped. Bryophytes are small plant and usually abundantly grows on the forest. The Bryodiversity research in the Bukit Bangkirai has been done in the 2000 to 2003. Total sample of bryophyte

collections about 3,000 numbers since seven period collections and the result of identification found 92 species, including 27 genera and 9 families. The dominant mosses found are *Achantorrhynchium papilatum, Arthrocormus schimperi, Leucobryum sanctum, Octoblepharum albidum, Pyrrhobryum spiniforme, Syrrhopodon albovaginatus,* and *Syrrhopodon spiculosus.* Only four species were found in control plot. They are *Ctenidium malacobolum, Fissidens zippleianus, Groutiella tomentosa,* and *Taxithellium lindbergii. Acroporium diminutum, Leucobryum juniperinoides, Calymperes aeruginosum, Fissidens robinsonii, and Syrrhopodon semilimber* were only found in the light damage plot and *Fissidens wichurae, Isopterygium textori, Leucobryum bowringii, Syrrhopodon confertus* were only found in the heavy damage plot. The mosses usually grows on the soil and rotten logs in damp site.

0855. **Windadri, F.I. 2011.** Lumut di Kawasan *Ecology Park*, Cibinong, Jawa barat. *Prosiding Seminar Nasional "Konservasi Tumbuhan Tropika*: *Kondisi terkini dan tantangan kedepan*" UPT Balai Konservasi Tumbuhan Kebun Raya Cibodas-LIPI. Hlm. 128–130.

Abstrak

Ecology Park merupakan salah satu kawasan konservasi berupa hutan buatan yang dirancang sebagai miniatur pelestarian ekosistem hutan dataran rendah di Indonesia serta sebagai sarana pendidikan lingkungan hidup dan ajang beberapa penelitian terkait. Penelitian tentang keanekaragaman lumut di kawasan ini telah dilakukan pada tahun 2009 dan 2010. Sebanyak 55 sampel telah dikoleksi dan diidentifikasi menjadi 22 jenis, tergolong dalam 11 marga dan 6 suku. Fissidens zollingeri Mont. merupakan jenis yang paling sering ditemukan dan jumlahnya banyak.

0856. **Windadri, F.I. 2013.** Keanekaragaman dan Potensi Tumbuhan sebagai Bahan Obat Alam di Cagar Alam Bojong Larang, Cianjur, Jawa Barat. *Prosiding Seminar Nasional Aspek Budaya, Kebijakan dan Filosopi Sains Jamu*, IPB International Convention Center-Bogor, Hlm. 70–76.

Abstract

Cagar Alam Bojong Larang yang terletak di Kabupaten Cianjur merupakan salah satu kawasan konservasi di Jawa Barat. Kondisi vegetasi hutan masih cukup baik dan terjaga, namun keragaman jenisnya hingga kini belum pernah dilaporkan. Penelitian terkait dengan pendataan keanekaragaman dan potensi tumbuhannya sebagai bahan obat alam telah dilakukan dengan tujuan untuk mengetahui total keragaman jenis tumbuhannya serta potensinya sebagai bahan obat alam yang dapat dimanfaatkan masyarakat setempat. Hasil pendataan telah mencatat sekitar 147 jenis tumbuhan di kawasan konservasi ini, yang terdiri dari semak, perdu, dan pohon. Sekitar 68% dari jenis-jenis yang terdata telah diketahui potensinya sebagai bahan obat alam. Oleh karena Cagar alam ini merupakan kawasan konservasi maka keragaman jenis tumbuhannya dapat terjaga dengan baik kelestariannya sehingga dikemudian hari dapat digunakan

sebagai sumber plasma nutfah, terutama jenis-jenis yang berpotensi sebagai bahan obat alam. Namun, tidak menutup kemungkinan sebagai tempat pelestarian terhadap jenis-jenis lainnya yang belum diketahui potensi pemanfaatannya untuk dapat diteliti lebih lanjut.

0857. **Windadri, F.I. 2013.** Pemanfaatan tumbuhan nonobat oleh etnis Muna, kecamatan Wakarumba utara, kabupaten Muna, Sulawesi Tenggara. *Prosiding Seminar Nasional Biodiversitas*, Jurusan Biologi, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Sebelas Maret, Surakarta. Vol 1: 177–180.

Abstrak

Wakarumba Utara merupakan salah satu kecamatan yang terletak berdekatan dengan kawasan Suaka Margasatwa Buton Utara. Di kecamatan ini tinggal berbagai etnis, etnis terbesar adalah etnis Muna yang mempunyai kekhasan dalam pemanfaatan tumbuhan maupun pengelolaaan lingkungannya. Hasil penelitian mencatat sekitar 136 jenis tumbuhan telah dimanfaatkan etnis Muna, antara lain sebagai bahan bangunan, mebel/ kerajinan, pangan, kosmetik, tanaman hias, dan pemanfaatan lainnya. Dua jenis tumbuhan liar *Kleinhovia hospita* dan *Merremia peltata* dimanfaatkan sebagai sayuran oleh masyarakat setempat, namun hingga kini belum pernah dilaporkan pemanfaatannya sebagai bahan pangan. Sebanyak 25 jenis tumbuhan liar lainnya ditemukan di kawasan Suaka Margasatwa Buton Utara dan diharapkan akan tetap terjaga kelestarian di masa mendatang.

0858. **Windadri, F.I. & Dewi, S. 2013.** Keanekaragaman Jenis Lumut di Kepulauan Raja Ampat, Papua Barat. *Buletin Kebun Raya* 16(2): 75–84.

Abstract

Exploration and collection of mosses have been conducted in Raja Ampat Islands (Waigeo, Batanta, and Salawati islands). The Result recorded 85 collection number of mosses, consisting of 56 species that belong to 25 genera and 11 family. Four species, namely *Calymperes palisotii, Ectropothecium monumentorum, Macromitrium orthostichum,* and *Thuidium tamaricellum,* have status as new record to New Guinea and *Taxithelium bakeri* and *Thuidium oblongifolium* are two new records to Indonesia.

0859. **Windadri, F.I. 2014.** Pengaruh Lingkungan terhadap Kehadiran Jenis Lumut di Cagar Alam Gunung Papandayan, Garut, Jawa Barat. *Prosiding Seminar Nasional Biodiversitas*, 2014, Vol.3, No.2. Hlm. 55–57.

Abstrak

Lumut merupakan salah satu kelompok tumbuhan berklorofil yang mempunyai tingkatan paling sederhana. Di dalam kehidupannya, faktor lingkungan merupakan salah satu faktor pembatas untuk perkembangannya. Penelitian terkait dengan pengaruh lingkungan terhadap kehadiran jenis tumbuhan ini telah dilakukan dengan menginventarisir jumlah keragaman lumut dan mencatat

data lingkungannya pada empat lokasi yang berbeda. Hasil yang diperoleh menunjukkan bahwa keragaman lumut dan jumlah individu terkecil ditemukan di puncak gunung Papandayan dengan kondisi lingkungan berasap belerang dan sangat terbuka. Sementara itu, jumlah terbesar ditemukan di hutan kaki Gunung Kendang dengan kondisi lingkungan teduh dan lembab. Dengan demikian, dapat diketahui bahwa faktor lingkungan sangat besar pengaruhnya terhadap kehadiran lumut di lingkungannya.

0860. **Windadri, F.I. 2014.** Flora Berpotensi sebagai Bahan Obat di Kawasan Suaka Margasatwa Cikepuh, Sukabumi, Jawa Barat. *Prosiding Seminar Nasional Biodiversitas* 2014, Vol.3, No. 1. Hlm. 34–36

Abstrak

Penelitian tentang Keragaman tumbuhan dan potensi pemanfaatannya sebagai bahan obat dikawasan Suaka Margasatwa Cikepuh, Sukabumi telah dilakukan. Hasil pendataan dan informasi masyarakat setempat serta penelusuran pustaka terkait diketahui bahwa sekitar 50 persen dari keragaman jenis flora terdata di kawasan ini mempunyai potensi sebagai bahan obat alam. *Hoya diversifolia* yang umumnya dimanfaatkan sebagai tumbuhan hias oleh masyarakat setempat diinformasikan daunnya dapat sebagai bahan obat malaria. Demikan juga dengan *Bridelia insulana* telah dimanfaatkan sebagai penyegar tubuh dan obat tetes mata. Dengan ditemukannya beberapa jenis tumbuhan obat di kawasan konservasi ini maka diharapkan terjaga kelestariannya dan dapat sebagai sumber plasma nutfah di waktu mendatang.

0861. **Wirdateti** & B. Brahmantiyo. **2010.** Produktifitas Karkas Rusa Sambar (*Rusa unicolor*). *Unggas & Aneka Ternak* 5(4): 38–39.

Abstrak

Tidak ada abstrak

0862. **Wirdateti,** B. Brahmantyo, **G. Semiadi** & A. Reksodihardjo. **2010.** Variasi Genetik pada Rusa Sambar (*Rusa unicolor*) di Penangkaran, Kabupaten Penajam, Kalimantan Timur. *Biota* 15(3): 441–447.

Abstract

Sambar deer (*Rusa unicolor*) is the largest Indonesian deer species. The largest population of captivation is located at Penajam district, East Borneo (UPTD). First population was introduced in 1990 with four individuals. The use of molecular marker was aimed to identify and characterize the levelI of genetic diversity within the UPTD population as well as to identify a possible of botolneck population genetic status. This study discussed the relevance of the result for management purposes of captivation. The results indicated .that sambar deer population (n=38) had an average genetic distance (d) in population as 0.006 with nucleotide diversity' (11') being 0.0159). A total of 43.48%

of the population was homogeneous that showed no nucleotide differences among individuals.

0863. **Wirdateti** & **H. Dahruddin**. **2011.** Perilaku Harian Simpai (*Presbytis melalophos*) dalam Kandang Penangkaran. *Jurnal Veteriner* 12(1): 136–141.

