I C W R E S 2 0 1 9

JAPAN

NOVEMBER 11 – 12, 2019

BOOK OF
CONFERENCE PROCEEDING

International Conference on Wetland and Multidisciplinary Research

Abstract Proceeding Book of International Conference on Wetland and Multidisciplinary Research (ICWRES) 2019

November 11$^{\text{th}}$ – 12$^{\text{th}}$, 2019
Utsunomiya, Japan

CONFERENCE CHAIR MESSAGE

We are delighted to welcome you to the International Conference on Wetland and Multidisciplinary Research (ICWRES) held on November 11 – 12, 2019 at Minegaoka Auditorium, Utsunomiya University, Japan.

The aim of Conference is providing global forum for academician, researchers and scholars to exchange and share their experiences and multidisciplinary research results in wetland environment, business, management, social science, humanities, life science, engineering, and health science all aspects of towards social value creation. ICWRES 2019 International Conference shows up as a cutting-edge Social Research platform to gather presentations and discussions of recent achievements by leading researchers in academic research.

It has been our privilege to convene this conference. Our sincere thanks, to the conference organizing committee; to the Program Chairs for their wise advice and brilliant suggestion on organizing the technical program and to the Program Committee for their through and timely reviewing of the papers. Recognition should go to the Local Organizing Committee members who have all worked extremely hard for the details of important aspects of the conference programs and social activities.

We welcome you to Utsunomiya, Japan and hope that this year's conference will challenge and inspire you, and result in new knowledge, collaborations, and friendships.

Best regards,

Prof. Dr. Ir. Yudi Firmanul Arifin, M.Sc.

Co-Conference Chair of ICWRES 2019

KEYNOTE SPEAKER

Prof. Dr. H. Sutarto Hadi, M.Si, M.Sc is Professor of Mathematics Education, Lambung Mangkurat University and Rector of Lambung Mangkurat University 2018 - 2022. He holds Master degree in mathematics from Gadjah Mada University in 1996 before taking another Master degree in Educational and Training Systems Design from Universiteit Twente in 1999.

He holds a PhD in Mathematics Education from Universiteit Twente in 2002. He is also Vice Chairman Indonesian Rector Forum (FRI) 2018, member of regional council in research for South Kalimantan Province, member of the Indonesian Mathematical Society, and member of editorial board Journal of Science and Mathematics .Education in Southeast Asia.

His contribution to mathematics education is recognized internationally. He deliver regular lecture at International Congress on Mathematical Education (ICME-12) in Seoul, 2012. He was appointed as fellow of the society at The International Society for Design and Development in Education (ISDDE). He was Keynote Speaker for International Congress on School Effectiveness and Improvement (ICSEI-27) in Yogyakarta. His latest article entitled "*Developing students' mathematical literacy: PMRI Schools Revisited*" was presented at ICSEI-27.

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Utsunomiya University, Japan

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Key Note Speaker Presentation by Futhosi Ishiguri, Utsunomiya University

Photo Session

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09h – 13h   Paper Presentation

4th Parallel Session of Paper Presentation

12h00   Coffee Break & Closing

Closing statement from Co-Conference Chair

Photo Session

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HOW DOES ACHIEVEMENT MOTIVATION PUT EFFECT IN IMPLEMENTATION OF CURRICULUM 2013 (K-13) ON ECONOMIC LEARNING ACHIEVEMENT?

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ABSTRACT

The aims of this research is to find out the direct effect on National Standard Education (NSE) involving in Standard of Content (SC), Standard for Educator and Education Staff (SEE), Standard of Facilities (SF), Standard of Assessment (SA), Standard of Process (SP) and Competence Graduate Standard (CGS) on Achievement Motivation (AM) and Economic Learning Achievement (ELA), and to find out the indirect influence between SC, SEE, SA, SP, and CGS on ELA through AM. It is a descriptive quantitative research by survey method. The population is high school students having learnt economy for, at least, one year, 1192 students. The Sample is 1065 students by using proportional stratified random sampling. The technique of collecting data is by using reliable valid questionnaire and document. The technique of data analysis is by using SmartPLS 3.0. The result of this research showed that there are direct effect between SC, SEE, SF, SA, SP and CGS on AM and ELA. Then, there are indirect effect between SC, SEE, SF, SA, and CGS on ELA through AM.

Keywords: Curriculum; National Standard Education; Achievement; Assessment.

THE IMPACT OF ELECTRONIC MIND MAP AS PART OF LEARNING TECHNOLOGIES

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ABSTRACT

As technology become commonplace in the world of education, it is important to always increase the knowledge of how these technologies can have an impact on students' learning ability. This study aimed to determine the impact of the use of mind mapping application on learning achievement. The method used is a quasi-experiment research, using design nonequivalent control group design. This study used two groups of the experiment group and the control group. The experiment group was treated using a mind map and the untreated control group. Data were collected before and after the learning. The results of research that the mean scores learning outcomes experiment group was higher than the control group.

Keywords: electronic mind map; media of learning; achievement of learning.

