



BOOK OF ABSTRACT



December, 15th, 2020
Serang, Banten, Indonesia



The 1st International Conference for Smart Agriculture, Food, and Environment (IC-SAFE)

Indonesia Center of Excellence for Food Security (I-CEFORY)
Local Food Innovation
Universitas Sultan Ageng Tirtayasa



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BOOK OF ABSTRACT

**1st International Conference for Smart
Agriculture, Food, and Environment**

15 December 2020
Le Dian Hotel
Serang – Banten, Indonesia

1st International Conference for Smart Agriculture, Food, and Environment

Organizer:



Indonesia Center of Excellence for Food Security
(I-CEFORY)

WELCOME SPEECH

General Co Chair of the Conference

Assalamu'alaikum wa Rahmatullahi wa Barakatuh,
Good Morning Ladies and Gentlemen,

Honorable

Prof. Dr. H. Fatah Sulaiman., MT (Rector of Universitas Sultan Ageng Tirtayasa)

- The Keynote speakers
 - Prof. Dr. Kazuhiko Narisawa from College of Agriculture, Ibaraki University, Japan
 - Prof. Dr. Nidal Nasser, from Collage of Engineering, Al Faisal University, Riyadh. Saudi Arabia
 - Assoc. Prof. Dr. Samsuzana from Department of Biological and Agricultural Engineering, Universiti Putra Malaysia, Malaysia
 - Prof. Dr. Meutia., MP from Head of Center of Excellence I-CEFORY (Local Food Innovation) Universitas Sultan Ageng Tirtayasa, Indonesia
- Invited Speakers
 - Prof. Dr. Tri Agus Siswoyo from Center of Excellence BIOTIN Universitas Jember, Jember
 - Dr. Swandari Paramita from Center of Excellence OKTAL Universitas Mulawarman, Samarinda
 - Dr. Muhammad Ashar from Center of Excellence DLI, Universitas Negeri Malang, Malang
 - Dr. Susiyanti from Center of Excellence I-CEFORY (Local Food Innovation) Universitas Sultan Ageng Tirtayasa, Banten
- All speakers, the academic community and the implementing committees of the IC-SAFE 2020.

Greetings and welcome to all participants of the conference,

The purpose of this conference is to realize the work program in the academic excellence on Center of excellence for food security (Local Food Innovation) UNTIRTA. The Center for Excellence in Higher Education Science and Technology (PUI-PT) is an institution / unit of R & D organizations have the characteristics of the innovative research institute, which is having fundamental research works, proving, developing new methods, and cross multidisciplinary that can be applied through a prototype in a pilot plan scale and publication for International Journal.

The Center of Excellence or PUI PT consists of 3 main activities; they are institutional governance, academic excellence, and product commercialization. The Center of Excellence for Food Security (Local Food Innovation) of Untirta holds the 1st International Conference for Smart Agriculture, Food and Environment (IC-SAFE) 2020 today. It is a part that included in academic excellence activities, such as conference management to publish research results for lecturers, researchers and postgraduate students.

This conference received 35 papers that have been submitted from academics and researchers, postgraduate students from international and domestic. They participate in presenting their papers in the conference and will be contained in the book of abstract. All papers will be selected for an entry into reputable international journals or ISBN proceeding. I think that's all I can deliver in this speech. I hope you enjoy the conference and thank you very much for your attention.

Best Regards,
Assoc. Prof. Dr. Alimuddin, M.M., M.T.
General Co Chair

WELCOME SPEECH **Rector of University of Sultan Ageng Tirtayasa**

Assalamu'alaikum wa Rahmatullahi wa Barakatuh,
Good Morning Ladies and Gentlemen,

All praise is due to Allah, the Lord of the World, the Master and the Creator of everything in the Universe, for enabling us to meet together today on international Conference. Solawat as well and salutation be upon to the noble Prophet of Islam, Muhammad S.A.W. and his household, his companions and his Honorable:

- The Keynote Speakers
 - Prof. Dr. Kazuhiko Narisawa from College of Agriculture, Ibaraki University, Japan
 - Prof. Dr. Nidal Nasser, SMIEE from Collage of Engineering, Al Faisal University, Riyadh. Saudi Arabia
 - Assoc. Prof. Dr. Samsuzana from Departemennt of Biological and Agricultural Engineering, Universiti Putra Malaysia, Malaysia
 - Prof. Dr. Meutia., MP from Head of Center of Excellence I-CEFORY Universitas Sultan Ageng Tirtayasa, Indonesia
- Invited Speakers from Mulawarman University, Malang State University, Jember University and Universitas Sultan Ageng Tirtayasa.
- As well as all speakers, the academic community and the implementing committee of the IC-SAFE activities in 2020.

It is our great pleasure to join and to welcome all participants of the 1st International Conference for Smart Agriculture, Food and Environment (IC-SAFE) 2020 in Serang, Banten. I am happy to see this great work as part of Key Performance Indicator (KPI) Output in the program of Center of Excellence for Food Security (Local Food Innovation). On this occasion, I would like to thank all the committee to organize this conference. Furthermore, the conference will be conducted successfully. I also congratulate all participants for their involvement and willingness to share their research findings and experiences in this conference. Universitas Sultan Ageng Tirtayasa (called Untirta) is located in Banten Province, Indonesia was established officially as a new province on 2000 and developed very rapidly especially to buffer the capital city, Jakarta. Besides consisting of several industrial areas in the North, Banten also has several agricultural sites in the South and Local Food in Banten.

I wish you all find opportunity to get new friendship and network throughout this conference that will be beneficially in the future.

Wassalamualaikum wr wb.

Serang, 15 December 2020

Rector,
Universitas Sultan Ageng Tirtayasa
Prof. Dr. H. Fatah Sulaiman, ST.,M.T.

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THE COMMITTEES

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Prof. Dr. Nidal Nasser, Ph.D., SMIEE

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Dr. Romli Ardie, M.Pd.



CONFERENCE PROGRAM

THE 1st INTERNATIONAL CONFERENCE FOR SMART AGRICULTURE, FOOD, AND ENVIRONMENT

TIME	ACTIVITY	PJ
07.30-08.30	<ul style="list-style-type: none"> - Registration https://bit.ly/ICSAFE - UNTIRTA Profile Video Playback 	Committee <i>Live Streaming YouTube Untirta TV</i>
08.30-08.40	Opening Ceremony: <ul style="list-style-type: none"> - PUI Video (3 minutes) 	MCSiti Aisah, M. Hum
08.40-08.45	<ul style="list-style-type: none"> - Singing National Anthem "Indonesia Raya" (5 minutes) 	MC
08.45-09.00	<ul style="list-style-type: none"> - Welcoming Speech (Head of Committee) (10 minutes) 	Dr. Alimuddin, S.T., M.T.
09.00-09.10	<ul style="list-style-type: none"> - Welcoming Speech and Opening the Conference (Rector of UNTIRTA) (10 minutes) 	Prof.Dr. H. Fatah Sulaiman, S.T., M.T
09.10-09.15	<ul style="list-style-type: none"> - Praying 	Ahmad Wildan Pratomo, S.Pd
09.15-09.25	<ul style="list-style-type: none"> - Photo Session 	MC
09.25-09.30	<ul style="list-style-type: none"> - Coffee Break/Preparation for Main Agenda 	
09.45-12.00	<p>Keynote Speaker (Panel session):</p> <ul style="list-style-type: none"> - Keynote Speaker 1, Prof. Dr. Kazuhiko Narisawa (College of Agriculture, Ibaraki University Japan) Title: Establishment of plant vaccinating system by a dark septate endophytic fungus (DSE) - DSE fungi alter the root-associated microbial communities and suppress soil borne diseases of plant- - Keynote Speaker II, Dr. Samsuzana Abd Aziz (Department of Biological & Agricultural Engineering, UPM, Malaysia) - Questions and Answers session for keynote 1 	20 minutes Presentation for each speaker Moderator: Dr. Nani Maryani, M.Sc

TIME	ACTIVITY	PJ
	and 2 - Keynote Speaker III, Prof. Dr. Nidal Nasser Ph.D (College of Engineering, Alfaisal University Riyadh). - Keynote speakers IV, Prof. Dr. Meutia, S.E., M.P (PUI-PT Ketahanan Pangan UNTIRTA) Title: Tourist Behavior and Purchase Intention Toward Local Food Culinary Banten - Questions and Answers session for keynote 3 and 4	
12.00-13.00	Break ISOMA	
13.00-14.00	Invited Speaker session - Invited Speaker I, Dr. dr. Swandari Paramita, M.Kes Universitas Mulawarman - Invited Speaker II, Dr. Ansar Azhari, Universitas Negeri Malang	Registration participants https://bit.ly/ICS SAFE 15 minutes presentation, 5 minutes Q & A for each of the speaker.
	- Invited Speaker III, Prof. Dr. Tri Agus Siswoyo, S.P., M.Agr., PhD Universitas Jember - Invited Speaker IV, Dr. Susiyanti, M.P, PUI-PT Ketahanan Pangan UNTIRTA Title: In Vitro Propagation of Triploid Tissue for Seedless Fruit Candidate Development	Moderator: Dr. Rida Oktorida Khastini, M.Si Live Streaming YouTube Untirta TV
14.00-14.30	Break	
15.00-16.45	Parallel session: Main Room, Agriculture, Food and Social (11 presenters) 1. Raden Cecep Erwan Andriansyah, Firda Dwi Maulana and Nana Sustisna Achyadi “Effect of Water Content and Heating Time on The Physicochemical Characteristics of Modified Suweg Tuber Flour (<i>Amorphophallus Campanulatus</i>) Using The Heat Moisture Treatment Method” 2. Sakiban Sakiban, Meutia Meutia and Lutfi	Moderator: Dr. Yusrama Denny, M.Si Zoom Assistant: Anis Live Streaming YouTube Untirta TV

