



# International Conference on Biodiversity

Abs Soc Indon Biodiv  
vol. 4 | no. 4 | pp. 91-116 | July 2017  
ISSN: 2407-8069

# ABSTRACT

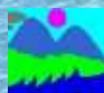
## INTERNATIONAL CONFERENCE ON BIODIVERSITY

### SOCIETY FOR INDONESIAN BIODIVERSITY

Berau, 5-8 July 2017

Wooden Pier of Kakaban Island; photo by Ikarini Wulandari

Organized by



Selected manuscripts  
will be available at

**BIODIVERSITAS**  
Journal of Biological Diversity

**NUSANTARA  
BIOSCIENCE**





# ABSTRACT

## INTERNATIONAL CONFERENCE ON BIODIVERSITY

**SOCIETY FOR INDONESIAN BIODIVERSITY**

**Berau, 5-8 July 2017**

**T H E M E :**

**The Heart of Borneo: Land and Water Tropical Biodiversity**

### SECRETARIAT ADDRESS

Sekretariat Masyarakat Biodiversitas Indonesia, Kantor Jurnal Biodiversitas, Jurusan Biologi Gd. A, Lt. 1, FMIPA UNS, Jl. Ir. Sutami 36A Surakarta 57126, Jawa Tengah, Indonesia. Tel. +62-897-6655-281. Email: [biodiversitas@gmail.com](mailto:biodiversitas@gmail.com). Website: [biodiversitas.mipa.uns.ac.id/snmbi.html](http://biodiversitas.mipa.uns.ac.id/snmbi.html)

Organized by



Selected manuscripts  
will be available at

**BIODIVERSITAS**  
Journal of Biological Diversity

**NUSANTARA  
BIOSCIENCE**



**TIME SCHEDULE**  
**International Conference on Biodiversity**  
**Society for Indonesian Biodiversity (SIB)**  
**Berau, Indonesia, 5-8 July 2017**

| TIME                | ACTIVITIES   | PERSON IN CHARGE   | SITE  |
|---------------------|--|--|-------|
| <b>July 4, 2017</b> |  |  |       |
|                     | Shuttle from Kalimantan Airport, towards Bumi Segah Hotel, Tanjung Redep, Berau, East Kalimantan |  |       |
| 08.00-12.00         | Group I  | Committee  | -     |
| 14.00-17.00         | Group II   | Committee  | -     |
| 19.00-22.00         | Group III  | Committee  | -     |
| <b>July 5, 2017</b> |  |  |       |
| 08.00-09.00         | Registration   | Committee  | Lobby |
| 09.00-09.10         | Speech of the Committee  | Chairman of the Committee  | R1    |
| 09.10-09.20         | Speech of The International Office   | Head of International Office of the Mulawarman University                        | R1    |
| 09.20-09.30         | Speech of Institute for Research and Community Services  | Head of the Institute for Research and Community Services, Mulawarman University | R1    |
| 09.30-09.45         | Opening speech   | Rector of the Mulawarman University  | R1    |
| 09.45-10.00         | Photo Session and Coffee Break   | Committee  | R1    |
| 10.00-11.20         | Panel 1<br><b>Prof. Dr. Rochmin Dahuri</b><br><b>Prof. Dr. Wolfgang Hess</b>                     | Moderator  | R1    |
| 11.20-12.40         | Panel 2<br><b>Prof. Kuniyoshi Shimitzu</b><br><b>Dr. Irawan Wijaya Kusuma</b>                    | Moderator  | R1    |
| 12.40-13.40         | Rest, prayer, lunch  | Committee  | Lobby |
| 13.40-15.40         | Parallel presentation I  |  |       |
|                     | Group 1  | Moderator  | R1    |
|                     | Group 2  | Moderator  | R2    |
|                     | Group 3  | Moderator  | R3    |
|                     | Group 4  | Moderator  | R4    |
|                     | Group 5  | Moderator  | R5    |

