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Habenaria tosariensis (Endemic Orchid from Java, Indonesia). Photo by Gilang Dwi Nugroho

ABSTRACT

INTERNATIONAL CONFERENCE ON BIODIVERSITY

SOCIETY FOR INDONESIAN BIODIVERSITY

Surakarta, 18 December 2021

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THEME:

Microbiology to Multiple Industrial and Environmental Application to Support Sustainable Development and Improve Human Welfare

SECRETARIAT ADDRESS

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TIME SCHEDULE

International Conference on Biodiversity

Society for Indonesian Biodiversity (SIB)

Surakarta, Indonesia, 18 December 2021

TIME	ACTIVITIES	PERSON IN CHARGE	SITE
Time in Jakarta, Indonesia			
December 18, 2021			
07.30-08.00	Registration	Committee	Lobby
08.00-08.30	Opening ceremony - Indonesian National Anthem - Pray - Message from the Chairman of SIB **(Widi Sunaryo, Ph.D)**	Committee	Main Room
08.30-09.30	Keynote speaker: **Assoc. Prof. Dr. Khairul Adha bin A. Rahim**	Moderator: **Prof. Dr. Andria Agusta**	Main Room
09.30-11.00	Parallel presentation		
	Group 1: **AO-01 to AO-08**	Moderator: **Dr. Hafsah M.IL**	R1
	Group 2: **AO-09 to BO-02**	Moderator: **Dr. Arida Susilowati**	R2
	Group 3: **BO-03 to BO-10**	Moderator: **Prof. Ricardo F. Tapilatu, Ph.D**	R3
	Group 4: **BO-11 to BO-18**	Moderator: **Prakash Pradhan, Ph.D**	R4
	Group 5: **BO-19 to CO-02**	Moderator: **Yosep S Mau, Ph.D**	R5
	Group 6: **CO-03 to DO-03**	Moderator: **Dr. Praptiwi**	R6
	Group 7: **DO-04 to EO-01**	Moderator: **Assoc. Prof. Dr. Khairul Adha bin A. Rahim**	R7
	Group 8: **EO-02 to EO-10**	Moderator: **Widi Sunaryo, Ph.D**	R8
	Group 9: **EO-11 to EO-19**	Moderator: **Dr. Kusuma Dewi Sri Yulita**	R9
	Group 10: **EO-20 to EO-28**	Moderator: **Dr. Joko R. Witono**	R10
11.00-11.30	Announcement and Closing	Committee	Main Room

Note: A. Genetic Diversity, B. Diversity of Species, C. Diversity of Ecosystem, D. Ethnobiology and Socioeconomics, E. Bioscience (Life Science and Technology); O. Oral.

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Society for Indonesian Biodiversity (SIB)

Surakarta, Indonesia, 18 December 2021

Diversity of Species

Diversity of Ecosystem

Bioscience

Note: A. Genetic Diversity, B. Diversity of Species, C. Diversity of Ecosystem, D. Ethnobiology and Socioeconomics, E. Bioscience (Life Science and Technology); O. Oral.

the diversity and abundance of wild bees that naturally exist on agricultural land. The purpose of this study was to determine the effect of the introduction of honey bee colonies on the diversity of wild bees and their abundance on agricultural land for seasonal crops. This research was conducted using an experimental method with the treatment of honey bee colonies and cash crops. The results showed that the introduction of honey bees to agricultural lands the introduction of honey bee colonies (*Apis cerana* and *Apis mellifera*) affected the diversity and abundance of wild bees ($p < 0.05$), the best diversity and abundance of wild bees occurred in the early and mid-flowering season. The highest number of wild bees were from the species *Amegilla zonata* and *Amegilla cingulata* ($P=0.00<0.05$). Based on the results of data analysis, it can be concluded that the introduction of honeybee colonies has an impact on the diversity and abundance of wild bees and farmers can introduce honey bee colonies only at the beginning and middle of the blooming time.

