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ABSTRACT

INTERNATIONAL CONFERENCE ON BIODIVERSITY

SOCIETY FOR INDONESIAN BIODIVERSITY

Surakarta, 27 August 2022

THEME:

Coastal Area Management for Sustainable Use of Marine Resources

SECRETARIAT ADDRESS

Sekretariat Masyarakat Biodiversitas Indonesia, Kantor Jurnal Biodiversitas, Gedung Pascasarjana Lt. 5 Universitas Sebelas Maret Surakarta, Jl. Ir. Sutami 36A Surakarta 57126, Jawa Tengah, Indonesia. Tel. +62-822 2649 8910. Email: biodiversitas@gmail.com. Website: https://events.smujo.id/e/international-conference-202208/

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TIME SCHEDULE

International Conference on Biodiversity

Society for Indonesian Biodiversity (SIB)

Surakarta, Indonesia, 27 August 2022

TIME	ACTIVITIES	PERSON IN CHARGE	SITE
Time in Jakarta, Indonesia			
August 27, 2022			
07.30-08.00	Registration	Committee	Lobby
08.00-08.30	Opening ceremony - Indonesian National Anthem - Pray - Message from SIB **(Prof. Drs. Sutarno, M.Sc., Ph.D)**	Committee	Main Room
08.30-09.15	Panel I **Prof. Dr. Chee Kong Yap (Universiti Putra Malaysia, Malaysia)**	Moderator: **Sugeng Budiharta, Ph.D.**	Main Room
09.15-10.00	Panel II **Associate Professor Jeff Ross (University of Tasmania)**		
10.00-11.30	Parallel presentation		
	Group 1: **A-01 to B-02**	Moderator: **Dr. Joko R. Witono**	R1
	Group 2: **B-03 to B-09**	Moderator: **Prof. Dwi Astiani**	R2
	Group 3: **B-10 to B-16**	Moderator: **Dr. Praptiwi**	R3
	Group 4: **B-17 to C-04**	Moderator: **Dr. P.K. Dewi Hayati**	R4
	Group 5: **C-05 to D-03**	Moderator: **Dr. Arida Susilowati**	R5
	Group 6: **D-04 to E-06**	Moderator: **Yosep S. Mau, Ph.D**	R6
	Group 7: **E-07 to E-14**	Moderator: **Prof. Novri Nelly**	R7
11.30-11.45	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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Bioscience

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Our result showed that the I-3 resistant plants infected by FolΔSIX1::SIX1a/b/c have lower diseased index and higher weight compare to the plants infected with FolΔSIX1. In contrast, susceptible tomato plant have higher disease index and lower weight when infected with these transformants in comparison to FolΔSIX1. The FolΔSIX1::GFP transformants gave high disease score and low weight both in the I-3 and the susceptible tomato plants. This result suggests that SIX1a/b/c may have been interact with the I-3 resistance gene, and therefore induce immune response. However, we also saw that in the FolΔSIX1::SIX1a/b/c strains have reduced in pathogenicity compare to the Fol wild type as well as FolΔSIX1::FolSIX1 strain. We assume that the ectopically inserted gene may have caused the gene to be less expressed in these transformants.

Banana, *Fusarium*, interaction, panama disease

E-07

Inventory of mangrove species on Sempu Island and their potential as phytoremediation of heavy metals

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One of the nature reserves in Indonesia is the Sempu Island Nature Reserve (CAPS) in East Java. The government set the Nature Reserve status due to its rich and unique natural features and biodiversity, which is priceless for research and science. For example, there are many types of native Indonesian plants on the island, one of which is mangroves. One of the ecological functions of mangrove plants is as a habitat for marine organisms, breakwaters, and also as a reducer of water pollution or phytoremediator. This study is an exploratory study that aims to determine the diversity of mangrove species found on Sempu Island and explore its potential as a phytoremediation of heavy metals with a literature review method. Exploration was carried out in July 2022 on three beaches on Sempu Island, namely Teluk Semut, Teluk Ra'as, and the Freshwater area. The results showed that eight types of mangroves found on Sempu Island, which were *Rhizophora apiculata, Rhizophora mucronata, Rhizophora Stilosa, Ceriops decandra, Aegiceras corniculatum, Excoecaria agallocha*, and *Heritiera littoralis*. The highest diversity of mangrove species was found in Teluk Semut, then Teluk Ra'as, and the lowest in the Freshwater area. Furthermore, all mangrove species are discovered to have the potential to reduce heavy metals such as copper (Cu), mercury (Hg), lead (Pb), zinc (Zn), iron (Fe), and several other heavy metals.

Heavy metal, mangrove, phytoremediation, Sempu Island Nature Reserve

E-08

Characterization of seed collected from wetland – riparian in the downstream of Brantas River, East Java, Indonesia

Rony Irawanto, Melisnawati H. Angio, Elga Renjana, Linda Wige Ningrum, Elok Rifqi Firdiana, Dian Latifah

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Extraordinarily high biodiversity in Indonesia in some cases depends on wetland, riparian and aquatic areas, especially in watersheds. One of the important watershed for the people of East Java is the Brantas River Basin. Unfortunately, its sustainability and biodiversity is threatened by area degradation and increasing river pollution thus the inventory and documentation of its plant diversity is important. One of the conservation efforts conducted by Purwodadi Botanic Garden - LIPI was the exploration and collection of seeds of plant species along downstream of the Brantas River Basin, East Java. This study used survey method from 17 to 28 November 2020 and to determine which plants to harvest, seeds cut-test was implemented. The fruits were extracted and the seeds obtained were dried and their moisture contents were determined using desiccation method. Out of 15 species obtained, most of them have orthodox seeds such as *Acacia farnesiana, Acanthus ilicifolius, Coix lacryma-jobi, Crotalaria juncea, Cyathula prostrata, Dolichandrone spathacea, Ipomoea carnea, Lannea coromandelica, Neptunia plena, Ruellia tuberosa, Senna hirsuta, Senna* sp., *Sonneratia caseolaris* and *Thespesia populnea*, and only one of them, *Sesuvium portulacastrum*, has recalcitrant seed.