|                     |  |   |                            |
|---------------------|--|---|----------------------------|
| 15.40-16.00         | Coffee Break   | Committee   | Lobby                      |
| 16.00-18.00         | Parallel presentation II<br>Group 6<br>Group 7<br>Group 8<br>Group 9<br>Group 10 | Moderator<br>Moderator<br>Moderator<br>Moderator<br>Moderator | R1<br>R2<br>R3<br>R4<br>R5 |
| 18.00-18.15         | Announcement of the Best Presenters  | Chairman of the Board of Assessors                            | R1                         |
| 18.15-18.30         | Closing speech and other explanations  | Chairman of the committee                                     | R1                         |
| <b>July 6, 2017</b> |  |   |                            |
| 08.00-09.00         | Registration   | Committee   | Lobby                      |
| 09.00-11.00         | Trip to Derawan Archipelago, Berau, East Kalimantan                              | Committee   | -                          |
| 11.00-17.00         | Natural Tourism at Derawan Archipelago   | Committee   | -                          |
| <b>July 7, 2017</b> |  |   |                            |
| 08.00-17.00         | Natural Tourism at Derawan Archipelago   | Committee   | -                          |
| <b>July 8, 2017</b> |  |   |                            |
| 08.00-14.00         | Natural Tourism at Derawan Archipelago   | Committee   | -                          |
| 14.00-16.00         | Depart to Bumi Segah Hotel, Berau  | Committee   | -                          |
| <b>July 9, 2017</b> |  |   |                            |
| 07.00-09.00         | Depart to Kalimarau Airport.   | Committee   | -                          |

#### Upcoming events:

1. September 2-3, 2017 – Bogor, West Java (National Seminar)  
<http://biodiversitas.mipa.uns.ac.id/S/gen/schedules.html>
2. September 23-24, 2017 – Palu, Central Sulawesi (International Conference on Biodiversity)  
<http://biodiversitas.mipa.uns.ac.id/S/gen/schedules.html>
3. October 14-15, 2017 – Pontianak, West Kalimantan (International Conference on Biodiversity)  
<http://biodiversitas.mipa.uns.ac.id/S/gen/schedules.html>
4. November 4-5, 2017 – Medan, North Sumatra (International Conference on Biodiversity)  
<http://biodiversitas.mipa.uns.ac.id/S/gen/schedules.html>
5. December 8-10, 2017 – Bali (International Conference on Biodiversity)  
<http://biodiversitas.mipa.uns.ac.id/S/gen/schedules.html>

**TABLE OF CONTENTS**  
**International Conference on Biodiversity**  
**Society for Indonesian Biodiversity (SIB)**  
**Berau, Indonesia, 5-8 July 2017**

| CODE         | TITLE  | AUTHOR(S)  | PAGES |
|--------------|--|--|-------|
|              | <b>Genetic diversity</b>   |  |       |
| <b>AO-01</b> | Diversity study of Gaga Chicken ( <i>Gallus gallus domesticus</i> ) based on DNA barcoding analysis  | Abinawanto, Pipih Suningsih Effendi  | 91    |
| <b>AO-02</b> | Diversity of morphological and agronomic characters of f1 cassava clones in Lampung, Indonesia   | Setyo Dwi Utomo, Erwin Yuliadi, Akari Edy, Kresna Shifa Usodri, Muhammad Jumadi, Vetty Pratiwi | 91    |
| <b>AO-03</b> | Pest diversity identification in East and North Kalimantan (Indonesia) local upland rice population  | Nurhasanah, Kadis Mujiono, Widi Sunaryo  | 92    |
|              | <b>Diversity of Species</b>  |  |       |
| <b>BO-01</b> | The productivity and prospective of job's tear ( <i>Coix lacryma-jobi</i> ) development for staple food crop alternative in East Kalimantan, Indonesia | Suyadi, Ince Raden, Andi Suryadi   | 92    |
| <b>BO-02</b> | Bioactivity in the leaf oil of <i>Dryobalanops lanceolata</i>  | Harlinda Kuspradini, Agmi Sinta Putri, Tohru Mitsunaga   | 92    |
| <b>BO-03</b> | Community structures of reef fishes based on water characteristics in aquatic tourism park of Anambas Islands, Natuna Sea, Indonesia                   | Raden Ageng Wiyarto, Amron, Syawaludin Alisyahbana Harahap                                     | 93    |
| <b>BO-04</b> | Micro and mini cutting application for clonal forestry on <i>Eucalyptus pellita</i>  | Ellok Dwi Sulichantini, Sukartiningsih, Rusdiansyah  | 93    |
| <b>BO-05</b> | Earthworms population at the post-coal mining rehabilitation areas, A case study in East Kalimantan, Indonesia   | Ardiyanto W. Nugroho, Septina Asih Widuri  | 93    |
| <b>BO-06</b> | Natural resistance and anatomical changes of <i>Macaranga gigantea</i> and <i>Macaranga tanarius</i> against <i>Trametes</i> sp. fungus                | Erwin, Dian Setiawati, Agus Sulistyobudi, Sri Wahyuni  | 94    |

