

CERTIFICATE



1st ICMMA-SURRE 2018

1st International Conference on Multidisciplinary Approaches for Sustainable Rural Development

LPPM Unsoed, Java Heritage Hotel, Purwokerto, Central Java, INDONESIA
November, 14-15, 2018

SUSI

PRESENTER



Prof. Dr. Ir. Suwanto, M.S.

Rector of Unsoed



Prof. Dr. Rifda Naufalin, S.P., M.Si.

Head of LPPM Unsoed

Amin Fatoni, S.Si., M.Si., Ph.D.

Chairman

ICMA-SURE

**1ST INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY
APPROACHES FOR SUSTAINABLE RURAL DEVELOPMENT**



MULTIDISCIPLINARY RESEARCH FOR RURAL INNOVATION

**PURWOKERTO
14-15 NOVEMBER 2018**

**LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT
UNIVERSITAS JENDERAL SOEDIRMAN**

Book of Abstracts

1st International Conference on Multidisciplinary Approaches for Sustainable Rural Development (ICMA-SURE)

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**Greeting from Head of Research and Public Service Institute
Universitas Jenderal Soedirman**

Assalammualaikum Warrahmatullah Wabarakatuh

Praise and gratitude, we always pray to the presence of the One God, because for His grace and guidance, LPPM Unsoed successfully held the 1st international conference on multidisciplinary approaches for sustainable rural development 2018.

Rural development is a process that seeks social change and sustainable economic development for the rural community's ongoing progress. It aims to increase food production in a sustainable way and enhance food security. This will involve education initiatives, utilization of economic incentives and the development of appropriate and new technologies, thus ensuring stable supplies of nutritionally adequate food, access to those supplies by vulnerable groups, and production for markets; employment and income generation to alleviate poverty; and natural resource management and environmental protection. The ultimate goal is to improve their life quality and to preserve the environment. There are three basic needs in rural development for a sustainable future. The first one is improving millions of people's welfare that live in the country (nearly half of the world population), thus reducing the rural-urban gap, stamping out poverty and preventing city migration. The second one is protecting and preserving natural, landscape and cultural resources. Last but not least is ensuring universal access to food with a sustainable farming production.

The conference divides into three symposia below: *1. Material Science and Engineering (MSE)* The topics including electrical, mechanical, industrial, geophysics, mining, chemistry, physics, civil and architecture, and computer and information technology. *2. Arts and Humanities (AH)* The topics including political sciences, sociology, anthropology, language, communication, international relation, public policy, law and economics. *3. Life and Applied Science (LAS)* The topics including agriculture, food science and technology, animal science, marine & fisheries, soil and land resources, medical and health sciences.

Last, happy conference, and thank you to the participants, presenters and especially to the keynote speakers who are pleased to be present to share their knowledge and insights about the countryside. May Allah SWT, the Almighty God, always enable us to do the best, benefit, especially through knowledge, *aamiin ya rabbal alaamiin*

Wassalammualaikum Warrahmatullah Wabarakatuh

**Prof. Dr. Rifda Naufalin, SP., M.Si.
Head of Research and Society Service Institute,
Universitas Jenderal Soedirman.**

Greeting from Chairman of the Conference

Assalamualaikum Warrahmatullah Wabarakatuh

On behalf of the Committee, I am very pleased that the *1st International Conference on Multidisciplinary Approaches for Sustainable Rural Development (ICMA-SURE)* has attracted many scientist from Indonesia, Malaysia, Thailand, Australia, Vietnam, Korea and Japan as well as other countries.

The registered abstracts in this conference were about 180 covering wide variety of subject grouped, divided in three symposia of Material Science and Engineering, Life and Applied Science, and also Arts and Humanities. The given oral and poster presentation would show outputs for future need as indicated in the conference theme of "Multidisciplinary Research for Rural Innovation".

The purposes of the conference are:

- to provide a forum for scientific discussion, professional networking, research collaboration, education, and dissemination of scientific research, innovation and industrial products.
- to increase the quality of research and development in the multidisciplinary approach for sustainable rural development.
- to encourage the local and regional young scientists to attend and present their works at the international level.

The success of the Conference would not have been attained without strong supports from contributing scientists and as well as Research and Society Service of Universitas Jenderal Soedirman Committee. I would like to thank all of them for helping to make a very successful conference.

We hope that you will enjoy a pleasant and valuable conference at Purwokerto, organized by the Research and Society Service Institute, Jenderal Soedirman University.

Thank you

Wassalamualaykum wr wb

Amin Fatoni, Ph.D.
ICMA-SURE Chairman

Greeting from Rector of Universitas Jenderal Soedirman

Assalamualaikum Warrahmatullah Wabarakatuh

Let us always praise to the presence of Allah SWT, the God of Mercy, for all the blessings He has given, so that we can be present here, in the 1st International Conference on Multidisciplinary Approaches for Sustainable Rural Development organized by Research and Community Service Institute, Jenderal Sudirman University.

Ladies and Gentlemen,

Talking about sustainable rural development, it is about how to optimize its resources potential to create an independent and prosperous society. We believe that through optimizing natural, human resources and socio-cultural values, it can increase economic growth, and reduce the poverty. In addition, sustainable rural development also should place society as the subject, the main actor of the change itself

However, in order to realize sustainable development towards an independent and prosperous rural area are not an easy process. Indeed, it is need cross-sectoral approaches and involvement of various parties and stakeholders. Partial perspective particularly sectoral ego, will not produce a comprehensive solution and does not even answer the existing problems.

Ladies and Gentlemen

Currently, the existence of academics has important and strategic significance in contributing to sustainable rural development. Through various scientific approaches, academics have the opportunity to identify the existing problems. Academics with their expertise have a moral responsibility to find alternative solutions to solve the problems. With the diversity of knowledge disciplines, academics have the opportunity to explore innovative ideas to improve quality of life. Through the contribution of various dimensions of science and technology, it actually becomes a great opportunity to empower the community in village areas.

Therefore, we, on behalf of ourselves and also as leaders of the university, greatly appreciated the held of The International Conference organized by the Research and Community Service Institute, Jenderal Sudirman University. This forum would be a great opportunity to share ideas, discussion and experiences particularly on rural issues. This conference also could be part of an effort to build a tradition of academic accountability, especially through high quality of research dissemination to produce the latest novel ideas and innovations.

Once again, we congratulate you on the conference in the next two days, and thank you to the participants, presenters and especially to the keynote speakers who are pleased to attend to share their knowledge and insights about rural issues. May Allah SWT, the Almighty God, always enable us to do good, especially through knowledge, aamiin ya rabbal alaamiin

Wassalamualaikum Warrahmatullah Wabarakatuh

Prof. Dr. Ir. Suwanto, MS
Rector of Universitas Jenderal Soedirman

Program

First Day	Wednesday, 14 th November 2018
08.00 - 08.30	Registration
08.30 - 09.00	Opening Ceremony: National Anthem "Indonesia Raya" Traditional Dance Welcoming Speech by Committee Chair (Dr. Amin Fatoni) Welcoming Speech by Chair of LPPM (Prof. Dr. Rifda Naufalin) Opening Speech by Rector of Unsoed (Prof. Dr. Suwarto)
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09.15 - 10.00	Keynote Speech: Assoc. Prof. Dr. Minako Sakai (University of New South Wales, Australia)
10.00 - 10.15	Coffee/Tea Break
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11.00 - 12.30	Plenary Session I: Prof. Dr. Mohd. Marsin Sanagi (Universiti Teknologi Malaysia) Prof. Dr. Rifda Naufalin (Jenderal Soedirman University) Dr. Yusril Yusuf (Gadjah Mada University) Dr. Mulyoto Pangestu (Monash University)
12.30 - 13.15	Lunch
13.15 - 15.15	Parallel Session 1
15.15 - 15.30	Coffee/Tea Break
15.30 - 17.30	Parallel Session 2
19.00 - 21.00	Official Dinner
Second Day	Thursday, 15 th November 2018
07.30 - 08.00	Registration
08.00 - 10.00	Parallel Session 3
10.00 - 10.15	Coffee/Tea Break
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11.00 - 11.45	Keynote Speech: Dr. Nguyễn Hữu Thọ (Thai Nguyen University, Vietnam)

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14.00 – 14.45	Keynote Speech: Prof. Dr. Choi Jae Suk (Silla University, South Korea)
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15.00 – 17.00	Parallel Session 4
17.00 – 17.15	Closing Ceremony and Award Announcement

Keynote Speakers

Visual Surveillance for Collective Behavior Analysis: From Human to Fish

Hitoshi Habe

Department of Science and Technology, Kindai University 3-4-1, Kowakae, Higashi-Osaka, Osaka, JAPAN

Abstract

Animals including human being are often with others in groups such as people crowds, fish schools, and flocks of birds. In such groups, they are interacting with each other to tell their intentions. By analysing such collective behavior, we can obtain plenty of information not only for understanding the ecology of animals but also for practical applications including aquaculture and social safety. Hence, collective behavior analysis has been an active research area of both ecology and engineering. In this paper, we will introduce our recent research projects for visual surveillance of collective behaviour analysis. First, small object detection based on a deep neural network will be presented. The method is specially designed for detecting swimming small fish. Although training deep neural network usually requires a large number of annotated data, our proposed method reduces the cost of manual annotation. Next, social group detection based on multiple instance learning will be presented. The multiple instance learning enables us to extract meaningful information from given data. We examined both of the proposed method using actual data to show their performance.

Keywords: collective behaviour, visual surveillance, deep neural network

Topic: Material Science and Engineering (MSE)

Opportunities for Change: Rural Innovation Strategies in Contemporary Indonesia

Minako Sakai

The University of New South Wales, Australia

Abstract

Rural development and poverty reduction have been one of the main development goals planned by various Indonesian governments. After the fall of the Suharto government, decentralisation was introduced to overcome imbalances in economic development between Java and the outer islands. However, the rural poverty rate and under-development in outer islands of Indonesia still remain an issue which requires scholarly and policy enquiry. This paper draws on my research which I have conducted on the theme of equitable development in Indonesia. I have examined the roles of regional government initiatives, community resource management, Islamic philanthropic organisations, Islamic businesses and microfinance, (social) entrepreneurship, and gender roles. These studies are based on multiple case studies over nearly two decades. I will highlight the major challenges facing contemporary Indonesia and also key strategies which are emerging as sustainable and innovative ways to foster rural innovations.