Abstrak

Simpai (*Presbitys melalophos*) adalah salah satu jenis dari genus *Presbitys*, tersebar di Pulau Sumatera dan mendiami hutan-hutan primer di pedalaman mulai dari dataran rendah sampai ketinggian 2.500 m di atas permukaan laut. Pakan utama dari simpai adalah buah-buahan dan daun muda (pucuk), disamping itu juga mengonsumsi bunga, biji, dan beberapa jenis serangga. Simpai hidup berkelompok terdiri dari satu atau heberapa jantan dan beberapa betina. Di alam, simpai menghabiskan waktunya lebih dari setengah hari untuk kegiatan lokomosi dan *grooming*. Tujuan penelitian ini adalah untuk mengetahui perilaku atau aktivitas simpai di kandang penangkaran dalam usaha perkembangbiakan satwa tersebut diluar habitat asli. Penelitian menggunakan metode *One-Zero Sampling* yaitu mencatat. Setiap aktivitas (perilaku) yang terjadi pada periode waktu yang ditentukan. Perilaku yang diamati adalah makan, *grooming*, lokomosi, defekasi, urinasi, dan minum yang dilakukan secara visual. Hasil penelitian menunjukkan bahwa aktivitas utama adalah lokomosi (27,93%), *grooming* (25,57%), dan makan (24,425%). Perilaku posisi mereka dicirikan oleh quadrupedal sebagai lokomosi utama, dan duduk merupakan postur tubuh yang paling umum untuk beristirahat dan makan.

0864. **Wirdateti, H. Dahrudin**, & **A. Sumadijaya**. **2011.** Sebaran dan Habitat Kukang Jawa *(Nycticebus javanicus)* di Lahan Pertanian (Hutan Rakyat) Wilayah Kabupaten Lebak (Banten) dan Gunung Salak (Jawa Barat). *Zoo Indonesia* 20 (1): 17–25.

Abstrak

Survei keberadaan kukang (*Nycticebus javanicus*) dilakukan di wilayah Kabupaten Lebak (Provinsi Banten) meliputi kecamatan Cigemblong, Gn. Kencana, dan Cileles, dan lokasi kedua sekitar kaki Gn. Salak. Tujuan penelitian adalah untuk mengetahui wilayah sebaran kukang jawa di lahan pertanian atau hutan rakyat, Pengamatan dilakukan di lahan perkebunan, (hunian rakyat) dan perhutani pada ketinggian 100–400 m di atas permukaan laut (dpl) di wilayah Lebak. Sementara itu, di lokasi Gn. Salak pada ketinggian dan tipe habitat berbeda, yaitu hutan kebun 400–500 m dpl; hutan sekunder 800–900 m dpl dan hutan primer 1000–1100 m dpl. Pada pengamatan ini kukang ditemukan di habitat hutan rakyat atau lahan pertanian dan perkebunan. Sedangkan di hutan primer tidak ditemukan keberadaan kukang. Ketinggian sebaran kukang dari lokasi pengamatan berkisar dari 100–500 m dpl. Vegetasi habitat kukang di hutan rakyat didominasi buah-buahan, bambu, dan aren. Data primer dan informasi dari penduduk (data sekunder) menunjukkan bahwa kukang dapat

beradaptasi di hutan rakyat di mana ketersediaan pakan cukup dan habitat sarang tersedia.

0865. **Wirdateti. 2012.** Keragaman Genetik Rusa Sambar (*Rusa unicolor*), Pemanfaatan, dan Implikasinya untuk Konservasi. *Jurnal Biologi Indonesia* 8(1): 134–139.

Abstract

Genetic Diversity of Sambar Deer (*Rusa unicolor*) in Utilization and Implications for Conservation. The deer sambar (*Rusa unicolor*) is one of species of Genus *Rusa*, was widely distributed in South Asia until Southeast Asia. This species in Indonesia was widely distributed in Kalimantan and Sumatra island, but now, the hunting, poaching, and habitat loss have reduced its populations drastically. In order to provide useful information for its conservations, the genetic diversity and population structure of the wild sambar deer was observed by analyzing the 962 bp long of fragment mitochondrial DNA (mtDNA) control region (D-Ioop) fragment. The result detected twenty different haplotypes from 22 samples from Borneo and Sumatra. Overall, sambar deer has a relatively high genetic diversity compared to other ceervid species, with a haplotype diversity (h) 0.9870 and nucleotide diversity (∏) 2.93I±O.260%. The genetic distance of Borneo populations (East Borneo) is higher compared with Sumatra's populations that is d = 0.0 18±0.003 on Borneo and d = 0.009±0.002 in Sumatra. The structure of phylogenetic tree showed that two populations were separate based on the haplotypes differences.

0866. **Wirdateti. 2012.** Sebaran dan Habitat Kukang Jawa (*Nycticebus javanicus*) di Area Perkebunan Sayur Gunung Papandayan, Kabupaten Garut. *Berita Biologi* 11(1): 113–120.

Abstract

The observation of distribution and habitat of Javan slow loris (*Nycticebus javanivus*) was carried out in Garut district area (West Java), which includes the sub district of Ciserupan, Cipaganti village. The purpose of the research was to investigate the distribution of Javan slow loris at fragmented habitat or outside of protected forest to support the conservation management of slow loris. Observation location was agricultural area for about three kilometers from the nature reserve forest at an altitude of 1,400 to 1,500 m above sea level. Habitat vegetation is dominated by bamboo trees and agriculture plantation. Five individual of Javan slow loris were found in the area; one loris in the afternoon and four were in the evening on Gandasoli and Muncang block area. One individual of slow loris during the afternoon was found in bamboo vegetation used as nesting or resting place, and four slow loris were found at night on some trees. Habitat vegetation used as feeding tree, nesting (resting) and movement were 23 plant species, that is 52.17% (feeding trees), 17,39% (nesting), and 30.43% (movement).

0867. **Wirdateti, G. Semiadi**, & Yulianto. **2013.** Identifikasi Trenggiling (*Manis javanica*) Menggunakan Penanda Cytochrome B Mitokondria DNA. *Jurnal Veteriner* 14(4): 467–474.

Abstrak

Tujuan penelitian adalah untuk mengetahui profil genetik trenggiling (*Manis javanica*) dalam penentuan asal usul satwa tersebut dalam proses budi daya dan perdagangan ilegal. Koleksi sampel trenggiling diambil dari beberapa lokasi penangkapan hasil sitaan yaitu Tangerang, Medan, dan Lampung serta sampel alam yaitu dari Balik Bukit, Tanggamus, Provinsi Lampung dan Sukabumi, Jawa Barat. Penelitian menggunakan gen Cytochrome b (Cyt. B) mitokondria DNA (mtDNA). Hasil penelitian menunjukkan bahwa trenggiling hasil sitaan tersebar di dalam tiga clade dan dua kelompok berdasarkan perbedaan basa dari jajaran nukleotida sepanjang 420 nt. Variasi haplotipe tinggi yaitu terdiri dari 19 haplotipe (TRI-TRI9) dari 19 individu. Pada clade pertama yaitu TR4, 7, 16, 9, dan 19, substitusi tinggi pada basa adenin (A); clade kedua yaitu TR14, 17, 1, 2, 15, 3, B, dan 13, substitusi tinggi pada basa guanine (G) dan clade ketiga yaitu TR5, 6, 10, 11, dan 12 .. substitusi tinggi pada basa cytosin (C). Dapat disimpulkan bahwa variasi haplotipe dari masing-masing populasi cukup tinggi, tetapi jarak genetik antar individu rendah. Secara keseluruhan mutasi yang terjadi didominasi oleh transisi dari basa guanin ke adenin.

0868. **Wirdateti,** Yulianto, & **G. Semiadi.** 2013. Sebaran dan Habitat Trenggiling (*Manis javanica* Desmarest, 1822) di Wilayah Kabupaten Tanggamus dan Lampung Barat, Provinsi Lampung. *Prosiding Seminar Nasional Biodiversitas* (2): 181–186.

Abstract

The observations on distribution and habitat of pangolin (*Manis javanica Desmarest*, 1822) were carried out in Tanggamus and Lampung Barat districts (West Java). Both location were known as the area of pangolin seizure. The research was conducted in the natural distribution and plantation area, and through interview with hunters, collectors, and local peoples. The aim of research was to investigate the distribution of pangolin and habitat type in support for the conservation management. Location were secondary forest and plantations area at 360 to 900 m asl. The result based on of the pangolin nest was indication that both locations were distribution pangolin area. Nest was not only found on the ground but could also be found in dead tree hole or on the tree. Distance between nest was 150–300 m Habitat within the nest area were dominated by local fruit plantations. Types of feed were ants and terminates. Pangolin did not nececcesarily use their own nest but could also use abandoned nest of other animals in the form of holes in the dead trees.

0869. **Wiriadinata, H.** & R. Sari. **2010**. A New Species of *Rafflesia* (Rafflesiaceae) from North Sumatra. *Reinwardtia* 13(2): 95–100.

Abstract

Rafflesia meijeri Wiriadinata & Sari **spec. nov.** from North Sumatra is described. It appears closely related to *R. rochussenii* Teijsm. & Binn. from West Java which has no processes on the disk, smaller flower, the lobes with a different wart pattern, a wider groove with thin lamellae on the central column, ramenta filiform without swollen apex.

0870. **Wiriadinata, H., G. Semiadi, D. Darnaedi** & **E.B. Walujo. 2010.** Konsep Budaya Gaharu (*Aquilaria* spp.) di Provinsi Bengkulu. *Jurnal Penelitian Hutan dan Konservasi Alam.* VII(4): 371–380.