|              |   |  |    |
|--------------|---|--|----|
| <b>BO-07</b> | Anatomical structure of wood fossil from Samarinda, Indonesia   | Nani Husien, Agus Sulistyو Budi  | 94 |
| <b>BO-08</b> | Antioxidant activities of several tropical fruits extracts from Samarinda, Indonesia  | Enos Tangke Arung, Wiwin Suwinarti, Kuniyoshi Shimizu, Hiroya Ishikawa                               | 94 |
| <b>BO-09</b> | Species of zooplankton in Lake Takisung Beach, South Kalimantan, Indonesia  | Dharmono, St. Wahidah Arsyad   | 95 |
| <b>BO-10</b> | Population and vegetation structure of ramin ( <i>Gonystylus bancanus</i> ) in secondary forests of Pematang Gadung and Sungai Sirih Villages, District of Ketapang, West Kalimantan, Indonesia | Abdurrani Muin, Dwi Astiani  | 95 |
| <b>BO-11</b> | Diversity of epiphytic orchids and host trees (Phorophytes) in the tropical cloud forest of Arfak Mountain Nature Reserve, West Papua, Indonesia  | Agustina Yohana Setyarini Arobaya' Estefan Dion Kadiwaru   | 95 |
| <b>BO-12</b> | Biodiversity mapping of epiphytic orchid diversity in the Arfak Mountain Nature Reserve of West Papua, Indonesia  | Estefan Dion Kadiwaru, Agustina Yohana Setyarini Arobaya' Petrus Dimara                              | 96 |
| <b>BO-13</b> | Community-based biodiversity monitoring in agroforestry practices in East Kalimantan, Indonesia   | Adisti Permatasari Putri Hartoyo' , Supriyanto, Iskandar Z. Siregar, Ida Theilade, Lilik B. Prasetyo | 96 |
| <b>BO-14</b> | The analysis of biological parameters of fish stock in Cirata Reservoir (Indonesia): Bioeconomic model  | Zuzy Anna, Asep Agus Handaka, Ine Maulina, Achmad Rizal, Purna Hindayani                             | 97 |
| <b>BO-15</b> | Biodiversities of plankton and benthos in Lake Jempang, West Kutai, Indonesia   | Ghitarina, Henny Pagoray, Deni Udayana   | 97 |
| <b>BO-16</b> | Diversity of Bryoepiphyte at Mount Telomoyo, Central Java, Indonesia in dry season  | Anita Gustinawati, Briskha Lejar Novitria, Fiki Ratna Sari, Heri Sujadmiko                           | 97 |
| <b>BO-17</b> | Fruit performance, nutritional values and consumer preference of Talas Banana compared to local commercial bananas from East Kalimantan, Indonesia  | Widi Sunaryo, Nurhasanah, Rahman, Deni Sumarna   | 98 |
| <b>BO-18</b> | The distribution of <i>Holothuria atra</i> at Panjang Island waters, Jepara, Indonesia  | Retno Hartati, Muhammad Zainuri, Ambariyanto   | 98 |
| <b>BO-19</b> | Does commercial cultivation as one method of pitcher plants ( <i>Nepenthes</i> sp.) conservation in Katingan, Central Kalimantan, Indonesia   | Rita Sukaesih, Tati Suryati Syamsudin  | 98 |
| <b>BO-20</b> | Screening of kenaf varieties on high-quality bast fiber production  | Wiwin Suwinarti, Kazuhiko Sameshima  | 99 |
| <b>BO-21</b> | Ethnobotany: Cultural review of unique traditional uses of plants in highland and lowland District of Tagkawayan, The Philippines   | Cherry C. Favor  | 99 |
| <b>BP-01</b> | Autecology of <i>Acacia nilotica</i> in Baluran National Park, East Java, Indonesia   | Djufri   | 99 |