Keywords: rural development, rural innovation, java island rural

Topic: Arts and Humanities (AH)

Accelerating Rural Development through the New Extensionist Paradigm: Is there a Promise to Fulfill?

Jesus C. Fernandez

Deputy Director for Program, SEAMEO Regional Centre for Tropical Biology

Abstract

Rural problems continue to exist as human needs and circumstances continue to evolve. In recent years, rural development activities have gone beyond just increasing agricultural productivity because of the need to address a multitude of socio-political and environmental concerns towards achieving a sustainable development. This puts the relevance and competence of extension and advisory services in question to effectively respond to agricultural and rural development challenges in the new millennium. Thus, the Global Forum for Rural Advisory Services (GFRAS) advocates for the New Extensionist paradigm that looks beyond individual roles and capacities of key players but also those at organization and system levels. It articulates the expanded roles of extension and advisory services and articulates and the changes needed in various operational levels to contribute effectively in increasing productivity and improve the overall welfare of smallholder farmers and rural communities. Regional networks have been formed, including in Southeast Asia, to mainstream the New Extensionist. The New Extensionist holds an exciting promise for rural and agricultural development but there is also a great task ahead to realize it.

Keywords: Extension and advisory services, New Extensionist

Topic: Life and Applied Science (LAS)

Latest Technology Trends in Fish Processing: Application of Processed Marine Products

Jae-Suk Choi

Department of Food Science and Technology, Silla University, Busan, Republic of Korea

Abstract

In recent years, there has been seen an increasing trend of avoiding cooking at home due to an increase in single-person households, aged population, and working women in many countries. Consumption of fishery products is avoided due to fishy smell, small bones, and difficulty of fish trimming. Production and consumption of home meal replacement (HMR) are accelerating in the recent food industry. Therefore, the demand for HMR using marine products is increasing. Thus, an advanced marine processing technology is essential to produce high value-added fishery products. In this presentation, I would like to present the latest technology trends in fish processing. The latest technologies for controlling microorganisms include high-pressure processing (HPP), pulsed light technology, and ionizing irradiation. The latest technologies related to refrigeration include electromagnetic freezing technology, pressure shift freezing, and vacuum cooling. Heating related technologies include superheated steam roasting technology, ohmic heating, and microwave heating. High-frequency defroster has been developed as a thawing technology. Furthermore, advanced fish processing lines using these techniques have been developed and applied in the field. These latest technologies are expected to play an important role in processing marine products into high value-added fishery products.

Keywords: fish processing, home meal replacement, high pressure processing, pulse light technology

Topic: Life and Applied Science (LAS)

Plenary Speakers

Recent Advances in Biopolymer-based Sorbents for Removal of Pollutants from Aqueous Samples

Mohd Marsin Sanagi

Department of Chemistry, Faculty of Science, Universiti Teknologi Malaysia,
81310 UTM Johor Bahru, Johor, Malaysia

Abstract

Wastewaters containing heavy metal ions, organic compounds, and herbicides are the sought after pollutants as they cause severe environmental concerns. Exposure to elevated levels of the pollutants can adversely affect water resources, endangering the ecosystems and human health. Among the numerous treatment technologies, adsorption using biopolymer seems a promising alternative method. The use of biopolymer-based sorbents in solid-phase microextraction techniques has achieved a good reputation in terms of green sorbents with sensitivities and mechanical strength at par with synthetic sorbents. A great variety of polysaccharides can be extracted from marine plants or microorganisms. Seaweeds are the major sources of polysaccharides such as alginate, agar, agarose, as well as carrageenans. Chitosan, a natural polymer produced from chitin has excellent properties such as biocompatibility, biodegradability and non-toxicity. This talk focuses on biopolymer sorbents and their applications in multidisciplinary research. The state-of-the-art of the new microextraction techniques that utilize commercial biopolymer interfaces such as agarose, alginate, and chitosan in liquid-phase microextraction and solid-phase microextraction will be discussed. It will also touch on the utilization of biosorbents derived from oil palm biomass for the removal of environmental pollutants that appears to be a viable solution in the lights of promoting sustainable development.

Keywords: Sorbent, Agarose, Alginate, Chitosan, Biopolymers, Solid phase extraction, Environmental pollutants

Topic: Material Science and Engineering (MSE)

[ABS-51]
**DIGESTIBILITY IN VITRO OF STARCH AND PROTEIN ON ANALOG RICE BY
FORMULATION OF NAGARA BEAN FLOUR MODIFIED *L. plantarum* AND SAGO
STARCH WITH CONCENTRATION OF GLYCEROL MONOSTEARATE**

Susi Susi¹, Lya Agustina¹ and Condro Wibowo²

¹Agroindustrial Technology Department, Lambung Mangkurat University, Jl A Yani Km
36 Banjarbaru South Kalimantan 70714

²Food Science and Technology Department, Jenderal Soedirman University, Jl. Dr.
Soeparno No 63 Karangwangkal, Purwokerto 53123

Abstract

Limited of rice stock as a source of carbohydrates and protein deficiencies in some communities in Indonesia is also still commonly found. Therefore, the strategy used one of them is food diversification to substitute or replace the rice needs by other carbohydrate sources with the use of analog rice based nagara bean (*Vigna unguiculata* ssp *Cylindrica*). Nagara bean flour fermented by *Lactobacillus plantarum* has better characteristics, namely high protein content, starch digestibility and better protein digestibility. Nagara bean flour modified *L. plantarum* was formulated with sago starch and glycerol monostearate to produce analog rice. The analog rice obtained has the characteristics of high rehydration rate, in the proportion of nagara bean flour and sago starch 50:50 with glycerol monostearate of 1% had starch digestibility vitro of 81.76% db, and protein digestibility in vitro was 75.96%.

Keywords: nagara bean, starch digestibility, protein digestibility, in vitro

Topic: Life and Applied Science (LAS)

[ABS-52]
**PRELIMINARY STUDY OF REHYDRATION CHARACTERISTICS AND COOKING TIME
OF ANALOG RICE BY FORMULATION OF NAGARA BEAN FLOUR MODIFIED *L.*
plantarum AND SAGO STARCH**

Susi Susi1, Lya Agustina1 and Condro Wibowo2

1Agroindustrial Technology Department, Lambung Mangkurat University, Jl A Yani Km
36 Banjarbaru South Kalimantan 70714

2Food Science and Technology Department, Jenderal Soedirman University, Jl. Dr.
Soeparno No 63 Karangwangkal, Purwokerto 53123

Abstract

Analog rice was expected to have the characteristics of approaching actual rice with a level of stickiness similar to cooked rice, so in the formulation of analog rice, nagara bean fermented by *L. plantarum* which has amylose content of 23 - 25% was composed with sago starch as a counterweight to the amylose and amylopectin content in order to obtain good rehydration power and the texture similar to rice. This research was examined formulation of nagara bean flour, sago starch and glycerol monostearate concentration as emulsifier to facilitate the extrusion process. The analog rice was obtained has the characteristics of high rehydration rates, the proportion of nagara bean flour up to 50 percent has less solid losses and was not different from the proportion of 60 percent and 40 percent, while glycerol monostearate concentration of 2 percent could provide good extrusion quality that is not different to 5 percent

Keywords: nagara bean, sago starch, glycerol monostearate, swelling volume, cooking time

Topic: Life and Applied Science (LAS)

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PARALLEL SESSION

DAY 1, NOVEMBER 14, 2018

PARALLEL SESSION 1 (13.15 – 15.15)

Group 1

Chair : Dr.Eng. Retno Supriyanti, ST, MT

1	DevOps Approach Embraces Forward and Reverse Engineering <i>Acep Taryana; Eko Murdyantoro; Ari Fadli; Siti Rahmah Nurshiami</i>
2	Designing Core Layer in Campus Network Using Software-Defined Networking <i>Iwan Setiawan, Azis Wisnu Widhi Nugraha, Sauqi, Asrorul Zaza</i>
3	Optimization of Photovoltaic DC Microgrid Systems for Residential Installations <i>Winasis (a*), Hari Prasetijo (b)</i>
4	FIBRE OPTIC AS EMBEDDED SENSORS TO FAILURE DETECTION OF BEAM GREEN CONCRETE <i>Farida Asriani (a), Gandjar Pamudji (b) HestiSusilawati (a), Dwi Meilana Tias Saputra (a)</i>
5	Leakage Current of Photovoltaic System in Transformerless Grid-Connected H-bridge Inverter with PI Current Controller <i>Suroso, Winasis, and Daru Tri Nugroho</i>
6	Stepper Motor Control with DRV 8825 Based on Square Wave Signal of The AVR Microcontroller Timer <i>Arief Wisnu Wardhana B.Eng (Hons)., M.Eng , Daru Tri Nugroho, S.T., M.T</i>
7	A Review of Lora Technology and Its Potential Use for Rural Development in Indonesia <i>Eko Murdyantoro, Azis Wisnu Widhi Nugraha, Arief Wisnu Wardhana, Ari Fadli, Mulki Indana Zulfa</i>
8	Classification Model for Graduation on Time Study Using Data Mining Techniques with SVM Algorithm <i>Ari Fadli, Mulki Indana Zulfa*, Yogi Ramadhani</i>
9	Intelligent Air Conditioner Ecosystem Based on Internet of Things <i>Azis Wisnu Widhi Nugraha (a*), Acep Taryana(a), Bayu Eko Saputro(a), Prayogo Ismu Abdillah(a)</i>
10	Potential for Availability of High Quality Paddy Seeds Supporting Rice Production / Productivity in West Java <i>Dian Firdaus (a*) and Ronnie Susman Natawidjaja (b)</i>

Group 2

Chair : Dr. Lutfi Makhasin

1	The Revitalization Model Through The Implementation Of Integrated Information System For Village Unit Cooperative In Banyumas <i>Eko Suyono and Oman Rusmana</i>
2	Village Official Website And Inclusive Communication Approach To Empowerment Of Marginal Villagers In Susukan Banyumas Central Java <i>Nuryanti, Subejo, Roso Witjaksono, Mochammad Fathoni</i>

