



BOOK OF ABSTRACT

2nd INTERNATIONAL CONFERENCE

FOR SMART AGRICULTURE, FOOD, AND ENVIRONMENT



**04 NOV
2021**

**UNIVERSITAS SULTAN AGENG TIRTAYASA
SERANG, BANTEN, INDONESIA**

**CENTER OF EXCELLENCE FOR LOCAL FOOD INNOVATION
(CELOFI)
2021**



BOOK OF ABSTRACT

**2nd International Conference for Smart
Agriculture, Food, and Environment**

4th of November 2021
Serang – Banten, Indonesia

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Ahmad Wildan Pratomo

2nd International Conference for Smart Agriculture, Food, and Environment

Organizer:



Center of Excellence for Local Food Innovation
(CELOFI)



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WELCOME SPEECH

General Chair of the Conference

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

Honorable Prof. Dr. Ir. H. Fatah Sulaiman, M.T. (Rector of Universitas Sultan Ageng Tirtayasa)

- The Keynote speakers
 - Dr. Ir. Kasdi Subagyo, M.Sc.
Secretary General of Ministry of Agriculture of the Republic of Indonesia
 - Prof. Ir. Iin Handayani, M.Sc., Ph.D.
Murray State University, USA
 - Prof. Dr. Hitoshi Shirakawa
Tohoku University, Japan
 - Prof. Dr. Ingo Eilks
Bremen University, Germany
 - Prof. Ts. Dr. Asmah Awal
Universiti Teknologi Mara, Malaysia
 - Yuyu Romdhonah, S.TP., M.Si., Ph.D.
Center of Excellence for Local Food Innovation Universitas Sultan Ageng Tirtayasa, Indonesia
- Invited Speakers
 - Prof. Dr. Bernatal Saragih, M.Si
Universitas Mulawarman
 - Dediek Tri Kurniawan, M.M
Universitas Negeri Malang
 - Dr. Nurhayati, S.TP., M.Si
Universitas Jember

And all my respected audiences/participants

Greetings and welcome to all of you,

The purpose of this conference is to realize the work program in the academic excellence on Center of Excellence for Local Food Innovation (CELOFI) 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 consists of three main activities; they are institutional governance, academic excellence, and product commercialization. The CELOFI of Untirta holds the 2nd International Conference for Smart Agriculture, Food and Environment (IC-SAFE) 2021 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.

WELCOME SPEECH

Rector of Universitas Sultan Ageng Tirtayasa

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

All praise is to Allah *Subhanahu wa Ta'ala*, the Lord of the World, the Master and the Creator of everything in the Universe, for enabling us to meet together today in the 2nd International Conference for Smart Agriculture, Food, and Environment (ICSAFE) 2021. Peace as well and salutation be upon to the noble Prophet of Islam, Muhammad *Shallahu 'Alaihi wa Sallam* and his household, his companions and his Honorable:

- The Keynote Speakers
 - Dr. Ir. Kasdi Subagyo, M.Sc.
Secretary General of Ministry of Agriculture of the Republic of Indonesia
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Murray State University, USA
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 - Prof. Dr. Ingo Eilks
Bremen University, Germany
 - Prof. Ts. Dr. Asmah Awal
Universiti Teknologi Mara, Malaysia
 - Yuyu Romdhonah, S.TP., M.Si., Ph.D.
 - Center of Excellence for Local Food Innovation Universitas Sultan Ageng Tirtayasa, Indonesia
- Invited Speakers from Mulawarman University, Malang State University, and Jember University.
- As well as all speakers, the academic community and the implementing committee of the 2nd ICSAFE activities in 2021.

It is our great pleasure to join and to welcome all participants of the 2nd International Conference for Smart Agriculture, Food, and Environment (ICSAFE) 2021 in Serang, Banten. I am happy to see this great work as part of Key Performance Indicator (KPI) Output in the program of the Center of Excellence for Local Food Innovation (CELOFI). On this occasion, I would like to thank all the committees 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, 4th of November 2021

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

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Dr. Udi Samanhudi, S.Pd., M.Pd. (Universitas Sultan Ageng Tirtayasa, Indonesia)
Dr. Nani Maryani, S.Si., M.Si. (Universitas Sultan Ageng Tirtayasa, Indonesia)
Dr. Rida Oktarida Khastini, S.Si., M.Si. (Universitas Sultan Ageng Tirtayasa, Indonesia)

Keynote Speaker

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Prof. Dr. Hitoshi Shirakawa (Tohoku University, Japan)
Prof. Dr. Ingo Eilks (University of Bremen, Germany).
Prof. Dr. Sohaimi Zakaria (Universiti Teknologi Mara, Malaysia)
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2nd International Conference for Smart Agriculture, Food, and Environment (IC-SAFE) 2021 | Serang, 4th of November 2021

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Prof. Ingo Eilks (University of Bremen, Germany)

Dr. Endarto Yudo Wardhono., ST., MT. (Universitas Sultan Ageng Tirtayasa, Indonesia)



CONFERENCE PROGRAM

THE 2nd INTERNATIONAL CONFERENCE FOR SMART AGRICULTURE, FOOD, AND ENVIRONMENT

Time	Session	Person in Charge	Venue
08.00-08.30	Registration	<p>PC Onsite: Zoom Host LPPM and PUSDainfo Team</p> <p>PC Registration: LPPM Team 1) Marina Dwita Jannah, M.Pd</p> <p>PC Certificate : IT staff 1) Fakhru Fepriyanto, S.P</p>	Universitas Sultan Ageng Tirtayasa
08.30-09.00	<p>Opening ceremony</p> <ul style="list-style-type: none"> - Singing National Anthem "Indonesia Raya" <p>Welcoming Speech: 1) Head of Committee of IC-SAFE</p>	<p>PC: Dr. Ade Husnul Mawadah, M.Hum</p> <p>MC: Siti Aisah, M.Hum</p> <p>1) Dr. Alimuddin, M.T</p>	Universitas Sultan Ageng Tirtayasa

Time	Session	Person in Charge	Venue
	2) Head of Center of Excellence for Local Food Innovation 3) Governor of Banten Province 4) Rector of Universitas Sultan Ageng Tirtayasa - Prayer - Photo Session all Plenary Speakers and Distinguished Guests	2) Prof. Dr. Meutia, S.E, M.P 3) Dr. H. Wahidin Halim, M.Si 4) Prof. Dr. Ir. H. Fatah Sulaiman, S.T., M.T PC Prayer: Ahmad Wildan, S.Pd PC Photo Session: Zoom Host	
09.00-09.30	Keynote Speaker 1) Dr. Ir. Kasdi Subagyo, M.Sc. (Secretary General of Ministry of Agriculture of the Republic of Indonesia)	1) Dr. Ir. Kasdi Subagyo, M.Sc.	Universitas Sultan Ageng Tirtayasa
09.30–10.15 10.15-11.00	Plenary Session I: 1. Prof. Ir. Iin Handayani, M.Sc., Ph.D. (Murray State University, USA) 2. Prof. Dr. Hitoshi Shirakawa (Tohoku University, Japan)		