TIME	ACTIVITY	PJ
	<p>Lutfi “Improving Marketing Performance Through Marketing Intelligence and Marketing Innovation: Study on Micro, Small and Medium Enterprises (MSME’s) Coffee Cafe in Serang City”</p> <p>3. Sakiban Sakiban, Meutia Meutia and Lutfi Lutfi “Improving Marketing Performance Through Marketing Intelligence and Marketing Innovation”</p> <p>4. Indah Khairunnisa, Meutia Tia and Sri Mulyati “Factors That Affect the Repurchase Intention of Processed Food Products at The Center of The Concementat The Executive Port of Merak”</p> <p>5. Susiyanti Susiyanti, Rida Oktorida Khastini and Sjaifuddin Sjaifuddin “Invitro Propagation of Triploid Tissue for Seedless Fruit Candidate Development”</p> <p>6. Kharisun Kharisun, Muhammad Nazarudin Budiono, Nur Prihatiningsih and Ika Ristantya “The Effect of Si Fertilization and Water Stress Conditions on The Chemical Properties of Inceptisol Soil”</p> <p>7. Rida Khastini, Nani Maryani, ling Lestari, Indah Sari, Usman and Cinddy Putri “Diversity of Wild Edible Mushroom in Gunung Tukung Gede Nature Reserves and Its Potential for Improving Food Security”</p> <p>8. I Wayan Widia, Ni Luh Yulianti and I Gede Yudi Pradnyana “The Effect of the Length of Time Delay on Fish Death and Bleeding Techniques toward the Quality of White Snapper Fillet”</p> <p>9. Windi Novi Al Wafiah, Rida Oktorida Khastini, ling Dwi Lestari, Nani Maryani “Foliar Disease Associated Fungi in Local Rice Baduy Banten”</p> <p>10. Enggar Utari, Indria Wahyuni and Mahrawi Mahrawi</p>	

TIME	ACTIVITY	PJ
	<p>“The Potential of Mangrove Forest as A Local Food Source to Support Food resilience in Banten Province”</p> <p>11. Sri Agustina, Fuji Dwi Putri and Siti Aisah “Preparation of Starch Nanoparticles via Self-Assembly Method for Responsive Packaging Materials”</p> <p>12. Asep Ridwan, Dyah Lintang Trenggonowati, Helen Napitupulu “Proposed Packaging Design Supply Chain Distribution of Pancake Durian Product with The Kansei Engineering and Life Cycle Assessment (LCA) Approach”</p>	
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TIME	ACTIVITY	PJ
	<p>Susanto “Light Preferences of Blue Swimming Crab (<i>Portunuspelagicus</i>) to Different Colors of Light Emitting Diode”</p> <p>7. Trisda Sela Mutiara, Aris Munandar and Mas Bayu Syamsunarno “Effectiveness of Anaesthesia from Lemongrass Extract (<i>Cymbopogoncitratius</i>) on Closed System Transportation of Carp (<i>Cyprinus carpio</i>)”</p> <p>8. Hanifah Fitriani, Aris Munandar and Dini Surilayani “Dry Rendering Extraction of Fish Oil from discarded Innards in Sate Bandeng Processing with Temperature Difference”</p> <p>9. Syifa Mesyawati, Aris Munandar and Mas Bayu Syamsunarno “Optimization of Jicama Seed Extracts on The Dry Transportation Process of Common Carp (<i>Cyprinus Carpio</i>) in Low Temperature”</p> <p>10. Mizan Muhammad Toyyibun, Ririn Irnawati, Hery Sutrawan Nurdin and Adi Susanto “Design Appropriateness of Boat Lift Net Based on Archipelagic Fishing Port of Karangantu”</p> <p>11. Hanief Atmaja, Ririn Irnawati and Adi Susanto “Analysis of Feasibility of Fishing Business Catch Scratch (Gredge Gear) in Banten Bay”</p>	
	<p>Room B, Environment (13 presenters)</p> <p>1. Rahmat Asy'Ari and Made Chandra Aruna Putra “Implications of Microclimate Change on the Distribution and Diversity of Reptile-Amphibian (Herpetofauna) at the Dramaga IPB Campus, Bogor Regency, Indonesia”</p> <p>2. Elfita Elfita, Mardiyanto Mardiyanto and Fitriya Fitriya “Characterization of Bandotan Ethanol Extract (<i>Ageratum conyzoides</i> Linn) as an Antidiarrhea Drug for the Ogan Ethnic Community in South Sumatra”</p>	<p>Moderator: Dr. Fitria Riani Eris, S.P., M.Si</p> <p>Zoom Asisten: Dr. Rida</p>

TIME	ACTIVITY	PJ
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TECHNICAL PROGRAMS

Keynote Speakers

1. Prof. Dr. Kazuhiko Narisawa
Ibaraki University – Japan
2. Prof. Dr. Nidal Nasser, Ph.D., SMIEE
Alfaisal University – Saudi Arabia
3. Assoc. Prof. Samsuzana Abd Aziz
Universiti Putra Malaysia - Malaysia
4. Prof. Dr. Meutia, SE., MP.
Universitas Sultan Ageng Tirtayasa - Indonesia

ISLAMIC DEVELOPMENT BANK RESEARCH CONSORTIA



Invited Speakers

1. Dr. dr. Swandari Paramita, M.Kes.

Universitas Mulawarman

2. Dr. Ansar Azhari

Universitas Negeri Malang

3. Prof. Dr. Tri Agus Siswoyo, S.P., M.Agr., Ph.D.

Universitas Jember

4. Dr. Susiyanti, M.P.

Universitas Sultan Ageng Tirtayasa

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING FOR AGRICULTURAL APPLICATIONS

Samsuzana Abd Aziz

(Universiti Putra Malaysia)

Abstract

In recent years, predictive analytics involving big data or fast and real-time data streams has become a crucial process that makes artificial intelligence (AI) and machine learning a worthy paradigm for end-to-end agricultural management systems. Agricultural data are collected using vision systems and are then processed and analyzed via intelligent learning mechanisms for prediction (i.e., regression, classification and clustering), data mining and pattern recognition or data analytics in general. Pest and disease recognition for plants; and fruits detection and quality monitoring are among agricultural applications that use AI to replace human know-how. These applications utilize vision and image classification as their core intelligent service that has a direct impact on computational complexity, cost (i.e., data storage and processing) and efficiency of transmission. The capacity of processing big data and optimizing transmission efficiency requires additional levels of intelligent computational methods such as deep learning.

This presentation discusses the current state of AI in agricultural applications. We presented our work at the Smart Farming Technology Research Center, University Putra Malaysia (UPM) in utilizing the deep learning technique for insect pest recognition in paddy fields. A pre-trained deep learning model called Faster Recurrent Convolutional Neural Network (R-CNN) was utilized under the Tensorflow framework was able to detect the insect-pests, classify and count the pests' population in the paddy field with an accuracy of 93%. With further complementary data and enhancement to the model, farmers may be able to select remedies or pesticides to improve crop production and/or quality.

Deep Learning has also been used in our prior work on oil palm fresh fruit bunches (FFB) quality classification at the oil palm mill for automatic sorting of the fruit bunches. We used a deep convolutional network implemented using the Tensorflow framework at the processing center on the cloud. In this model, the FFB can be classified into five ripeness or quality categories, which are empty bunch, under ripe, unripe, ripe and overripe with approximately 80% accuracy. The images were subjected to noise such as very busy image background due to foreign objects like soil dirt on the conveyer during data acquisition. The accuracy can be improved when object processor is implemented locally at the edge to pre-process the image data more intensively. Lastly, we recognize some of the challenges and share future research directions for successful AI and machine learning applications for agricultural applications.