Abstract

Aquilaria spp. are a group of aromatic plants of high commercial value with the products being called *gubal gaharu* and *kamedangan*. The high level of exploitation on this species has raised concerns on the population status and its conservation strategic. Cultivation is a mean of strategic step for the sustainable use of any wild harvest. A survey was conducted to evaluate the cultivation of agarwood trees and its condition in Bengkulu Province. A rapid assessment survey technique was conducted in April 2008 by visiting the agarwood (*Aquilaria* spp.) cultivation areas in Bengkulu. In depth interviews were made with the local farmers who had the agarwood trees cultivation. Diameter at breast height (dbh), height of agarwood trees, water content of freshly cut agarwood tree, and agarwood chips formed by artificial inoculation process were measured. The results showed that cultivation of agarwood trees was initiated and coordinated by a local enterprise called CV. 88 since 2003. Until July 2008 the members had reached 29 farmers with total area covering 38 ha. No less than 5,000 agarwood trees were planted, whilst inoculation on natural agarwood trees had reached 53 ha. The perception on the meaning of cultivation was not accordance with the legislation concept, therefore, socialization on the legal concept was needed. The majority species being cultivated and those grow wildly in the plantation areas were *Aquilaria microcarpa* Bail. and *Aquilaria malaccensis* Lam. The average weight of inoculated agarwood chips was 18.79 grams/piece (Std = 8.85) with the water contents og 11.2–12.97 %, whilst water contents of freshly cut agarwood tree was 46.3%. Single agarwood tree at the height of 35 m and dbh of 118 cm could produce at least 637.65 Kg of commercially dry chips (kamedangan).

0871. **Wiriadinata, H. 2011**. A New Species of *Begonia* (Begoniaceae) from Sagea Lagoon, Weda Bay, Halmahera Island, North Moluccas, Indonesia. *Reinwardtia* 13(3): 263–270.

Abstract

A new species of *Begonia sageaensis* Wiriadinata (Begoniaceae) from south of Mt. Sohra Ecoregion, Sagea Lagoon, Weda Bay, Halmahera, North Moluccas, Indonesia is described and illustrated. This species is close to B. *holosericea* Teijsm. & Binn. in small herb habit but it differs in red hirsute hairs on both

leaf surface and on its petiole, persistence equitant bracts, longer pedicels of male flowers, and fruit has three equal wings with both flat ends.

0872. **Wiriadinata, H.** & **D. Girmansyah. 2011**. Tumbuhan *Begonia* (*Begoniaceae*) di Kecamatan Uluiwoi, Kabupaten Kolaka–Sulawesi Tenggara. *Floribunda 4(3): 75–80.*

Abstrak

Kunci pengenalan 5 jenis dan satu anak jenis *Begonia* liar yang dijumpai di Kecamatan Uluiwoi, Kabupaten Kolaka, Sulawesi Tenggara disuguhkan dan tiap takson diberikan pertelaan teknis. *B. longifolia* mempunyai persebaran luas. *B. aptera* dan *B. flacca* endemik Sulawesi Tenggara dan Sulawesi Tengah, sedangkan

B. aptera subsp. *hirtissima*, *B. watuwilensis* dan *Begonia* sp.1 merupakan endemik Uluiwoi yang termasuk pegunungan Mekongga.

0873. **Wiriadinata, H. 2013.** A New Species of *Begonia* (Begoniaceae) from South Sulawesi, Indonesia. *Reinwardtia* 13(5): 445–448.

Abstract

A new species, *Begonia hooveriana* Wiriad., is described from Tanah Toraja in South Sulawesi. It belongs to *Begonia* section *Petermannia* and brings the total number of *Begonia* species native to Sulawesi to 43 species.

0874. **Wiriadinata, H., D. Girmansyah,** J.M. Hunter, W.S. Hoover, and **K. Kartawinata. 2013.** Floristic Study of West Sumbawa, Indonesia. *Reinwardtia* 13(5): 391–404.

Abstract

A floristic survey was undertaken in mountains forest of West Sumbawa and some surrounding lower forests, an area of Indonesia receiving limited biological study. Three hundred sixteen species of Angiosperms and ferns were collected from this area in 2004 and 2005. The collection represents 101 families and 234 genera.

0875. Witono, J.R., **H. Rustiami**, J.T. Hadiah & Danang. **2013**. *Panduan Lapangan Pengenalan Jenis Rotan Katingan*. WWF Publication–Indonesia, Program Kalimantan Tengah; 117.

Abstrak

Buku ini disusun untuk mendukung perkembangan budi daya rotan di Katingan. Diharapkan pembaca akan mudah mengidentifikasi jenis rotan-rotan yang ada di Katingan dengan memakai buku panduan ini.

0876. **Wowor, D. 2010.** *Macrobrachium empulipke*, a New Freshwater Prawn Species (Decapoda, Palaemonidae) from Indonesia. *In* Fransen, C.H.J.M. et al. (Ed.) (2010). Studies on Malacostraca: Lipke Bijdeley Holthuis memorial volume. *Crustaceana Monographs* 14: 715–726.

Abstract

Macrobrachium empulipke **sp.nov**., a palaemonid freshwater prawn, is described from Indonesia. The new species belongs to the *Macrobrachium pilimanus* species group, but can easily be distinguished from *M. pilimanus* (De Man, 1879) by the presence of longer and more prominent rostral teeth, a slightly inflated merus of the second pereiopods, a medially depressed epistome, and narrowly separated anterior lobes of T8. It can be differentiated from *M. leptodactylus* (De Man, 1892) by having shorter carpi of the second periopods and the inner distal margin of which is without a tuft of short velvety setae, and a small median process of third abdominal sternite. The new species is also superficially similar to *M. eriocheirum* Dai, 1984, but it can be recognized by more closely spaced postorbital tooth, and more elongate major second pereiopod chelae with longer fingers. So far, the new species has only been found in West Java, southern and western Sumatra.

0877. **Wowor, D.** & P.K.L. Ng. **2010.** On Two New Genera of Asian Prawns Previously Assigned to *Macrobrachium* (Crustacea: Decapoda: Caridea: Palaemonidae). *In* De Grave, S. & Fransen, C.H.J.M. (2010) Contributions to shrimp taxonomy. *Zootaxa* 2372: 37–52.

Abstract

Two new genera of palaemonid prawns are described from South and Southeast Asia. The new genera are allied to *Macrobrachium* Bate, 1868, but can easily be separated by having a slender and glabrous second pereiopod, a long fifth pereiopod which is distinctly longer than the second pereiopod, a bilobed posterolateral margin of the fifth abdominal pleurite, the presence of one or two pairs of plumose setae at the ventroposterior margin of the telson, the absence of anterior lobes on male thoracic sternite 8 and distinctly larger adult females than males. *Arachnochium* gen. nov. (type species *Palaemon mirabilis* Kemp, 1917), can be distinguished from *Tenuipedium* gen. nov. (type species *Macrobrachium palaemonoides* Holthuis, 1950) by having a relatively shorter branchiostegal groove running from the base of the hepatic spine to the antennal carapace margin below the antennal spine, and having plumose setae which are longer than the inner pair of spines on the ventroposterior margin of the telson.

0878. **Wowor, D.** & P.K.L. Ng. **2010.** On the Taxonomy of *Palaemon javanicus* Heller, 1862, and *Palaemon sundaicus* Heller, 1862, with Description of a New Species of *Macrobrachium* Bate, 1868 (Crustacea: Decapoda: Caridea: Palaemonidae) from Southeast Asia. *In* De Grave, S. & Fransen, C.H.J.M. (2010) Contributions to shrimp taxonomy. *Zootaxa*, 2372: 278–297.

Abstract

Re-examination of the type material of *Palaemon javanicus* Heller, 1862, shows that the current concept of the species is wrong. This species is in fact a senior subjective synonym of a widespread Southeast Asian species now known as *Macrobrachium trompii* (De Man, 1898). The species now commonly referred to as "*Macrobrachium javanicum*" following De Man (1879) from Southeast Asia is in fact, undescribed, and is here named *Macrobrachium duri* spec. nov. *Macrobrachium duri* spec. nov. can easily be distinguished from *M. javanicum sensu stricto* by the presence of a small triangular median process on the fourth thoracic sternite, possessing spinulate third to fifth pereiopods, having both second periopods covered with spines and few scattered short stiff setae, and the eggs are small and numerous. To add to the confusion, *Palaemon javanicus* Heller, 1862, is also synonymous with *P. sundaicus* Heller, 1862, and both were described by Heller (1862) in the same paper, making both names simultaneously available. As first revisors, this study hereby chose *P. sundaicus* Heller, 1862, to have priority over *P. javanicus* Heller, 1862, when the two names are considered to be synonyms. *Palaemon sundaicus* Heller, 1862, is therefore also the senior synonym of *Macrobrachium trompii* (De Man, 1898).

0879. **Wowor, D.** & S.H. Tan. **2010.** Description of a New Species of *Malayopotamon* Bott, 1968 (Decapoda Brachyura, Potamidae) from Gunung Slamet, Central Java, Indonesia. *In* Fransen, C.H.J.M. et al. (Ed.) (2010). Studies on Malacostraca: Lipke Bijdeley Holthuis memorial volume. *Crustaceana Monographs* 14: 727–734.

Abstract

A new species of terrestrial potamid crab, *Malayopotamon lipkei* sp.nov., is described from Gunung Slamet, Central Java, Indonesia. This new species is similar to *M. granulatum* (De Man, 1892), but can be differentiated by several characters, viz. the carapace with longer anterolateral serrated crest margins, the relatively larger and the denser granules on branchial and gastric regions, more prominent epigastric lobes, males with proportionately broadly abdominal somites III-V, more granulated chelipeds, and distal segment of G1 bent inwards at about 30°.