|                               |   |   |     |
|-------------------------------|---|---|-----|
| <b>BP-02</b>                  | Germination of <i>Macaranga gigantea</i> seeds from the soil seed bank  | Dwi Susanto   | 100 |
| <b>BP-03</b>                  | Effect of rice husk biochar application to soil insect diversity on potato cultivation  | Ratna Rubiana, Araz Meilin  | 100 |
| <b>BP-04</b>                  | Species composition and diversity of species in difference aged of logged-over forest area, Berau, East Kalimantan, Indonesia   | Rita Diana, Paulus Matius, Raharjo Ari Swasono  | 100 |
| <b>Diversity of Ecosystem</b> |   |   |     |
| <b>CO-01</b>                  | Inventory of caves fauna and caves mapping of Bukit Merabu Karst, Berau, East Kalimantan, Indonesia   | Viedela AK, Sheila Kharismadewi, Akbar Habibie, Aziz Fardhani Jaya                    | 101 |
| <b>CO-02</b>                  | The various sources of household income of paddy farmers in East Kalimantan, Indonesia  | Karmini   | 101 |
| <b>CO-03</b>                  | The floristic dynamic of various stages of secondary forests in Malaysia  | Karyati, Isa B. Ipor, Ismail Jusoh, Mohd Effendi Wasli                                | 101 |
| <b>CO-04</b>                  | Land rehabilitation and soil conservation with agroforestry system of sengon ( <i>Falcataria mollucana</i> ) and groundnut ( <i>Arachis hypogaea</i> ) in critical land | Sri Sarminah, Karyati, Karmini  | 102 |
| <b>CO-05</b>                  | Morphological characteristic and physical environmental of <i>Terminalia catappa</i> in East Kalimantan, Indonesia  | Marjenah  | 102 |
| <b>CO-06</b>                  | The effect of mercury on vegetation growth in tailings of ex-gold mine  | Wiwik Ekyastuti, Eny Faridah, Sumardi, Yadi Setiadi                                   | 102 |
| <b>CO-07</b>                  | Effect of elevation and land accessibility, income and farmers' perception of vegetation diversity-agroforestry systems in Sigi District, Central Sulawesi, Indonesia   | Nina Dwi Lestari, Didik Suprayogo, Arief Rachmansyah                                  | 103 |
| <b>CO-08</b>                  | The effect of sea salinity and edaphic properties on growth and carbon stock of mangrove forest stands in Taman Hutan Raya Bali, Indonesia                              | Juwari, B.D.A.S Simarankir, H. Daddy Ruhiyat, Marlon I. Aipassa                       | 103 |
| <b>CO-09</b>                  | The sustainability ecosystem in Kehje Sewen Forest (East Kalimantan, Indonesia) by releasing orangutan  | Rika Safira   | 104 |
| <b>CO-10</b>                  | Study on land degraded and water in Santan and Marangkayu Watershed, East Kalimantan, Indonesia   | Akhmad Sopian, Sigit Hardwinarto, Marlon I. Aipassa, Sumaryono                        | 104 |
| <b>CO-11</b>                  | Biodiversity in agroforestry system: Arabica coffee plant combination with different types of shade   | Andi Lisnawati, Abu Bakar M. Lahjie, B.D.A.S. Simarankir, Syahrir Yusuf, Yosep Ruslim | 104 |
| <b>CP-01</b>                  | Geographic distribution and potential impact of climate change on the mountainous Selaginellas of Java, Indonesia   | A.D. Setyawan, J. Supriatna, D. Darnaedi, Rokhmatuloh, I. Nursamsi, P. Pradan         | 105 |