3	Empowerment Of Karang Taruna As An Effort To Sustainability Of Rural Economic Growth In Madura Island RM. Moch. Wispandono
4	Model Of Inter Village Cooperation In Development Of Village Potentials To Support To Tourism In Baturraden District Kadar Pamuji, Riris Ardhanariswari, Abdul Aziz Ns, Supriyanto
5	The Role Of Stakeholders In The Accountability Of Village Enterprise Management: A Public Governance Approach Denok Kurniasih, Paulus Israwan Setyoko, M. Imron, Shadu S. Wijaya
7	Digital Marketing As A Catalyze Of Village-Owned Enterprise Revenue In Banyumas Agus Suroso, Amber Lumbantoruan, Mafudi, Ascaryan Rafinda
8	Fostering Trust As A Catalyst For The Sustainable Village Owned Enterprise Kiky Srirejeki, Agus Faturohman, Saras Supeno
9	Enhancing Group Entrepreneurial Quality Of Archaic Batik Design Agung Praptapa, Wiwiek Rabiatal Adawiyah, Istiqomah
10	Strategy To Develop Batik Tourism Village Istiqomah, Wiwiek Rabiatal Adawiyah, Agung Praptapa

Group 3

Chair : Dr. Haryadi

1	Factors Determining The Farmers Decision To Develop Their Beef Cattle Farming In The Southern Coastal Areas Of Central Java Mochamad Sugiarto, Syarifuddin Nur, and Oentoeng Edy Djatmiko
2	The Effect Of Dynamic Relationship Between Domestic Market And World Market On Stock Returns Volatility Najmudin, Dian Purnomo Jati, Sulistyandari, Retno Kurniasih
3	Bendi Traditional Transport Equipment As A Supporter Of Regional Economy Through Tourism And Culture Activities Elfrida Ratnawati Gultom
4	Behaviour Of Fishermens Implementing The Law In The Nature Conservation Rini Fidiyani, Erni Wulandari
5	Social And Legal Impact Of Different Determination Of Paddy Land Area In Indonesia Sri Wahyu Handayani
6	Co-Supply Chain As Local Entrepreneurial Support Model For Small Businesses: Is It Viable? Wiwiek Rabiatal Adawiyah, Istiqomah
7	The Impact Of Public Service Motivation On Individual Performance Adi Indrayanto, Ade Irma Anggraeni, Tiladela Luhita
8	Local Government Responsiveness In Preventing And Handling Divorce Phenomena (Study In Cilacap Regency) Dyah Retna Puspita, Rin Rostikawati, Pawrtha Dharma
9	Management Capacity Of Educational Office In The Provision Of Basic Education Services (Studi In Banyumas In Banyumas Regency) Muslih Faozanudin, Lilis Sri Sulistiani
10	Bridging The Legal Gap Between Open Selection And Internal Selection Of State Civil Apparatus Promotion In Indonesia Tedi Sudrajat, Siti Kunarti, Sri Hartini

Group 4**Chair : Dr. Norman Arie Prayoga**

1	PHYSICAL STIMULATION FOR HYPERBILIRUBINEMIA Eni Rahmawati; Puji Lestari; Dian Susmarini; Agustina Desy P. B. Utami
2	ADOLESCENT DELINQUENCY Elsava Tamara Putri Murwanda, Wahyu Ekowati, Eni Rahmawati
3	Knowledge and Perception on Outdoor Spatial Spraying Againsts Dengue : A Household Survey in Endemic Area, Central Java, Indonesia Siwi Pramata Mars Wijayanti , Devi Octaviana, Arnika Dwi Asti
4	Consumer motivation to participate in the one day no rice policy Poppy Arsil , Kusmanto Eddy Sularso, Altri Mulyani
5	Prevalence and Predictors of Maternal Anemia during Pregnancy in Banyumas District Mekar Dwi Anggraeni, Amin Fatoni, Rahmi Setyani
6	Communication Challenges with Older Adults Patients during Clinical Learning: A Qualitative Study among Student Nurse Rahmi Setyani, Made Sumarwati, Asep Iskandar, Ima Rismawati
7	Knowledge of Nutrition and Macronutrients Consumption as Factors Causing Wasting in School Children and Effective Nutrition Education to Improve It Dyah Umiyarni Purnamasari, Endo Dardjito
8	Mentzer Index Diagnostic Value in Predicting Thalassemia Diagnosis Wahyu Siswandari, Lantip Rujito, Vitasari Indriani, Wahyu Djatmiko
9	The Influence of the Combination of Listening to the Al Quran and Acupressure to the Physiological Response of Stresses of Hypertension Iwan Purnawan, Eman Sutrisna , Ikit Netra Wirakhmi
10	Organoleptic Characteristics of Bali Beef Meatballs Based on Collagen Concentration in UKKMB and Time of Maturation Effendi Abustam, Muhammad Irfan Said, and Muhammad Yusuf

Group 5**Chair : Dr. Amron**

1	EFFECT OF IRON SUPPLEMENTATION TO ZINC SERUM Hesti Permata Sari, Ibnu Zaki, Farida, Afina Rachma Sulistyning
2	Physicochemical Characteristics of Sweet Potato (<i>Ipomoea batatas</i> L.) Chips Pre-treated by Commercial and Eggshell Extracted Calcium Chloride David Tjandra, Thomas Indarto Putut Suseno, Ignasius Radix AP Jati
3	WELFARE AND HEMATOLOGIC CONDITION OF DUCKS UNDER INTENSIVE AND EXTENSIVE SYSTEMS OF PRODUCTION Imam Suswoyo and Rosidi
4	Family Roles on Supporting Patient with Terminal Illness : Lesson Learned from Banyumas Region Central Java Diyah Woro Dwi Lestari, Miko Ferine
5	Red Pitaya Pulp and Its Peel as a Lowering Agent of Blood Glucose Level for Patients with Diabetes Type 2 Sasi Gendro Sari, Siti Aminah, Susi, Rusmiati

6	DIGESTIBILITY IN VITRO OF STARCH AND PROTEIN ON ANALOG RICE BY FORMULATION OF NAGARA BEAN FLOUR MODIFIED <i>L. plantarum</i> AND SAGO STARCH WITH CONCENTRATION OF GLYCEROL MONOSTEARATE Susi Susi, Lya Agustina and Condro Wibowo
7	PRELIMINARY STUDY OF REHYDRATION CHARACTERISTICS AND COOKING TIME OF ANALOG RICE BY FORMULATION OF NAGARA BEAN FLOUR MODIFIED <i>L. plantarum</i> AND SAGO STARCH Susi Susi, Lya Agustina and Condro Wibowo
8	The Efficiency of Paddy Production Factors on Farm Land Consolidation In Sukoharjo Regency Titik Ekowati, Edy Prasetyo, Mukson
9	Low Frequency of electrical stimulation improve wound healing in acute wound Yunita sari, Atyanti Isworo, Arif Setyo Upoyo, Akhyarul Anam, Hartono, Eman Sutrisna
10	Effects of sucrose concentrations and scion sources on shoot tip grafting in vitro of <i>Citrus aurantifolia</i> Prita Sari Dewi, Fatichin, Octaviani Auditia, dan Aniq Sholihatul Lutfiyah

PARALLEL SESSION 2 (15.30 -17. 30)

Group 1

Chair : Dr.Eng. Suroso,ST, MT

1	ANALYSIS OF QUANTITATIVE RELATIONSHIPS OF ANIONIC SURFACTANT STRUCTURES OF SULFATE GROUP BASED ON LARGE AB INITIO CALCULATIONS <i>Eva Vaulina Y. D.</i>
2	THE EFFECT OF COMPACTION METHOD ON COMPRESSIVE STRENGTH OF SELF COMPACTING CONCRETE (SCC) IN LABORATORY <i>Agus Maryoto</i>
3	New paradigm to understanding turbidite sediment in Banyumas Basin <i>Eko Bayu Purwasatriya (a*)</i> , <i>Sugeng Sapto Surjono (b)</i> , <i>D.Hendra Amijaya (b)</i>
4	RESISTIVITY AND INDUCED POLARIZED (IP) APPROACH FOR POLYMETALLIC VEIN DISTRIBUTIONS OF BUKIT PONDOK MINERALIZATION (EX-VOC MINING IN 1902), TANAH TIDUNG, EAST KALIMANTAN <i>Fadlin(*a)</i> , <i>Wildan Nur Hamzah (b)</i> , <i>Eko Bayu Purwasatriya (c)</i> <i>Arifudin Idrus (d)</i> <i>Nita Ariyanti (e)</i> <i>Sekar Ramadhani (f)</i>
5	Ontology Model for Tourism Information in Banyumas <i>Lasmedi Afuan, Nurul Hidayat</i>
6	Measuring Usability Scale and Factors That Influence the Implementation of Internship Information System in Engineering Faculty of Jenderal Soedirman University <i>Swahesti Puspita Rahayu(*)</i> , <i>Bangun Wijayanto(*)</i> , <i>Dadang Iskandar(*)</i>
7	An Exploration Study : Spiritual belief, Spiritual need, and Spiritual care <i>Henie Kurniawati, Sofia Retnowati, Bagus Riyono, Widyawati</i>
8	Road Safety Audit at Black Spot Area (Case study in Tlahab Lor, Karangreja, Purbalingga) <i>Gito Sugiyanto (a*)</i> , <i>Rizki Suciningtyas (a)</i> , <i>Eva Wahyu Indriyati (a)</i> , <i>Ari Fadli (b)</i>
9	Cattle feed concentrate automatization system based on internet of things <i>Bangun Wijayanto, S.T., M.Cs (*a)</i> , <i>Swahesti Puspita Rahayu, S.Kom.,M.T. (b)</i> , <i>Dadang Iskandar, S.T., M.Eng.(c)</i>

10	Investigation of Tsunami Hydrodynamic Loads Acting on a Slab Bridge <i>Hartana</i>
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Group 2

Chair : **Dr.Wiwiek Rabiatal Adawiyah**

1	The Impact Of Land Conflict On Darmakradenan Toward Social, Economic, And Politic Vulnerability In The Life Of Farmers Community Waluyo Handoko
2	Structural Violence Of Agrarian Conflict Settlement In Lampung Agus Raharjo, Yusuf Saefudin, Luthfi Kalbuadi
3	Violence Spiral And Social Conflict Settlement In The Perspective Of Law Agus Raharjo, Luthfi Kalbuadi, Yusuf Saefudin
4	Legal Protection Of Children As An Object And Subject (Accessors) Of Pornographical Websites Agus Raharjo
5	The Power Of Mediators Suggestion In Pancasila Industrial Relation Dispute Settled Outside The Court Siti Kunarti, Kartono, Sri Hartini
6	The Role Of Religious Leaders In Maintaining Social Sustainability In Rural Communities Najmu Tsaqib Akhda, F. Trisakti Haryadi, Siti Andarwati
7	Psychological Dynamics Of Terrorists Rindha Widyaningsih, Kuntarto
8	Local Wisdom Approach To Develop Counter-Radicalization Strategy Rindha Widyaningsih, Kuntarto
9	Methods Of Strengthening Social Marketing Communication In Preventive Actions Against Radicalism In Al Ikhsan Islamic Boarding School Muhammad Sulthan
10	Revisiting Indonesian Multiculturalism At The Local Level: Migrant Muslim Community And Customary Village In Contemporary Balinese Society Bowo Sugiarto