Time	Session	Person in Charge	Venue
11.00-12.30	Plenary Session II: <ol style="list-style-type: none"> Prof. Ts. Dr. Asmah Awal (Universiti Teknologi Mara, Malaysia) Prof. Dr. Ingo Eilks (Bremen University, Germany) Yayu Romdhonah, S.TP., M.Si., Ph.D (Universitas Sultan Ageng Tirtayasa, Indonesia) 	Moderator : <ol style="list-style-type: none"> Dr. Ing. M. Iman Santoso, S.T., M.Sc 	Universitas Sultan Ageng Tirtayasa
12.30-13.00	Lunch Break	PC: LPPM and Committee Team	Universitas Sultan Ageng Tirtayasa
13.00–14.15	Parallel Session I: Invited Speakers (3 Universities) <ol style="list-style-type: none"> Prof. Dr. Bernatal Saragih, M.Si (Universitas Mulawarman) Dr. Nurhayati, S.TP., M.Si (Universitas Jember) Dediek Tri Kurniawan, M.M (Universitas Negeri Malang) 	Moderator: <ol style="list-style-type: none"> Dr. Rida Oktorida, M.Si 	Universitas Sultan Ageng Tirtayasa
14.15–15.30	Parallel Session II:	Zoom Host: LPPM and Pusdainfo Team	Parallel Room

Time	Session	Person in Charge	Venue
	Room 1	Moderator 1: Yus Rama Denny, PhD	Universitas Sultan Ageng Tirtayasa
	Room 2	Moderator 2 : Dr. Fitria Riany Eris, M.Si.	Universitas Sultan Ageng Tirtayasa
15.30-16.00	Closing Ceremony	Head of Committee: Dr. Alimuddin, M.T	Universitas Sultan Ageng Tirtayasa

TECHNICAL PROGRAMS

Keynote Speakers

1. Dr. Ir. Kasdi Subagyono, M.Sc.
Secretary General of Ministry of Agriculture of the Republic of Indonesia
2. Prof. Ir. Iin Handayani, M.Sc., Ph.D.
Murray State University, USA
3. Prof. Dr. Hitoshi Shirakawa
Tohoku University, Japan
4. Prof. Dr. Ingo Eilks
Bremen University, Germany
5. Prof. Ts. Dr. Asmah Awal
Universiti Teknologi Mara, Malaysia
6. Yuyu Romdhonah, S.TP., M.Si., Ph.D.
Center of Excellence for Local Food Innovation Universitas Sultan Ageng Tirtayasa, Indonesia

**ISLAMIC DEVELOPMENT BANK
RESEARCH CONSORTIA**



Invited Speakers

1. Prof. Dr. Bernatal Saragih, M.Si
Universitas Mulawarman
2. Dediek Tri Kurniawan, M.M
Universitas Negeri Malang
3. Dr. Nurhayati, S.TP., M.Si
Universitas Jember

COMPARISON OF COLOR QUALITY MEASUREMENT USING CHROMAMETER AND IMAGE PROCESSING FOR DEHYDRATED STRAWBERRY PRODUCTS

Farisa Adelina Sitanggang

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Abstract

Color is one of the important parameters to consider regarding to quality and perception of consumers acceptance in agro-industrial products. However, standard color measurement using colorimeter have an expensive cost and the need for trained individual to operate, then, other measurement can be done using image processing approach for lower cost and simple operation. The purpose of this research is to compare color measurement of the dehydrated strawberry using Chromameter, which is a standard tool with image processing approach that made in the box as an alternative color detection measurement.

Dehydrated strawberry products are made by a combination of osmotic dehydration and drying using tray dryers and have some characteristics. Parameter of color measurement on dehydrated strawberry products is carried out using a Chromameter and the Image Processing Approach in Box. The parameter of color quality of the products was measured in lightness (L^*), redness (a^*), yellowness (b^*) and using equation were calculated for color change (ΔE^*) and hue angle (h°). Comparison of the color measurement results obtained were analyzed using statistical analyses of Statistic Package for Social Science (v.22.0, International Business Machines Corporation, New York) and calculated the root mean square error (RMSE) method and then resulted data value were checked statistically for the Independent T-Test for parametric and Mann-Whitney Test for non-parametric.

Based on the results, color measurement using for the parameter of redness (a^*) and color change (ΔE^*) from Chromameter and the Image Processing Approach in Box were similar and not significance difference between these tools. Another color parameter of lightness (L^*), yellowness (b^*), and hue angle (h°) were significantly different between these tools. For the RMSE calculation, the results for the lightness component (L^*) are 7.39; the redness component (a^*) is 1.41; yellowness component (b^*) of 2.27; the discoloration component (ΔE^*) is 2.04 and the hue angle component (h°) is 5.92. These low value of the RMSE indicate that Image Processing Approach in Box can be detected color of the dehydrated strawberry and their changes of the color especially redness (a^*) and color change (ΔE^*) well, but the accuracy level still need to be improved.

Keywords: *Chromameter, Color Quality, Dehydrated Strawberry, Image Processing*

THE STUDY OF SILICA (Si) AND SALINITY ON THE GROWTH AND YIELD OF SHALLOT PLANT (*ALLIUM ASCALONICUM* L.) IN ENTISOL SOIL

Kharisun¹, Sisno¹, Rokhminarsi¹, MN Budiono¹, Kiki Kurniasih²,
 1) Academic staff of Faculty of Agriculture, Jenderal Soedirman University
 2) Student of Faculty of Agriculture, Jenderal Soedirman University
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Abstract

Color is one of the important parameters to consider regarding to quality and perception of consumers acceptance in agro-industrial products. However, standard color measurement using colorimeter have an expensive cost and the need for trained individual to operate, then, other measurement can be done using image processing approach for lower cost and simple operation. The purpose of this research is to compare color measurement of the dehydrated strawberry using Chromameter, which is a standard tool with image processing approach that made in the box as an alternative color detection measurement.