Amegilla cingulata, *Amegilla zonata*, blooming time, colony, diversity, honey bees

BO-11

Microbia diversity at revegation of post coal mining area: A study in Kutai Kartanegara Regency, Indonesia

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Post-mining management of coal should be followed by revegation. The success of revegeation activities is largely determined by the fertility status of the soil, which consists of chemical and biological fertility components. Biological fertility indicators of the presence of microbes and the number of soil microbes. The study aims to identify soil microbes in land after coal mining of palm oil vegetation and conduct an analysis of the relationship between the diversity of soil microbes and the chemical fertility rate of the land. The result shows that soil microbial diversity in rubber plantation and in oil palm plantation of post coal mining area in Kutai Kartanegara District, showed that there were 5 (five) fungal genera identified, namely: *Aspergillus* sp., *Trichoderma* sp., *Phytium* sp., *Penicillium* sp., *Fusarium* sp., While the genera of nematodes were founded are: *Rhabditis* sp., *Tylenchus* sp., *Helycotylenchus* sp., *Meloidogyne* sp., *Hemicycliopora* sp., *Rotylenchulus* sp., *Mononchus* sp., and *Radopholus* sp. Furthermore, the are 2 (two) genera of bacteria namely Azotobacteraceae dan Bacillaceae The number of microbes on land that is not post-mine is more than the number of mukrobia on former coal mining land. The chemical fertility of land after coal mining tends to be low, as well as biological fertility tends to be low. Chemical analysis of soil on pasca coal mining land showed soil acidity (pH) was 3.56; C Organik 2.08%; N total 0.17%, C/N ratio 12.24.

Bacteria, fungi, nematodes, post coal mining area

BO-12

Mikroorganism population in reclamation and pre-mining area at PT Kaltim Prima Coal, East Kalimantan, Indonesia

Liris Lis Komara[1], Veronika Murtinah[1], Niko Gusprastomo[2], Agung Febrianto[2], Wahyu Wardana[2], Kris Pranoto[2]

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Coal mining activities change environmental conditions physically, chemically and biologically. Repairing efforts to damage caused by mining must be carried out. To return the soil microorganisms, pre-mining data meeded as reference. This study aims to determine the species of bacteria and fungi in the pre-mining and unrevegetated reclamation area at Kaltim Prima Coal Company. This research was conducted in April 2021. At each location, 20 point/ha of soil samples were taken and mixed evenly, than 100 g was taken and stored in a cooler box to keep it below 4°C. Bacteria and fungi were isolated by the spread plate method by serial dilution technique. The cultures were incubated at 28°C for 24-28 hours. The isolated fungi were then identified based on colony morphology and microscopic characteristics. The 24 hour old bacteria were stained and observed under a microscope. Then 16 biochemical tests were carried out, the data obtained were then referred to the Bergeys manual of determinative bacteriology to the genus level. The results of the study obtained 14 species of bacteria and 7 species of fungi at pre-mining and 3 species of bacteria and 2 species of fungi were obtained unrevegetated. The same bacteria that held at both location is *Bacillus* sp.

Microorganism, post coal mining, pre-mining, reclamation

BO-13

The structure of plankton community at mangrove forest of Bontang Mangrove Park, Kutai National Park, East Kalimantan, Indonesia

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Mangrove plays important roles in both coastal and terrestrial ecosystem, one of them is as a nutrient producer

by decomposing leaf litter that becomes esensial nutrient for the organism in mangrove. The nutrient were used by plankton that also has important role in a waters. Plankton has a function ecology as primary producers and the beginning of the chain in food webs, so that Plankton is often used as a measure of water fertility. This study aims to determine the structure of plankton community at mangrove forest of Bontang Mangrove Park. This research was conducted in juli 2021. There were three station made.100 ml water sample were taken from 100 litter sample of each station using plankton net and taken to the laboratory to identified. The result found 23 species of phytoplankton from 3 class and 12 species of zooplankton from 4 class. Diversity indices of phytoplankton were medium 1.92-2.71 so is the zooplankton 1.01-1.23, the eveness indices of phytoplankton were high between 0.63-0.96 so is the zooplankton 0.53-0.63, the species richness of phytoplankton is 1.59-2.11 and zooplantkton 0.57-1.24 and species dominance in those three station for phytoplankton 0.074-0.264 and zooplankton 0.120-0.343 so there is no dominance in both phytoplankton and zooplankton.