Group 3

Chair : **Dr.Tedy Sudrajat, SH,MH**

1	Challenges Of Political Parties In Banten To Meet 30% Gender Quota In The 2019 General Election Abdul Hamid, Anis Fuad
2	Gender Mainstreaming Through Woman Political Participation At Representative Counsel, Banten Province Ika Arinia Indriyany, M. Dian Hikmawan, M. Rizky Godjali
3	Kyai On The Political Stucturation In Pandeglang-Banten M Dian Hikmawan, Ika Arinia Indriyany, M. Rizky Godjali, Wahyu Kartiko Utami
4	Job Expansion And Job Satisfaction M Dian Hikmawan, Ika Arinia Indriyany, M. Rizky Godjali, Wahyu Kartiko Utami
5	Job Expansion And Job Satisfaction Iriani Ismail, Raudhatul Jannah

6	Hazard Identification At Hospital In Indonesia Nur Ulfah, Arwita Mulyawati, Irfan Dwi Andhono
7	The Study Of The Concept Of “Blakasuta’ As The Symbolic Capital Of Banyumas Societyfor Managing Diversity In Handling “Kampung Sri Rahayu” Slum Settlement S Bekti Istiyanto, Wiwik Novianti
8	An Exploration Study : Spiritual Belief, Spiritual Need, And Spiritual Care Henie Kurniawati, Sofia Retnowati, Bagus Riyono, Widyawati
9	Improving Societal Welfare Through Developing Creative Literation-Based Industries In Wadas Kelir Naqiyah

Group 4

Chair : Dr.Juni Sumarmono

1	GROWTH CHARACTERS OF UPLAND RICE AND PEST ATTACK LEVEL OF RICE EAR BAG (Leptocorisa acuta) WITH APPLICATION OF LEMON GRASS EXTRACT AND FERTILIZER OF N,P, K Yugi R. Ahadiyat, Rostaman, Okti Herliana, Ida Widiyawati
2	THE EFFECT OF SIKKOMODO (COMBINATION OF MUSIC, HUMOR, AND PRAYER) FORMULATION TOWARD BLOOD PRESSURE OF HYPERTENSION PATIENT ON THE ELDERLY GROUP IN BANYUMAS REGENCY Sidik Awaludin, Annas Sumeru, Galih Noor Alivian, Dwi Novitasari
3	FACTORS RELATED TO SPUTUM CONVERSION OF PATIENTS PULMONARY TUBERCULOSIS IN THE LAST PHASE OF INTENSIVE MEDICATION Atyanti Isworo, Akhyarul Anam, Agis Taufik, Annas Sumeru, Naula Affa, Aliyatul Aeni
4	Dates Seeds as Antidiabetic Drinking Coffee: A Systematic Review Saryono
5	Validation Method for The Direct Determination of Beta Carotene In High Carotene-Modified Cassava Flour by HPLC with Multi Wavelength Detection Andreas, Dian Muzdalifah, Hendris H. Kurniawan, Oman Zuas, Yosi Aristiawan, Osi Arutanti
6	CHARACTERISTIC OF PREGNANT WOMEN WHO ARE EXPERIENCING NAUSEA VOMITING IN RURAL AREAS OF BANYUMAS REGENCY Lutfatul Latifah, Aprilia Kartikasari, Nina Setiawati (a), Eli Kusmiarti (a)
7	The amount of food consumed in baby-led and traditional weaning Dian Susmarini, Eni Rahmawati, Made Sumarwati, Atyanti Isworo, Dian Anandari, Lutfatul Latifah
8	Formulation Of Flake Made From Mocaf Black Rice and Tapioca High in Protein and Dietary Fiber By Soy and Jack Bean Flour Addition Friska Citra Agustia, Sabila Rosyidah, Yovita Puri Subardjo, Gumintang Ratna Ramadhan, Dika Betaditya

Group 5

Chair : Dr.Fatichin

1	THE EFFECTS OF PURWOCENG ROOTS ETHANOL EXTRACT ADMINISTRATION TO MALE WHITE RATS (Rattus norvegicus) EXPOSED BY PARADOXICAL SLEEP DEPRIVATION Fitranto Arjadi, Wahyu Siswandari, Yudhi Wibowo, Diah Krisnansari, Alfi Muntafiah
2	DETERMINANT of HEALTH PROMOTING LIFE STYLE NURSING STUDENT of JENDERAL SOEDIRMAN UNIVERSITY

	Eva Rahayu, Rahmi Setiyani, Made Sumarwati
3	THE EFFECT OF PLANT GROWTH PROMOTION RHIZOBACTERIA INOCULATION TO AGRONOMIC TRAITS OF AROMATIC RICE (<i>Oryza sativa</i> cv. Sintanur) Purwanto, T. Agustono, Mujiono, B.R.Widjonarko, T. Widiatmoko
4	Bioprospecting of red seaweed <i>Kappaphycus alvarezii</i> (cottonii) based on Their Neurotogenic Activities Maria Dyah Nur Meinita, Gabriel Tirtawijaya, Il So Moon, Yong-Ki Hong, Norman Arie Prayogo
5	Spatial Distribution of Seaweed in Sayang Heulang Beach, West Java Maria Dyah Nur Meinita, Nurul Riyanti, Bintang Marhaeni, Setijanto, Dicky Harwanto
6	Dynamics of soil physical and chemical properties within horizontal ridges-organic fertilizer applied potato land Krissandi Wijaya, Purwoko Hari Kuncoro, Poppy Arsil
7	Factors influencing supply chain management practices in brown sugar agro-industry Dindy Darmawati Putri, Dwidjono Hadi Darwanto, Slamet Hartono, Lestari Rahayu Waluyati
8	MATERNAL SERUM MATRIX METALLOPROTEINASE 14 (MMP14) IN EARLY ONSET PREECLAMPSIA AND NORMAL PREGNANCY Herman Sumawan , Sutrisno

DAY 2, November 15, 2018

PARALLEL SESSION 3 (08.00 – 10.00)

GROUP 1

Chair : Dr.Yunita Sari

1	Prevalence of Acute Otitis Media in Primary School Children, Karanglewas Banyumas Regency Daniel Joko Wahyono, Yudhi Wibowo, Aris Mumpuni, Diah Krisnansari, Dwi Utami Anjarwati, Anton Budhi Darmawan, Gita Nawangtantri, Nendyah, Dwi Arini, Dian Kristiantoro, Hendro Pramono, Meyta Pratiwi, Devi Octaviana, Dwi Sarwani Sri Rejeki, Dodi Safari, Korrie Salsabila, Siwi Pramutama Mars Wijayanti
2	Mosquito Indices in Outdoor Spatial Spraying Treated Area, Banyumas Regency, Indonesia Siwi Pramutama Mars Wijayanti, Devi Octaviana, Sri Nurlaela
3	CARCASS PRODUCTION CHARAKTERISTIC AND SINGLE NUCLEOTIDE POLYMORPHISM ADIPOCYTE FATTY ACID BINDING PROTEIN (A-FABP) GENE ON CAIRINA MOSCHATA Ismoyowati Ismoyowati, Elly Tugiyanti
4	THE EFFECT OF COGNITIVE BEHAVIOR THERAPY TO STUDENTS ACADEMIC ACHIEVEMENTS OF NURSING DEPARTMENT OF JENDERAL SOEDIRMAN UNIVERSITY Keksi Girindra Swasti, Wahyu Ekowati, Eva Rahayu
5	THE EFFECT OF POTATO (<i>Solanum tuberosum</i> L.) SKIN EXTRACT ON ALKALINE PHOSPHATASE LEVEL IN PERIODONTITIS Christiana Cahyani Prihastuti, Wulan Ratnasari, Hernayanti
6	FTIR AND SPECTROPHOTOMETRIC ANALYSIS OF BIODEGRADATION OF INDIGOSOL BLUE DYE IN SUBMERGED FERMENTATION BY <i>Aspergillus</i> sp. <i>Penicillium</i> sp. AND <i>Trichoderma</i> sp. Ratna Stia Dewi, Rina Sri Kasiamdari, Erni Martani, Yekti Asih Purwestri
7	A MODIFIED METHOD TO MANUFACTURE CONCENTRATED YOGURT FROM FRESH COWS MILK YOGURT Juni Sumarmono, Triana Setyawardani, Agustinus Hantoro Djoko Rahardjo

8	Formula Optimization and Characterization of Jam based on Carica Fruit (<i>Carica pubescens</i> , L) Santi Dwi Astuti, Erminawati
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Group 2

Chair : Dr.Romanus Edy

1	The Power of Weibull and Exponential Distributions On Testing Parameters Shape B. Pratikno, Jajang , S.Y. Layyinah, G.M. Pratidina, and Y. D. Suryaningtiyas
2	The Addition of Liquid Sap Preservatives Made from Lime, Mangosteen peel, and Jackfruit wood on Quality Characteristics of Coconut Sugar Karseno, Tri Yanto
3	Investigation of Hydrolysis Using Cellulase Enzyme Produced From Cow Rumen And Fermentation Method for Producing Ethanol from Nypa (<i>Nypa fruticans</i> Wurmb) Midrib Wiludjeng Trisasiwi, Agus Margiwiyatno, Gunawan Wijonarko
4	The physical recovery models based on fluid manipulation on the body reversibility process in sub-maximum physical exercise. Moh. Nanang Himawan Kusuma, Didik Rilastiyo, Rohman Hodayat, Topo Suhartoyo, Muh. Syafei
5	FEEDING MOCAF BISCUITS ENRICHED WITH IRON AND PROTEIN FROM TEMPEH AND FISH ON HEMOGLOBIN LEVEL OF ANEMIC SPRAGUE DAWLEY RATS Hidayah Dwiyanti, Retno Setyawati, Nur Aini
6	Isolation and characterization of bioactive components of lemongrass (<i>Cymbopogon citratus</i>) Erminawati, Rifda Naufalin, Ike Sitoresmi, Wuryatmo Sidik and Nandarose Rucki
7	Importance-Performance Analysis and Customer Satisfaction Index on Laboratory Services in the Faculty Mathematics and Natural Sciences, University of Jenderal Soedirman Wuryatmo Akhmad Sidik, Sunardi and Supriyanto
8	Application of Concentrates Flower Kecombrang on Edible Coating as Antioxidant to Suppress the Oxidative Damage on Gourami Sausage During Storage Rifda Naufalin, Rumpoko Wicaksono, Erminawati, Poppy Arsil and Kris Imanias Trikasihputri Gulo
9	A review on optimization of lactic acid bacteria for production goat milk yogurt Ibrahim A, Rifda Naufalin, Erminawati, Hidayah Dwiyanti