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Keywords: *Shallots, Silica, Salinity, Coastal Entisols*

EFFECT OF HALAL LABEL, HALAL AWARENESS AND PRODUCT COMPOSITION INFORMATION ON CONSUMER BUYING INTEREST IN LOCAL FOOD PRODUCTS

(A Case in the District of Rangkasbitung)

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Abstract

This study aims to analyze the effect of halal label, halal awareness and product composition information on consumer buying interest in local food products partially and simultaneously. This research is descriptive quantitative with accidental sampling. Total samples are 100 consumers of IKM local food products in Rangkasbitung District. The methods used in this research are validity test, reliability test, multiple linear regression analysis, classical assumption test (normality, multicollinearity, and heteroscedasticity) and hypothesis testing (T test, F test, and coefficient of determination). The results of the study are that the halal label, halal awareness and product composition information partially have a positive and significant effect on consumer buying interest in IKM local food products in Rangkasbitung District and halal label, halal awareness and product composition information simultaneously have a positive and significant effect on consumer buying interest in IKM local food products in Rangkasbitung District.

Keywords: Halal Label, Halal Awareness, Product Composition Information, Buying Interest

**“SOBAT AREN” MICRO SMALL AND MEDIUM BUSINESS
DEVELOPMENT STRATEGY WITH QUANTITATIVE STRATEGIC
PLANNING MATRIX (QSPM) METHOD**

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Abstract

Aren is one of the plantation crops which is the leading commodity of Lebak Regency. One of the Businesses of MSMEs in the district of Lebak that use sugar as an ingredient raw products namely MSMEs “Sobat Aren”. MSMEs “Sobat Aren” has been established since the year 2016, but in developing the business of SMEs “Sobat Aren” still has some problems are internal or external. The objectives of this study are (1) To identify internal factors (strengths and weaknesses) and external factors (opportunities and threats) in MSME “Sobat Aren”, (2) To study alternative and priority development strategies that are appropriate for “Sobat Aren” MSMEs. Type of research is that descriptive quantitative, technical decision sample using purposive sampling, with the tools of analysis that is used is the matrix of IFE, matrix EFE, matrix IE, matrix SWOT, and the QSPM. The results of the analysis matrix of IFE and EFE obtain a score 2:47 and 2:30, seen in the matrix IE conditions of MSMEs “Sobat Aren” is the cell V that businesses are in a position stable. From the results of the analysis of the matrix SWOT obtained 9 (Nine) alternative strategies and obtained priorities first or alternative strategies which most appropriate use for MSMEs “Sobat Aren” of the results of the analysis of the matrix QSPM namely maintain the stability of the price of the sale of products and maintain the consistency of the use of materials of raw, with value (TAS = 7.11).

Keywords: Aren, MSMEs, development strategy, SWOT analysis

THE LOCAL FOOD INNOVATION OF AREN BERAS KENCUR AS A HEALTHY DRINK

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Abstract

Aren or Enau (*Arenga pinnata* Merr) is one type of palm plant which grows well in tropical areas, especially in Indonesia. The main product of the palm plant is sap which is the result of tapping from male flowers which is used as palm sugar and natural sweeteners. Palm sugar has antioxidant activity and various other benefits. In increasing the nutritional value of palm sugar, in this research, the manufacture of Aren Beras Kencur products with various concentration ratios has been carried out. The best composition was obtained by analyzing the elements of micronutrients and macronutrients including water content, ash content, sugar content, fat content, mineral content, as well as antioxidant activity testing. Sample E shows the lowest water content and ash content. So, the best composition was found in sample E which will be analyzed its antioxidant activity.

Keywords: *Local, Product, Aren, Beras, Kencur*

**NUTRITIONAL VALUE OF MARINE FUNGI FROM PULAU DUA
NATURE RESERVE, BANTEN PROVINCE FOR FISH MEAL
ALTERNATIVE INGREDIENT OF MILKFISH (CHANOS CHANOS)**

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Abstract

Microbial nutrient sources from fungal biomass can be suggested as a promising fish meal ingredient for milkfish (*Chanos chanos*). The study aimed to evaluate the nutritional composition of Marine Fungi isolated from Pulau Dua nature reserve, Banten Province for fish meal alternative ingredient of milkfish. Three isolate of marine fungi: *Aspergillus niger*, *Neurospora* sp. and *Fusarium* sp. were analysis to assess their potential as alternative ingredient in fish meal. The results showed that marine fungi biomass contain significant amount of protein, lipid and high polyunsaturated fatty acid content (PUFA). These results suggest that marine fungi can be an alternative source of nutrition for feeding milkfish.

Keywords: Marine Fungi, Nutritional Value, Fish Meal, Milkfish

VIF-BASED EIGHT SELECTION CRITERIA (8SC) IN ORDINARY LEAST SQUARE: BIG DATASETS HANDLING

Mukhtar^{1,3}, M.K.M. Ali¹, Mohd. Thahir Ismail¹, Ferdinand Murni Hamundu², and ⁴Alimudin

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Abstract

Ordinary least square has been successfully applied for estimating in various field of research areas such as in agriculture and biology, and thus continuously received great attention. However, common issues such as multicollinearity, and outliers have affected the accuracy of the model. The main problem with the multicollinearity and outliers including unstable and biased standard errors will lead to highly unstable forecasting, which could form an unrealistic and untenable interpretation. This paper presents eight selection criteria (8SC) based on variance influence factor (VIF) to overcome these issues in large datasets. The datasets of seaweed drying with 1924 observations were employed to study the effect of more than 29 different independent variables towards one dependent variable. We then implemented the second interaction data, which contain 435 different interactions of independent variables on the dependent variable by comparing between two groups VIF of 5 and VIF of 10. As the result, the group VIF 10 was better than VIF 5 with the Mean Absolute Error (MAE) (4.09641), RMSE (5.275992), MAPE (7.9962), Sum Square of Error (182491.2), R-square (0.6514791), and R-square Adjusted (0.649279). In summary, we conclude that VIF-based 8SC can be implemented for large datasets.

Keywords: Ordinary Least Square, Model Regression, Accuracy, Outlier, Multicollinearity, Variance Influence Factor, and Eight Selection Criteria

PROPOSED IMPLEMENTATION OF LEAN SUPPLY CHAIN IN MINIMIZING WASTE WITH DISCRETE EVENT SIMULATION APPROACH AT XYZ

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Abstract

XYZ is a logistics and manufacturing services company that focuses on pallet and dunnage production. One of the products is dunnage. In dunnage shipping to ABC, there is often a discrepancy in the delivery of the number of requests due to a large number of defects in dunnage products. Waste that often occurs is there are defects in dunnage products such as inaccurate and cracked products because the machine performance is not good. From the data obtained that the most defects are found in September 2019, there are 590 dunnage, one of the reasons is due to the oven not being carried out according to the standard and the engine often experiences a breakdown. This study aims to identify the most influential waste and analyze the causes of waste and design a proposed improvement using ProModel based on the DMAIC concept. Based on the research, results obtained that the most dominant waste is defect and there are 11 root problems in causing defects. The oven process that is not according to the standard and the engine that often experiences a breakdown is a top priority in this study. The proposal given is to provide recommendations for improvement proposals with Action Planning and for the simulation of the proposal given by adding two planner machines and one cutting machine so that total production increases from 195.196 to 220.104 dunnages produced during one month. With this proposal, it can increase the value of process cycle efficiency (PCE) by 1%.