Keywords: *Artificial Intelligence; Machine Learning; Deep Learning; Intelligent Agriculture; Pest Recognition; Fruit Quality*

TOURISTS' BEHAVIOR AND PURCHASE INTENTION TOWARDS LOCAL FOOD CULINARY IN BANTEN

Meutia, Tubagus Ismail, Nurul Ummi, Nur Faizah

(Indonesia Center of Excellence for Food Security (Local Food Innovation) Universitas Sultan Ageng Tirtayasa}

Abstract

Banten is one of the provinces that has rapid development in the field of industry and tourism related to tourism in maritime, nature, cultural and religion. The tourism sector is one of the influential industries in terms of improving the economic sector, especially SMEs engaged in local food culinary sectors. This study aims to analyze the effect of behavior on the tourists' purchase intention towards local processed food products in Banten Province. This was an exploratory study to know the factors that influenced the tourists' purchase intention towards local food culinary in Banten. The sampling was conducted by accidental sampling technique with total sample of 180 respondents in the tourism area in Banten. Data processing was performed using statistical tool called Partial Least Square (PLS) to observe the effect of attitude, subjective norms and perceived behavioral control variables on tourists' purchase intention towards local food culinary in Banten tourism area. The result this study: Firstly, consumer attitudes had a positive effect on purchase intention towards local food culinary, secondly, subjective norm found in consumers must be raised to increase consumer purchase intention towards local food culinary in Banten province, and lastly, perceived behavioral control had a significant positive effect on purchase intention.

Keywords: *Purchase Intention, Local Food Culinary, Banten*

ESTABLISHMENT OF PLANT VACCINATING SYSTEM BY A DARK SEPTATE ENDOPHYTIC FUNGUS (DSE) - DSE FUNGI ALTER THE ROOT-ASSOCIATED MICROBIAL COMMUNITIES AND SUPPRESS SOIL BORNE DISEASES OF PLANT

Kazuhiko Narisawa

(Ibaraki University Japan)

Abstract

Crop production has been dependent on chemicals to control pest organisms and supply nutrients for growth. These chemicals have caused considerable negative impacts on agricultural soils since their introduction. It is today's aim to reduce the use of chemicals and switch to biological control method for pest control purposes, i.e., create a natural and organic agricultural system. However, the scientific basis for many biocontrol methods, which prove the validity of the organic production system, is insufficient.

Fusarium crown and root rot (FCRR) of tomato caused by *Fusarium oxysporum* f. sp. *radicis-lycopersici* (FORL) is a common disease observed in worldwide. Our Previous study showed the suppressive role of a DSE fungus, *Veonaeopsis simplex* Y34 against *Fusarium* disease of Chinese cabbage, suggesting a potential bio-control agent to suppress FCRR of tomato. The solid-substrate, incubated by combining *V. simplex* Y34 with sterilized litter compost (solid-cultures of *V. simplex* Y34), was applied in a nursery pot to assess the biocontrol of the disease. Results showed that *V. simplex* Y34 decreased the disease severity of FCRR for the two cultivars. The colonization of *V. simplex* Y34 in root was determined by re-isolation and terminal-restriction fragment length polymorphism (T-RFLP) analysis targeting fungal ITS-LSU region. Moreover, the application of the endophyte increased the diversity of fungal community in root-endosphere and decreased the colonization of FORL in the root. The T-RFs-based multivariate analysis showed that the fungal communities in root-endosphere with inoculation of *V. simplex* Y34 were clustered away from those of non-inoculation, suggesting a correlation between the root-endospheric community and disease incidence. In conclusion, this study indicates that the application of *V. simplex* Y34 altered the diversity, evenness and structure of root-endospheric fungal community by the endosymbiosis of endophyte, and decreased pathogen colonization in the root, which opens a new way to control of tomato FCRR disease.

INTELLIGENT TECHNOLOGIES FOR MONITORING CROPS IN GREENHOUSES: APPLICATIONS AND CHALLENGES

Nidal Nasser

(Alfaisal University Saudi Arabia)

Abstract

Internet of Things (IoT), Wireless Visual Sensor Networks (WVSNs), and Artificial Intelligence (AI) methods, including machine learning and deep learning are promising technologies for use in countless application domains and they poised for growth in many markets from the farm to the office. However, integrating these technologies in a commercial greenhouse setting is an application domain yet to be researched. In this talk I present a framework that combines all these technologies to address the challenges faced by operators of commercial greenhouses. The framework components are dynamically integrated and function to achieve main objective which monitoring the growth of the plants, and controlling the atmosphere inside the greenhouse using environmental parameters. This objective can be achieved by using IoT, WVSN and image processing integrated with AI method to monitor the healthy growth of plants and detect any unusual growth caused by pests or diseases.

EFFECT OF WATER CONTENT AND HEATING TIME ON THE PHYSICO-CHEMICAL CHARACTERISTICS OF MODIFIED SUWEG TUBER FLOUR (*AMORPHOPHALLUS CAMPANULATUS*) USING THE HEAT MOISTURE TREATMENT METHOD

Raden Cecep Erwan Andriansyah, Firda Dwi Maulana, and Nana Sustisna Achyadi

Abstract

Utilization of local natural resources in Indonesia is one solution in an effort to improve local food that can be used as a substitute or substitute for wheat flour. Suweg flour is one of the semi-finished ingredients that has great potential in local-based development. The objectives of this study were to determine the characteristics (chemical and physical) of modified suweg tuber flour and determine the appropriate temperature and heating time for the modification of suweg tuber flour. The experimental design carried out in this study was a 3 x 3 factorial pattern in a randomized block design (RBD) and the replications were carried out three times, so that 27 experimental units were obtained. The factors used in the study were the regulation of water content of suweg flour (20%, 25% and 30%) and the heating time of forages (16 hours, 24 hours and 32 hours). The main research responses include physicochemical responses, namely moisture content, brightness test and pasting characteristics. Based on the results of the study, it was found that the heating temperature of the Heat Moisture Treatment (HMT) modification and the heating time of the Heat Moisture Treatment (HMT) had an effect on the amylographic properties. The interaction between temperature and heating time of Heat Moisture Treatment (HMT) modification had no effect on amylographic properties, moisture content and brightness.

Keywords: *Heat Moisture Treatment, Suweg Flour, HMT Suweg Flour, Water Content Regulation*

IMPROVING MARKETING PERFORMANCE THROUGH MARKETING INTELLIGENCE AND MARKETING INNOVATION: STUDY ON MICRO, SMALL AND MEDIUM ENTERPRISES (MSME'S) COFFEE CAFE IN SERANG CITY

Sakiban Sakiban, Meutia Meutia and Lutfi Lutfi

Abstract

The purpose of this study is to determine the effect of social capital on marketing performance through marketing intelligence and marketing innovation. This research is conducted on type of micro small and medium enterprises (MSME's) coffee cafe in Serang City. This research data collection method using a questionnaire with a census sample technique. The primary data consisted of 47 respondents and is analyzed using the Structural Equation Modeling (SEM) technique with the help of SmartPLS software. Based on the results of data processing, there are four hypotheses accepted and one hypothesis rejected. The hypothesis that is rejected is social capital has a negative and insignificant effect on marketing performance. While the accepted hypotheses are social capital has a positive and significant effect on marketing intelligence; social capital has a positive and significant effect on marketing innovation; Marketing intelligence has a positive but insignificant effect on marketing performance, this hypothesis is accepted at alpha 10%; and marketing innovation has a positive and significant effect on marketing performance and marketing innovation mediates the relationship between social capital and marketing

performance. The implication of this research is to improve the marketing performance of the Coffee Café MSME's can be done by developing or implementing marketing innovation activities and marketing intelligence. Further research is suggested to be carried out at MSME Coffee Cafes in other cities or regencies and more specifically on marketing innovation variables, so as to add references to scientific developments, especially in marketing management.

Keywords: *Social Capital, Marketing Intelligence, Marketing Innovation and Marketing Performance*

IMPROVING MARKETING PERFORMANCE THROUGH MARKETING INTELLIGENCE AND MARKETING INNOVATION

Sakiban Sakiban, Meutia Meutia and Lutfi Lutfi

Abstract

The purpose of this study is to determine the effect of social capital on marketing performance through marketing intelligence and marketing innovation. This research is conducted on type of micro small and medium enterprises (MSME's) coffee cafe in Serang City. This research data collection method using a questionnaire with a census sample technique. The primary data consisted of 47 respondents and is analyzed using the Structural Equation Modeling (SEM) technique with the help of SmartPLS software. Based on the results of data processing, there are four hypotheses accepted and one hypothesis rejected. The hypothesis that is rejected is social capital has a negative and insignificant effect on marketing performance. While the accepted hypotheses are social capital has a positive and significant effect on marketing intelligence; social capital has a positive and significant effect on marketing innovation; Marketing intelligence has a positive but insignificant effect on marketing performance, this hypothesis is accepted at alpha 10%; and marketing innovation has a positive and significant effect on marketing performance and marketing innovation mediates the relationship between social capital and marketing performance. The implication of this research is to improve the marketing performance of the Coffee Café MSME's can be done by developing or implementing marketing innovation activities and marketing intelligence. Further research is suggested to be carried out at MSME Coffee Cafes in other cities or regencies and more specifically on marketing innovation variables, so as to add references to scientific developments, especially in marketing management.