| Ethnobiology and Socioeconomics          |   |   |     |
|--|---|---|-----|
| <b>DO-01</b>                             | Evaluation of traditional plant extracts for innate immune mechanisms and disease resistance against fish bacteria <i>Aeromonas hydrophila</i> and <i>Pseudomonas</i> sp. | Esti Handayani Hardi, Irawan Wijaya Kusuma, Wiwin Suwinarti, Rudy Agung Nugroho                             | 105 |
| <b>DO-02</b>                             | The effects of dietary <i>Eleutherine americana</i> on the growth, leukocyte profile, and digestive enzymes activity of <i>Pangasianodon hypophthalmus</i>                | Rudy Agung Nugroho, Meylianawati, Odeta Febri Asokawati, Yanti Puspita Sari, Esti Handayani Hardi           | 106 |
| <b>DO-03</b>                             | Conflict in Crocker: applying ethical analysis to constructive dialogue in a co-managed protected area in Sabah (Malaysia)  | Logan John Hamilton, Paul Jepson  | 106 |
| <b>DO-04</b>                             | Ethnobotanical studies of plants utilization in the Central Kapuas (Indonesia) Gold Mining Region   | Siti Sunariyati   | 107 |
| <b>DO-05</b>                             | Utilization of Family Araceae by community in Cisoka Village, District of Majalengka, West Java, Indonesia  | Asep Zainal Mutaqin, Ruly Budiono, Joko Kusmoro, Muthi Fatharani, Johan Iskandar                            | 107 |
| <b>DO-06</b>                             | The business scale model from the development of sylvo-fishery using <i>Rhizophora</i> spp. and <i>Nypa</i> sp  | Yunianto Setiawan, Dietrich G. Bengen, Cecep Kusmana, Setyo Pertiwi   | 107 |
| <b>DO-07</b>                             | Biodiversity forest garden based on local wisdom in West Kalimantan, Indonesia  | Budi Winarni, Abubakar M. Lahjie, B.D.A.S. Simarankir, Syahrir Yusuf, Yosep Ruslim                          | 107 |
| <b>DO-08</b>                             | Prospects of utilizing NTFPs management from Setulang village forest based on local knowledge of the Umo Longh community in Malinau, North Kalimantan, Indonesia          | Thomas R. Hutaeruk, Abubakar M. Lahjie, B.D.A.S. Simarankir, Marlon I. Aipassa, Yosep Ruslim                | 108 |
| <b>DO-09</b>                             | Response of growth and development from <i>Nepenthes mirabilis</i> on cultivation of unusual habitat with shade level treatment and type of plant media                   | Mardhiana, Yakup Parto, Renih Hayati, Dwi Putro Priadi, Ankardiansyah Pandu Pradana, Saat Egra, Muh Adiwena | 108 |
| Bioscience (Life Science and Technology) |   |   |     |
| <b>EO-01</b>                             | Alteration of acoustic behavior of <i>Mystus guleo</i> which influenced by crude oil contamination  | Amron, Hartoyo, Tri Nur Cahyo, Fernando Bangun, Lesa Triwahyanti  | 109 |
| <b>EO-02</b>                             | Bamboo reinforced-sandbag low crested breakwater as an appropriate technology solution for coastal communities  | Bangkit A. Wiryawan, Bastin Yungga A., Suryawan Setianto  | 109 |
| <b>EO-03</b>                             | Antimicrobial extract of <i>Avicennia marina</i> against pathogen on postlarva of tiger prawn   | Gina Saptiani, Andi Noor Asikin, Fikri Ardhani, Esti Handayani Hardi  | 109 |
| <b>EO-04</b>                             | Use of endophytic bacteria from roots of <i>Cyperus rotundus</i> for biocontrol of <i>Meloidogyne incognita</i>   | Mardhiana, Ankardiansyah Pandu Pradana, Muh Adiwena, Dwi Santoso, Rizza Wijaya, Aditya Murti-laksono        | 110 |