Group 3

Chair : Dr.Uyi Sulaiman

1	STUDY GRADIENT AND MOISTURE OF SAND EMBANKMENT ON PEAT SUBJECTED VIBRATION POTENTIAL OF LIQUEFACTION <i>Soewignjo Agus Nugroho a*) Agus Ika Putra b), Muhamad Yusa c), and Syawal Satibi d)</i>
2	THE EFFECT OF COMPACTION METHOD ON COMPRESSIVE STRENGTH OF SELF COMPACTING CONCRETE (SCC) IN LABORATORY <i>Agus Maryoto</i>
3	PETROLOGY AND TRACE ELEMENT STUDY OF IGNEOUS ROCK IN AYAH, KARANGBOLONG DOME, CENTRAL JAVA <i>Fadlin(a*), Gentur Waluyo(b), Sekar Ramadhani R(c), Wildan Nur H(d), Arifudin Idrus(e)</i>
4	SLIP SURFACE IDENTIFICATION BASED ON ANALYTICAL ENGINEERING PROPERTIES IN THE WEATHERING OF BRECCIA AT MOUNT PAWINIHAN LANDSLIDE, CENTRAL JAVA, INDONESIA

	<i>Indra Permanajati 1-2, Zufaldi Zakaria2, Mohamad Sapari Dwi Hadian2, Herryal Zoelkarnaen Anwar3, Rachmad Setijadi1</i>
5	Gravity Anomalies And Regional Geological Studies Between Slamet Volcano, Buaran and Bantarkawung Areas For Geothermal Energy Exploration and Development <i>Sachrul Iswahyudi (a), Sukmaji Anom Raharjo (b), Indra Permanajati (a), Rachmad Setijadi (a), Riza Aditya Pratama (a), Baniarga Prabowo (a)</i>
6	FIRE SAFETY ASSURANCE ON BUILDING <i>Yusuf Latief (a), Manlian Ronald Simanjuntak (b), Paulus Setyo Nugroho (c)</i>
7	Edible coating application with kecombrang concentrate addition to holding the quality of gouramy fish fillet during storage Rifda Naufalin, Rumpoko Wicaksono, Retno Supriyanti, dan Eva Triyulianingrum
8	The antioxidant activity stability and acceptability of pasteurized milk added with mulberry leaf tea and soymilk powder Jintana Sangsopha, Anuchita Moongngarm, and Nutjaree Pratheepawanit Johns

Group 4

Chair : Dr. Wahyu Tri Cahyanto

1	Putting People In The Proper Position On Policy Process In Rural Area: A Deliberation And Empowerment Process In Village Level Of Indonesia Sukarso, Swastha Dharma, Niken Paramarti Dasuki
2	Analysis Of Financial Performance Factors And Its Impact On Growth Profit (Study On The Food And Beverage Industry Registered In Indonesia Stock Exchange) Chairul Anam
3	Agriculture Sector Analysis In Central Java Muliasari Pinilih
4	How To Improve The Competitiveness Of Palm Sugar? The Role Of Technical Innovation Suliyanto, Weni Novandari, Suwaryo
5	Design Of Strengthening Local Institutions That Support The Development Of Marketing Of Processed Products Of Mix Farming Imam Santosa, Agus Suyanto
6	Design Of Technology Valuation System: Case Study Of High Productivity Upland Rice In Central Java, Indonesia Budi Dharmawan, Akhmad Rizqul Karim, Ulfah Nurdiani
7	Media Violation, Foul And Refereeing Are Movement As A Source Learning To Students Of Pjkr On Basketball Education Ayu Rizky Febriani, Rohman Hidayat, Topo Suhartoyo
8	Basic Teaching Skills For The Candidates Of Professional Teachers Mustasyfa Thabib Kariadi, M. Riyanton

Group 5

Chair : Dr. Latjip Rudjito

1	The Experience Of Disabled Person In Accessing The Public Facilities In Universities Isplanacius, Tri Lisiani Prihatinah, Nur Wakhid
2	Lecturer Perception Of Public Information Management Practices In Higher Education Wisnu Widjanarko, Tri Nugroho Adi

3	Sport Development Index Of Banyumas Regency Ngadiman, Indra Jati Kusuma, Kusnandar, Panuwun Joko
4	M-Payment As A Strategy To Increase Financial Literacy In Islamic Boarding School Cooperatives Bambang Agus Pramuka, Poppy Dian I Kusuma, Sugiarto
5	The Digital Literacy Movement Of Former Migrant Workers Wiwik Novianti, S.Bekti Istiyanto
6	Smartphone: A Tool Of Social And Political Empowerment For Women Mite Setiansah
7	Eating And Performance : Contemporary Community Lifestyle Yusida Lusiana, P.M. Laksono, Tatang Hariri
8	Developing Cooperative Law Culture At Bmt (Baitul Maal Wa Tamwil) To Remove The Rente System In The Traditional Market Nita Triana dan Naqiyah

PARALLEL SESSION 4 (15.00 – 17.00)

GROUP 1

Chair : Dr.Nanang Martono

1	Initial Implementation Of Productive Migrant Village (PMV) Program In Banyumas Central Java Indonesia . Muslihudin, Tyas Retno Wulan, Tri Sugiarto, Sotyania Wardhianna, Sri Wijayanti
2	The Urgency Of Synchronization And Harmonization Of Law Regulations Post The Decision Of Constitutional Court In Judicial Review Riris Ardhanariswari, Muhammad Fauzan, Komari
3	Small Claims Court Philosophy In Applying Simple Judicial Principles Rahadi Wasi Bintoro, Dessi Perdani Yuris Puspita Sari
4	Consumer intention and behaviour towards fish consumption: A conceptual framework Poppy Arsil, Ardiansyah, Tri Yanto
5	Optimization and Validation of a Method for The Direct Determination of Cathecin In Gamboeng Tea Superior Clone by HPLC Dian Muzdalifah*, Andreas, Linar Zalarin Udin, Hendris H. Kurniawan, Sri Handayani, Euis Filaila
6	Isolation and Characterization of Buprofezin Tolerant Bacteria from Rhizosphere of Paddy at Marginal Land of Banyumas Regency Sapto Nugroho Hadi, Ida Widiyawati, Prita Sari Dewi, Kartini
7	Scanning SNPs of Diabetes Mellitus related genes; HNF4A, PTPN, KCNJ11, PPAR gamma; among Thalassemia Patients : a Preliminary Study Lantip Rujito, Frida Fauziah, Esa Fitriani Azizah, Qodri Santosa, Ariadne Tri Hapsari, Dwi Utami Anjarwati, Fitranto Arjadi
8	THE EVALUATION OF NUTRITION INFORMATION SYSTEM USING COMBINED METHOD OF UNIFIED THEORY OF ACCEPTANCE AND USAGE OF TECHNOLOGY (UTAUT) AND TASK TECHNOLOGY FIT (TTF) Siti Nurhayati, Dian Anandari, Wahyu Ekowati

GROUP 2**Chair : Dr.Maria Dyah Nur Meinita**

1	ANTIBACTERIAL AND ANTIOXIDANT ACTIVITIES OF ETHANOL EXTRACTS OF COCOA PODS ((Theobroma cacao L.) SKIN WITH MALTODEXTRINE IN VARIOUS CONCENTRATION Asriani Hasanuddin ,Khairil Anwar ,Marhawati Mappatoba and Hafsa
2	Prolific root system and water conservation are contributive factors in slow wilting cultivar PI 416937 during drought stress Fatichin, Shao-Hui Zheng, and Susumu Arima
3	Formulation of spreadable cheese from corn milk using pineapple extract and papain Nur Aini Vincentius Prihananto, Budi Sustriawan, Tety Heryanti
4	The Protein Content and Protease Activity of local Green Fly, Chloroprocta sp., maggot crude extracts (a)Dwi Utami Anjarwati1, (b)Rizka Hidayati, (a)Dian Kristiantoro, (a)IDSAP Peramiarti, (c)*Ari Asnani3
5	Alloyed platinum with ruthenium and molybdenum for the coadsorption of hydrogen and hydroxyl Wahyu Tri Cahyanto1*, Endah Tri Listiowati1, Wahyu Widanarto1, Farzand Abdullatif1, Mukhtar Effendi1, Hideaki Kasai2
6	The Impact of Lowering Speed Limit on Mobility and the Environment Gito Sugiyanto (a*), Jajang (b), and Mina Yumei Santi (c)
7	DESIGN OF THE ALUMINIUM COMPENSATING FILTER TO IMPROVE THE IMAGE QUALITY IN LATERAL PROJECTION OF LUMBOSACRAL VERTEBRAE RADIOGRAPHY Mukhtar Effendi 1,2 , Ratna Umi Fatimah 1, Agus Sholeh 3, Wiwiek Fatchurohmah 4
8	DESCRIPTION OF THE HEALTH CADRES ABOUT EXCLUSIVE BREASTFEEDING PROMOTION AND IMPROVED KNOWLEDGE OF THE CADRES THROUGH TRAINING BASED ON THE CONCEPT OF "INSUFFICIENT MILK SUPPLY" IN BATURRADEN DISTRICT Aprilia Kartikasari*, Mekar Dwi Anggraeni*, Lutfatul Latifah*, Nina Setiawasti*