Keywords: *Social Capital, Marketing Intelligence, Marketing Innovation and Marketing Performance*

FACTORS THAT AFFECT THE REPURCHASE INTENTION OF PROCESSED FOOD PRODUCTS AT THE CENTER OF THE CONCENMENT AT THE EXECUTIVE PORT OF MERAK

Indah Khairunnisa, Meutia Tia and Sri Mulyati

Abstract

The research aims to know the factors that influence repurchase intention processed food products at the souvenir center in executive port simultaneously and partially as well as analyzing the most dominant factors which influence repurchase intention. This type of research is descriptive quantitative. This research is located in the center souvenir of executive port merak. This research uses a sample of 150 respondents by using techniques non-probability sampling with technique convenience sampling. The test tool used to test the research instrument in the form of validity test and reliability test. Hypothesis testing is done using simultaneous test, partial test and determination coefficient test. Data analysis techniques using multiple linear regression analysis techniques. From the test results it can be concluded that service quality, customer value, customer satisfaction and perceived value effect simultaneously and significantly on repurchase intention. T test result indicate that service quality, customer value, customer satisfaction and perceived value effect partially and significantly on repurchase intention with the acquisition value of the arithmetic greater than t table. The coefficient of determination test result show that the variabel service quality, customer value, customer satisfaction and perceived value as a whole gave the effect of 72,2% on repurchase intention while the remaining 27,3% is influenced by other variabels not included in this research. The results of multiple linear regression analysis show that the independent variables has a positive effect on the dependent variable. The most dominant factor affecting repurchase intention is the customer value variable. It is recommended that the central business shop for souvenir supply product originating from UMKM in Kota Cilegon.

Keywords: *service quality, customer value, customer satisfaction, perceived value, repurchase intention*

INVITRO PROPAGATION OF TRIPLOID TISSUE FOR SEEDLESS FRUIT CANDIDATE DEVELOPMENT

Susiyanti Susiyanti, Rida Oktorida Khastini and Sjaifuddin Sjaifuddin

Abstract

Nowadays, seedless fruits have become a trend in current agricultural practices. In nature, seedless fruit already exists but is of limited variety, such as bananas. While the other fruit develops from plant organs and tissues are generally diploid, some are haploid (anther and pollen) and triploid (endosperm). Seedless fruit has been produced in the commodity such as grape, watermelon, dan melon. The breeding method between diploid ($2n$) plant and tetraploid can develop a triploid plant with seedless fruit. Seedless fruit can also be produced by manipulating hormonal regulation (auxin and gibberellin) of the fruit set, but it was facultative parthenocarpy. The functional studies of fruit traits take a long time in species. The alternative that can be developed is an in-vitro culture of organs or tissues with a triploid ploidy level genetically. Endosperm tissue culture has been considered as a direct method for producing triploid plants. The achievement of endosperm culture depends on internal and

external factors, such as endosperm age, culture media, growth regulators, browning, duration of culture, and plant species.

Keywords: *seedless, fruit, triploid, endosperm, in vitro*

THE EFFECT OF SI FERTILIZATION AND WATER STRESS CONDITIONS ON THE CHEMICAL PROPERTIES OF INCEPTISOL SOIL

Kharisun Kharisun, Muhammad Nazarudin Budiono, Nur Prihatiningsih and Ika Ristantya

Abstract

The aims of the study were to: 1) determine the effect of silicon fertilization on the chemical properties of Inceptisol soil, 2) determine the effect of water stress conditions on the chemical properties of Inceptisol soil, and 3) determine the interaction of silicon fertilization and water stress conditions on the chemical properties of Inceptisol soil. This experimental design of the research was a Randomized Block Design (RAK) with two treatments, namely silicon fertilizer (control, 5 g / polybag, 10 g / polybag and 15 g / polybag) and water stress conditions (100%, 90%, 80%, and 70%) with 3 replication. The observed variables were soil oxalate content, soil acidity (pH H₂O), soil acidity (pH KCl), available N content, total N content, available P content, total P content, available K content, total K content, cation exchange capacity, soil Al-dd content. Data were analyzed by using the F test (ANOVA) and further testing with Duncan's Multiple Range Test (DMRT) with an error rate of 5%. The results showed that silicon fertilization from zeolite and bagasse compost increased the available K content and K-total soil but did not increase soil Si oxalate content, soil acidity (pH H₂O), potential soil acidity (pH KCl), Available N, total N content, available P content, total P content, cation exchange capacity, and soil Al-dd content. The treatment of water stress conditions reduced soil acidity (pH H₂O), soil acidity (pH KCl), and soil Al-dd content but did not affect soil Si oxalate content, available N content, total N content, available P content, total P content, available K content and K-total soil, as well as cation exchange capacity. There is no interaction between the application of silicon fertilizer and water stress conditions.

Keywords: *Silicon, Sugarcane Bagasse Compost, Zeolite, Water Stress, Inceptisol*

DIVERSITY OF WILD EDIBLE MUSHROOM IN GUNUNG TUKUNG GEDE NATURE RESERVES AND ITS POTENTIAL FOR IMPROVING FOOD SECURITY

Rida Khastini, Nani Maryani, Iing Lestari, Indah Sari, Usman and Cinddy Putri

Abstract

Mushrooms have been consumed as food rich in healthy human nutrition and serve an extraordinary benefaction to agricultural biodiversity, fostering local food security and economic sustainability in the community. This study aimed to observe and document wild edible mushroom diversity utilized by the community in Gunung Tukung Gede (GTG) nature reserves. The exploration in GTG nature reserves was carried out during September 2018 – June 2019 to collected wild mushrooms and gathered information on utilizing wild edible mushrooms by interviewing the indigenous community people living in GTG nature reserves. A total of 75 local people who live in Sukatani, Pasilaja, and Cimacan Village in GTG nature

reserves participated and gave them information on the utilization of wild mushrooms. Among the wild mushroom grew in GTG nature reserves, 15 species were reported as edible: *Auricularia polytricha*, *Coprinus* sp. *Termitomyces albuminosus*, *Termitomyces eurhizus*, *Boletus edulis*, *Cantharellus cibarius*, *Marasmiellus* sp. *Mycena* sp., *Pleurotus* sp. *Volvariella volvacea*, *Lentinus sajor-caju*, *Psathyrella* sp., *Oudemansiella* sp., *Schizophyllum commune*, and *Scleroderma sinnamariense*. The outcome will contribute information to preserve biodiversity and ecosystems in GTG nature reserves and potential mushroom use to improve food security.

Keywords: *Gunung Tukung Gede (GTG) nature reserve, food security, wild edible mushroom*

THE EFFECT OF THE LENGTH OF TIME DELAY ON FISH DEATH AND BLEEDING TECHNIQUES TOWARD THE QUALITY OF WHITE SNAPPER FILLET

I Wayan Widia, Ni Luh Yulianti and I Gede Yudi Pradnyana

Abstract

White Snapper (*Lates calcarifer*) is a type of fish favored by domestic and foreign consumers because of its excellent nutritional content. One of the factors that determine the quality of white snapper is control of the quality of fish handling after being harvest. This study aims to determine the best way to kill the fish and drain blood from the fish's body to produce a safe white snapper fillet product with quality based on SNI 2696: 2013. This study used a factorial design consists of 15 treatment combinations with two replications so that there are 30 units of the experimental sample. The first factor is the length of time to delaying the death of fish consists of five treatment levels, namely 0, 30, 60, 90, and 120 minutes delay. The second factor is the bleeding techniques of the fish, consists of three levels of treatment, namely without bleeding techniques, bleeding technique with one wound, and bleeding technique with two wounds. Data analysis used analysis of variance and continued with the least significant difference test (LSD). Based on the analysis of variance, the treatment combination has a significant effect on the texture and color parameters. The results show that the best treatment combination was a 90-minutes delay with a bleeding technique with two wounds with the quality characteristics of the fish fillet products, namely protein content (26,6258 % wet basis), texture (4.3369 mg N/100 g), color (L = 31,0025, A = 2,4275, B = 10.13).

Keywords: *how to kill fish, white snapper, fish fillet quality, stress response, bleeding techniques*

FOLIAR DISEASE ASSOCIATED FUNGI IN LOCAL RICE BADUY BANTEN

Windi Novi Al Wafiah, Rida Oktorida Khastini, Iing Dwi Lestari, Nani Maryani

Abstract

Baduy is a traditional community in Banten, secluded their way of life from outsiders in many centuries. Their isolated place holds undiscovered biodiversity, including local rice varieties. In this research, we explored local rice varieties from outer Baduy Banten and its fungal associated foliar disease. We surveyed the location during seedling and harvesting time

between March to July. Rice varieties and foliar disease samples were identified at Biology Education Laboratory UNTIRTA. Baduy Four local rice varieties from outer Baduy Banten was identified, namely Pare Limar, Pare Guling, Pare Siang and Pare Langgasari. These varieties were very susceptible to leaf blast and brown spot foliar disease. Fungi isolated from those two leaf diseases were from the genus *Curvularia*, *Epicoccum*, *Pyricularia*, *Fusarium*, *Phoma* and *Geotrichum*. Local rice varieties in isolated areas known to be more resistant to diseases. However, our results demonstrated the susceptibility of Baduy's unique varieties of rice were susceptible to two most common diseases that also found in commercial varieties.