0880. **Wowor, D. 2011**. Krustasea di Kawasan Karst Gunungsewu dan Menoreh. *Prosiding Workshop Ekosistem Karst "Berbagi Informasi Untuk Meningkatkan Upaya Konservasi Kawasan Karst Gunungsewu Dan Jonggrangan"*. Diselenggarakan oleh Pusat Penelitian Biologi-LIPI, BKSDA Yogyakarta, dan Yayasan Kanopi Indonesia. Hlm. 156–166.

Abstrak

Penelitian fauna di kawasan karst Gunungsewu dan Menoreh (sekarang dikenal sebagai kawasan karst Jonggrangan) telah dilakukan oleh Pusat Penelitian Biologi–LIPI dari tahun 2006 sampai dengan 2009. Penelitian terutama dilakukan di kawasan karst Gunungsewu bagian tengah dan timur, yaitu Kabupaten

Gunungkidul di Provinsi Daerah Istimewa Yogyakarta, Kabupaten Wonogiri di Provinsi Jawa Tengah, dan Kabupaten Pacitan di Provinsi Jawa Timur. Penelitian singkat kawasan karst Jonggrangan dilaksanakan di Kecamatan Kulonprogo, Provinsi Daerah Istimewa Yogyakarta, dan Kabupaten Purworejo, Provinsi Jawa Tengah. Fauna akuatik yang diteliti berasal dari endo dan eksokarst, yaitu di 24 gua, 2 luwang, 1 sungai bawah tanah, 9 sungai permukaan, dan 3 pantai. Hasil penelitian menunjukkan terdapatnya 24 jenis krustasea dari 9 suku. Ada 11 jenis udang, 5 jenis kelomang, dan 8 jenis kepiting. Sejauh ini, udang-udang khas gua *Caridina cf rubella* dan *Macrobrachium poeti* serta kepiting khas gua *Karstarma jacobsoni* hanya ditemukan di beberapa gua di Kecamatan Ponjong dan Semanu di Kabupaten Gunungkidul dan Kabupaten Wonogiri. Krustasea khas gua ini juga sangat unik; pigmen pada cangkang luar tubuhnya sudah sangat berkurang dan bahkan hampir hilang, sedangkan kornea matanya telah mereduksi dan menjadi kecil. Dari kawasan karst Jonggrangan di Kabupaten Purworejo telah diperoleh 2 jenis kepiting *Terrathelphusa* sp dan *Malayopotamon cf granulatum* yang diduga adalah jenis-jenis baru untuk ilmu pengetahuan.

0881. **Wowor, D. & C. Rahmadi. 2012.** Krustasea. *Dalam* Suhardjono Y. R. & R. Ubaidillah (*eds.*). *Fauna Karst dan Gua Maros, Sulawesi Selatan*. Hlm. 165–190. Puslit Biologi-LIPI, Cibinong. Jakarta: LIPI Press.

Abstrak

Tidak ada Abstrak

0882. **Wulansari, D.** & **Chairul. 2011.** Penapisan Aktivitas Antioksidan Beberapa Tumbuhan Obat Indonesia Menggunakan Radikal 2,2-Diphenyl-1-Picrylhydrazyl (DPPH). *Majalah Obat Tradisional* 16(1): 22–25.

Abstrak

Antioksidan merupakan senyawa yang berguna mengatasi kerusakan oksidatif akibat radikal bebas dalam tubuh sehingga turut berperan mencegah berbagai macam penyakit. Penelitian ini bertujuan untuk mengetahui aktivitas antioksidan dari beberapa tumbuhan obat Indonesia. Sebanyak 37 ekstrak metanol tumbuhan obat diuji aktivitas antioksidannya secara in vitro menggunakan metode peredaman radikal bebas 2,2-diphenyl-1-picrylhydrazyl (DPPH) dan vitamin C sebagai kontrol positif. Hasil pengujian menunjukkan 29 ekstrak memiliki aktivitas diatas 50% pada konsentrasi 1000 ppm. 5 ekstrak dengan aktivitas tertinggi antara lain ekstrak kulit batang *Sapium baccatum* dan *Leucosyke capitellata*, ekstrak daun *Ardisia crispa*, *Glochidion cauliflorum,* dan *Glochidion superbum*.

0883. Yamamoto, S., **T. Djarwaningsih** & **H. Wiriadinata. 2013**. *Capsicum pubescens* (Solanaceae) in Indonesia: Its History, Taxonomy, and Distribution. *Economic Botany* 67(2): 161–170.

Abstract

Capsicum pubescens is originated in the mid-elevation Bolivia and still primarily cultivated in the Andean South America and also in the Central American higlands, but its cultivation in the rest of the world remains unknown. The present study is the first detailed report of *C. pubescens* as well-used crop at local level in outside Americas. A literature, specimen, field, and market survey on *C. pubescens* were conducted in Indonesia to investigate its intoduction into Indonesia and to reveal its present distribution and cultivation. Three specimens, which collected in West Java, detected in 1916, and stored as *Capsicum* sp., were re-identified as *C. pubescens*. Four species of genus *Capsicum*, *C. annuum, C. frutescens, C. chinense*, and *C. pubescens* are distributed in Indonesia probably before World War II, suggesting that Indonesia has more resources and much potential to breed genus *Capsicum* in Southeast Asia, or like a hotspot of genus *Capsicum* there. Bandung and surrounding higlands in West Java and Dieng Plateau (Central Java) are considered as the center for the cultivation and distribution of *C. pubescens* in Java Island. Plants of *C. pubescens* in Indonesia was already adaptable to the climate there because of the long history of its cultivation. Therefore, it is considered to be easy to introduce these accessions into higlands in Asia, indicating *C. pubescens* in Indonesia has a big potential as a good candidate for economic cash crop. Although, *C. pubescens* normally bears purple flowers occasionally with white center, mutant plants bearing totally white flowers were found widely in West and Central Java, which would be the first scientific report of a white flower type of *C. pubescens,* especially in outside Americas. It is unclear if the white flower type of *C. pubescens* was introduced at the same time as the purple flower type into Indonesia or if it occurred as a mutation there.

0884. Yamamoto, S., **T. Djarwaningsih** & **H. Wiriadinata. 2014**. History and Distribution of *Capsicum chinense* in Indonesia. *Trop. Agr. Develop*. 58(3): 94–101.

Abstract

Capsicum chinense is thought to have been domesticated in the lowlands east of the Andes Mountains in South America. It is grown in Southeast Asia, but its distribution there remains unknown. The researchers conducted literature, specimen, field, and market surveys of *C. chinense* in Indonesia to investigate its introduction to Indonesia and to determine its current distribution. One dried specimen collected in 1912 and stored as *Capsicum* sp. appears to be either *C. frutescens* or *C. chinense*. An illustration of *C. frutescens* in Ochse (1931), which actually appears to be *C. chinense*, suggests that *C. chinense* may have been introduced into Indonesia before World War II; however, the distribution of *C. chinense* in Southeast Asia remains very limited to this today. In Indonesia, *C. chinense* is distributed widely on at least the three major islands

of Java, Kalimantan, and Sulawesi with several morphologically different fruit types; it is used as an ornamental plant as well as a spice. Four species of the genus *Capsicum*, including *C. annuum*, *C. frutescens*, *C. pubescens*, and *C. chinense*, are distributed in Indonesia, which suggests that Indonesia has more genetic resources and more potential to breed species of *Capsicum* than other countries in Southeast and East Asia.

0885. Yamamura, Y., P. Lisdiyanti, R. Ridwan, S. Ratnakomala, R. Sarawati, Y. Lestari, **E. Triana**, G. Kartika, Y. Widyastuti & K. Ando. **2010**. *Dietzia timorensis* sp. nov., Isolated from Soil. *International Jurnal of Syatematics and Evolutionary of Microbiology* 60(2): 451–454.

Abstract

An actinomycete strain, ID05-A0528^T, was isolated using the SDS-yeast extract pre-treatment method from soil under mahogany (*Swietenia mahogani*) trees in West Timor, Indonesia, and was examined by using a polyphasic taxonomic approach. Chemotaxonomic and phylogenetic characterizations demonstrated that the novel strain belongs to the genus *Dietzia*. 16S rRNA gene sequencing studies showed that the strain was related to *Dietzia cinnamea* (97.2%). Results of phenotypic and phylogenetic analyses determined that strain ID05-A0528^T is different from the known species of the genus *Dietzia*. It is proposed that the isolate should be classified as a representative of a novel species of the genus *Dietzia*, with the name *Dietzia timorensis* sp. nov. The type strain is ID05-A0528^T (=BTCC B-560^T =NBRC 104184^T).

0886. Yong, D.L., J. Berton, C. Harris, P.C. Rasmussen, R. Noske, D.D. Putra, W. Rutherford, I. Tinulele & **D.M. Prawiradilaga. 2012.** Notes on Breeding Behaviour, Ecology, Taxonomy, and Vocalisations of Satanic Nightjar *Eurostopodus diabolicus* in Central Sulawesi. *Kukila* 16(1) 2012: 16-30.

Abstract

The Satanic Nightjar *Eurostopodus diabolicus*, rediscovered in 1996, is a hitherto poorly known nocturnal bird endemic to Sulawesi's hill and montane forests with only two documented nest records to date. Here, this study describes two further nest records from the Anaso track in Lore Lindu National Park (LLNP), Central Sulawesi, which extends the known breeding season by five months. This suggests the breeding season lasts at least seven months, from March to October. Both nests were on the ground in forest clearings with at least a partial ground cover of ferns and moss, and both contained single chicks. The nestling period was at least 31 days. The research records of vocalizing individuals at 2,300m asl extend the known upper elevation limit of the species. Apparent plumage and vocal differences between birds in North and Central Sulawesi suggest that the species is not monotypic, although further study is needed.

0887. **Yuliar, Suciatmih**, **D. Supriyati**, & **M. Rahmansyah**. **2013**. Biodiversity of Endophytic Bacteria and Their Antagonistic Activity to *Rhizoctonia solani* and *Fusarium oxysporum*. *Global Journal of Biology, Agriculture & Heatlh Sciences* 2(4): 111–118.

