

CONFERENCE PROGRAMME PAPERS ABSTRACTS



**6th International Conference on
Sustainable Agriculture, Food
and Energy.
October 19 - 21, 2018 in MANILA,
Philippines.**

Inclusive Agri-food Energy Production for Community Empowerment in a Changing Climate

SAFE 2018 COMMITTEE

Patron

Prof. Dr. Tafdil Husni, *The Rector of Andalas University, Indonesia.*
Dr. Honorio Soriano, *The PCountry of Pampanga State Agricultural University (PSAU), The Philippines.*
Rolando de Asis, PhD, *The PCountry of Central Bicol State University of Agriculture (CBSUA), The Philippines.*
Dr. Baldwin G. Jallorina, *Director IV of Philippines Center for Postharvest and Mechanization (PhilMech), The Philippines*

Executive Chairman

Prof. Dr. Novizar Nazir—*Andalas University-INDONESIA*

Local Conference Coordinator

Norman G. De Jesus, Ph.D
Director, PSAU-ALIAS R&DE Center,
Pampanga State Agricultural University-Magalang, Pampanga, Philippines

Conference Secretary

Dr. Helen Martinez
The Philippines Center for Postharvest and Mechanization (PhilMech), Philippines

Advisory Committee

Dr. Paul Kristiansen—*University of New England, AUSTRALIA (Co-ordinator)*
Prof. Dr. Werry Darta Taifur, *Andalas University, INDONESIA*
Dr. Lili Nurlaili, *Indonesian Attache on Education and Culture (Philippines)*
Prof. Dr. Hj. Khudzir Bin Hj Ismail, *Dean of Faculty of Applied Science, UiTM, MALAYSIA*
Prof. Dr. Nguyen Hay— *Nong Lam University Ho Chi Minh City-VIETNAM*
Dr. Yunardi Yusuf-Syiah *Kuala University-INDONESIA*
Prof. Dr. Djumali Mangunwijaya- *Bozor Agricultural Agriculture, INDONESIA.*
**Prof. dr. Dewa Putu Widjana, DAP&E. Sp.Par.K-Warmadewa University-INDONESIA
**Dr. Anak Agung Gde Oka Wisnumurti, M.Si-Warmadewa University-INDONESIA
Prof. Dr. Bohari M Yamin, *Universiti Kebangsaan Malaysia, MALAYSIA*
Prof. Dr. Masateru Senge, *United Graduate School of Agricultural Science, Gifu University, JAPAN*
Prof. Dr. Wan Mohtar Wan Yusoff-*Universiti Kebangsaan Malaysia, MALAYSIA*
Prof. Dr. Wan Azizah Hanom Ahmad, *UiTM, Malaysia*****

Steering Committee

Prof. Dr. Helmi— *Andalas University-INDONESIA (Co-ordinator)*
Assoc. Prof. Dr. Nurul Huda— *SAFE-Network Country Co-ordinator (Malaysia)*
Universiti Sultan Zainal Abidin (UniSZa), MALAYSIA
Prof. P.M.C.C de Silva, PhD, *University of Ruhuna, SAFE-Network Country Co-ordinator (SRI LANKA)*
Assoc. Prof. Keng-Tung Wu, PhD, *SAFE-Network Country Co-ordinator (TAIWAN)*
Prof. Dr. Fauzan Azima — *Andalas University-INDONESIA.*
Dr. Munzir Busniah— *Andalas University-INDONESIA.*
Prof. Dr. Amitava Basu- *Bidhan Chandra Krishi Vidyalyaya, INDIA*
Prof. Nasser Aliasghar zad-*Department of Soil Science- Faculty of Agriculture. The University of Tabriz-Iran.*
Assoc. Prof. Nguyen Huy Bich, Ph.D- *Nong Lam University Ho Chi Minh City-VIETNAM*
Prof. Kohei NAKANO, Ph.D.- *Gifu University-JAPAN*
Prof. Dr. MD MIZANUR RAHMAN BHUIYAN, *Khulna University-BANGLADESH*
Dr. Ir. Ujang Paman Ismail, MSc. *Universitas Islam Riau-INDONESIA*