GROUP 3**Chair : Dr.Budi Aji**

1	Utilization of preventive health check-ups among elderly people in rural Indonesia Budi Aji, Siti Masfiah, Dian Anandari, Siwi Pramata Mars Wijayanti , Chalermopol Chamchan
2	Potential Source of Health Funding From Rural Informal Sector in Indonesia : Analysis of Ability to Pay and Willingness to Pay in National Health Insurance Voluntary Participant Premium Arih Diyaning Intiasari, Budi Aji, Siti Masfiah, Laksono Trisnantoro, Julita Hendartini
3	Effect of Organic Cultivation and Application of Charcoal on Quality of Potato Tuber Cultivar Atlantic Condro Wibowo (a*), Krissandi Wijaya (b) and Ade L. Biyantara
4	IDENTIFICATION OF CONSUMER BEHAVIOR TOWARDS FOOD THAT CONTAINS FOOD ADDITIVES IN BANYUMAS DISTRICT Suyono,Teguh Djuharyanto; Budi Dharmawan; Ratna Satriani; and Alpha Nadeira M

5	DEVELOPMENT OF LOCAL-BASED EDUTOURISM VILLAGE TO INCREASE THE WELFARE OF THE VILLAGE PEOPLE (Case Study on Susukan Village Sumbang District, Banyumas Regency) Haryadi, Aldila Krisnaesanti, Lina Rifda Naufalin, Dadang Iskandar
7	Factor affecting willingness to pay for national health insurance program among informal workers in Indonesia Budi Aji, Nur Ulfah, Siti Masfiah, Siti Harwanti
8	Effect of Blanching Method and Soaking Solution on the Properties of Potato Flour Produced from Variety Granola Condro Wibowo, Pepita Haryanti and Erminawati

GROUP 4

Chair : Dr. Taufan Harisam

1	An Exploration Study : Spiritual belief, Spiritual need, and Spiritual care Henie Kurniawati, Sofia Retnowati, Bagus Riyono, Widyawati
2	Effect of Rhizobium and N Fertilizer to Growth and Yield of Black Soyabean (Gycine Soja) Okti Herliana, Tri Harjoso, A.H Syaeful Anwar
3	The Urgency Of Synchronization And Harmonization Of Law Regulations Post The Decision Of Constitutional Court In Judicial Review Riris Ardhanariswari, Muhammad Fauzan, Komari
4	Problematic Of Local Head Regulations As A Local Law Products In The Framework Of National Legal Development Abdul Aziz Nasihuddin, Tedi Sudrajat, Sri Wahyu Handayani
5	The Evaluation Of Student Entrepreneurship Program (Sep) In Jenderal Soedirman University Sri Lestari, Aldila Krisnaesanti, Laeli Budiarti
6	Digital Information Literacy Competency Among Lecturers Of Sultan Ageng Tirtayasa University In Supporting Research And Scientific Publication Anis Fuad, Abdul Hamid
7	Dynamic Modelling to Identify Problems of Smallholder Beef Farming in Rural Java Novie Andri Setianto, Nunung Noor Hidayat, Pambudi Yuwono
8	Understanding Growth of the Cities from Different Disciplinary Perspectives; an Alternative Approach to Sustainable Transport Development Probo Hardini

GROUP 5

Chair : Dr. Erwin R ardli

1	Physicochemical analysis of gourami fish sausage with kecombrang edible coating addition Rifda Naufalin, Rumpoko Wicaksono, Erminawati, Poppy Arsil and zuyyinatul khusna
2	THE MANGROVE LANDSCAPING BASED ON WATER QUALITY Endang Hilmi, Lilik Kartika Sari, Setijanto
3	UTILIZATION OF CARAGENAN PROCESSED SEAWEED WASTE AS FISH FOOD RAW MATERIAL TO OBTAIN ECONOMIC VALUE THROUGH BIOCONVERSIDY PROCESS OF BANGGAI REGENCY OF ISLANDS Saharia Kassa, Bakri, H, Madinawati, Asriani Hasanuddin
4	INTERRATER RELIABILITY OF INTRAVENOUS THERAPY OSCE SKILLS CHECKLIST AT SCHOOL OF NURSING UGM

	Dwi Suci Lestari , Totok Harjanto , Anita Kustanti
5	The Milk Made From Red Kidney Bean Sprouts Rich In Phenolic and Vitamin C Antioxidant as an Anti-Inflammatory Hery Winarsi, Sri Putri Wulandari, Sri Sutji Susilowati
6	Costs Analysis Of Fungal Basic Production Cost On Purbalingga Farmers And Private Sectors Group Sri Lestari, Nuniek Ina Ratnaningtyas, Okti Herliana, and Ali Maksum
7	EFFECT OF SUPPLEMENTATION OF TEA DREGS FLOUR (Camellia sinensis) FERMENTED IN FEED ON CARCASS PARTS PERCENTAGE OF MALE TEGAL DUCKS Elly Tugiyanti, Emmy Susanti, Ibnu Hari Sulistyawan
8	Community Parenting For Children Left Behind Study On Desmigratif Productive Migrant Village In Banyumas Regency Indonesia Tyas Retno Wulan, Dalhar Shodik, Muslihudin, Tri Sugiarto, Sotyania Wardhianna, Sri Wijayanti, Dyah Woro DS, Ariadne TH



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Authors:
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Content:

Keywords:
nagara bean flour, L. plantarum, gelatinization profile, starch digestibility vitro, protein digestibility in vitro

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Title:

PRELIMINARY STUDY OF REHYDRATION CHARACTERISTICS AND COOKING TIME OF ANALOG RICE BY FORMULATION OF NAGARA BEAN FLOUR MODIFIED L. plantarum AND SAGO STARCH

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Content:

Analog rice was expected to have the characteristics of approaching actual rice with a level of stickiness similar to cooked rice, so in the formulation of analog rice, nagara bean fermented by L. plantarum which has amylose content of 23 - 25% was composed with sago starch as a counterweight to the amylose and amylopectin content in order

to obtain good rehydration power and the texture similar to rice. This research was examined formulation of nagara bean flour, sago starch and glycerol monostearate concentration as emulsifier to facilitate the extrusion process. The analog rice was obtained has the characteristics of high rehydration rates, the proportion of nagara bean flour up to 50 percent has less solid losses and was not different from the proportion of 60 percent and 40 percent, while glycerol monostearate concentration of 2 percent could provide good extrusion quality that is not different to 5 percent

Keywords:

nagara bean, sago starch, glycerol monostearate, swelling volume, cooking time

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A Preliminary Study on The Rehydration Characteristics and Cooking Time of Analog Rice from The Formulation of Modified Nagara Bean Flour through *L. plantarum* Fermentation and Sago Starch

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Abstract. Analog rice was expected to have characteristics that similar to native rice, particularly on level of stickiness. Therefore, formulation of ingredients is important for the consideration. Nagara bean flour fermented by *L. plantarum* have a high amylose content of 23-25 percent, in the formulations, nagara bean flour is combined with sago flour to balance amylose and amylopectin content. This combination is expected to result on good rehydration and texture that similar to to native cooked rice. This research was examined formulation of nagara bean flour, sago starch and glycerol monostearate concentration as emulsifier to facilitate the extrusion process. The analog rice from proportion nagara bean flour and sago starch of 50: 50 have high levels of rehydration and have small solid losses. This characteristic was not different from the proportion nagara bean flour and sago starch of 60 : 40. Increasing the proportion of nagara bean flour to sago starch will increase the cooking time of analog rice. In addition, the addition of glycerol monostearate concentration of 2% to 5% could result good extrusion quality.

Keyword: nagara bean, sago starch, glycerol monostearate, rehydration, cooking time.

1. Introduction

Rice currently becomes a staple food in some developing countries and other countries in the world. It is able to provide 20% of energy needs from its starch content. On the other hand, as the staple food, rice has low protein. It will result in protein deficiency. The extrusion technology can be used for processing the fortification rice or analog rice to obtain adequate nutrient type rice or rice with a certain amount of micronutrient [1]

Analog rice is the food product that has a shape as rice with a carbohydrate content that is close to or exceeds the carbohydrate content in ordinary rice. The analog rice can increase the diversification of staple food by manipulating the mindset as if consuming cooked rice from ordinary rice.

Nagara bean that has been fermented using *L. plantarum* will have high protein content up to 24% and it will increase the starch and protein digestibility in vitro [2]. The fermentation process is also able to improve the characteristic of beans [3], modify the structure and the physic-chemical characteristic of starch [4], affect the solubility characteristic, the granule swelling, and starch viscosity [5] and eliminating the anti-nutrient compounds [7,8].

To obtain the rice analog with a character that is close to the characteristic of ordinary rice in the stickiness level, and the good tasting, while, nagara bean flour has the amylose content of 23% to 25% [2], therefore, in formulating the analog rice, nagara flour is fermented using *L. plantarum* is



composed with sago starch as the counterbalancing component for the amylose and amylopectin contents. Thereby, the best rehydration capacity and texture that is similar to rice can be obtained.

This research aimed at analyzing the rehydration level and the cooking time of analog rice from the formulation of nagara bean flour fermented using *L. plantarum* and sago starch by adjusting the proportion of nagara bean flour and sago flour.

2. Materials And Method

Materials and Instruments

Nagara bean was obtained from Nagara, *Hulu Sungai Selatan* Regency, South Kalimantan, sago starch and glycerol monostearate. The instrument used here comprising water bath, oven (memmert), and glassware for chemical analysis.

Fermentation Process

The fermentation process was done by using nagara bean: solvent ratio i.e. 1: 4. The amount of *L. plantarum* that was inoculated in the treatment was 1% (v/b the basis of nagara bean). The nagara bean was fermented for 48 hours and then the bean skin was peeled and washed. Next, it was dried in the oven at a temperature of 60°C for 48 hours, and it was ground to produce flour of 80 mesh.

The Process of Analog Rice Production [8]

a. The Test on The proportion of Nagara bean flour and sago starch

The mixing process was done through two stages i.e. mixing the dry materials (nagara bean flour and sago flour) with several nagara bean flour : sago flour ratios i.e. 80: 20, 70: 30, 60: 40, 50: 50, 40: 60, 30: 70, 20: 80. The mixture was mixed using a mixer for 5 minutes and then adding 10% of water at 60°C and the process of mixing was done again for 5 minutes. The dough was put into the extruder of analog rice using cold extrusion system. Pregelatinization was applied to extruded rice for 10 minutes and it was dried at 60°C to reach the water content that was less than 14%.

b. The Test on Glycerol Monostearate Concentration

This stage was used for testing the use of glycerol monostearate at the concentration of 1%, 2%, 3%, 4%, and 5% only at one proportion i.e. nagara bean flour: sago flour ratio i.e. 50: 50. Then, it would be processed using a similar process as stage a.

The Parameter of Analysis

The water content [9], ash content [9], bulk density, water absorption, swelling volume, total dissolved solids, and the cooking time of the analog rice that had been obtained would be tested. The capacity of water absorption [10], solubility, and *swelling volume* (the modification [11]).