Keywords: Defect, DMAIC Concept, Lean Supply Chain, Simulation

LEGUMES DIVERSITY AND ITS UTILIZATION IN BANTEN LOCAL FOOD

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Abstract

Legume plants are a potential local food as an alternative source of vegetable protein that are cheap, affordable, and easy to cultivate. Legume plants belong to the Fabaceae, which has a characteristic of pod fruit. This study aims to inventory and to identify the diversity of legumes in Banten and their use in local food in Banten. The research was conducted through fields exploration, interviews, and reference studies. Field exploration and interviews were carried out in 8 cities and districts in Banten Province. Purposive sampling was used to determine the representative data collection area for each district/city in Banten Province. The snowball sampling was used to determine the interviewees. The result showed that 17 species of legumes were found in Banten Province. Furthermore, it is known that the utilization of legume plants was varies. The legume species that widely used in Banten was peanut (*Arachis hypogaea*), processing into 18 daily foods or snack variations. Meanwhile, the legumes were mostly processed into dishes by frying or vegetable soup, then legumes were mainly processed into snacks with fried and roasted processing techniques.

Keywords: *Banten, Legume, Local Food*

A REVIEW OF THE POTENTIAL OF BENENG TARO AS MATERIAL FOR INULIN MAKING AND ITS APPLICATION TO YOGURT

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Abstract

Inulin is a polymer of fructose units that are soluble in water and cannot be digested by enzymes but can be fermented by microflora in the colon. Inulin is commonly used as a food additive for prebiotic benefits. Inulin is generally produced from tubers or plant roots. Beneng taro is an indigenous tuber in Banten Province that contains 84.88% carbohydrates and 75.62% starch, so this taro has potential as an inulin source. Inulin can act as a bulking agent to improve the body, mouthfeel, texture, and taste of yogurt. Inulin has a functional quality that would make that yogurt can provide extra health benefits.

Keywords: *Inulin, Beneng Taro, Yogurt, Low Caloric Sweetener, Bulking Agent*

**IMPLEMENTATION OF GOOD WAREHOUSE PRACTICES (GWP) AND
GOOD DISTRIBUTION PRACTICES (GDP) OF RICE PRODUCT CASE
STUDY OF PT. AGROBUSSINESS BANTEN**

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Abstract

Rice is the most important food crop of the world and become the staple food of more than half of the world's population. According to Statistics Indonesia, Rice production in Banten Province reached 1,470,503.35 tons in 2019. PT. Agrobisnis Banten Mandiri (PT. ABM) is becoming a food distribution center in the Banten Province, especially for Rice products. Hence, quality assurance and food safety through a warehousing and distribution system must be designed. This system was known as Good Warehouse Practices (GWP) and Good Distribution Practices (GDP). This research was aimed to study the implementation of GWP and GDP on rice products in the PT ABM. The collecting data was done by observation, in-depth interview, and documentation review. The data analysis was done by the descriptive method. The supply chain of rice in Banten Province was divided into three chains. The factor affecting the rice' GDP and GWP were cleanliness and safety of tools, machinery, employee, and transportation equipment. It also was affected by the layout of the rice warehouse. The equipment and loading employee must be clean and free of contaminants. The inspection of machines and equipment was done periodically.

Keywords: Good Distribution Practices, Good Warehouse Practices, Rice

SYNTHESIS AND CHARACTERIZATION OF SILICA GEL FROM CORN COB SKIN AND COB WASTE

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Abstract

The waste of husks and corn cobs that relatively abundant in Indonesia is mainly used as animal feed. Its utilization is still not maximized and pollutes the environment a lot. Corn husks and cobs contain silica, which can be used as a raw material in the manufacture of SiO₂ silica gel. This study aims to obtain SiO₂ from corn husk and cob ash using the sol-gel extraction method to determine the effect of ashing temperature and mass ratio of corn husks and cobs and the characteristics of silica gel. The method used in this study is the sol-gel method. The characterization of silica gel utilizes FTIR (Fourier Transform Infra-Red) and XRF (X-ray fluorescence) as a process. The result indicates that the FTIR shows an absorption pattern of silica with silanol (Si-OH) and siloxane (Si-O-Si) groups, with an amorphous silica phase at an ashing temperature of 750°C and crystalline silica at an ashing temperature of 850°C. XRF results determine that the yield of Si and SiO₂ produced in corn husks tends to be higher than corn cobs and at an ashing temperature of 750°C tends to be higher than 850°C.

Keywords: *Silica-gel, Corn-Husk, Corn-Cob, Ashing-Temperature, Mass-Ratio*

THE OPPORTUNITIES FOR UTILIZING LOW ECONOMIC FISH IN THE FISHING PORT

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Abstract

The increasing population, coupled with the rising living standards, is expected to contribute to higher demand for animal-derived high-quality protein, primarily from fish. Fish and other aquatic foods are high in protein and contain many essential micronutrients. Capture fisheries have become a leading sector that supplies fish production for human consumption and fish processing industries. As the center of fish production from capture fisheries, the fishing port has a vital function to maintain the supply and distribution of fish to the consumer. The utilization of low economic fish is generally consumed by local people and processed into salted fish. At the same time, low economic fish can become fresh material in the fish processing industry to increase its added value. The papers discuss the opportunity to utilize low economic fish in fishing ports through the development fish processing industry based on fish production and each product's economic value. The production of low economic fish in Karangantu reached 3,091 tons, with an average annual production of 2791 tons. The processing of low economic fish can increase the product's economic value if it is only sold fresh for IDR 13.96 billion. The highest added value is obtained from fish meatballs of IDR 60.29 billion. The added value from surimi is IDR 46.89 billion, and minced fish is IDR 25.12 billion.

Keywords: *Added Value, Economic Value, Low Economic Fish, Utilization*

**HACCP PLAN OF FROZEN FISH FOR SUPPORTING COLD CHAIN
MANAGEMENT IN PT. AGROBISNIS BANTEN MANDIRI
(PERSERODA)**

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Abstract

Banten has abundant fish resources with 499.62 km coastline length. Fish is perishable food with short shelf life. Freezing is alternative process to maintain quality of fish. PT. Agrobisnis Banten Mandiri (PT. ABM) has a mission to be distribution center in Banten Province. One of distributing commodity PT. ABM is frozen fish. Good practices of processing and distributing were needed to maintain quality. Hazard analysis critical control point (HACCP) management system can be applied to prevent damage due to improper production process. Cold chain management can maintain quality in distributing frozen fish. This researched was aimed to design HACCP plan of frozen fish for supporting cold chain management in PT ABM. The collecting data was done by observation, in-depth interview, documentation review, and literature review. Results of this study are hazard analysis and determine critical control point (CCP) for frozen fish product.