Abstract

Understanding plant microflora interaction and their diversity as phyloplant and rhizoplant bacteria, 153 endophytic bacteria had been isolated from 67 plant species. The plant samples were gathered from agriculture area and next to riparian tropical forest in slope of Salak mount area, West Java, Indonesia. Three bacterial strains (ES05, ES36, and ES78) showed the highest suppression to *Rhizoctonia solani* J.G. Kühn 1858, and their suppressive ability was about 69 persen higher than that of control. The bacteria were isolated from part plant of *Ageratum conyzoides*, *Camellia sinensis* and *Ficus benyamina*, respectively. In the second step of exertion, the screened strains were showed their ability to suppress *R. solani* growth in range of 16–60 persen in potatoes dextrose agar (PDA) medium, and 5–70 persen in nutrient agar (NA) medium. Five strains (ES50, ES69, ES79, ES120, and ES145) have negative effect to restrain *R. solani* growth in NA medium. Nine of the selected strains inhibited *Fusarium oxysporum* Schlecht growth in the range of 10–47 persen in PDA medium, and 12 of them inhibited *F. oxysporum* growth in range 5–35 persen in NA medium. Five strains (ES05, ES79, ES83, ES91, and ES145) did not restrain *F. oxysporum* in PDA medium, while two others strain (ES50 and ES145) did not either in NA medium. Twenty-one bacterial strains gained from nineteen plant species were tested qualitatively for antibiotics vocation, and only 7 strains (ES42, ES50, ES78, ES81, ES82, ES83, and ES91) produced iturin, one strain (ES79) produced surfactin, while other three strains (ES17, ES81 and ES145) produced chitinase. Thirty-three isolates were successfully identified based on 16S rDNA sequences which had high homology examination refer to DNA Data Bank of Japan.

0888. **Yulinery, T.** & **N. Nurhidayat. 2013**. Aktivitas Antimikrob dan Analisis Gen Plantarisin F dari Isolat *Lactobacillus* Asal Buah-Buahan Tropis. *Jurnal Ilmu Kefarmasian Indonesia (JIFI)* 11(2): 147–155.

Abstrak

Lactobacillus isolated from tropical fruits can be used as probiotic and potencial to prevent disease in the digestive tract due to bacteriocin content. One of the bacteriosin called *plantaricin F* is produced by *L. plantarum*. Plantarisin F has antimicrobial activity against Gram positive and gram negative bacteria. The aim of the research was to test the antibacterial activites of several *Lactobacillus* species on 5 bacteria isolates and analyzed the gene expression of plantaricin F. Seven isolates of ten selected isolates could inhibit and twice stronger than chloramphenicol (control). As confirmation, The plantarisin F gene was analized using RT-PCR. The analysis result showed that the size of plantarisin F gene was 70 bp. The highest relative expression of pln F gene was shown by the

Lactobacillus Mar A2 isolate of 10,676 Au, followed by *Lactobacillus* TB(NK) was 2.9207 Au, and the lowest was *Lactobacillus* TB(CK) was 0.5141 Au. *Lactobacillus* TB(NK) can be used as candidate of probiotic to replace antibiotic in preventing of gastrointestinal disease.

0889. **Yulita, K.S.,** T. Kuono & B. Ezaki. **2010.** A Phage Display Combined with DNA Affinity Magnetic System Can Be Applied to A Screening of DNA Binding Proteins, such As Transcription Factors. *Electronic Journal of Biotechnology* 13(1): 1–6.

Abstract

Here, this study introduces a new approach for the screening of DNA binding proteins, using a phage library based on a phage display technique. In principal, a complementary DNA (cDNA) library based on the recombinant bacteriophage T7 expressing target proteins on its capsid (phage display) is constructed. These phage particles are hybridized with a biotinylated target DNA fragment which is immobilized on the surface of streptavidin paramagnetic particle (SA-PMP). The phage particles are released from the target DNA fragment by a nuclease treatment and the recovered phages are used to the next round of hybridization. These processes are repeated three times to amplify the target phages in the population. This simple method is faster, and more systemic than other current methods (e.g. yeast one hybrid system). As a proof of this principle, this research tried to isolate transcription factors which specifically bind to the promoter region of the *Arabidopsis thaliana* AtGST11gene. Two obtained candidates, RING zinc finger protein and AtHB6, showed DNA binding activity to the AtGST11 promoter region. The researchers could validate that their new application of phage display is a superior method for isolation of DNA binding proteins with a broad range of potential applications.

0890. **Yulita, K.S.** & M. Murnianjari. **2010**. Keragaman Genetik Beberapa Klon Durian (*Durio zibethinus* Murray) Asal Jawa Barat Berdasarkan Sidik Random Amplified Polimorphic DNA. *Berita Biologi* 10(3): 269–275.

Abstract

Durian (*Durio zibethinus*) is one of the most popular tropical fruits in Southeast Asia. Indonesia has several local clones that have not yet been widely introduced to local fruit markets. This present study aimed to assess genetic diversity of 17 clones of durian from West Java based on RAPD fingerprints. Thirty RAPD's primers were initially screened and four were selected for the analysis. These four primers (OPA 13, OPD 8, OPN 6 and OPA 18) generated 63 scorable bands to which 100% of them were polymorphic. OPA-13 at 700bp was exclusively possessed by Tambleg clone and other bands were shared among the other clones. Clustering analysis was performed based on RAPD profiles using the UPGMA method. The range of genetic similarity value among genotypes was 0.15-0.73 suggesting high genetic variation among them. Results from genetic diversity analysis based on plant propagation system showed a

higher genetic diversity value in occulating (87.30%) plants than that of grafting (60.32%).

0891. **Yulita, K.S., Y.S. Poerba & T. Partomihardjo. 2010**. Keragaman Genetika Ramin [*Gonystylus bancanus* (Miq.) Kurz] dari Provinsi Riau Berdasarkan Profil *Random Amplified Polymorphic* DNA. *Jurnal Biologi Indonesia* 6(2):173–183.

Abstract

Gonystylus bancanus is a commercial timber found only on peat swamp forests, scatteredly distributed in Sumatra and Kalimantan. Their existence is now under severe threat due to habitat conversion. One of the remaining natural populations of ramin was in Riau Province, Sumatra. This study aimed to assess genetic diversity of this species within their natural populations in Riau Province using Random Amplified Polymorphic DNA (RAPD). RAPD profiles were obtained by performing PCR amplification using five arbitrary primers. One hundred and eleven putative loci of RAPD were scored and analysed using Popgene and NTSYS software. Eleven of RAPD bands were commonly found in all populations and 16 bands were distinctively found in certain populations. These unique bands may serve as population diagnostic marker for such populations. The average genetic diversity within population (0.1606) was lower than that of among populations (0.1894). Genetic differentiation (Gst) indicated that 95.56% of total genetic diversity in ramin was attributed to the differences among populations. The highest genetic diversity was found in population 3 (He:0.1858) and 3 (I: 0.2864), while the lowest genetic variation was observed in population 1 (He: 0.1438) and 2 (I: 0.2201). Total genetic diversity for all population (Ht) was 0.1982 with an average value of genetic diversity within populations (Hs) was 0.1606. The low level of genetic diversity found in ramin with high population differentiation may suggest that these remaining populations was undergoing genetic bottleneck resulted from severe habitat fragmentation.

0892. **Yulita, K.S. 2011.** Genetic Variations of *Lansium domesticum* Corr. Accessions from Java, Bengkulu, and Ceram Based on Random Amplified Ploymorhic DNA. *Biodiversitas* 12(3): 125–130.

Abstract

Duku (*Lansium domesticum* Corr.) is one of popular tropical fruits in Southeast Asia. The spesies has three varieties, known as duku, langsat, and kokosan; and duku is the most popular one for being the sweetest fruit. Indonesia has several local varieties of duku, such as duku Condet, duku Sumber, and duku Palembang. This present study aimed to assess genetic diversity of 47 accessions of duku from provenances of Java, Bengkulu (Sumatra), dan Ceram based on RAPD fingerprints. Ten RAPD's primers were initially screened and five were selected for the analysis. These five primers (OPA 7, 13, 18, OPB 7, and OPN 12) generated 53 scorable bands with an average of 10.6 polymorphic fragment

per primer. Percentage of polymorphism ranged from 16.89% (OPA 7 and OPN 12) to 24.54% (OPB 7) with an average of 20.16% polymorphism. OPB 7 at 450 bp was exclusively possessed by accession 20 (Java), OPA 18 at 500 bp was by accession 6 (Java), 550 bp by 3 clones from Bengkulu. Meanwhile, OPN 12 at 300 bp and OPA 13 at 450 bp were shared among the accessions. Clustering analysis was performed based on RAPD profiles using the UPGMA method. The range of genetic similarity value among accessions was 0.02–0.65 suggesting high variation of gene pool existed among accessions.

0893. **Yulita, K.S. 2011.** Variasi dan Kekerabatan Genetik pada Dua Jenis Baru Belimbing (*Averrhoa dolichorpa* Rugayah et Sunarti *dan A. leucopetala* Rugayah et Sunarti) Berdasarkan Profil *Random Amplified Polymorphic* DNA. *Jurnal Biologi Indonesia* 7(2): 321–330.