Keywords: *Baduy, disease, fungi, foliar, local, rice*

THE ABILITY OF VETIVER CHRYSOPOGON ZIZANIOIDES TO TREAT AQUACULTURE WASTEWATER

Annisa Misykah Mauliddina and Muh. Herjayanto

Abstract

Intensive aquaculture systems have problems with waste. Water containing organic matter, leftover feed, and the metabolic products of cultured fish are released into public waters during harvest. On the other hand, water that used must be efficient for aquaculture activities. One of solution for this aquaculture wastewater is processed using vetiver grass (*Chrysopogon zizanioides* L.). It is hoped that the results of this wastewater treatment can be reused for aquaculture activities. This paper is an idea about the application of vetiver grass to preserve the aquatic environment by improving water quality from aquaculture activities based on the results of existing research from several researchers and their modified application.

Keywords: *Chrysopogon zizanioides, intensive aquaculture, vetiver grass, wastewater*

THE RESPONSE OF BLUE SWIMMING CRAB (PORTUNUS PELAGICUS) TO LIGHT EMITTING DIODE

Wah Udin, Adi Susanto and Hery Sutrawan Nurdin

Abstract

Blue swimming crab (*Portunus pelagicus*) fishing using traps is one of the common techniques to get the high economic value of crabs. The traps use natural bait as an attractant. However, the limited availability of natural bait and degradation of protein content during the soaking time of traps affecting the effectiveness of fishing activities. One alternative that can be used to solve the problem is the application of a light-emitting diode (LED) as artificial bait. This study aims to determine the suitable light color for blue swimming crab fishing using a collapsible trap. The research was conducted in a laboratory using a rectangular tank with three different colors of LED including blue, green, red, and dark conditions as controls. The response and behavior of the crab were analyzed descriptively. The results showed the crabs have the highest response to the blue LED compare to the other colors. However, the fastest crawling speed of 4.67 cm/second was found on the green LED. The green LED is the suitable color for application on the

collapsible trap due to the fastest response time and the highest number of crabs that positively respond to the light source compared to other colors.

Keywords: *Trap, primary color, Portunus pelagicus, response*

THE OPTIMAL ENTRANCE DESIGN OF COLLAPSIBLE TRAP FOR BLUE SWIMMING CRAB (PORTUNUS PELAGICUS) FISHING

Mohammad Ependi, Adi Susanto and Hery Sutrawan Nurdin

Abstract

The collapsible trap is one of the selective fishing gear for blue swimming crab (*Portunus pelagicus*) fishing. The effectiveness of the traps significantly influences by entrance design. The purpose of this study is to determine the response and behavior of the blue swimming crab at different angles and mesh sizes for developing the optimal design for a collapsible trap. A laboratory experiment was conducted using angles of 30°, 40°, and 50° with mesh sizes of 1, 1.25, and 1.5 inches. Data were analyzed descriptively and one-way ANOVA was used to determine the effect of angle and mesh size on the crawling speed of crabs. The results showed the crabs can cross all areas of the entrance net easily at an angle of 30° compared to an angle of 50°. The crawling speed of crabs in different mesh sizes varies between 1.30-2.38 cm/s. The highest speed was found at angle 40° and the lowest speed is at 50°. The difference in entrance angle and mesh size have a significant effect on the crawling speed of the crabs and the ideal entrance design is a trap with an angle of 40° and a mesh size of 1 inch.

Keywords: *Trap, primary color, Portunus pelagicus, response*

ESTIMATION FISHING GROUNDS BASED ON SEA SURFACE TEMPERATURE AND CHLOROPHYLL-A IN SUNDA STRAIT USING SNPP-VIIRS SATELLITE

Teguh Riono, Ririn Irnawati and Muta Ali Khalifa

Abstract

The Sunda Strait is a strait located between the islands of Sumatra and Java, the strait has an important role in fishing activities. The common problem faced by fishermen is the determination of the fishing area which still done traditionally based on experience. Unpredictable potential areas can cause an increase in fishing operating costs. One way to make it easier to determine fishing grounds is by utilizing information on sea surface temperature and chlorophyll-a using remote sensing techniques. The aim of this study was to analyze the distribution of sea surface temperature and chlorophyll-a, determine potential fishing grounds, and analyzing the relationship between sea surface temperature and chlorophyll-a with VIIRS boat detection in the Sunda Strait. This research was conducted in July-August 2020. This research used descriptive method. The parameters observed were sea surface temperature, chlorophyll-a concentration, and VIIRS boat detection in the Sunda Strait for 5 years (2015-2019) using SNPP-VIIRS satellite. The results showed that the value of sea surface temperature and chlorophyll-a concentration in the Sunda Strait for 5 years fluctuated. Throughout 2016, sea surface temperature has increased significantly so that it is suspected as a negative Indian Ocean Dipole phenomenon. In August 2019 there was a

significant increase in chlorophyll-a concentrations, the highest peak of chlorophyll-a concentration occurred in September 2019, it is suspected that in August there was upwelling. The potential for fishing grounds varies in every season following the oceanographic symptoms that occur in these waters.

Keywords: *fishing grounds, indian ocean dipole, remote sensing technique*

OPTIMIZATION OF *Datura metel* LEAVES EXTRACT AS ANESTHESIA IN THE DRY TRANSPORTATION OF COMMON CARP (*Cyprinus carpio*) WITH LOW TEMPERATURE

Faris Abdurrahman Wido, Aris Munandar and Mas Bayu Syamsunarno

Abstract

Transportation of common carp (*Cyprinus carpio*) in a dry system is a process that facilitates the distribution of fish to consumers in a state of fresh fish condition with low-temperature immobilization techniques. Steps that can facilitate transportation techniques at low temperatures are using anesthetic ingredients, namely amethyst leaves (*Datura metel*). Anesthetic testing and transportation using temperatures of 14 - 20 ° C. This research aims to determine the optimal concentration of amethyst leaf extract, determine the optimal time for fish fainting, and determine the optimal dry transportation time for carp. the research method was an experiment with two replications with each concentration 0, 6.25, 12.5, 25, 50, and 100 ppm. The research parameters included phytochemical testing, LC-100 (Lethal Concentration), EC-50 (Effective Concentration) water quality testing, gill histology, blood profiles, and fish transportation using a dry system low temperature of 14-20 °C. The results showed that the amethyst leaves contain saponins which can be used to faint fish. The optimum concentration of *Datura metel* leaf extract is 18.34 ppm and a temperature of 14 - 20 ° C with a total fainting time of 51 minutes 5 seconds and a conscious time of 3.47 minutes with a survival rate of 33.33% higher than without giving the extract. The use of extract *Datura metel* in low temperatures causes changes in the blood profile and gill structure of common carp.

Keywords: *Amethyst Leaf, Anesthesia, Cyprinus carpio, Dry transportation, Low temperature*

Light Preferences of Blue Swimming Crab (*Portunus pelagicus*) to Different Colors of Light Emitting Diode

Siti Nurcahyati, Ririn Inrawati and Adi Susanto

Abstract

The swimming crab is one of the marine animals with high economic value and has become one of Indonesia's export commodities. The fishers commonly used collapsible traps to catch the crabs using natural bait. However, the trap's soaking duration affects the bait flavour, thereby reducing the crabs' interest to feed and become ineffective. The application of artificial light can replace natural bait to increase the effectiveness of blue swimming crab traps. This study aims to determine the preferences and responses of the swimming crabs to different light colours. The research was conducted in June-July 2020 in the Laboratory of Fisheries, University of Sultan Ageng Tirtayasa. The results show the crabs have a direct

and indirect response when approaching the light. The highest response was found in white light; however, the lowest response was identified in the orange light. The application of white LED is potential enough to increase swimming crab fishing efficiency using the collapsible trap.

Keywords: *bait, collapsible trap, LED, swimming crab*

EFFECTIVENESS OF ANAESTHESIA FROM LEMONGRASS EXTRACT (CYMBOPOGON CITRATUS) ON CLOSED SYSTEM TRANSPORTATION OF CARP (CYPRINUS CARPIO)

Trisda Sela Mutiara, Aris Munandar and Mas Bayu Syamsunarno

Abstract

Live fish transportation is an important factor influencing the successful distribution of live fish from the farm to the market or any consumers. During fish transportation, anesthesia administration to the media container is carried out to reduce the fish's metabolic activity. Therefore, lemongrass extract is used as a natural anesthetic agent for common carp (*Cyprinus carpio*) in closed system transportation. The purpose of the research is to determine the optimum concentration of lemongrass (*Cymbopogon citratus*) extract and carp's (*Cyprinus carpio*) optimal time on closed system transportation. This research method was an experiment with two replications with each concentration 0, 6.25, 12.5, 25, 50, and 100 ppm. The research consists of a preliminary study to determine the limited concentration of lemongrass extract that can make mortality to the fish and primary research to determine effective concentration as anesthetic material and application during closed system transportation. The results showed that lemongrass extract contains natural anesthetic ingredients in fish transportation, such as alkaloids, flavonoids, phenol hydroquinone, tannins, saponins, triterpenoids, and steroids. The optimum concentration of lemongrass extract was 22.72 ppm with a total fainting period of 42 minutes 4 seconds and a recovery time of 6 minutes 29 seconds where the survival rate was 100% for 12 hours.