Organizing Committee:

| | | |
|---------------------------|----------|-------------|
| Ass.Prof. Hanylin Hidalgo | CBSUA | Philippines |
| Dr. Amelia Nicolas | CBSUA | Philippines |
| Richard Castor | CBSUA | Philippines |
| Ma Teresa Lirag | CBSUA | Philippines |
| Presbel Presto | CBSUA | Philippines |
| Alicia Z. Maghuyop | CBSUA | Philippines |
| Michael A. Gragasin | PhilMech | Philippines |
| Bezt Zee Magararu | PhilMech | Philippines |
| Jett Molech Subaba | PhilMech | Philippines |
| Danilo Esteves | PhilMech | Philippines |
| Rosalie Feliciano | PhilMech | Philippines |

SAFE-Network Regional Secretariat:

- Dr. Irawati Chaniago, *Andalas University-INDONESIA*
Anak Agung Sagung Putri Risa Andriani, *Warmadewa University. INDONESIA*
Dr. Wahyudi David – *Bakrie University-INDONESIA*
Dr. Wiwik Hardaningsih, *Agriculture Polytechnic of Payakumbuh. INDONESIA*
Aisman Rasjinin, *MSc-Andalas University-INDONESIA*
Dr. Febri Doni, *Universiti Kebangsaan Malaysia*
Abzar Khan, *Universiti Kebangsaan Malaysia*
Rahmat Hidayat, *ST, M.Sc.IT- State Polytechnic of Padang -INDONESIA*
Muhammad Iqbal Syuhada, *Andalas University-INDONESIA*
Dr. Ni Luh Suriani– *Universitas Udayana-INDONESIA*
Dr. Ario Beta Juanssilfero, *M.Eng- LIPI-INDONESIA*

Scientific Committee

- Prof. Dr. Novizar Nazir, *Andalas University, INDONESIA*
Prof. Dr. Takashi Oku-*Prefectural University of Hiroshima, JAPAN*
Dr. Muhammad Ishfaq Khan, *The University of Agriculture Peshawar. PAKISTAN*
Prof. Dr. Nobutaka Ito, *Chiang Mai University. THAILAND*
Prof.Dr. Nurpilihan Bafdal, *Padjadjaran University-INDONESIA*
Prof.Dr Roostita Balia, *Padjadjaran University-INDONESIA*
Prof. Dr. Bohari M Yamin, *Universiti Sains Islam Malaysia, USIM. Malaysia*
Assoc.Prof. Dr. Azwani Mohd. Lazim, *Universiti Kebangsaan Malaysia, UPM. Malaysia*
Assoc. Prof. Dr. Nurul Huda– *UniSZA, Malaysia*
Dr. Ario Beta Juanssilfero, *M.Eng- LIPI-INDONESIA*
Rahmat Hidayat, *ST, M.Sc.IT- IJASEIT/State Polytechnic of Padang -INDONESIA*
Dr. Febri Doni, *SRI-Mas, Malaysia*
Dr. Amelia Nicolas, *CBSUA. Philippines*