Keywords: Cold Chain, Frozen Fish, HACCP

ENDOPHYTIC FUSARIUM SPP. ISOLATED FROM LOCAL BANANA VARIETIES IN PANDEGLANG BANTEN

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Abstract

A group of *Fusarium* spp., in the *Fusarium oxysporum* species complex is well known as pathogens on bananas. However, many of *Fusarium* spp. also known to be endophytes inside healthy banana plants and have been less explored and investigated. We explored local bananas in Pandenglang Banten. In total, 17 local banana varieties were identified, from which 22 *Fusarium* isolates recovered from its pseudostem asymptomatic plants. All isolates were characterized based on their morphological characters, and some of them were sequenced based on Internal transcribed spacer (ITS) region. These *Fusarium* isolates belong to four *Fusarium* species complexes: *Fusarium oxysporum* species complex, *Fusarium Fujikuroi* species complex, and *Fusarium sambucinum* species complex. The interaction between these endophytes isolates with *Fusarium* pathogen on banana, *Fusarium odoratissimum* (Tropical Race 4-TR4), were tested using dual culture assay. Various interactions can be identified between *Fusarium* endophytes and TR4 on plates, including competition and direct antagonism. Therefore, these isolates can be used as potential biocontrol on *Fusarium* wilt on bananas.

Keywords: *Banana, Banten, Endophyte, Fungi, Fusarium*

RESPONSE AND BEHAVIOR OF BLUE SWIMMING CRAB TO DIFFERENT LED COLORS

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Abstract

The collapsible trap fishing for blue swimming crab (*Portunus pelagicus*) is one of the main techniques to get the high economic value of crabs. Usually, the fishers use a different type of natural bait as an attractant. However, the degradation of protein content during the soaking time of traps affecting the effectiveness of natural bait to attract the target crabs. One alternative that can be used to solve the problem is the application of a light-emitting diode (LED) as artificial bait. The purpose of this study is to determine the behavioral response of *Portunus pelagicus* to the blue, green, and red of low light LED. The research was conducted in a laboratory using a rectangular tank. The response and behavior of the crab were analyzed descriptively. We used approximately 94 crabs with carapace width between 100-130 mm. The results showed the crabs have the highest response to the blue LED compare to the other colors. Moreover, the direct response of crab to blue light was faster than other light. The crab enters the trap in a short distance track in blue LED. The blue LED is a suitable color for application in collapsible traps because of the higher number of crabs and the number of crabs that respond positively to light sources compared to other colors.

Keywords: Trap, Primary Colors, Portunus Pelagicus, Response

CALIFORNIA PAPAYA MATURITY DETECTION BASED ON LVQ METHODE USING CAMERA AND LDR

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Abstract

Sorting ripeness of papaya fruit is generally done manually. Technological developments can simplify and speed up the work of farmers in sorting papaya fruit, such as using the TCS3200 series LDR sensor which produces red, green and blue color frequency values. This sensor can distinguish ripe papaya fruit from different skin colors. Papaya with a perfect green skin color is included in raw papaya, papaya with a balanced green and yellow skin color means that papaya is mature and papaya with an even yellow skin color is included in ripe papaya. This category is also included in the class in the classification of papaya fruit maturity using the LVQ method. The data is taken directly using the camera by classifying it using the parameters of mean, skewness and kurtosis. The results of the highest papaya ripeness classification accuracy are in the 2nd experiment with a learning rate value of 0.2 with hidden layer 10 and epoch 100 which is 93.3% and the test results of the whole tool have an average success percentage value of 69.41%.

Keywords: *Papaya, TCS3200 series LDR, Camera, Learning Vector Quantization (LVQ)*

**RESPONSE GERMINATION OF KURANJI ACID SEED (DIALIUM
INDUM L.) TO SCARIFICATION AND CONCENTRATION OF
POTASSIUM NITRATE (KNO₃)**

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Abstract

Kuranji acid is a plant that naturally grows in the mountains of tropical forests. It has tough seeds. Therefore, it is necessary to break seed dormancy. This research was aimed to know the response Germination of kuranji acid seed (*Dialium indum* L.) to scarification and concentration of potassium nitrate (KNO₃). This research was conducted in tissue culture laboratory and Greenhouse of Kawasan Sistem Pertanian Terpadu (Sitandu) Serang Banten Province from February until April 2020. The research design used a Randomized Completely Block Design (RCBD) with two factors. The first factor was scarification, consisted of three levels were without scarification, cutting of seeds, and sanding of seeds. The second factor was the concentration of potassium nitrate (KNO₃) solution, consisted of three levels were concentration of 0.3%, 0.4%, and 0.5%. The treatment combination was repeated 3 times. The Parameters observed were: day of germination, maximum growth potential, power of germination, growth rate, normal sprout, and abnormal sprout. The results showed that the scarification treatment that sanding seed (A2) showed the best effect to parameters: day of germination (12.22 days), maximum growth potential (76.67%), power of age of germination (86.67%), growth rate (0.10%/day), normal sprout (62.22 %) and abnormal sprout (14.46 %). Concentration of potassium nitrate (KNO₃) 0.3 % (B1) showed tend better to pamaters: . day of germination (22.89 days), growth rate (0.08 %/day %), maximum growth potential (61.11%), and normal sprout (47.78%). There was no interaction between the scarification and the concentrations of potassium nitrate (KNO₃) to all parameters observed.

Keywords: *Germination, Kuranji Acid, Pottasium Nitrate, Scarification*

MONITORING SYSTEM DEVELOPMENT OF MILKFISH SALINITY ON AQUAPONIC AT GREEN HOUSE

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Abstract

Salinity is a water quality parameter in milkfish farming. The cultivation system used is aquaponics. Aquaponic development using brackish water is rarely developed by the community due to constraints on salinity. Monitoring using a salinity sensor can measure changes in salt levels in a solution. In general, the sensor is TDS (Total Dissolve Solid). The results of the salinity monitoring test showed that in the morning there was 18.92 ppt salinity instability, this was because in the morning the greenhouse temperature increased quite a lot because in the morning the sun shone on the greenhouse. During the day, the salinity value increased again due to the still hot greenhouse conditions, which was 15.78 ppt. In the afternoon the salinity value is almost stable because in the afternoon the greenhouse temperature is not too hot with a salinity value of 15.57 ppt but the salinity value obtained has not reached the set point of 15 ppt.