Abstract

Two wild species of *Averrhoa* from Papua and Gorontalo respectively has recently been described. These two species were previously treated as 'intermediate species' between *A. carambola* and *A. blimbi* on the basis of morphological characters. This present study aimed to assess genetic variation and genetic relatedness of the two species compared to their relatives (*A. carambola* and *A. blimbi*) by using Random Amplified Polymorphic DNA (RAPD). Five RAPD primers (OPA 9E, OPA 13, OPB 7, OPB 18 dan OPN 12) were used to amplify total DNA genom and produced 31 bands to which 90.32% were polymorphic. These bands are ranging in size from 300–1,700 bp. DNA fingerprints for each species was indicated by differences in RAPD profiles resulted from amplification of five primers. Clustering analysis was performed based on RAPD profiles using the UPGMA method. The genetic similarity ranges between 0.25–1.00 indicating wide range of genetic variations observed. Results also indicated that the two species were genetically distant from *A. carambola* and *A. blimbi*, thus supported the recent morphological treatment.

0894. **Yulita, K.S**., & **T. Partomihardjo. 2011**. Keragaman Genetika Populasi Pelahlar (*Dipterocarpus littoralis* (Bl.) Kurz) di Pulau Nusakambangan Berdasarkan Profil *Enhanced Random Amplified Polymorphic* DNA. *Berita Biologi* 10(4): 541–548.

Abstract

Dipterocarpus littoralis is a commercial timber species endemic to Nusakambangan island. Their existence is under severe threat due to habitat conversion and illegal logging. This study aimed to assess genetic diversity of this species within and among populations using E-RAPD. Three arbitrary RAPD primers were modified by addition of two nucleotides at their 5' termini. E-RAPD profiles were obtained by performing PCR amplification using the modified primers. Forty-five putative loci of E-RAPD were scored and analysed using POPGENE software. Some of the RAPD bands (OPA 9E-200 and 850 bp) were distinctively found for population 2, thus it served as population

diagnostic marker for this population. Genetic diversity within population (0.1540) was higher than that of among populations (0.0418). Genetic differentiation (Gst) indicated that 21.35% of total genetic diversity in *D. littoralis* was attributed to the differences among populations. The highest genetic diversity was found in population 2 (He:0.1923; I:0.3158), while the lowest genetic variation was observed in population 1 (He: 0.0828; I: 0.1209). Total genetic diversity for all population (Ht) was 0.1958 with an average value of genetic diversity within populations (Hs) was 0.1540. This fact suggested high level of genetic diversity found on these relic populations.

0895. **Yulita, K.S.** & **M. Mansur. 2012**. The Occurrence of Hybrid in *Nepenthes hookriana* Lindl. from Central Kalimantan Can Be Detected by RAPD and ISSR markers. *HAYATI Journal of Biosciences* 19(1): 18–24.

Abstract

Nepenthes spp. (Nepenthaceae) is one of popular ornamental plants in Southeast Asia. There are 97 species of *Nepenthes* to which 64 are found in Indonesia with the centre of its diversity is in Borneo. *N. x hookeriana* was hypothesised to be a natural hybrid between *N. ampularia* and *N. rafflessiana* on the basis of morphological characters. Several variants of each species were also known. This present study aimed to detect the occurrence of hybrid within *N. x hookeriana* 'spotted' and 'green' variant using random amplified plymorphic DNA (RAPD) and Inter-simple sequence repeats (ISSR). Five RAPD primers dan three ISSR primers were used to amplify total DNA genome and produced 83 polymorphic bands ranging in size from 300–1,700 bp. Clustering analysis was performed based on RAPD and ISSR profiles using the UPGMA method. The genetic similarity of the combined markers range between 0.30–0.75 indicating narrow range of genetic similarity among the accessions. Results from cluster analyses suggested that *N. x hookeriana* was indeed a hybrid between *N. ampullaria* and *N. raflessiana,* but it is genetically more similar to *N. raflessiana*.

0896. **Yulita, K.S. 2013**. Identifikasi Molekuler Pohon Induk Beberapa Varietas Durian Asal Jepara Menggunakan *Random Amplified Polymorphic* DNA. *Jurnal Hortikultura* 23(2): 99–106.

Abstract

Jepara is known to be one of the centres of diversity of durian in Central Java. Several local varieties of durian from Jepara have been widely known in domestic fruit markets, one of which is Petruk. Other local varieties that were recorded from Jepara *i.e.* Sutriman, Sukarman, Subandi, and Sundari. Such varieties have not yet been officially released, but known to have potential as 'superior varieties'. This present study aimed to assess molecular identity of these five varieties of durian and their genetic diversity based on RAPD fingerprints. The research covered of collecting sample of durian plant from Jepara District and Bogor Botanical Garden from March to April 2009 and the

RAPD analysis was conducted at Genetic Laboratory, Cibinong Science Centre from July 2010 to March 2011. Seven RAPD's primers were initially screened and three were selected for the analysis, *i.e.* OPB-18, OPN-14, and OPD-20. These three primers generated 22 scoreable bands to which 91.1% of them were polymorphic. Several bands were specifically found in certain varieties, thus become identity to such varieties, *i.e.* OPB-18 at 1210 bp was exclusively possessed by Sutriman, 1200 and 1300 bp by Subandi, 450 bp by Petruk, and OPN-14 at 1200 bp was only found in Sukarman. Clustering analysis was performed based on RAPD profiles using UPGMA method. The range of genetic similarity value among accessions was 49–73%, suggesting high level of genetic similarity among varieties, thus implied considerably low level of genetic variations existed among them.

0897. **Yulita, K.S**. **2013**. Secondary Structures of Chloroplast *trn*L Intron in Dipterocarpaceae and its Implications for the Phylogenetic Reconstruction. *HAYATI Journal of Biosciences* 20(1): 31–39.

Abstract

Unambiguous insertion-deletion events were previously identified in trnL intron of 110 species of subfamily Dipterocarpoideae (Dipterocarpaceae). These indels are associated with the formation of four stem loop structures and featuring characteristic for generic/infra-generic level depended upon which taxonomic classifications are followed. Phylogenetic analyses were performed by including and excluding these structures to examine the robustness of resulted topologies. Results indicated that inclusion of such structures yielded more resolved topologies, and that none of the stemloop structures were homoplasious. Results of this present study was also in agreement with the previous molecular phylogenetic studies using several genes of cp genomes in which tribe Dipterocarpae was polyphyletic by the placement of all members of the genus *Dipterocarpus* within tribe Shoreae, and that tribe Shoreae was a potential monophyletic group. The phylogenetic relationships between variable genera of Hopea and Shorea was also in accordance to earlier studies that suggested a potential monophyly of the two with inclusion of *Parashorea* and *Neobalanocapus* heimii. Genera that were recived strong branch support (*Dipterocarpus*, *Dryobalanops, Vatica,* and *Stemonoporus*) possessed certains indels exclusive to each and this may contributed to the monophyletic nature of these genera.

0898. **Yulita, K.S., D. Martanti, Yuyu S.P.** & Herlina. **2013**. Deteksi Mutan Kentang Hitam Hasil Radiasi Sinar ϒ Menggunakan Marka ISSR dan RAPD. *Jurnal Hortikultura* 24(1): 1–9.

Abstract

Black tuber potatoes [*Plectranthus rotundifolius* (Poir.) Spreng.] is one of the alternative food sources for people living in some parts of Indonesia. However, low level of genetic variations found in black tuber potatoes has become obstacle in development of new variety. Plant breeding through mutation, e.g.

irradiation of γ rays, can be assumed to improve genetic diversity. The experiment was conducted in January to November 2010 at Plant Genetic Laboratory, Research Center for Biology, Cibinong Bogor. The aim of this study was to observe the occurence of black tuber potato mutant irradiated with γ rays 6, 25, and 35 gray using ISSR and RAPD markers. Fifteen primers of ISSR and RAPD were used to amplify total genomic DNA. Of the total 15 primers used, only four primers generated polymorphic bands for mutant detection of 25 Gy (OPA 13, OPA 18, OPB 18, and UBC 834) in accession 1#10; 11.3#4; 11.3#5, and 2.10#8, and only three primers for concentration of 35 Gy (OPA 13, OPB 18, and UBC 807) in accession 4.10#2, 4.10#1, 4.10#4, 4.10#3, 4.10#5, and 33d.1#3. The results showed that ISSR and RAPD were reliable markers that can detect mutant of black potatoes.

0899. **Yulita, K.S.** & **B.P. Naiola. 2013**. Keragaman Genetik Beberapa Aksesi Jagung dari Nusa Tenggara Timur Berdasarkan Profil Inter Short Sequence Repeat (ISSR). *Jurnal Biologi Indonesia* 9(2):255–264.

Abstract

Maize (*Zea mays* L.) has become second most important cereal crops after rice in Indonesia. Maize is a staple food and the main crop in subsistence dry land farming system in Nusa Tenggara Timur (NTT). Previous survey suggested that NTT may have contained considerable amount of local landraces of maize that have not been well-recorded. Traditional farmers prefer using traditional landraces than popular hybrid maize due to their superior features such as less susceptible to weevil attack and well-adapted to local environment. Hence, farmers were continuously grow local landraces to meet the demand for their food security. Information on diversity of local landraces is very important for improving landrace germ plasm. The objective of this study is to assess genetic and phenotypic diversity of 15 accessions of maize from nine putative landraces collected from six locations in NTT based on Inter Short Sequence Repeat (ISSR) fingerprints and few morphological characters. Five ISSR's primers (UBC 809, 822, 834, 876, and 892) were initially screened and two (UBC 809 and 834) were selected for the analysis. These primers generated 16 scorable bands with two monomorphic bands, i.e. UBC 809 at 700 bp and UBC 834 at 900 bp. Clustering analysis was performed based on ISSR profiles using the UPGMA method. The range of genetic similarity value among accessions was 0.30–0.80 suggesting sufficient variation of gene pool existed among accessions. Combined data set of ISSR and morphological data suggested a higher diversity with a cofficient of distance range from 0.52 to 1.25. Same as a single data set deduced from ISSR profile, none of the accessions were clustered according to their landraces nor their progeny.