| | | | | | | | | |
|-------------|--|------------|-------------|------------|-------|---------|-------|---------|
| 14.10-14.15 | | Food-23 | Product-94 | Product-22 | PM-15 | SA/E-43 | PM-71 | SA/E-66 |
| 14.15-14.20 | | Food-24 | Product-95 | Product-23 | PM-16 | SA/E-46 | PM-72 | SA/E-67 |
| 14.20-14.25 | | Food-25 | Product-96 | Product-24 | PM-10 | SA/E-47 | PM-80 | SA/E-68 |
| 14.25-14.30 | | Food-26 | Product-97 | Product-25 | PM-11 | SA/E-48 | PM-81 | SA/E-69 |
| 14.30-14.35 | | Food-27 | Product-98 | Product-26 | PM-12 | SA/E-49 | PM-82 | SA/E-71 |
| 14.35-14.40 | | Food-28 | Product-99 | Product-28 | PM-30 | SA/E-52 | PM-85 | SA/E-73 |
| 14.40-14.45 | | Product-01 | Product-100 | Product-29 | PM-32 | SA/E-53 | PM-86 | SA/E-74 |
| 14.45-14.50 | | Product-02 | Product-101 | Product-30 | PM-33 | SA/E-54 | PM-87 | SA/E-75 |
| 14.50-14.55 | | Product-05 | Product-102 | Product-31 | PM-36 | SA/E-55 | PM-88 | SA/E-76 |
| 14.55-15.00 | | Product-33 | Product-103 | Product-32 | PM-37 | SA/E-58 | PM-89 | SA/E-77 |
| 15.00-15.05 | | Product-34 | Product-104 | Product-35 | PM-38 | SA/E-61 | PM-90 | SA/E-78 |
| 15.05-15.10 | | Product-41 | Product-110 | Product-36 | PM-39 | SA/E-63 | PM-91 | SA/E-79 |
| 15.10-15.15 | | Product-43 | PM-34 | Product-37 | PM-40 | SA/E-64 | PM-92 | SA/E-80 |
| 15.15-15.20 | | Product-44 | PM-35 | Product-39 | PM-73 | SA/E-65 | PM-93 | SA/E-82 |
| 15.20-16.00 | | Q&A | Q&A | Q&A | Q&A | Q&A | Q&A | Q&A |

SA/E-81

CALLUS INDUCTION OF ARENGA PINNATA USING WOODY PLANT MEDIUM

Made Ria Defiani, Ida Ayu Astarini, Ni Luh Suriani, Eniek Kriswiyanti

Biology Department, Math and Natural Sciences, Udayana University, Indonesia. Correspondence: maderia@unud.ac.id

Abstract— Arenga palm (*Arenga pinnata*) is belonged to palmae family and become important plant economically. Each part of plant organ can be used for home industry, such as young leaf for parts of Balinese offering, sap can be used as 'tuak' special traditional sweet drink, young fruits are boiled and mixed with sugar for special ice. Arenga propagation is depend on the seeds even though the seeds has dormancy periods until 1 years, therefore alternative propagation is required to reduced time of dormancy and increase seedlings available to farmers. The experiment applied woody plant medium (WPM) to produce callus from apocol of arenga. Callus can be subcultured aseptically to produce seedlings. There were three treatments of WPM media, that is WPM without hormone; WPM with addition of 1 ppm BAP and 1 ppm IBA; WPM with addition of 4 ppm 2,4-D. Each treatment had 10 replicate with 2 unit experiment. Six weeks after cultured, callus can be produced only on WPM enriched with 2,4-D an auxin hormone.

Keywords— 2,4-D, BAP, IBA, apocol of arenga

SA/E-82

BAMBOO RESOURCES, CULTURAL VALUES, AND EX-SITU CONSERVATION IN BALI (INDONESIA)

WAWAN SUJARWO

Bali Botanic Garden, Indonesian Institute of Sciences (LIPI), Candikuning Batuniti, Tabanan, Bali 82191, Indonesia. Email: wawan.sujarwo@lpi.go.id

SA/E-83

SUSTAINABLE LOWLAND MANAGEMENT WITH BIOCHAR AND AZOLLA TO IMPROVE N AVAILABILITY AND UPTAKE, AND BLACK RICE YIELD

W S Dewi^{1,3}, J Syamsyah¹, R W Prasasty²

¹Department of Soil Science, Sebelas Maret University, Jl. Ir. Sutami 36 A, Ketingan, Surakarta, 57126, Indonesia

²Department of Agrotechnology, Sebelas Maret University, Jl. Ir. Sutami 36 A, Ketingan, Surakarta, 57126, Indonesia. ³Corresponding author: wsdewi2000@gmail.com