Data Analysis

The collected data was tested using ANOVA at an error rate of 5%. If it had a significant impact, *Duncan's* Least Significant Difference was conducted afterward.

3. Result And Discussion

Analog rice as the result of the formulation of modified nagara bean flour through *L. plantarum* fermentation and sago starch had various characteristics of the extrudate. It depended on the proportion of flour that was being used. The more proportion of nagara bean flour (80: 20) than sago starch, the easier the cold extrusion process in analog rice extruding machine compared to the proportion with more sago flour (20: 80). The extrudate would be easy to come out from the hole of the machine because the resistance of mixture toward the extrusion force of screw was not as big as the mixture with a high proportion of sago starch.

The application of the pregelatinization process for 10 minutes toward the extrudate showed that the higher the proportion of sago starch was, the stickier the extrudate to one another was. Thereby, it

would be difficult to be separated. Meanwhile, the higher the proportion of nagara bean was, the less sticky the extrudate to one another was. Thereby, it could be separated easily. The proportion of nagara bean flour of 50%, 60%, 70%, and 80% toward sago starch was relatively easy to be separated (less sticky).

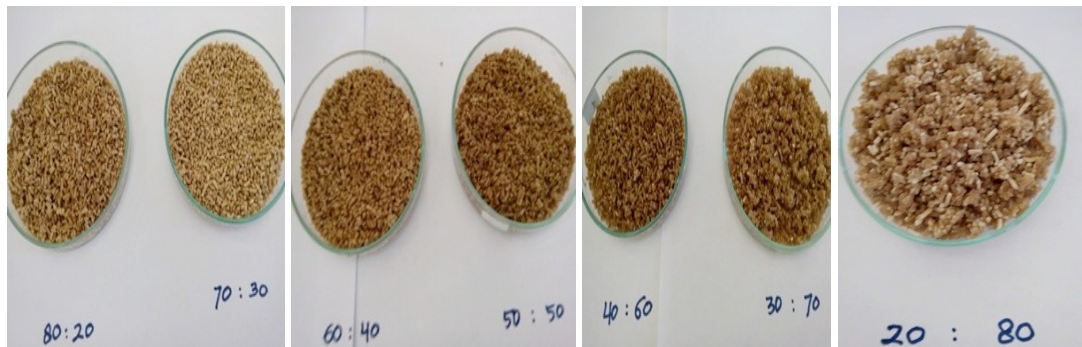


Figure 1. Analog rice from formulation of nagara bean flour fermented by *L. plantarum* and sago starch

Figure 1 showed that, physically, the shape of rice is quite similar to pellet with various size from the small size of the broken shape up to the long one of 1 cm. The color of analog rice was around yellowish-brown up to brown. The proportion of nagara bean flour around 70% – 80% was relatively yellowish-brown, the proportion of nagara bean flour around 40% – 60% was relatively brown, and the proportion of nagara bean flour around 20% – 30% was relatively bright brown. The proportion of nagara bean of 20% had an agglomeration of extrudates. It happened because several extruded rice stuck on each other after the application of the pregelatinization process and it was difficult to be separated.

The variables that were analyzed in analog rice comprising water content, bulk density, ash content, water absorption, swelling volume, and density loss. It was conducted to find out the quality of cooking of the analog rice that had been produced.

Effect of The Proportion of Nagara Bean Flour and Sago Starch Water Content

The result of the analysis of variance ($\alpha= 5\%$) showed that the treatment of nagara bean flour and sago starch ratio had no significant impact on the water content. The water content of analog rice was around 5.61% to 8.23%. This value was lower than the maximum limit in milled rice (white rice) i.e. 14%. There was a tendency i.e. by the increasing proportion of sago starch toward nagara bean flour proportion, the water content of analog rice would increase too. It was strongly related to the ability of sago starch to bind more water. The water used in the formulation was the water from the steaming process when pregelatinization was conducted (Figure 2).

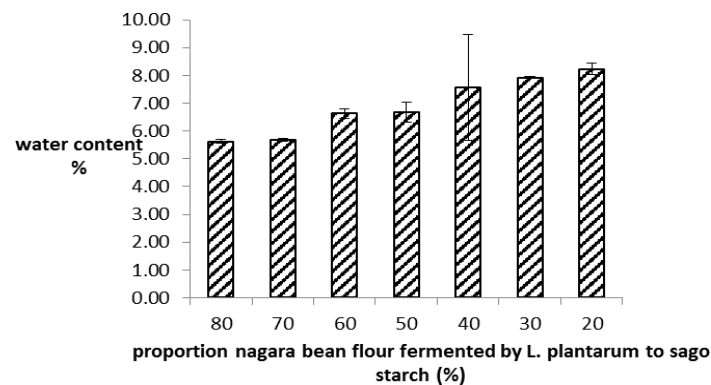


Figure 2. Water content of analog rice from formulation of nagara bean fermented by *L. plantarum* and sago starch

The sago starch granule has an oval shape with a bigger size. If it is compared to other starch types, sago starch granule has relatively big size i.e. it reaches the average size of 24.8 μm [12] or 25 μm [13]. The big size of granule indicated the high ability to absorb water during the process of gelatinization. It was correlated with the increase of sago starch proportion on analog rice formulation. The water absorption would increase too. Therefore, when it was dried, the water content value was bigger.

Bulk Density

The bulk density of analog rice was around 0.58– 0.74 g/cm^3 . The result of the analysis of variance ($\alpha = 5\%$) showed that the treatment of nagara bean flour to sago starch ratio had no significant impact toward the bulk density (Figure 3)

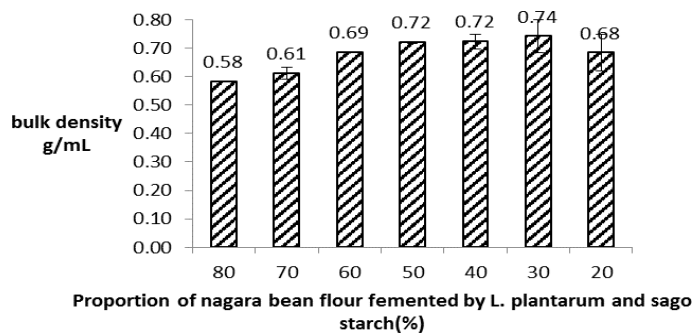


Figure 3. Bulk density of analog rice from formulation of nagara bean fermented by *L. plantarum* and sago starch

[14] stated that the material with higher bulk density would result in more amounts of material that was packaged using a certain packaging.

Water Absorption Capacity

The pregelatinization treatment resulted in heating that caused the water absorption and swelling in starch granule. The use of the heat that was gradually increased caused the intermolecular hydrogen bond between the amylose chain and amylopectin branch chain to weaken so that the starch granule was swollen rapidly.

This analog rice was produced by formulating nagara bean flour and sago starch. Figure 4 shows that the increased proportion of sago starch caused the water absorption of analog rice to increase. The sago starch had some characteristics that were similar to the characteristics of tuber starches. Those characteristics were having big size of the granule [12], having a swelling index (swelling

power), high solubility [13] and the characteristic of type A gelatinization (having a high peak viscosity). However, it would decrease drastically when it was heated continuously at a high temperature (95°C).

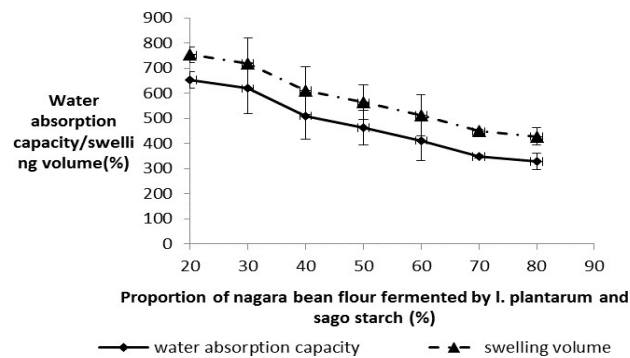


Figure 4. Water absorption capacity and swelling volume of analog rice from formulation of nagara bean fermented by *L. plantarum* and sago starch

Swelling Volume

The swelling volume of analog rice along with the water absorption level showed that the increase of sago flour proportion caused the increase in water absorption level and the swelling volume in rice analog (Figure 4).

Besides the relatively big size of sago starch granule, the low amylose content also caused the increase of swelling volume in the starch [15]. The amylose would suppress the swelling of granule and maintain the integrity of swollen starch granule. The ability to swell was affected by amylopectin. The starch with a high amylopectin content would be swollen easily.

When starch molecules heated in excess water, the semi-crystalline structure is broken, and water molecules combine with hydrogen to hydroxyl bonds groups exposed to amylose and amylopectin molecules. This relationship causes swelling and increases the size of the granule and solubility [16]. Swelling capacity and solubility starch describes polymeric chain interactions consists of amorphous and crystal granule fractions [17].

Solid Loses

The solid loses of analog rice from the formulation of nagara bean and sago starch was around 0.76% - 3.50%. The result of the analysis of variance showed that the proportion of nagara bean flour toward sago starch had no significant impact on solid loses of analog rice.

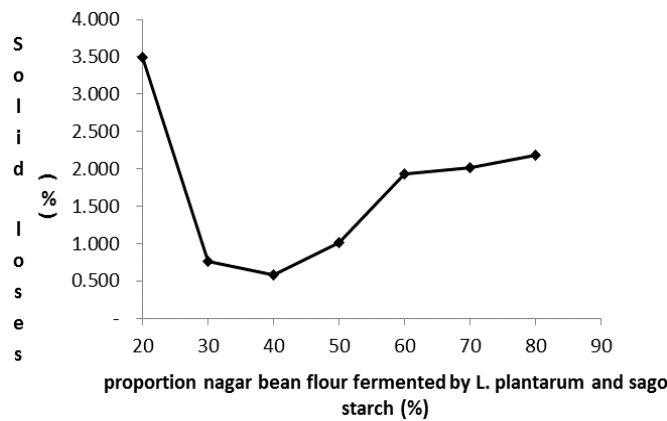


Figure 5. Solid losses of analog rice from formulation of nagara bean fermented by *L. plantarum* and sago starch

Figure 5 showed that the highest value of solid losses during the cooking process was at the proportion of nagara bean of 20%, and then it would be decreased up to the proportion of 40%. Meanwhile, at the proportion of 50%, it would start to increase again after the density loss. The low content of sago flour caused the adhesion of rice granule particle to weaken, crumbly texture, and during the cooking process, the analog rice was easily separated. Similarly, the low proportion of nagara bean flour and dominant sago starch caused the analog rice would be easily gelatinized during the cooking process. If the sago starch were cooked over the gelatinization temperature, the solubility of starch granule would increase.