Keywords: *anesthesia, lemongrass extract, closed system transport*

DRY RENDERING EXTRACTION OF FISH OIL FROM DISCARDED INNARDS IN SATE BANDENG PROCESSING WITH TEMPERATURE DIFFERENCE

Hanifah Fitriani, Aris Munandar and Dini Surilayani

Abstract

Sate bandeng processing units leaves Milkfish innards waste that may causes environmental pollution. Although, the waste contains omega-three that potentially may be extracted as fish oil. Dry rendering is fish oil extraction method using temperature without the addition of water. Extraction temperature determines quality of fish oil that meet the IFOMA standards. Purpose of this study was to determine optimum temperature and characterize the quality of fish oil extracted from Milkfish innards using dry rendering. The research was conducted in July - September 2020 at Fishery Perocessing Products and Technology Laboratory of the Department of Fisheries, Sultan Ageng Tirtayasa University, and SNI Fish Oil Laboratory at IPB University. This study used three different temperature (40°C, 50°C,

and 60°C) in dry rendering extraction to test yield, free fatty acids, peroxide, anisidin, total oxidation, and fatty acids profile. Extraction with 50°C was optimum temperature that meet IFOMA standards from all parameters, yield (6.88%), free fatty acid (4.89%) and anisidin (4.61 mEq/kg), while peroxide value (29.35 mEq/kg) and total oxidation (63.53 mEq/kg) does not meet the IFOMA standard. The fatty acid profile of innards fish oil dominated by palmitic acid by 31.17% and still has omega-three content such as linolenic acid, EPA, and DHA.

Keywords: *dry rendering extraction, fish oil, milkfish offal, temperature*

OPTIMIZATION OF JICAMA SEED EXTRACTS ON THE DRY TRANSPORTATION PROCESS OF COMMON CARP (*Cyprinus carpio*) IN LOW TEMPERATURE

Syifa Mesyawati, Aris Munandar and Mas Bayu Syamsunarno

Abstract

A dry transportation system is one of the solutions to obtain high survival through imotilization at low temperatures. Before being transported, common carp (*Cyprinus carpio*) are first pinged using a natural anesthetic material, namely jicama seeds (*Pachyrhizus erosus*). The purpose of this research is to determine the optimal concentration of jicama seed extract used as an anesthetic in the dry transport of common carp in low temperatures, select the optimal timing of fish removal in the transportation of common carp, and the time of dry transportation of common carp. The material is extracted by maceration using methanol solvent for 2 × 24 hours. The research parameters included phytochemicals, upper and lower threshold (LC-100), anesthetic power, water quality, blood profiles, gill histology, and fish survival rate during transportation. This research method was an experiment with two replications with each concentration 0 (control), 6.25, 12.5, 25, 50, and 100 ppm. In anesthesia and transportation testing using a temperature of 17-20°C. The results showed that jicama seed extract contains saponin compounds. Extract concentrations of 29.44 ppm in temperatures of 17-20°C can be used for common carp anesthesia with a fainting time of 39 minutes and recovery within 2 minutes 57 seconds. That concentration provides survival of 50% for 6 hours in dry transportation compared without giving extract. The use of this jicama seed extract causes changes in the blood profile and gill structure of common carp, but was still within the normal range.

Keywords: *anesthesia, Cyprinus carpio, dry transportation system, low temperature, Pachyrhizus erosus seed extract*

DESIGN APPROPRIATENESS OF BOAT LIFT NET BASED ON ARCHIPELAGIC FISHING PORT OF KARANGANTU

Mizan Muhammad Toyyibun, Ririn Irnawati, Hery Sutrawan Nurdin and Adi Susanto

Abstract

Boat lift net fishing fleets in Archipelagic Fishing Port of Karangantu were built traditionally and does not have design drawings. The boats are doing its fishing activities as usual although hadn't preliminary design. This research aims at analyzing the design appropriateness of boat lift net compliment to the static gear vessel in Indonesia. The survey method with purposive sampling are applied in the research. The research is done in

Archipelagic Fishing Port of Karangantu on July until October 2019 with identification the compartments of the boat and direct measurements of the boat. The result shows that the main dimension ratio and coefficient of fineness of boat lift net has been appropriate as static gear vessel for fishing activities, although it's traditionally built. The hull form of the boats are round bottom and U-bottom. The stern of boat is flying deck added-transom, and using V-type raked bow.

Keywords: *boat lift net, compliment, design*

IMPLICATIONS OF MICROCLIMATE CHANGE ON THE DISTRIBUTION AND DIVERSITY OF REPTILE-AMPHIBIAN (HERPETOFAUNA) AT THE DRAMAGA IPB CAMPUS, BOGOR REGENCY, INDONESIA

Rahmat Asy'Ari and Made Chandra Aruna Putra

Abstract

The Dramaga IPB campus is one of the urban forests that has a high level of herpetofauna (reptile-amphibian) diversity. The construction and development of the campus provide opportunities for habitat fragmentation and isolation, thereby disrupting the habitat for reptile-amphibians. The role of herpetofauna in environmental bioindicators is very important and their existence is greatly affected by changes in temperature. This study aims to determine the effect of micro-climate on the distribution and diversity of reptiles-amphibians. The transects observed in the sampling were Transect A: Field Laboratory Complex, Faculty of Animal Husbandry, Transect B: Alhuriyah Forest - Permanent Nursery, Faculty of Forestry and Environment, and Transect C: the Deer Stables and Ranch area. Monitoring is carried out with three different weather conditions, namely on clear nights (MC), rainy nights (MH), and post-rain nights (MPH) with survey times around 21.00 - 01.00 WIB. The animal identification survey in this study was carried out by combining the VES (Visual Encounter Survey) method with the line transect method in October - November 2020. Animal data analysis was performed using the Shannon-Wiener diversity analysis resulting in a classification of the reptile-amphibian diversity index. Animal monitoring results showed that there are 18 species distributed on Transect A along 400 m, Transect B along 290 m, and Transect C along 432 m. The observations showed that the highest number of species was on Transect B with a total of 11 species, followed by Transect C (9 species) and Transect A (8 species). This shows that the thicker the forest the more species are found. The results of microclimate observations showed that the highest species on Transect A and C were observed during post-rain observation (MPH) with a total of 6 species. Interestingly, for Transect B, which is a natural forest area, the highest number of species was found during clear night (MC) observations with a total of 8 species. This shows that natural forest, makes reptiles not affected by the weather. In the three observation line, it can be seen that the lowest number of species is found during rain (MH) with a total of 3 species in each Transect. This shows the reptiles don't like going out when it rains.

Keywords: *Biodiversity, Herpetofauna, Micro-climate, VES*

CHARACTERIZATION OF BANDOTAN ETHANOL EXTRACT (AGERATUM CONYZOIDES LINN) AS AN ANTIDIARRHEA DRUG FOR THE OGAN ETHNIC COMMUNITY IN SOUTH SUMATRA

Elfita Elfita, Mardiyanto Mardiyanto and Fitriya Fitriya

Abstract

The Ogan ethnic community in South Sumatra has used bandotan (*Ageratum conyzoides*) as a medicine for diarrhea. Based on the ethnomedicine survey that we have conducted, there are differences in the parts of the plants used by the community, namely the stew of stems only, leaves only, and a combination of both. In this study, we aimed to reveal which part of the plant has higher antibacterial activity and whether the time and place of harvesting the plants affect the yield, antibacterial activity, and phytochemicals. Plant extraction was carried out by the maceration method using 96% ethanol solvent followed by evaporation to obtain a concentrated extract. Antibacterial activity test and MIC value against *Salmonella typhi* were carried out using the Kirby-Bauer method. Phytochemical tests include steroids, triterpenoids, flavonoids, phenolics, tannins, saponins, and alkaloids. The results showed that bandotan leaves had the highest antibacterial activity. Time and place of sampling did not affect % extract yield, antibacterial activity, and phytochemicals.

Keywords: *antidiarrheal, Ageratum conyzoides, ethanol extract, Salmonella typhi*

CHARACTERIZATION SECONDARY METABOLITES OF BAVOA LEAVES (CLEOME CHELIDANII L.F / CAPPARIDACEAE) IN PALU VALLEY

Reinal Putalan, Septian Palma Ariany and Syaifuddin Syaifuddin

Abstract

The leaves of bavoia (*Cleome chelidanii* L.F / Capparidaceae) are one of the most common food sources that grow in the Palu valley. Apart from being a source of food, the people of the Kaili tribe also use bavoia as a medicinal plant. The benefits of leaves as herbal plants are because they have active compounds that can be used as compounds in metabolism in the plant body. The active compound can be analyzed in various ways. The aim of this study was to characterize the secondary metabolic content of the leaves of bavoia. The results showed that the samples from the village of Sidondo (SD) had a total phenol of 4000 ± 84.85 mg GAE / 100g and an IC value of 50154.93 ± 0.94 ppm while the sample from the Kalukubula 2 location had the highest fiber content, namely $41, 51 \pm 0.30\%$. compared to other locations.