|              |  |  |     |
|--------------|--|--|-----|
| <b>EO-05</b> | Effects of pruning on growth and yield of cucumber ( <i>Cucumis sativus</i> ) variety mercy in acid soil of North Kalimantan, Indonesia  | Mardhiana, Ankardiansyah Pandu Pradana, Muh Adiwenana, Kartina, Dwi Santoso, Rizza Wijaya, Anas Maliki | 110 |
| <b>EO-06</b> | The effect of semen storage and diluent type on the quality of Nunukan Chicken spermatozoa   | Fikri Ardhani, I Made Urip Raharja, Bryta Mbincar Boangmanalu  | 110 |
| <b>EO-07</b> | Study of habitat preference for nesting site of Eurasian Tree Sparrow in settlement area, in Banda Aceh, Aceh Province, Indonesia  | Abdullah Abdullah  | 111 |
| <b>EO-08</b> | Preliminary study of habitat characteristics of Small-Clawed Otter ( <i>Aonyx cinereus</i> ) based on the tracks in Ujong Nga Village, District of West Aceh, Indonesia          | Abdullah Abdullah, Ulfa Hansri Ar Rasyid   | 111 |
| <b>EO-09</b> | Antibacterial activity of ethanolic and n-hexane extraction of pletekan leaves ( <i>Ruellia tuberosa</i> ) against <i>Escherichia coli</i> and <i>Bacillus subtilis</i>          | Hafizhah Amajida, Tjahjadi Purwoko, Ari Susilowati   | 111 |
| <b>EO-10</b> | Compression perpendicular to grain of three wood species   | Isna Yuniar Wardhani   | 112 |
| <b>EO-11</b> | Antioxidant potential, toxicity and antibacterial properties on the fruit of <i>Calamus ornatus</i>  | Heriad Daud Salusu, Farida Ariani, Edy Budiarmo, Irawan Wijaya Kusuma, Enos Tangke Arung               | 112 |
| <b>EO-12</b> | The effect of clay nanoparticle as wood preservative that resistant to dry-wood termite ( <i>Cryptotermes cynocephalus</i> )   | Taman Alex, Budi Winarni, Irawan Wijaya Kusuma, Enos Tangke Arung, Edy Budiarmo                        | 113 |
| <b>EO-13</b> | Evaluation of mined-out forest land rehabilitation and it's potential ecosystem recovery at East Kalimantan, Indonesia   | Triyono Sudarmadji, Wahjuni Hartati  | 113 |
| <b>EO-14</b> | The relationship between gonad maturity stage and level osmotic work of sea cucumber <i>Paracaudina australis</i> from Kenjeran Waters, Surabaya, Indonesia                      | Widianingsih, Muhammad Zainuri, Sutrisno Anggoro, Hermin Pancasakti Kusumaningrum, Retno Hartati       | 113 |
| <b>EO-15</b> | Analyzing relationship between soil texture and it's permeability on mined-out lands at East Kalimantan, Indonesia   | Wahjuni Hartati, Triyono Sudarmadji  | 114 |
| <b>EO-16</b> | Biological aspects of Longfin Mojarra ( <i>Pentaprion Longimanus</i> , Cantor 1849) in North Coast of Central Java, Indonesia  | Dian Oktaviani, Ria Faizah, Duto Nugroho   | 114 |
| <b>EO-17</b> | Identification of potential indigenous endophytic bacteria from tomato which had ability to promote growth and control <i>Ralstonia solanacearum</i>                             | Yulmira Yanti, Warnita, Reflin, Chainur Rahman Nasution  | 114 |
| <b>EO-18</b> | Health evaluation of Kedangpahu Watershed in relation to the effort of flood handling at Kutai Barat District, East Kalimantan, Indonesia  | Suparjo, Marjenah, Sigit Hardwinarto, Muhammad Sumaryono   | 115 |
| <b>EP-01</b> | Utilization of mangrove vegetation for economic society of coastal people  | Farhanuddin, Nur Indah Sari Arbit, Sulmiyati, Suparjo Razasli Carong                                   | 115 |
| <b>EP-02</b> | The antibacterial activity test of permot ( <i>Passiflora foetida</i> ) leaf extract on <i>Staphylococcus aureus</i> , <i>Escherichia coli</i> and <i>Pseudomonas aeruginosa</i> | Rina Priastini Susilowati  | 116 |

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

## AO-03

### **Pest diversity identification in East and North Kalimantan (Indonesia) local upland rice population**

**Nurhasanah<sup>✉</sup>, Kadis Mujiono, Widi Sunaryo**

Department of Agroecotechnology, Faculty of Agriculture, Universitas Mulawarman. Jl. Pasir Balengkong No.1 Kampus Gunung Kelua, Samarinda 75123, East Kalimantan, Indonesia. Tel.: +62-541-749159, Fax.: +62-541-738341, ✉email: nurhasanah\_2710@yahoo.com.

Pest attack is a serious problem in plant production and reduces the economic yield significantly. In this study, identification of pest attack in East and North Kalimantan, Indonesia local upland rice cultivation was conducted to characterize the diversity and intensity of attack in the population. The results showed that there were several types of herbivore and detritivorous insects found in the rice cultivation. Besides the main pests of rice crops, rice bug (*Leptocorisa* sp.) and brown planthopper (*Nilaparvata lugens* Stal), there were also other pests, i.e. grasshoppers (*Locusta* spp.), green stink bug (*Nezara viridula*), coreid bug (*Anoplocnemis* spp.), black and red ant (ordo Hymenoptera). There was no stem borer (*Chilo suppressalis* Walker) found in the population. The pests infected the plants in a different frequency. The highest frequency of infection was caused by grasshoppers (71.83%), followed by rice bug (56.34%), coreid bug (19.72%), red ants (18.31%), black ants (14.08%), green stink bug (9.86%) and brown planthopper (1.41%). The intensity of damage due to the pest attack in the population was also varied, ranging from 0-50%.