Keywords: Monitoring, Sensor, Salinity of Milkfish Aquaponics Green house

ELECTRICAL TOMOGRAPHY HARDWARE AND SOFTWARE SYSTEM FOR AGRICULTURE IMAGING

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Abstract

Electrical tomography is a technology that allows for determination of the spatial distribution of materials based on their electric properties. Objects in the vicinity of the sensor can be detected and classified from the reconstructed image. Impedance measurement is sensitive to the electrical permittivity and conductivity of a target, hence capable of sensing biological substance. This paper exposes the development of electrical tomography system to be used for inspecting agricultural products. Both hardware design and software implementation are described focused on the non-radiating and portability merits. Sensors consist of contact probe arrays distributed around the region of interest. Forward problem is solved using finite element method. In order to obtain boundary measurement values, the electronics assembled to execute measurement comprise a voltage-controlled current-source, multiplexers, an instrumentation amplifier, filters, and an embedded controller. Object's distribution is then recovered through Tikhonov reconstruction algorithm and the result is shown on a computer. The system has been tested for agriculture sample imaging. Prospective applications are classification of different harvest products, contamination detection, and throughput quantification.

Keywords: *Electrical Tomography, Impedance Sensor, Reconstruction Algorithm, Agriculture Imaging, Embedded System*

SPATIAL PLANNING OF THE CITY OF SERANG IN REALIZING FOOD SECURITY OF URBAN COMMUNITY

Scope: Environment and Agriculture

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Abstract

Spatial and regional plans as regulated in the Serang City Regional Regulation No. 6 of 2011 concerning Serang City's 2010-2030 Spatial Plans, in fact there are still many that cannot be implemented properly. The increasing number of residents accompanied by an increase in the need for housing and other supporting facilities makes an increase in land use which has an impact on changes in land use, then changes in land function which are more devoted to the residential and trade sectors, making other sectors such as water and agriculture seem inclined decreased land use area. The decline that occurred in the area of land used for the agricultural and water sectors in the 2016-2020 period showed an imbalance in the spatial policy regulated by the Serang City government. In addition, the development of residential areas has encouraged a shift in the function or conversion of land functions from green open spaces, conservation areas, cultivation areas or protected areas due to the high use of land for residential areas. Various problems behind this research are the reason that regional spatial planning has a strategic role in regional development in realizing food security for the people of Serang City. With a descriptive qualitative approach, it is believed that research results will be obtained that can capture the spatial planning process of Serang City with all the complexity that accompanies it as a process of spatial dimensions in the development of the Serang City area without denying the growth of environmentally friendly investments and the realization of food security.

Keywords: Spatial Planning, Land Conversion, Food Security

INCREASING OF CHLOROPHYLL CONTENT OF PHYTASE SUGARCANE TRANSGENIC LINES USING OF PUTRESCINE

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Abstract

The growth of sugarcane phytase transformed lines showing variation of chlorophyll content with the variation of leaves colour such as albino, discoloration, lack of chlorophyll in the particular spot of leaves. The abnormality leaves indicate that chlorophyll content is low. The objective of this research stage was: to increase of chlorophyll content of sugarcane transgenic line using putrescine. The study was conducted using factorial design with Randomized Completely Design, with 5 replicates. Three lines (i.e: transformed line of cv. Triton (V1T), transformed line of cv. PSJT 94-41 (V2T) as a first factor, and transformed line of cv. PA 175 (V3T)) were treated with five levels of putrescine (0×10^{-4} M (P1); $2,5 \times 10^{-4}$ M (P2); 5×10^{-4} M (P3); $7,5 \times 10^{-4}$ M (P4); dan $10,0 \times 10^{-4}$ M putrescine M (P5)) as a second factor. Data were analyzed by Duncan's Multiple Range Test (DMRT) 5 %. The result showed that 3.64×10^{-4} M putrescine yielded a highest chlorophyll content of three lines tested, where the total chlorophyll content increased above 28 % compare control lines.

Keywords: *Putrescine, Sugarcane, Chlorophyll Content*

EFFECT OF DIFFERENT SOIL WATER AVAILABILITY ON GROWTH AND YIELD OF THREE VARIETIES OF CORN (ZEA MAYS L.)

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This research was conducted at the screen house of the Banten Agricultural Research and Technology Center (BPTP) and the Agroclimatology Laboratory of the Faculty of Agriculture, University of Sultan Ageng Tirtayasa from November 2020 to March 2021. This study used a factorial Randomized Block Design (RBD). The first factor is several varieties with 3 levels, namely NASA 29, Lamuru, and Bisi 2. The second factor is soil water availability with 4 levels, namely 100% Field Capacity (FC), 80% FC, 60% FC, and 40% FC. The use of different corn varieties showed differences in the parameters of dry grain weight and weight of 100 grains. Soil water availability affected the length of the cobs, the dry weight of the cobs without husks, and the weight of dry seeds. There is an interaction between varieties and soil water availability for the parameters of leaf area, plant dry weight, and corncob diameter.

Keywords: *Corn, Drought Stress, Varieties*

**FEED DIGESTIBILITY AND BLOOD PARAMETER OF TILAPIA
(OREOCHROMIS NILOTICUS) WITH ADDITION FERMENTATION
LEUCAENA LEAF ON THE DIET**

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Abstract

This study aimed to determine the nutritional value lamtoro lieu of feed raw materials, determine the effect of fermentation of the leaves lamtoro on blood profile and fed digestibility tilapia, This study discusses the digestibility of tilapia with the addition of fermentation leaves lamtoro on feed. In this study, using the 4 treatments and 4 replicates ie feeding with the addition of Rhizopus oligosporus fermentation, Saccharomyces cerevisiae and Aspergillus niger and without the addition of fermentation. The fish used in this study are Tilapia monosex male with a weight of 8,3 g. The result showed that feeding with treatment B (Aspergillus fermentation) showed the best results to improve the digestibility test fish, with a dry matter digestibility 65.50%, protein digestibility of 80.50%, fat digestibility of 82, 75%. The Aspergillus fermentation treatment could increase The total eritrosit ($1,78 \times 10^6 \pm 0.26$ cell/mm³), hematocrit ($24.44 \pm 2.12\%$), hemoglobin ($5.4 \pm 0.45\%$) and leukocyte ($1,43 \times 10^5 \pm 0,23$ cell/mm³).