Keywords: *Bavoia, Palu Valley, Secondary Metabolite Compounds*

ECOTOURISM SUITABILITY AND CARRYING CAPACITY OF HANDEULEUM UJUNG KULON NATIONAL PARK

Irwan Irwan, Ani Rahmawati and Ririn Irnawati

Abstract

Handeuleum Island is one of the tourist destinations in the Ujung Kulon National Park (included utilization zone). Handeuleum Island has a beach ecosystem, mangroves, and coral reefs. Tourism development in conservation areas has the potential to have negative

impacts on the environment, to reduce the negative impacts that can arise from tourism is by implementing an appropriate tourism concept, namely ecotourism. This study aims to assess the suitability of the Handeuleum Island area for beach tourism, mangrove tourism, diving tourism and to analyze the carrying capacity of the Handeuleum Island for ecotourism. This research was conducted using a survey method. The results of the research namely ecotourism suitability for beach tourism at station 1 are suitable (2.23) and station 2 is very suitable (2.59). The suitability of mangrove tourism at stations 1, 2, and 3 are very unsuitable (0.81, 0.66, and 0.66). The suitability of diving tourism at stations 1, 2, and 3 are unsuitable (1.78, 1.78 and 1.88). The value of the carrying capacity of beach tourism at station 1 (15 people/day), and station 2 (18 people/day). At one time Handeuleum Island had a carrying capacity of 33 people/day. Mangrove and coral reef ecosystems are unsuitable for ecotourism development because of ecosystem conditions. The management of ecotourism in Handeuleum Island is beach ecotourism. The mangrove and coral reef ecosystem needs to be rehabilitated so that in the future it can be used for ecotourism.

Keywords: *Beach, carrying capacity, ecotourism, Handeuleum Island, suitability.*

CORRELATION OF CORAL COVER PERCENTAGE WITH MEGABENTHOS AT HANDEULEUM ISLAND UJUNG KULON NATIONAL PARK

Zuy Yusuf Permana, Mustahal Mustahal and Ani Rahmawati

Abstract

Megabenthos organisms associated with coral reefs namely Anadara, Atrina, Cantharus, Chicoreus, Cypraea, Drupella, Gonimyrtea, Lambis, Linckia, Mytilus, Monetaria, Monoplex, Phapia, Pinctada, Volegalea. Megabenthos is an important indicator of the health condition monitoring of coral reefs. This study aims to calculate the density index, diversity index, dominance index, and megabenthos relationship with the percentage of coral reef cover in Handeuleum Island waters. Megabenthos data was collected using the Belt Transect method and the percentage of coral reef cover was collected using the Line Inter Transect method. Coral reef cover data were collected using the Underwater Photo Transect method and analyzed using CPCe software. The highest density value for megabenthos with a value of 0.28 individual/m² (in the coral reef with bad condition with a percentage cover value of 8.28%) and the lowest density with a value of 0.21 individual/m² (in the coral reef with bad condition with a value of 22.96%). The results of the correlation between megabenthos and the percentage of coral cover obtained a value of $r = 0.72$ with categories of moderate relationships.

Keywords: *Beach, carrying capacity, ecotourism, Handeuleum Island, suitability*

VARIABILITY OF HARD CORAL (SCLERACTINIA) IN A COMPETITION WITH ALGAE IN HANDEULEUM ISLAND, UJUNG KULON NATIONAL PARK

Mifta Tri Andini Soemarno, Adi Susanto and Muta Ali Khalifa

Abstract

The water area of Handeuleum Island is close to the Cigenter River which carries sufficient nutrients for algae development, thus indicating space competition between coral reefs and

algae. The existence of competition is believed to have variability in the number of species and the percent cover of both. The purpose of this study was to analyze the condition of the coral reef ecosystem and the variability of hard corals (Scleractinia) in competition with algae. Data collection for coral reef, algae and abiotic cover was carried out in insitu with the UPT method and analyzed using CPCe software, analysis of variations using the approach (Mean \pm SE) and cluster analysis for the grouping of each station using XLTAT version 2015. The results of the study regarding the coral reef cover were generally in a "bad" condition, namely around an average of 20.85%, turf algae 24,81% and macroalgae 9,49%, water conditions tend to be dominated by algae growth, especially turf algae assemblages. Variability shows that the level of variation in the number of algae is higher than that of live corals, algae (33.9 \pm 6.22 SE) and corals (20.62 \pm 9.36 SE). The low variety of hard corals is due to the waters of Handeuleum Island which are flowed by several river estuaries, resulting in a high sedimentation rate and nutrient content.

Keywords: *Algae, coral reef, competition, variability*

ANALYSIS OF HABITAT STRUCTURE INDEX ON SEAGRASS ECOSYSTEM IN SELOKAN DUYUNG, UJUNG KULON NATIONAL PARK

Alifro Maldini, Adi Susanto and Muta Ali Khalifa

Abstract

Seagrass ecosystem has important functions including fish habitat, nursery ground, spawning ground, sediment stabilizer, and production of organic matter which is has a great value. The purpose of this study is to analyze the Habitat Structure Index (HSI) on the seagrass ecosystem in selokan duyung, Ujung Kulon National Park. The research was conducted using the survey method. The data of seagrass species, percentage cover, and the total area was identified by line transect. There are 3 species of seagrass in selokan duyung i.e. *Enhalus acoroides*, *Cymodocea serrulate*, and *Halodule uninervis* with the highest domination on *Enhalus acoroides*. The domination of *Enhalus acoroides* with a percentage cover of 29.04% was influenced by substrate type, which was dominated by muddy and sandy mud. The seagrass ecosystem in Ujung Kulon National Park has fairly categorized with an average HSI score of 68.1 (scale 0 – 100).

Keyword: *Enhalus acoroides, HSI, Seagrass, Selokan duyung*

CARBON STOCK AND BIOMASS ANALYSIS OF MANGROVE ECOSYSTEM IN HANDEULEUM ISLAND UJUNG KULON NATIONAL PARK

Irfan Adinugraha, Adi Susanto and Muta Ali Khalifa

Abstract

Mangrove ecosystems can store carbon more than 1000 tons/ha, nearly four times of other tropical rain ecosystems. The purpose of this study was to analyze the storage of organic carbon and biomass stocks on above ground, below ground and soil on the mangrove ecosystem in Handeuleum Island. Estimation of biomass potential on the above ground and below ground was conducted using nondestructive sampling, and for soil using the loss on ignition (LOI) method. The average carbon of potential biomass stored at the above ground,

below ground and dead trees was in order 818,88 tons/ha, 857,49 tons/ha and 182,12 tons/ha. Estimated mean carbon storage at the above ground, below ground, dead trees and soil is 65,14 tons/ha, 69,17 tons/ha, 32,53 tons/ha and 263,89 tons/ha. The total carbon storage on the mangrove ecosystem in Handeuleum Island is 1251,33 tons/ha and absorbs CO₂ as much as 4592,37 tons/ha.

Keywords: *biomass, carbon, LOI, mangrove*

ACCURACY AND FORECASTING BOTH RANDOM FOREST AND SUPPORT VECTOR MACHINES FOR SEAWEED DRYING DATA IN BIG DATA USING MACHINE LEARNING

Mukhtar Eri Suhaeri, M.K.M. Ali, Mohd. Tahir Ismail and Alimmudin Alimmudin

Abstract

Regression is one of the main tasks in machine learning and has been successfully applied to many areas such agriculture and biology. Moreover, regression has been continuously received a great attention. However, there is still open issues in regression, and one of the issues is regression with accuracy. We are considering “accuracy”. The accuracy problem is generally recognized in regression model. The accuracy of machine learning regression is very important and useful. The main problem accuracy is leading for assessing of the predictor variables, which could result in interpretations. For this purpose, a dataset containing 1924 observations was used to study the effect of more 29 different independent variables on the dependent variable of data seaweed drying. Machine Learning methods are the popular estimation methods for the regression model. Few studies have evaluated and compared the performance of multiple machine learning (ML) models for regression in accuracy. Two machine learning algorithms both Random Forest (RF) and Support Vector Machines (SVM) were applied in Data Seaweed Drying. All performance measures for accuracy R-Square, R-Square Adjusted, Root Mean Square Error and Mean Average Percentage Error. All performance measure - R² values (0.99555 for Random Forest, 0.77306 for Support Vector Machines). R² - adjusted values (0.995499 for Random Forest, 0.770061 for Support Vector Machines,). Mean Absolute Percentage Error (MAPE) values (0.8776581 for Random Forest, 8.1599709 for Support Vector Machines). Mean Square Error (MSE) values (1.215256 for Random Forest, 62.18079 for Support Vector Machines). Mean Absolute Error (MAE) values (0.4994197 for Random Forest, 4.8268991 for Support Vector Machines). Considering R-Square, R-Square Adjusted, Root Mean Square Error, and Mean Average Percentage Error values for Random Forest and Support Vector Machines that Random Forest outperforms than support vector machines.