Abstract— The research aimed to evaluate the effects of biochar and Azolla application on the availability of N and its uptake, and yield of black rice. Dual cropping Azolla - paddy nor application as a compost Azolla in lowland plays a vital role in providing N. Biochar is expected to increase of N uptake. Combination effect of biochar and Azolla hopefully to improve the yield of black rice. Black rice is antioxidant-rich and as a high quality of rice. The experiments were conducted at greenhouse at the Faculty of Agriculture, University of Sebelas Maret, Indonesia, using a Completely Randomized Design with 2 treatment factors: (1) Azolla (A0 = control, A1 = 10 tons/ha fresh Azolla, and A2 = Azolla compost equivalent with 10 tons/ha fresh Azolla); and (2) Biochar (B0 = control, and B1 = 10 tons/ha biochar coconut shell). Analysis of variance using F test 5%, continued with Duncan Multiple Range Test. The relationships between variables using a correlation test. The application of biochar and fresh Azolla or Azolla compost could increase the population of non-symbiotic and symbiotic N-fixing bacteria in 45 and 105 days after planting, leads an increase of soil N total and N uptake by the plant. Application biochar + fresh Azolla showed the highest grain weight is 44.60 ± 2.87 g per clump. The application of biochar and Azolla potential to improve the soil health of lowland.

SA/E-84

ANTIFUNGAL ACTIVITY OF LEAF EXTRACT OF MANSOA ALLIACEA AGAINST COLLETOTRICHUM ACUTATUM THE CAUSE OF ANTHRACNOSE DISEASE ON CHILI PEPPER

Sang Ketut Sudirga, I Ketut Ginantra and Ida Bagus Gde Darmayasa

Program Study of Biology, Faculty of Natural Sciences, Udayana University Kampus Bukit Jimbaran, Bali, Indonesia. E-mail: sudirga@unud.ac.id

Abstract— Antifungal activity of the leaf extract of *Mansoa alliacea* was done against *Colletotrichum acutatum* the cause of anthracnose disease on chili pepper. The *in vitro* experiment was conducted on potato dextrose medium (PDA) and potato dextrose broth (PDB) medium. Fifteen levels of extract concentrations, ranged from 0.1 to 5% (w/v) were tested for determining the minimum inhibitory concentration (MIC) on PDA. Six levels of extract concentration (w/v) viz. 0%, 1%, 2%, 3%, 4% and 5% were tested using completely randomized design with four replications. The antifungal activity was determined based on the effects of plant extract to the fungal growth, spore's formation, spore's germination and total biomass. Results of this study showed that the crude extract of *Mansoa alliacea* obviously inhibited the growth of *Colletotrichum acutatum* on PDA with MIC by 0.7% (w/v). Treatment with leaf extract of *Mansoa alliacea* significantly ($P < 0.05$) inhibited the fungal growth, spore's formation, spore's germination and fungal biomass of *Colletotrichum acutatum*. The inhibitory activity for the colony radial growth, spore's formation, spore's germination, and fungal biomass were respectively ranged from 25.52 to 80.39%, 63.23 to 97.11%, 70.70 to 100% and 40.22 to 100%. This result suggested that the leaf extract of *Mansoa alliacea* contains the antifungal substances that responsible for the antifungal activity, and this extract can be considered as one of alternative measures to control the anthracnose disease on chili pepper.

Keywords— antifungal activity, *Mansoa alliacea*, anthracnose disease, *Colletotrichum acutatum*



6th International Conference on Sustainable Agriculture, Food and Energy
October 19 - 21, 2018, MANILA, Philippines.

CERTIFICATE

Asia Pacific Network for Sustainable Agriculture, Food, and Energy (SAFE-Network)
Pampanga State Agricultural University (PSAU), Central Bicol State University of Agriculture (CBSUA),
and Philippines Centre for Postharvest and Mechanization (PhilMech), PHILIPPINES.
Jointly certify that,

Made Rio Defiani

PRESENTER

International Conference-Sustainable Agriculture, Food and Energy.
MANILA, Philippines. October 19 - 21, 2018

"Inclusive Agri-food Energy Production for Community Empowerment in a Changing Climate"

Dr. Novizar Nazir
SAFE Network Coordinator
Andalas University
INDONESIA.

SAFE Network for Sustainable Agriculture, Food and Energy
Local Conference Coordinator
Dr. Norman De Jesus
Pampanga State Agricultural University
PHILIPPINES.