Keywords: *A. Niger, Leucaena Leucocephala Meals, Tilapia*

INTRODUCING LOCAL FOOD AS A FOOD SUSTAINABILITY PROGRAM TO UNIVERSITY STUDENTS THROUGH LITERACY MOVEMENT

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Abstract

Recently, food sustainability is a big program released by the government and is being discussed in some universities in Indonesia. It also becomes a subject matter in the Teacher Training and Education Faculty of Universitas Sultan Ageng Tirtayasa. Food sustainability is introduced in the university curriculum as a special subject in every faculty in Universitas Sultan Ageng Tirtayasa. One of the food sustainability programs is increasing various kinds of local food products that can enrich food resources for Indonesian people. The program is introducing local food products to become a food business in the future through the literacy movement. The literacy movement has been conducted through “food entrepreneurship” and “food literacy” webinar and workshop at the Teacher Training and Education Faculty of Universitas Sultan Ageng Tirtayasa. Various kinds of local food books and food business magazines are introduced to students so that they become aware of the importance of food sustainability in Indonesia. The literacy movements in higher education can support university students to have an entrepreneurial character. It is hoped that the literacy movements can motivate the student to be a local food entrepreneur so that the food sustainability in Indonesia is achieved.

Keywords: Food Sustainability, Entrepreneur, Literacy Movement

DEVELOPMENT OF TEMPERATURE MONITORING SYSTEM FOR DRYING OF RED CHILLIES

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Abstract

Red chili has a very low shelf life because it is easy to spoil. Storage at low temperatures is one of the best ways to preserve chili freshness. Drying at high temperatures is another best way to maintain chili quality. One way to maintain and maintain the quality of chili is by using a peltier. Peltier is an environmentally friendly cooling component because it does not produce harmful substances such as Freon or CFCs. Peltier has 2 sides, namely the side that has the writing TEC issuing cold temperatures and the other side issuing hot temperatures with storage (cooling) and drying (heating) methods to maintain the quality of red chili according to the characteristics of red chili. The DHT11 sensor will be turned on with the Arduino Mega which is used to measure the temperature in the storage room and drying room so that the temperature obtained is read and does not exceed the temperature required for red chili.

Keywords: *Red chili, Drying, Storage, Peltier, Arduino Mega, DHT11 sensor*

DESIGN AND DEVELOPMENT OF FORMALDEHYDE DETECTOR FOR DETECTING FORMALDEHYDE CONTENT OF MILKFISH (CHANOS CHANOS) BY ARDUINO MICROCONTROLLER

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Abstract

Formaldehyde is the commercial name for formaldehyde compounds with levels of 35–40% in water. Formaldehyde belongs to a group of strong disinfectant compounds that are often used as preservatives for corpses, but can also be used as food preservatives, although formalin is not permitted for food preservatives and additives. This study aims to detect formaldehyde contained in milkfish in Banten. The formaldehyde detector used in this study has a wavelength of 400 nm. Based on the test results on the sample, it was found that the formaldehyde detector can identify the presence of formalin in milkfish, in this tool itself there are 3 LED indicators that can provide information on the presence of formaldehyde content.

Keywords: *Formaldehyde Detector, food safety, Milfkfish, Microcontroller Arduino*

**PRODUCTION OF PEEL OFF MASK BASED ON GNETUM GNEMON
LINN USING IRRADIATION EXTRACTION METHOD AS AN
ALTERNATIVE COSMETIC FOR FACIAL SKIN**

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Abstract

One type of cosmetic product that can be used as an alternative is a face mask. Mask products on the market have many variations, one of which is peel-off masks in the form of gel or powder preparations that dry easily and can be peeled off. This mask is useful for cleaning dirt and is able to relax the face. *Gnetum gnemon* Linn (GGL) is a plant that is widely used by the community to support the economy. Its peel contains phenolic, flavonoid, tannin and antioxidant activity as well as vitamin C which can overcome inflammation and regenerate the skin. The peel off mask of GGL extract is expected to optimize the utilization of GGL for face mask. This research was carried out extraction process using irradiation extraction method. Process Irradiation extraction using ethanol solvent of 70% and ratio solvent of 1:10 for 20 minutes and 30 minutes. The extract obtained was added to the peel off preparation with additional variations of extract for each sample as much as 1%, 2%, and 3%. The mask preparation consists of xantham gum, polyethylene glycol, polyvinyl alcohol, glycerin and aquades. The results of this mask were then tested for organoleptic, homogeneity, pH, viscosity, spreadability, length of dry time, stability of the preparation, as well as LC-MS (Liquid Chromatograph Mass Spectrometry) test and DPPH test (2,2-diphenyl-1-picrylhydrazyl). for each variation. The result of mask contain of GGL extract has normal odor, orange-yellowish colour, and for two hour application not cause irritation, homogeneity product normal, pH of product between 4 – 4,5 spreading ability between 8-8,7 cm, drying time from 18-21 minutes. Composition of compound in GGL peel using LC-MS and contain justiflurinol as antioxidant. So that peel off masks can be used as an alternative to facial skin care.

Keywords: *Gnetum Gnemon Linn, Peel Off Mask, Antioxidant, Facial, Skin, Cosmetic*

DISTRIBUTION OF INFORMATION'S MODEL BASED ON MEDIA AND VISUAL TECHNOLOGY BY RESULTS OF FOOD SECURITY RESEARCH

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Abstract

Dissemination of information mainly from the results of food security studies, including in how the application can be implemented by using old media or with new media in many communication channels. The utilization of these study, would certainly be more useful if its then packaged in an attractive visual information. In the disruptive era 4.0, the lecturers must transfer their knowledge based on research, what they have been done. It means that lecturers as teacher are required to be able to explain the field of science they teach in accordance with the results of their research. Untirta as one of the university, that received the IsDB Grant, has done a lot of research related to local food security in Banten Province at this time, especially related to local milkfish, corn and sugar palm products. However, its still summarized based on paper alone, such as Journal, Proceeding etc. Actually it should be that, the results of those studies should be explained and disseminated to everybody and make it viral like millennial children says right now. Therefore a website must be made by online, that can provide a variety of very interesting information related to research in Food Security in Banten as online learning material. The design of the visual media house must be eye cathing and interesting for students. Strengthening the technique of shooting, accompanied by motion pictures or known as Motion Graph combined with the function of 3D animated images, will give a very different feel for student especially.

Keywords: *Visual Media, Food Security, Banten, Online Learning*

MODEL OF ECONOMIC DEVELOPMENT AND CHANOSH FISHER PROTECTION (CASE STUDY IN DOMAS VILLAGE, PONTANG DISTRICT, SERANG REGENCY)

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Abstract

Food is a basic need that is fundamental and its fulfillment of human rights. In the Constitution 1945, said that the fulfillment of food as a basic component to increasing of human resources quality. Development of food and nutrition security is focused on strengthening food sovereignty. One of the icons in Serang District is chanosh. In Serang Regency, precisely in Pontang District, Domas Village is very well known as a producer of chanosh. Chanosh is one type of fish which has a good taste of meat, and is generally consumed by many Indonesian people. Chanosh, one of the mainstays in minapolitan project will be developed in Domas Village, Pontang District, which accounts for 40% of the total production of chanosh Serang Regency. Recorded in 2014 Serang Regency produced 2,423 tons of chanosh. But the problem of abrasion that is currently experienced by the Pontang's community especially in Domas Village has a very big effect. Hundreds of hectares of ponds were exhausted due to abrasion. As a result, these ponds cannot harvest much, thus reducing the income of the fishermen. Through a qualitative and quantitative research approach, it showed the government on the structural and bureaucratic have not given the maximum to solve all problems. They only can to solve the problem in short tim, in need at the time, it has not touched on the future development and innovation. The approach offered in this research is built an informal Model for Economic Development and Protection of chanosh Fishers, as an initial step that can be continued later to become an institutional strengthening that has the legality of the government and society. With this model, will speak to the context of the problem and the solution given, because it is built on the perspective of the future and the people who are compatible in there.