Cooking Time

Cooking time is a duration needed to cook the analog rice. The duration needed for cooking was around 2.11 – 11.95 minutes. The result of the analysis of variance showed that the ratio of nagara bean flour to sago provided a significant impact on the duration of for cooking the analog rice. Duncan’s test showed that the cooking time of analog rice at each proportion of nagara bean flour and sago was various, except for the nagara bean flour: sago ratio of 70: 30 and 80: 20, it had no much difference. The more amount of the nagara bean flour was, the longer the cooking time would (Figure 6)

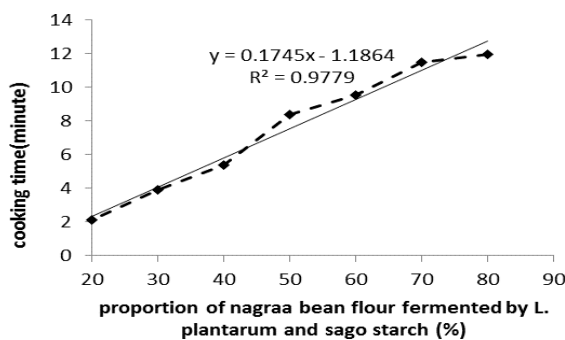


Figure 6. Cooking time of analog rice from formulation of nagara bean fermented by *L. plantarum* and sago starch

The starch that had high amylose content would be difficult to be gelatinized. Hence, the cooking time needed more times. It was because of the amylose molecule had a tendency to be at the parallel position. This condition caused the hydroxyl groups to be able to bind freely and the starch could

form a strong crystal aggregate. In contrary, the starch that had a high amylopectin component would be difficult to be bound to one another due to the branch chain. Thereby, the starch with high amylopectin would be easily gelatinized. Naturally available amylose and lipids in starchy materials can inhibit swelling under conditions of formed amylose-lipid complexes. The complexity of lipids with starch is a very important reaction in the extrusion and texture of the extruded product [18, 19]

In seven combinations of nagara bean flour to sago starch ratio, it was obtained the highest level of solid loses at the proportion of nagara bean flour of 20% and 80%. The proportion of nagara bean flour of 80% had dry texture, low water absorption capacity. In addition, the rice that had been cooked and left at room temperature would easily undergo retrogradation, and it would easily dry because the water content in analog rice would evaporate. At the proportion of nagara bean flour of 20%, which means the 80% was sago starch, during the cooking time that was over the gelatinization temperature would easily be crumbled due to the amylopectin structure that was easily gelatinized. The physical quality of analog rice that has been cooked can be seen in Figure 7.

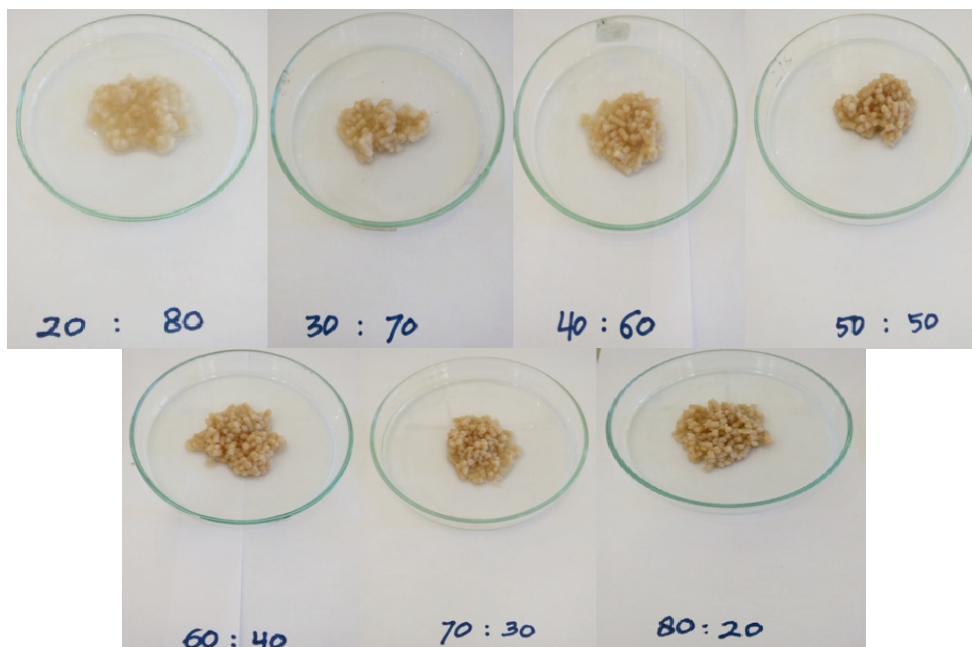


Figure 7. Cooked quality of analog rice from formulation of nagara bean fermented by *L. plantarum* and sago starch

The ratio of starch that was less than 30% from the flour would make the analog rice product had low rehydration characteristic. Meanwhile, if the ratio of starch was more than 70%, it would affect the extrusion characteristic; and the control toward the shape and the size of analog would be difficult to be done [20]. In the analog rice that contained amylose around 25% would result in hard gel since the molecule of starch formed a tissue. On the other hand, the starch with low amylose would result in soft texture and had no tissue [21].

Effect of Glycerol Monostearate Concentration Toward The Capacity of Water Absorption and Swelling Volume

The study on the use of glycerol monostearate as emulsifier aimed to facilitate the extrusion process in the extruder (lubricant) and to decrease the stickiness level of extruded rice to one another. Therefore, during the pregelatinization process, it was easy to be separated from one another. Glycerol monostearate as a lubricant would able to decrease the friction force between the particle in the mixture and between the surface of the screw and the dough [22]. The use of monoglycerides

could strengthen the water contained in the dough that had a function as a plasticizer. Thereby, the plasticity characteristic of the dough in the barrel could be maintained.

This research was conducted by taking one formulation of nagara bean flour to sago starch ratio i.e. 50: 50 and examining the GMS concentration at 1%, 2%, 3%, 4%, and 5%. The functional characteristics (water absorption level and swelling volume) were tested to the product that had been produced.

Water Absorption and Swelling Volume

The research finding showed that by adding GMS emulsifier during the analog rice production could make the extrusion process in the extruder easier and there was no stickiness between one extrudate to another after the pregelatinization process. At a concentration of 1% GMS, the rice was still stuck to one another. Meanwhile, at a concentration of 2% GMS, the rice product was not stuck to one another. The increase of GMS concentration of 2% to 5% showed that the physical quality had no significant difference (Figure 8). According to [25], the concentration of lipid more than 3% would not affect the expansion characteristics. However, it would affect the expansion rate if the concentration was more than 5%.

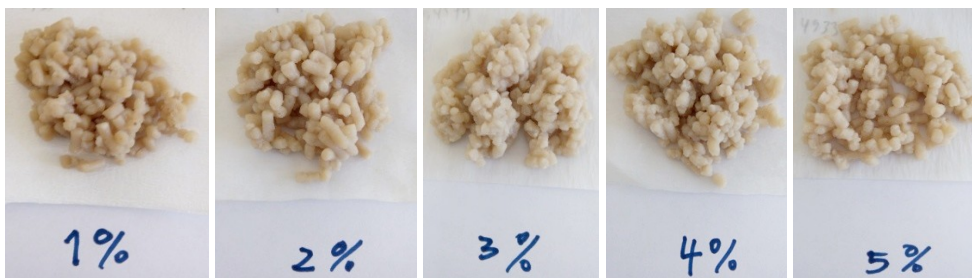


Figure 8 Swelling of analog rice by various of glycerol monostearate concentration

Figure 9 shows that the increase of glycerol monostearate concentration could increase the water absorption and swelling volume of analog rice. Nonetheless, the difference of water absorption level and swelling volume in rice analog by adding GMS at the concentration of 3% to 5% was not significant. Therefore, further research was conducted by adding the GMS concentration of 1%, 2%, and 3%. The picture of analog rice after the result of water absorption test at some concentrations is presented in Figure 8.

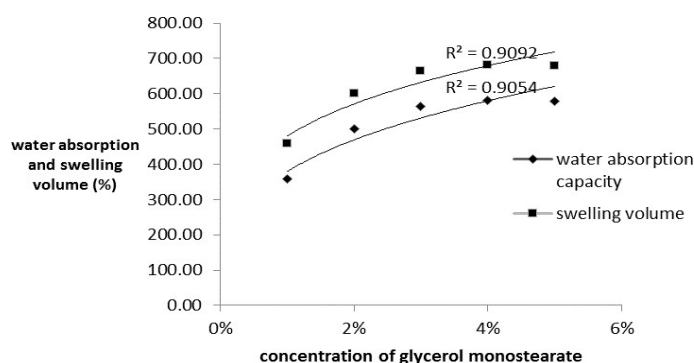


Figure 9. Effect of glycerol monostearate to water absorption capacity and swelling volume of analog rice from formulation nagara bean flour fermented by *L. plantarum* and sago starch

The level of starch swelling was beneficial for explaining the intermolecular bond. The starch swelling was correlated to the amylopectin content. In this case, amylose had a function as a diluent and an inhibitor of swelling, especially when the existence of lipid could form an insoluble complex using amylose during the swelling process. In cereal starch granule, it did not show a complete swelling level until the amylose was out of granule [23]. Thus, the increase of GMS concentration that was added could make the lipid amylose complex increasingly increase. It would be the barrier for water-binding so that the swelling capacity of granule became limited.

The amount of lipid and protein in starch could also affect the swelling level. [24] stated that the complex between lipid and amylose in the granules had been formed during the swelling process. The protein and the starch interacted to each other due to the attraction of opposite charges. Furthermore, it formed the complex during the gelatinization and it inhibited the swelling.

4. Conclusion

The formulation of analog rice between the modified nagara bean flour through *L. plantarum* fermentation and sago starch results in a high rehydration characteristic with the lowest solid loses level at the proportion of nagara bean flour to sago starch of 40%. However, it is not relatively different from the proportion of nagara bean flour of 50%. The increase of glycerol monostearate concentration up to 5% still gives an increase in water absorption capacity, but the glycerol monostearate concentration of 2% can be extruded well.

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