BANJARBAKULA REGIONAL LANDFILL AS A FORM OF WASTE MANAGEMENT COOPERATION IN SOUTH KALIMANTAN

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ABSTRACT

This study discussed the existence of a final disposal site (landfill), as part of an urban sanitation system that was urgently needed along with an increase in urban population and people's consumptive lifestyle, which was no longer sufficient. This study aimed to determine the internal and external factors in the operation of Banjarbakula Regional Landfill. This study used a descriptive method with a qualitative approach using SWOT analysis, which was related to strengths, weaknesses, opportunities, and threats in the operation of the Banjarbakula Regional Landfill in its future prospects. The research results showed that the first internal factor (strengths) related to the construction of a joint landfill was based on Law Number 18/2008 concerning Waste Management and South Kalimantan Province Governor Regulation Number 0156 regarding the Formation, Organization, and Work Procedure of the Regional Banjarbakula Regional Landfill UPTD, which gave authority in the operational management of the landfill to improve facilities and infrastructure that could minimize the second internal factor (weaknesses) that became obstacles in the landfill operation (e.g., the delay in the provision of facilities, infrastructure, and access roads to the landfill, the lack of environmentally friendly and sustainable technologies, and the human resources/employees that were still lacking and not yet meeting the Job Analysis). Meanwhile, in the external factors (opportunities and threats), the existence of a joint commitment between regencies/cities that were part of the landfill cooperation could improve various threats (e.g., the effect of the movement of the country's capital to Kalimantan that would cause an increase in population and the amount of waste, the low community participation and awareness, non- optimal performance of 3R TWDS (Temporary Waste Disposal Site) in the regency/city, and the lack of collaboration with third parties) into opportunities to support the success of the Banjarbakula Regional Landfill management.

Keywords: Banjarbakula Regional Landfill, Waste Management, South Kalimantan Province

CONSUMPTION OF "CRACKER BISCUIT" FROM SUTCHI CATFISH AS *HEALTHY DIABETIC COOKIES* TO REDUCE BLOOD GLUCOSE LEVEL ON NORMAL HUMAN BLOOD

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ABSTRACT

People nowadays are identified to have negative consumption habits, due to their preference to consume high-leveled calorie fast food and unhealthy snacks. This habit results in an increase of metabolic risk factors that affect general health. In response to the case, the innovation of healthy snacks is sought after to remedy the situation. This study proposes the production of healthy snacks in the form of glucose friendly biscuits. The study utilizes sutchi catfish (Pangasius hypophthalmus) cracker biscuit which contains EPA and DHA as a healthy snack alternative in order to reduce the glucose level and increase the insulin sensitivity. The study aims to determine human blood glucose levels after consuming sutchi catfish (Pangasius hypophthalmus) cracker biscuits. The methods were included in phase 1 clinical trials where 30 people were divided into 3 treatments: negative control (placebo was given), positive control (white bread was given) and sutchi catfish cracker biscuits as test foods with 10 times replications. The result shows a tangible result in terms of reducing the level of glucose level within human blood, 2 hours after the consumption of sutchi catfish filrate-based cracker biscuits. The percentage reduction in the treatment of sutchi catfish cracker biscuits was 22.64% within the normal range of general blood glucose levels. In accordance with the results, it can be concluded that sutchi catfish filtrate-based biscuit crackers can be considered as nutraceutical or healthy diabetic cookies. It is healthy and safe (glucose friendly biscuits) to be consumed by most people, particularly those who suffer from diabetes mellitus

Keywords: biscuits, glucose, sutchi catfish, human

ASSESSING MONEY LAUNDERING IN THE DIGITAL ERA: THE HIGH POTENTIAL OF CYBER LAUNDERING ON THE REVOLUTION OF FINANCIAL TECHNOLOGY

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ABSTRACT

Along with the rising popularity of e-commerce, money laundering activities carried out using internet networks (cyber laundering) are becoming increasingly open. Therefore, this study aims to conduct legal analysis in order to answer the legal problems of how the development of Fin-Tech in Indonesia opens up opportunities for Money Laundering? While the specific purpose of this study is to analyze the development of money laundering crimes that move in line with the financial revolution. Furthermore, this study uses normative legal research to analyze and build a legal argument in order to answer the formulated problems. The result of this research shows that the modus operandi of money laundering from time to time is constantly changing and more complex using technology and financial system that is quite complicated and sophisticated. Even though the OJK Regulation No. 12 / POJK.01 / 2017 contains the principle of AML and CFT. However Peer to Peer Lending is not currently required to abide by this regulation. Unfortunately, this means that money laundering still presents a significant risk.