Keywords: Chanosh, Domas Village, Model for Economic Development and Protection of Chanosh Fishers

EFFECT OF TEMPERATURE AND CYCLE SPHEROIDIZING ON MECHANICAL PROPERTIES AND MICROSTRUCTURE OF LOW CARBON STEEL

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Abstract

Steel which produced by PT. Krakatau steel is the product that is most used in construction applications and to compete with the other structural steel and having the minimum standard. PT. Krakatau Steel produced the steel with 0.08% carbon as JIS 3302 grade SGC 400 standard, but result in low yield and tensile strength. This study aims to investigate the effect of temperature and the number of cycle spheroidizing on mechanical properties and microstructure. Steel with 0.08% carbon heated at 580, 650, and 720 Celcius for 6 minutes each cycle (3 cycles) and subsequent cooled by forced air with 30C/s cooling rate. At temperature 580 0C on cycle 1, 2, 3, and 650 0C on cycle 3, resulting in mechanical properties that meet the JIS G 3302 grade SGC 400 standard.

Keywords: *Low Carbon Steel, Sphereodising, Tensile strength*

CHARACTERIZATION OF PEANUTS SHELL AS ADSORBEN COLOR METHYL VIOLET

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Abstract

The waste product from the textile industry is liquid waste containing dye. Metil violet is one type of dye that can damage the water ecosystem. The decrease levels of methyl violet can be done through the adsorption method. The peanut shell contains cellulose that allows the peanut shell to be adsorbent to adsorb the dye. This study aimed to determine the adsorbent and adsorption capacity using the freundlich and langmuir adsorption isotherm by the time parameter of carbonization and activator influence. The adsorbents are prepared by carbonization process, uniform sizing and followed by chemical activation using H₃PO₄ 1M and NaOH 1M solvents. The next step was to contact the adsorbent with 100 ppm methyl violet solvent for 60 minutes with stirring process. The results showed that the suitable activator type was activator NaOH 1M with surface area 117,149 m²/g and fulfill the isotherm of adsorption langmuir equation with ability to adsorb methyl violet dye equal to 8,961 mg/g adsorbent.

Keywords: *Peanuts shell, adsorbent, methyl violet, langmuir, freundlich*

THE EFFECT OF ACETOBACTER XYLINUM CONCENTRATION TO BACTERIAL CELLULOSE PRODUCTION USING WASTE WATER OF PALM FLOUR INDUSTRY AS FERMENTATION MEDIUM

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Abstract

Bacterial cellulose (BC) is produce extracellularly by acetic acid bacteria through oxidative fermentation. Utilization of waste water of palm flour industry as a medium for bacterial cellulose production is a new breakthrough, because the palm flour industry is quite large in Banten and an effort to reduce environmental pollution due to the waste. The purpose of this study was to determine the effect of *Acetobacter xylinum* concentration to the bacterial cellulose production. In this study, it was found that the concentration of *Acetobacter xylinum* greatly affects the bacterial cellulose produced. The highest yield of bacterial cellulose was 60.7% at 15% *Acetobacter xylinum* concentration.

Keywords: *Acetobacter xylinum*, *bacterial cellulose*, *coco- nut water*, *palm flour*, *waste water*

PRE-HARVEST PARAMETERS OF XANTHOSOMA UNDIPIES (K.KOCH) AS FOOD ALTERNATIVE

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Abstract

Xanthosoma undipes (K.Koch), Xanthosoma undipes (K.Koch), known as Beneng Taro in Indonesia, is the new carbohydrate source which is developed in Banten Province. The big size and the yellowish of the tuber are the specific characteristics of this taro. This recent study elaborates the pre-harvest parameters to be the consideration on harvesting time. The starch content, flour yield and its amylograph, crude fiber and carotenoid content of wild and cultivated taro on 3-, 6-, 9-, and 12-months age has been investigated. We found here that the highest starch content is in 3 months-age (8%) and the stable content for 6, 9, and 12-months age (3%). The flour yield of cultivated taro is higher than the wild one, while the flour amylograph of 3 months flour is lower in the breakdown and higher in the setback, final viscosity, peak time, and pasting temperature. There is no different amount of carbohydrate for both wild and cultivated taro (83%), but the crude fiber of cultivated taro is higher than the wild one. Meanwhile, the carotenoid content of cultivated taro is higher compared to wild taro, and it reaches the higher content in 9 months of age after cultivation. These data showed that Beneng taro could be harvested from 6 months of age and could be used as a filler or flour substitution on food processing. Further analysis should be conveyed for carbohydrate and carotenoid fractions to investigate the functional properties of Beneng taro known as Beneng Taro.

Keywords: *Beneng Taro, Xanthosoma Undipes, Carotenoid, Fiber, Amylograph*

**A SUPPLY CHAIN MANAGEMENT MODEL TO DEVELOP
ENTREPRENEURIAL VILLAGE: A CASE STUDY IN BEDENGAN
VILLAGE, INDONESIA**

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Abstract

This study aims to explore the potential of the tourism village of Bedengan, Indonesia to form a sustainable rural economy with entrepreneurship. The research began with investigating the potential and constraints that occurred in the field. Furthermore, the data and information obtained were used as the basis for making a suitable Supply Chain Management scheme to be implemented as a means of achieving effective and efficient entrepreneurship. This research employs a case study approach, data collection used in-depth interviews and documents. The case study approach is used in order to obtain a complete picture of the supply chain management model in building entrepreneurial villages. The finding of this study is that Bedengan Village has a lot of potential in its natural resources, but this potential is not accompanied by entrepreneurial interest and competence. Therefore, the researchers propose a Supply Chain Management scheme which contains four aspects, namely Youths, Land, Competency, and Interest. The proposed scheme will later become a tool to help create an entrepreneurial village. This research was only conducted in one village, so there may be differences in potential, problems, and solutions found in other villages.

***Keywords:* Supply Chain Management, Entrepreneurship, Village Economy, Entrepreneurial Interest, Sustainable Economy**



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