0900. **Yusuf, R., Purwaningsih** & S. Sukardjo. **2010.** Vegetasi Bawah di Tegakan Tua *Cocos nucifera* L. (Arecaceae) di Pulau Pari, Teluk Jakarta. *Jurnal Teknologi Lingkungan* 11(2): 175–187.

Abstract

Undergrowth vegetation analysis in the old coconut stands in the Pari Island was undertaken to determine the structure and floristic composition in relation with their habitat characteristic. Physiognomically, the undergrowth vegetation was typified by grasses community with *Ischaemum muticum* (Importance Value: 122,94%) and *Imperata cylindrica* (Importanve Value: 55,45%) to be dominant and co-dominant species respectively. Floristically, the grasses community consists of 27 families along with their 56 genera and 58 species. Amongst those, only 15 species belong to a weed component and can be classified as principal and common weed species in the agricultural land in Indonesia. The grasses community has four common families in term of their highest number of species, viz Compositae, Euphorbiaceae, Leguminosae and Poaceae. Based on the ordination technique of Principal Component Analysis (PCA), three distinct groups of the vegetation component can be recognized as (i) pes-caprae formation, (ii) Calophyllum formation and (iii) transition community zone. The spatial distribution of prevalent species in relation with their habitat characters was discussed. Generally, the grasses community can be classified into secondary vegetation of the small island.

0901. **Yusuf, R. 2011.** Keanekaragaman Jenis Pohon di Hutan Sekunder Pulau Moti, Ternate, Maluku Utara. *Dalam* I. Maryanto & H Sutrisno (eds.) 2011 *Ekologi Ternate.* Hlm. 237–250. Pusat Penelitian Biologi-LIPI.

Abstract

The diversity of tree species in secondary forest was carried out in Moti Island, Ternate, North Maluku. Three sample plot of 50 x 50 m^2 were arranged along the altitudinal gradien. Enumeration was done to all trees with diameter at breast height down to 10 cm dbh. In total of 3 samples plots (0.75 ha), 625 trees were recorded, belonging to 75 species, 60 genera, and 34 families. Euphorbiaceae recorded as the largest number of species (9) and Moraceae the second (8) species. Based on the density and distribution *Gnetum gnemon* and *Streculia treubii* recorded as the most common species. Based on the results of exploration, the number of tree species as a whole recorded 98 species, classified in 65 genera, and 33 families.

0902. **Yusuf, R. 2011.** Komposisi Floristik Hutan Sekunder di Lokasi Restorasi Blok Hutan Sei Serdang, Kabupaten Langkat, Sumatra Utara. *Prosiding Seminar Nasional 'Konservasi Tumbuhan Tropika: Kondisi Terkini dan Tantangan ke Depan".* 299–304. *UPT Balai Konservasi Tumbuhan Kebun Raya Cibodas, LIPI.*

Abstract

The result of a floristic inventory of plants in the forests of former oil palm plantation in a lowland forest Sei Serdang, Resort Cinta Raja Besitang, North Sumatera show that 67 species, 61 genera, and 33 families represented by 298 individuals consisting of 218 saplings (DBH ≥10 cm) in the pllts of 0.75 hectare sampled. The three leading families in terms of number of species were recorded

as Euphorbiaceae, Moraceae, and Rubiaceae, while according to the total sum of importance value, were Euphorbiaceae and Annonaceae. Former there area of oil palm plantations have now functionalized to return to native ecosystems through restoration of forests. Some species are planted for forest restoration activities among others *Vatica perakensis*, *Shorea atrinervosa*, *Shorea leprosula*, *Hopea sangal*, *Adinandra javanica*, *Ediandra macrophylla,* and *Lansium domesticum*.

0903. **Yusuf, R. 2011.** Pertumbuhan, Persebaran dan Potensi Euphorbiaceae di Kawasan Hutan Stasiun Penelitian Ketambe-Aceh Tenggara. *Berkala Penelitian Hayati (Jurnal of Biological Researches) Special Topics in Plant and Algae. Edisi Khusus* No. 5A: 141–146.

Abstract

Euphorbiaceae is one of the largest families among the five families in the area of Vascular plants Malesia. Euphorbiaceae has a wide distribution, both in forests that have been damaged (secondary forests) and forests which are still intact (primary forest). Research of growth and spread of Euphorbiaceae in the Forest Ketambe, TNGL South-east Aceh was conducted using the quadratic methods (plot) area of 1.6 ha, to reveal Euphorbiaceae diversity and potential. From the observations on permanent plots, it was found three forest, they are riparian forest, Meliaceae forest and hill forest in forest research station. Euphorbiaceae tribe has registered as a member of the largest type that was composed of 30 species and 15 genera. Some species of Euphorbiaceae tribe were noted to have rapid growth (the results of monitoring after 28 years) as *Macaranga hypoleuca, M. Triloba, M. Tanarius, Aporusa frustescens,* and *Elateriospermum tapos*. Several other species such as *Glochidion rubrum*, *Glochidion arborescens,* and *Bischofia javanica* were estimated as potential as drug ingredients, while *Baccaurea deflexa*, *B. bracteata*, *B. lanceolata*, *Mallotus phillipensis*, *Blumeodendron tokbrai*, *Elateriospermum tapos,* and *Croton argyratus* as feed primates. Local people traditionally have used several types of potentially material and other types of drugs suspected to contain chemical compounds for anti-bacterial and anti-malaria. It can be concluded that the Euphorbiaceae species diversity was quite high and mostly small-medium tree and easily adapt to disturbed environments though.

0904. **Yusuf, R. 2011.** Sebaran Ekologi dan Keanekaragaman *Ficus spp*. di Indonesia. *Berkala Penelitian Hayati (Jurnal of Biological Researches) Special Topics in Plant and Algae.* Edisi Khusus No. 5A: 83–91

Abstract

Information on the ecological distribution and diversity of *Ficus spp.* in Indonesia was carried out by literature study and observation based on the herbarium materials. Materials and methods used in this research based on the herbarium specimens were kept in Herbarium Bogoriense. The purpose of this study was to determine the distribution pattern and to know the number

of species of *Ficus* in Indonesia. The results showed *Ficus* (Moraceae) consists of 252 species which are disributed in several of ecosystems, such as lowland forests, mountain forest, riverside forests, peat swamp forest, heath forest, limestone, and savanna. It is recognized that the most common ecosystem where *Ficus* found is the lowland forest, particularly on secondary forest. Kalimantan is known as the center of *Ficus* distribution (106 species), followed by Sumatra (102 species). Based on the habitus, it is identified that most of *Ficus* grow as tree (179 species), shrubs (62 species), and hanging roots (42 species). Generally, *Ficus* was often found at an altitude up to 500 m above sea level, however *F. oleifolia* (Sumatra, Kalimantan, Sulawesi) and *F.eondochaete* (Papua) are able to grow at an altitude up to 3000 m above sea level. Some *Ficus* which have a wide ditribution as well as are *F.variegata*, *F.racemosa*, *F.microcarpa*, *F.hispida*, *F.septica*, *F.subulata*, *F.tinctoria*, *F.caulocarpa*, *F.virens,* and *F.benjamina*. It can be concluded that *Ficus* species was adaptable in various environments, especially areas that experienced disturbance and the genus is very wide distributied.

0905. **Yusuf, R. 2011.** Tipe Vegetasi Hutan pada Beberapa Ketinggian di Pulau Moti, Kabupaten Ternate, Maluku Utara. *Prosiding Seminar PTTI*, *Bali, 10–11 Oktober 2011.*

Abstrak

Telah dilakukan penelitian tipe-tipe vegetasi di kawasan hutan Pulau Moti, Maluku Utara pada beberapa ketinggian (100, 200, 300, 400, dan 500 m. dpl.) dengan menggunakan metode petak. Hasil inventarisasi pohon dengan diameter ≥ 10 cm menunjukkan bahwa secara keseluruhan tercatat 98 jenis, tergolong kedalam 65 marga dan 33 suku. Struktur dan komposisi floristik pada berbagai ketinggian relatif bervariasi dan hal ini diduga berkaitan dengan kondisi habitat. Berdasarkan jumlah jenis dua suku utama adalah Euphorbiaceae dan Moraceae, sedangkan berdasarkan nilai penting suku tercatat Sterculiaceae dan Moraceae. *Sterculia macrophylla* (Sterculiaceae) dan *Gnetum gnemon* (Gnetaceae) merupakan 2 jenis paling umum dari sepuluh jenis pohon utama.

0906. **Yusuf, R.** & **Purwaningsih. 2011.** Forest Regeneration on Mountains Forest of Mount Ciremai National Park, West Java. *Proceeding The 1st ACIKITA International Conference of Science and Tecnology* 461.

Abstract

Study on tree species regeneration was carried out at the eastern of Mount Ciremai National Park with several altitudes (500–1600 m asl.) by using quadrat method. Inventory results sapling DBH (diameter from 5 to 9.9 cm) recorded at Seda forest (altitude 400–500 m.dpl) was 141 individuals and consisted of 54 species, 43 genera, and 24 families in 1 ha plots. On the other side at altitude of 1200–1660 m.dpl., recorded 217 individuals consisted of 38 species, 28 genera, and 22 family in the sample plots covering 0.75 ha. Species that show good regeneration at altitude of 400–500 m included *Prunus arborea,*

Ficus procera, Actinodaphne padana, while at altitude of 1200–1600 m it was recorded *Tricalysia singularis, Ficus fistulosa, Villebrunea rubescens, Pinanga coronaria,* and *Prunus arborea*.

0907. **Zein, M.S.A.** & **S. Sulandari. 2012.** Keragaman Genetik dan Distribusi Haplogroup Ayam Kampung dengan Menggunakan Hipervariable-I Daerah Kontrol DNA Mitokondria. *Jurnal Ilmu Ternak dan Veteriner* 17(2): 120–131.