Brantas river, conservation, downstream, watershed, wetland

E-09

The effect of AMF indigenous applications on soil nutrients and plant nutrition two shallots varietis in drought stress conditions

Eka Susila N.[1], Fri Maulina[2], Aswaldi Anwar[3], Auzar Syarif[3], Agustian[4]

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One of the limiting conditions for shallot plants to grow optimally is acid dry land conditions. Indigenous Arbuscular Mycorrhizal Fungi (AMF) application is one way to overcome this condition. This study aimed to determine the effect of indigenous AMF application on soil nutrients and plant nutrients of two shallot varieties which are sensitive and tolerant to drought stress conditions. The study was carried out for 6 months on a wire house and laboratory scale. Experiment using a completely randomized design with two factors. The first factor is the Brebes (Sensitive) and Kuning (Tolerant) varieties of shallots. The second factor is the application of indigenous AMF which consists of 5 levels, namely 3 levels are given singly; *Glomus* sp1, *Glomus* sp2, *Glomus* sp3, one level is a mixed isolate and as a control treatment without aplications of AMF. Observation parameters include chemical analysis of the soil media and uptake of N, P and K plants. From the observations, it can be concluded that there is no difference in nutrient uptake and plant nutrients between sensitive and tolerant varieties under drought stress conditions. Sensitive varieties adapt with the help of AMF hyphae, while tolerant varieties with the ability to adapt to dry land by multiplying roots so that they have the same ability to absorb nutrients. Application of mixed isolates of indigenous AMF (*Glomus* sp1+*Glomus* sp2+ *Glomus* sp3) showed a decrease in the availability of nutrients (N, P and K) in the media, on the contrary there was an increase in nutrients (N, P and K) in plants.

Drought stress, indigenous AMF, plant nutrition, shallots, soil nutrients

E-10

Aplication *Azotobacter* dan *Pseudomonas fluorescens* bacteria indigenous to improve plant rice production SRI method

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The intensification of rice fields have been dominated by high artificial fertilizers, especially N and P. Nitrogen and phosphate as essential macronutrients, have an important role in increasing rice production. N and P malnutrition can be a limiting factor in increasing rice production. The problem of N elements in wetlands is relatively short availability, easily dissolved in water, carried by percolation, surface flow and volatile. The efficiency of N fertilizer uptake in the tropics by lowland rice crops is relatively low at around 30-50%. The problem of the availability of P elements is low, only 15-20% unusable P which can be absorbed by the plant, so that the structure of the soil becomes solid, and the soil organic matter content decreases. The high P residue causes the land to become a criterion. Effective and efficient solutions are needed namely a biological approach by utilizing the rhizobacteria group on the problem at hand. The existence of indigenous rhizobacteria is very diverse in the soil. This is influenced by biotic and abiotic factors in the soil. The type of rhizobacteria expected to be able to increase the availability of special nutrient elements N is the indigenous native species, namely *Azotobacter*. The type of rhizobacteria that can mine P elements that are not available to be available is a type of local phosphate solvent bacteria, *Pseudomonas fluorescens* indigenous. Both types of indigenous rhizobacteria were applied to the SRI method of rice. The aim of this study was to determine the *Azotobacter* bacteria and *Pseudomonas fluorescens* can be combined and determine the dose of *Azotobacter* bacteria and the appropriate dose of *Pseudomonas fluorescens* bacteria can increase the production of SRI rice plants. The research was carried out in vitro in TSA medium and in a greenhouse. The results showed no inhibitory power between *Azotobacter* bacteria and *Pseudomonas fluorescens*. Application in the greenhouse showed that at a dose of 20 ml/l Azotobacter and a dose of 30 ml/l *Pseudomonas fluorescens* gave the highest vegetative growth and production in the SRI method. Conclusion *Azotobacter* bacteria and *Pseudomonas fluorescens* can be combined in one formulation. The best *Azotobacter* dose of 20 ml/l and *Pseudomonas fluorescens* bacteria 30 ml/l.

Azotobacter, indigenous, *Pseudomonas fluorescens*, rhizobacteria, SRI

E-11

A multivariate morphometric analysis to delineate stock structure of Kawakawa *Euthynnus affinis* (Cantor, 1849) from Malaysia and Yemeni waters

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Euthynnus affinis is a little migratory neritic epipelagic tuna and become one of the most critical commercial tuna species in Indo-Pacific's tropical and subtropical waters. Unfortunately, nothing is known about the species' local management practices or stock structure. Therefore, an evaluation of stock structure based on morphometric information is crucial for the effective and successful management of the species. The aim of this study was to investigate the body shape variations among twenty populations of *E. affinis* utilizing principal component analyses (PCA), discriminant function analyses (DFA), and cluster analysis (CA). In total, 416 individuals of E. affinis were collected from five main geographic areas, namely Straits of Malacca (M), South China Sea (SCS), Sulu Sea

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Certificate of Appreciation

Awarded with thanks to:

Eka Susila N, Dr.

In recognition of his/her significant contribution as:

Presenter

of

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Surakarta, Indonesia, 27th August 2022

Prof. Dr. Sutarno, M.Sc., Ph.D.

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