Keywords : *Machine Learning, Regression, Random Forest, Support Vector Machines, and Accuracy*

NATURAL PRODUCTS FROM EAST KALIMANTAN LOCAL WISDOM FOR FIGHTING AGAINST COVID-19

Swandari Paramita and Enos Tangke Arung

Abstract

Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. There are more than 68 million positive confirmed cases worldwide in December 2020. Indonesia officially established the first COVID-19 confirmation case in early March 2020. Until the early of December 2020, there are more than 600,000 positive confirmed cases in Indonesia. Traditional medicine using medicinal plants in Indonesia has begun to attract attention for fighting against COVID-19 since the beginning of this pandemic. Ministry of Health Republic of Indonesia has been released the list of medicinal plants intended to prevent COVID-19, i.e. temulawak (*Curcuma xanthorrhiza* Roxb.); turmeric (*Curcuma longa* L.); ginger (*Zingiber officinale* Roscoe); meniran (*Phyllanthus niruri* L.); sambiloto (*Andrographis paniculata* (Burm.f.) Nees), and guava (*Psidium guajava* L.). Research centers at universities in Indonesia are also researching natural products for the fighting against COVID-19, including Mulawarman University. Our prominent research including bangalai (*Zingiber montanum* (J.Koenig) Link ex A.Dietr.) to reduce the risk of COVID-19 patients with comorbid and stingless bee honey products for prevention of COVID-19.

Keywords: *natural products, local wisdom, COVID-19*

FEASIBILITY ANALYSIS OF DREDGES GEAR IN BANTEN BAY WATERS

Hanief Atmaja, Ririn Irnawati and Adi Susanto

Abstract

Shellfish is one of the marine products that have economic value to be developed to meet the community's food needs. The objective is to analyze the feasibility of dredges gear operating in Banten Bay Waters. A survey method was conducted from January to March 2020. The result showed 42 units of dredges gear in Banten Bay, based on the Cengkok River. The target catches are blood clams and feather clams. A crab, small crab and shrimp are the by-catches. The average profit of Rp. 22.292.500; revenue cost ratio of 2,64; return on investment of 109,28%; and a payback period 11 months and 1 day. The dredges gear in Banten Bay is still profitable and feasible to continue.

Keywords: *Dredge gear, Profit, Shellfish*

SIMULATION OF THE ENVIRONMENTAL TEMPERATURE CONTROL SYSTEM OF AEROPONIC PLANT HORTICULTURE SYSTEM IN GREEN HOUSE

Alimuddin Alimuddin, Muhammad Irsyad Akbar Maulana and Masjudin Masjudin

Abstract

This study aims to control the environmental temperature for aeroponic system horticultural plants in the greenhouse. Indonesia's condition with large areas of land is still not optimal for planting horticultural crops using soil media so using an aeroponic system is one way to

further optimize plant growth. In order to avoid various pests and diseases, a greenhouse is needed. Greenhouse is an ideal place for the cultivation of various types of horticultural plants but the temperature in the greenhouse will tend to be hotter due to the closed conditions of the room, therefore it is necessary to control the environmental temperature in the greenhouse. This control system uses an Arduino UNO microcontroller and a DHT11 temperature sensor which will show the difference in temperature between outside the greenhouse, in the greenhouse before temperature control and after using temperature control. The results of this study indicate the need to control the environmental temperature in the greenhouse to keep the temperature stable, with the result that the largest percentage of temperature reduction in heat reaches 24%.

Keywords: *Control, temperature, aeroponic, horticulture, green house*

DESIGN OF COVER ELECTROSTATIC PRECIPITATOR AIR PURIFIER FOR FOOD LABORATORY

Agung Sudrajad and Indra Adhitya

Abstract

Clean air in the food laboratory is a must be applied. Particulate matter in the air inside food laboratory can affect the conditions of experimental raw materials. In addition, indoor air pollution that is inhaled by humans can cause irritation to the nose, throat and lungs. This study designs an air purifier cover that can reduce indoor air pollution by using electrostatic precipitator (ESP) system. Solid work software was used in this research. The result shows that the cover of the ESP-based air filter was rectangular, 135 mm long, 150 mm wide, and 50 mm high. The air purifier voltage is 10,000 volts DC. The raw material for cover air purifier is thermoplastic polyester (PLA) which comes from organic raw materials, it is easy to decompose in nature.

Keywords: *Particulate Matter, Food Laboratory, Electrostatic Precipitator, Organic Compound*

WASTE WATER TREATMENT OF LAUNDRY PROCESS BY COAGULATION FLOCCULATION FOR WATERING THE CORN PLANT

Yeyen Maryani

Abstract

Wastewater generated from the laundry process has a bad impact because of the detergent content that contains surfactants and phosphates. To reduce levels of surfactants and phosphates in laundry wastewater, a flocculation coagulation process is carried out. Clean wastewater is used as a media for watering corn plants. This research procedure consists of two stages. The first stage is the preparation of moringa seed coagulants which are mashed to a size of 60 mesh. The second stage is the flocculation coagulation process using a jar test with variations in the amount of moringa seed powder: 1, 2, 3, 4, 5 grams, values, variations in pH values: 5, 6, 7, 8, 9, and stirring speed variations: 40, 80, 100, 120 rpm. Meanwhile, the amount of waste is set at 500 ml. The results showed that the optimum conditions for the amount of coagulant was 5 grams, pH 5 and the stirring speed was 120

rpm. Under these optimum conditions, the surfactant levels can be reduced from 1.03 mg/L to 0.06 mg/L and increase the phosphate levels from 2.81 mg/L to 7.08 mg/L. In the utilization of clean waste water as a watering media for corn plants, the best growth was obtained with the composition of waste water : groundwater : NPK fertilizer, namely 45 : 50 : 5.

Keywords: *coagulation-flocculation, laundry waste, surfactant, phosphate, Moringa seeds*

THE POTENTIAL OF MANGROVE FOREST AS A LOCAL FOOD SOURCE TO SUPPORT FOOD RESILIENCE IN BANTEN PROVINCE

Enggar Utari, Indria Wahyuni and Mahrawi Mahrawi

Abstract

This research was aimed at examining the benefits of the potential of mangrove forests for food resilience in Banten Province. Mangroves are an ecosystems with such a great of productivity potential as a source of local food, especially for the coastal communities at Banten Province in meeting the protein and carbohydrate needs of the community, aside from its great potential in protecting coastal ecosystems, it also give a great potential to properly support food resilience which impacts on economic and social resilience of the community, especially those around the coast. The method used in this research is a survey method, by means of observation to collect the required data directly into the field. The results of the research found that the mangrove fruit has a great potential to be processed into the main food resource of mangroves especially the Lindur or *Bruguiera gymnorrhiza* type, because of its higher carbohydrate contents than the other types of general carbohydrate food resources that has been long processed into a flour to be consumed as a cake by the community. Other processing of mangroves includes dodol, syrup, batik, coffee, tea, chips, and beauty products such as a liquid soap, shampoo, and body cream.

Keywords: *Mangrove Forests, Food Resilience, Social Resilience, Economic Resilience*

PREPARATION OF STARCH NANOPARTICLES VIA SELF-ASSEMBLY METHOD FOR RESPONSIVE PACKAGING MATERIALS

Sri Agustina, Fuji Dwi Putri and Siti Aisah

Abstract

Starch nanoparticles have been used in a wide number of applications, including for responsive packaging materials. In this study, starch nanoparticles were fabricated via emulsion-based self-assembly method and characterized by dynamic light scattering and transmission electron microscopy. The result showed that starch nanoparticles exhibited spherical particles with a diameter of approximately 100-200 nm. Functionalization starch nanoparticles as responsive packaging materials have been prepared by encapsulated Brilliant Blue as the active compound. The proposed method has potential application in responsive food packaging materials.

Keywords: *starch, nanoparticles, functional materials, responsive, food packaging*

PROPOSED PACKAGING DESIGN SUPPLY CHAIN DISTRIBUTION OF PANCAKE DURIAN PRODUCT WITH THE KANSEI ENGINEERING AND LIFE CYCLE ASSESSMENT (LCA) APPROACH

Asep Ridwan, Dyah Lintang Trenggonowati, Helen Napitupulu

Abstract

Increasing consumer demands for guarding and securing food products at the time of distribution along the supply chain is the most important thing in quality maintenance, especially in distribution and logistics. The existence of a good packaging design along the supply chain is the answer to problems that occur within the company, one of which is the Duren Oke Small and Medium Industry (IKM). The purpose of this study was to identify customer desires for durian pancake distribution packaging based on the kansei word, to design a packaging proposal for durian pancake distribution, to identify the waste generated from the proposed distribution packaging design, and to calculate the packaging savings that would be obtained by using a new distribution packaging design. There are 21 kansei words used in the design of this distribution packaging design, namely strong, stable, airtight, heat resistant, odor resistant, large capacity, there is an information label in the package, bright in color, clean, neat, cheap, easy to open, there is a seal authentication, flexible, has a handle, easy to recycle, and the packaging materials are easy to decompose. The material used is Low Density Polyethylene (LDPE). The waste produced in the manufacture of distribution packaging is chlorine gas, carbon monoxide gas, paper, thermoset scrap, and vetiver waste fiber. Chlorine gas, carbon monoxide gas, and vetiver waste fiber are still within safe limits, while paper can be recycled back into paper pulp, thermoset scrap is reused as raw material for filling asphalt. If the company uses a new packaging design, it can save Rp. 2,332,000 in packaging costs.

Keywords: *Durian Pancake, Innovation Packaging, Kansei Engineering, Life Cycle Assessment*



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