East and North Kalimantan, intensity, local upland rice, pest diversity

## Diversity of Species

### BO-01

#### **The productivity and prospective of job's tear (*Coix lacryma-jobi*) development for staple food crop alternative in East Kalimantan, Indonesia**

**Suyadi<sup>1,✉</sup>, Ince Raden<sup>2</sup>, Andi Suryadi<sup>1</sup>**

<sup>1</sup> Department of Agroecotechnology, Faculty of Agriculture, Universitas Mulawarman. Jl. Pasir Balengkong No.1 Kampus Gunung Kelua, Samarinda 75123, East Kalimantan, Indonesia. Tel.: +62-541-749159, Fax.: +62-541-738341, ✉email: suyadi@faperta.unmul.ac.id

<sup>2</sup> Faculty of Agriculture, Universitas Kutai Kartanegara. Jl. Gunung Kombeng, No. 27, Tenggarong, Kutai Kartanegara 75513, East Kalimantan, Indonesia

Job's tear (*Coix lacryma-jobi* L.) is a native food crop biodiversity of East Kalimantan, this crop generally cultivated altogether with upland rice under shifting

cultivation practice. However, since the implementation of rice intensification program by the Indonesian government, job's tear was left and neglected by farmers along with the reduction of upland rice cultivation practice. The prospective of job's tear development as a staple food crop in East Kalimantan was determined by its biological characteristics as a C4 and perennial crop, and also adapted to the upland ecosystem. This is an initial study to evaluate some experiments on the productivity of job's tear under traditional cultivation and fertilizer application. The productivity of job's tear was determined by using some indicators, i.e. crop yield, number of shoots, number of grain per panicle, and grain weight. Results of the study showed that the average productivity of job's tear under traditional cultivation was about 5 ton ha<sup>-1</sup> and varies from about 3 ton up to >8 ton ha<sup>-1</sup>. Application of compound fertilizer at the dosage of 200 kg ha<sup>-1</sup> has increased the 1,000-grain weight more than 15% and also increased grain yield more than 25%. Those data elaborated that job's tear productivity might be improved through soil fertility management, and it was prospective to develop as staple food crop alternative for staple food diversification program in East Kalimantan.

Diversification, job's tear, productivity, staple food

### BO-02

#### **Bioactivity in the leaf oil of *Dryobalanops lanceolata***

**Harlinda Kuspradini<sup>1,✉</sup>, Agmi Sinta Putri<sup>1</sup>, Tohru Mitsunaga<sup>2</sup>**

<sup>1</sup> Faculty of Forestry, Universitas Mulawarman. Jl. Ki Hajar Dewantara, PO Box 1013, Gunung Kelua, Samarinda Ulu, Samarinda-75123, East Kalimantan, Indonesia. Tel./Fax.: +62-541-749160. ✉email: hkuspradini@fahutan.unmul.ac.id

<sup>2</sup> Faculty of Applied Biological Science, Gifu University, Japan

This study aimed to examine the bioactivity of essential oil was collected from the leaves of *Dryobalanops lanceolata* by steam distillation method. This research used antioxidant and antimicrobial test. The antioxidant activity was assayed by DPPH (1,1-diphenyl-2-picrylhydrazyl) and using ascorbic acid as a positive control. The antimicrobial properties of the pure essential oils were determined using agar diffusion method. Four different microorganisms were used in this study, that is *Streptococcus sobrinus*, *Streptococcus mutans*, *Staphylococcus aureus*, and *Candida albicans*. The zone of inhibition and activity index were measured and compared against a known synthetic standard. The yield of essential oil of *D. lanceolata* obtained in the present study was 0.12%, respectively. The extract inhibited all tested microorganism and susceptible. The best inhibition zone was shown against *S. aureus* (49.3 mm). The essential oil of *D. lanceolata* also has a potency to inhibit the free radicals at concentration 6.25-100 ppm, which the highest percentage was 100 ppm (91.6%). The oil of *D. lanceolata* has been subjected to GC-MS analysis. Twenty-two chemical compounds have been identified and