Bontang mangrove park, community structure, phytoplankton, zooplankton

BO-14

Effect of non volatile extracts of *Citrus nobilis, C. amblycarpa,* and *C. aurantifolia* peels as antioxidants and benzyl amino purines (BAP) on in-vitro banana *Kepok* plant growth

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Several efforts have been made to inhibit browning in in vitro cultures of *Musa paradisiaca* L. by administering antioxidant compounds. This includes the use of phenolic and flavonoid compounds from the plants of the Rutaceae family such as Siamese orange (*Citrus nobilis*), citron (*Citrus amblycarpa*), and key lime (*Citrus aurantifolia*). Therefore, this research aims to determine the effect of the *C. nobilis*, *C. amblycarpa*, and *C. aurantifolia* peel extracts with benzyl amino purine (BAP) on Murashige and Skoog (MS) media. The parameters measured were height and number of shoots, as well as total leaves. The peel extracts were obtained by maceration of *C. nobilis*, *C. amblycarpa*, and *C. aurantifolia* peels residues using n-hexane, ethyl acetate, and ethanol as solvents. Furthermore, the inhibitory concentration of 50% (IC50) was determined by the 2,2-diphenyl-1-picrylhydrazyl (DPPH) method. The results showed that the n-hexane extract of *C. nobilis*, ethanolic extract of *C. amblycarpa*, and the ethyl acetate extract of *C. aurantifolia* gave the highest activities with IC50 values of 0.47 mg/mL, 0.66 mg/mL, and 0.46 mg/mL, respectively. Meanwhile, the best combination treatment of *C. nobilis* peel extract and BAP for shoot height was at concentrations of N2B4 (450 ppm ECN + 9 ppm BAP), the number of shoots at N1B1 (250 ppm ECN + 3 ppm BAP), and the number of leaves at N1B4 (250 ppm ECN + 9 ppm BAP). The best combination treatment of *C. amblycarpa* peel extract and BAP for shoot height was at concentrations of A3B2 (650 ppm ECA + 5 ppm BAP), for the number of shoots at A1B2 (250 ppm ECA + 5 ppm BAP), and for the number of leaves at A3B2 (650 ppm). ppm ECA + 5 ppm BAP). Meanwhile, the best combination treatment of *C. aurantifolia* peel extract and BAP for shoot height was at a concentration of C2B2 (450 ppm EC + 5 ppm BAP), the number of shoots at C1B3 (250 ppm EC + 7 ppm BAP), and the number of leaves was at C3B2 (650 ppm EC + 5 ppm BAP) and C3B3 (650 ppm EC + 7 ppm BAP).

Antioxidants, *C. nobilis*, *C. amblycarpa*, *C. aurantifolia*, in vitro culture, *M. paradisiaca*

BO-15

Decomposition of three different leaf litter and meso-arthropods diversity at coffee agroforestry

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Arthropods have a substantial contribution to soil fertility through decomposition, humification, and mineralization. Arthropods community is part of decomposition process that could resulted on plant's nutrition. This study aimed to analyze nutrient release of the three different types of litter (leaf of coffee, eucalyptus, and goatweed) and the meso-Arthropods diversity. 360 litter bags were placed in the soil surface. Ten bags were collected every month and the litter bags were weighed. The meso-arthropods were collected by extracting each litter bag by Barlese-Tullgren methods. The soil under the litter bag was sampled and then analyzed for its chemical content. These experiments were conducted for 6 months (from November 2020 to April 2021). The results showed that the decomposition rate of the three types of litter was significantly different. The average mass reduction of leaf litter during 6-months was 50.23%, 45.79%, and 88.65% for coffee, eucalyptus, and goatweed, respectively. The highest meso-arthropod species richness found in February at coffee and eucalyptus however at goatweed litter the highest was in December 2021, which were 64, 63, and 48 species, respectively. During six months the fastest decomposition was at goatweed and chemically the nutrient release from the litter was Potassium and Boron.

Barlese-Tullgren, nutrient release, species richness