Abstract

Until now there are no studies evaluating the position of kampung chickens in chicken clade of asia. Thus, studies based on molecular DNA sequence hipervariable-i on kampung chicken is needed. Molecular studies based on DNA sequences hyper variable-i of kampong chicken was done to confirm the results of previous evaluations conducted on 15 families of local chickens of indonesia. An analysis of 210 individuals kampung chicken (Aceh, north Sumatra, Lampung, Banten, Central Java, Lombok, Sulawesi, Ternate, Morotai and Halmahera) resulted in 51 haplotypes derived from 62 polymorphic sites. Polymorphic sites among the highest were seen at 112–397 (93.22%). The highest haplotype frequencies was contained in the haplotype h-4 (36.19%), followed by h-1 (18.57%) and h-5 (10.95%). Kampung chicken phylogeny analysis formed four haplogroups/clade from 7 references of asian chicken clade. Four clades are clade ii = 84.31% (43 haplotypes), clade iiic = 1.96% (1 haplotype), clade iiid = 3.92% (2 haplotypes), clade iv = 7.84% (4 haplotypes). The results prove that indonesian local and indigenous chickens were equally dominated clade ii. Analysis of genetic diversity showed haplotype diversity of 0.825 ± 0.021, nucleotide diversity of 0.00600 on average, the genetic distance between populations ranged from 0.003 to 0.011, and the genetic distance within populations ranged from 0.00395 to 0.01031. Genetic distance between individuals in all populations of kampung chickens was significantly different ($p < 0.01$). Fu's fs values was negative, indicating high genetic diversity and population expansion on native chicken in indonesia. Other important result was shown with the major haplotype spread from western to eastern indonesia, and had strengthened the position of Indonesia as one of the centers of domestication of the chicken.

0908. **Zein, M.S.A.** & **Y.S. Fitriana. 2012.** Teknik Molekuler untuk Identifikasi Spesies Ordo Cetartiodactyla Menggunakan *Barcoding* DNA. *Zoo Indonesia* 21(2): 1–8.

Abstract

In Indonesia, many cases derived from animal products of order Cetartiodactyla were widely consumed as a source of animal protein and not clearly identifiable. Therefore, an accurate tool for species identification was required to solve the various cases that can harm consumers. Sequences diversity in the cytochrome coxidase subunit I (COI) gene has been shown to be an effective tool for

species identification in various species of Cetartiodactyla order. Phylogeny tree indicated that this gene is very suitable for identifying the species level. One hundred and twelve (112) specimens of Cetartiodactyla order collected from various locations in Indonesia, representing 15 species, 10 genera, and 4 families were evaluated in this study. The results showed the genetic distance within species ranged from 0% to 0.7% (average 0.13±0.05%) and between species ranged from 2% to 28%, within genera ranged from 8.8% to 27.4% (average 1.36±0.037%), and between genera ranged from 8.8% to 27.4%, while within family ranged from 5.8% to 11.9% (average 7.8 ±2.85%) and between families ranged from 18.6% to 26.3%. Phylogeny tree construction of the order Cetartiodactyla indicated that all species formeda are cohesive and divergent clusters.

0909. **Zein, M.S.A., S. Sulandari**, Muladno, Subandriyo, & Riwantoro. **2012.** Diversitas Genetik dan Hubungan Kekerabatan Kambing Lokal Indonesia Menggunakan Marker DNA Mikrosatelit. *Jurnal Ilmu Ternak dan Veteriner* 17(1): 25–35.

Abstract

Genetic diversity is important information in the process of conservation and sustainable utilization of animal genetic resources. Thirteen microsatellite markers were used to estimate the degree of genetic diversity on five Indonesian local goats. Results showed that the highest average allele diversity present in the locus MAF70 (5.6 ± 2.9), and the lowest was in the locus MAF035 (1.6 ± 0.6), the average number of alleles per locus was 6 ± 2.3. The lowest average alleles diversity present was in the Gembrong goat (2.2 ± 1.1) and the highest was in the Jawarandu goat (4.9 ± 2.2). There is a unique alleles at loci MCM527 and present in all Indonesian local goat with the highest allele frequency on Peranakan Etawa (37.2%) and the lowest in Gembrong goat (7.9%). H_0 ranged from 0.372 ± 0.173 (Gembrong) to 0.540 ± 0.204 (Peranakan Etawa), and H_E ranging from 0.249 ± 0.196 (Gembrong) to 0.540 ± 0.212 (Peranakan Etawa). The genetic differentiation for inbreeding among population (F_{IS}), within population (F_{IT}), and average genetic differention (F_{ST}) were 0.0208 (2.08%), 0.1532 (15.32%), and 0.1352 (13.52%), respectively. Locus ILSTS029, BMS1494, MAF035, and INRA0132 had a low PIC value (PIC < 0.25), locus SRCRSP3, OARFCB20, ILSTS005, SPS113, MCM527, and ETH10 provide moderate (PIC = 0.25 to 0.5), and locus CSRD247, MAF70, and ILSTS11 had high value PIC > 0.5. Phylogenetic relationship was consistent with the history of its development based on Kacang goat except was for Gembrong Goat. This research information can be used for conservation strategies and breeding programs on each population of Indonesian local goat.

0910. **Zein, M.S.A., S. Sulandari, H. Sutrisno, D.M. Prawiradilaga, M. Irham**, & **T. Haryoko. 2013.** Perkembangan *DNA Barcode* di Indonesia (BAB 5). *Dalam*

M.S.A. Zein & D.M. Prawiradilaga (eds.). *DNA Barcode Fauna*. Edisi I, ISBN 978.602.7985.26.1 590; 242. Penerbit Kencana, Prenada Media Group.

Abstrak

Inisiasi kajian *DNA Barcode* fauna di Indonesia pertama kali dilakukan oleh Laboratorium Genetik, Bidang Zoologi Pusat Penelitian Biologi-LIPI pada tahun 2000. Kegiatan yang dilakukan saat itu yaitu koleksi material DNA (darah) burung dan mamalia dari berbagai tempat penangkaran di luar habitat asli (*ex-situ*) dan di habitat asli *(in-situ)*. Sebagai pusat acuan terpercaya bidang pemberdayaan dan konservasi aset keragaman hayati Indonesia, lembaga ini melakukan inventarisasi, karakterisasi, dan valuasi keragaman hayati serta memiliki tugas sebagai *scientific authority* dalam hal pengelolaan sumber daya kehati. Selain itu, lembaga ini juga didukung oleh koleksi referensi fauna Indonesia meliputi mamalia, burung, herpetofauna, ikan, moluska, serangga, crustacea, acari (tunga dan caplak), dan cacing parasit yang terbaik dan terbesar di Asia Tenggara. Program "Pengembangan Bank *DNA* hidupan liar Indonesia" pada mulanya ditujukan untuk mendukung kajian keragaman genetik, namun saat ini juga dilakukan kajian *DNA Barcode* untuk menunjang penelitian taksonomi fauna Indonesia. Kegiatan ini telah mendorong dimulainya koleksi material genetik dalam rangka mengumpulkan "*fresh specimen*" dari berbagai tempat di Indonesia. Pengembangan program ini meliputi pengembangan komponen pokok, yaitu spesimen, laboratorium, database, dan analisis data. Oleh sebab itu, diperlukan pengembangan secara berkelanjutan terhadap kualitas sumber daya manusia, fasilitas laboratorium, jaringan kerja, dan program prioritas.

0911. **Zein, M.S.A**. & **S. Sulandari. 2014**. DNA Fingerprint and Phenotype on the Critical Population Status of Gembrong Goat in Karangasem Regency, Bali. *Jurnal Veteriner* 15(2): 182–191.

Abstrak

Gembrong goat is animal genetic resources which is endemic in Bali island and only exists in Karangasem regency. The current population status of the gembrong goat is critical. Therefore, the population development of in-situ or ex-situ needs to be conducted. Close relative mating tend to occur in conditions such as in a small population, critical status or limited distribution. Low degree of genetic variability is often found in such conditions. Mating arrangements based on DNA data of fingerprint was developed in this study to avoid mating between close relatives (inbreeding). Pedigree detection was analyzed using fifteen (15) microsatellite markers as recommended by ISAP/FAO. The results showed that polymorphic alleles found in the microsatellite markers of SRCRSP3, ILSTS005, MCM527 (4 alleles), followed BM1818 (3 alleles), and ILSTS029, BMS1494, MAF035, OARFCB20, OARE54, MAF70, ILSTS11, ETH10 (2 alleles). Monomorphic allele (1 allele) was also found in microsatellite markers of SPS113, CSRD247, and INRA0132. DNA fingerprint of the gembrong goat population was created by genetic distance between individuals and

indicated six clades/haplogroups. It is suggested from this study that mating arrangements between different clades should be applied to increase genetic diversity. Description of morphologies, such as hair color and body size, were used as basic considerations in determining the authenticity of gembrong goat. Among the population of gembrong goat in this study, hair color of the goat showed white (78.95%), a mixture of light brown and white (15.79%), and a mixture of brown and black (5.26%). Gembrong goat body size in this study was still in the range of the previous studies. The analysis results of DNA fingerprints and phenotypes can be used as a basis for rescue and development of gembrong goats, in an attempt to form a large gene pool with high viability for the conservation, development, and sustainable uses.

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Publikasi Ilmiah

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Lembaga Ilmu Pengetahuan Indonesia

Abstrak 2010-2014

Buku *Publikasi Ilmiah Peneliti Pusat Penelitian Biologi, Abstrak 2010-2014* berisi kumpulan abstrak penelitian yang dilakukan oleh staf peneliti di Pusat Penelitian Biologi-LIPI selama kurun waktu lima tahun terakhir (2010-2014). Data abstrak berasal dari kumpulan karya tulis ilmiah yang dimuat dalam jurnal, buku, dan prosiding yang dilakukan oleh peneliti di Pusat Penelitian Biologi-LIPI, baik di dalam maupun di luar negeri.

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