Keywords: Money Laundering, Cyber Laundering, Cybercrime, Criminal, Fin-Tech

UTILIZATION OF NATURAL FIBERS FROM BORNEO WOOD SAWDUST AND ITS EFFECT ON THE COMPRESSIVE STRENGTH OF MORTAR AND CONCRETE

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ABSTRACT

The people of Borneo since long-ago utilize wood as a primary construction material. As an effect, this results in large amounts of waste products of woodworking operations (sawdust) from the wood industry. This latest study aims to utilize the Borneo wood sawdust as a natural fibers and examine its effect on the compressive strength of mortar and concrete. For this purpose, sawdust from two types of widely used wood in Borneo island was being used, which are meranti wood (Shorea Spp.) and ulin wood (Eusideroxylon Zwageri). Sawdust is used as a substitute for fine aggregate at a ratio of 2.5% and 5% and also for additional material as much as 0.5 kg/m3 dan 1 kg/m3. The water to cement ratio (w/c) was set at 0.45, while the curing time was set at 28 days for all samples. The mixture of mortar sample (cube with 50x50x50 mm) is based on SNI 03-6825-2002, whilst the concrete sample (cylinder with 15x30 mm) is based on SNI 03-2834-2000. The examination of concrete samples workability was conducted based on the slump test according to SNI 1972:2008. Moreover, the compressive strength test of the mortar sample is based on SNI 03-6825-2002 and the concrete sample is based on SNI 1974:2011. The findings show that more amount of sawdust makes concrete less workable. Regarding the mortar bar samples, the sawdust from ulin wood has more effect in increasing the compressive strength. In addition, the same pattern could be found on the compressive strength for the mortar bar that used both sawdust types. The results show that more proportion of ulin sawdust compared to meranti sawdust in the mortar bar contributes to higher compressive strength. As for the concrete sample, different results could be observed. Bigger replacement ratio or sawdust addition in the concrete sample make the compressive strength tends to decrease. Moreover, unlike the mortar results, the sawdust for meranti wood shows better results in increasing the compressive strength. However, in terms of sawdust as an addition of natural fibers, it is recommended to use sawdust from ulin wood in concrete mixture.

Keywords: natural fibers, sawdust, ulin wood, meranti wood, mortar and concrete compressive strength

EFFECT OF EXPOSURE DURATION OF MONOSODIUM GLUTAMATE TO INTRACELLULAR CA^{2+} AND CASPASE 3 OF ZEBRAFISH EMBRYO (*DANIO RERIO*) BRAIN CELLS

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ABSTRACT

Monosodium glutamate (MSG) is one of the food additives which can upgrade taste in food. Glutamate acts as an excitatory neurotransmitter in the central nervous system. Excessive glutamate may give neurotoxic effects. In this study, we investigated the duration of exposure effects of MSG 10µg/mL concentration on intracellular Ca2+ and caspase 3 brain cells of zebrafish (Danio rerio) larvae at early developmental stages. We used Zebrafish embryos were divided into 4 groups (control no treatment; 24 h; 48 h; and 72 h with 10µg/mL MSG exposure). We observed intracellular Ca2+ of brain cell intensity using CLSM with fura-2AM staining. Caspase 3 levels had been analyzed by ELISA method. The results indicated that MSG exposure increased caspase-3 and intracellular Ca2+. In conclusion, a low dose of MSG in long duration exposure has a potential effect to increase brain cell damage. But, it was needed more long time exposure to ensure the effect of MSG against damage of brain cells.

Keywords: Monosodium glutamate, duration exposure, apoptosis, intracellular Ca^{2+}, caspase 3

THE SURVIVAL OF SEVERAL TREES SPECIES IN RE-VEGETATION ACTIVITIES ON PEAT LANDS

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ABSTRACT

Re- vegetation is important to restore the function of peat land ecosystem so that the carrying capacity and role in supporting the life support system is maintained. The aim of this research is to analyze the survival of several trees species in re- vegetation activities on peat lands. The location of planting for peat land re- vegetation in the village of Pulantani, Haur Gading District, Hulu Sungai Utara Regency, South Kalimantan Province, Indonesia. The time of the research was 8 months. The materials used were seedlings of *Shorea balangeran*, *Dyera costulata*, *Hevea brasiliensis* and *Melaleuca cajuputi*. The planting plot is made of 21 ha with a spacing of 4 m x 5 m. The number of seedlings used per hectare were 500 stems. The total number of seedlings used in revegetation were 10,500 stems. The survival of several trees species were indicated by survival ability of seedlings during the transportation-climatization process, and the percentage of seedlings growth in the field. The total percentage all of trees species can survive during the transportation-acclimatization process is 89.5%. *S.balangeran* and *H.brasiliensis* have the least number of mortality species, 50 and 20 stems respectively. *D.costulata* is the species that have the highest number of mortality (1400 stems) in the process of transportation and acclimatization. The highest percentage of seedling growth from tree species was *S.belangeran* (84.80%). The percentage of other seedlings growth are below 50%. Based on the characteristics of survival in the process of transportation-acclimatization and the percentage of growth in the field, *S.balangeran* is species with the highest survival value. *S. belangeran* is the most recommended tree species in re-vegetation of peat lands.

Keywords: peat land, re- vegetation, seedlings, survival, trees species

PERSONAL HYGIENE EDUCATION USING HEALTH BELIEF MODELS METHOD TO INCREASE KNOWLEDGE AND ATTITUDE OF PERSONAL HYGIENE IN ELEMENTARY STUDENTS AT GAMBUT REGENCY

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ABSTRACT

Diseases due to poor personal hygiene are still commonly occurred in students. This disease occu when children use peat water in their daily activities such as washing hands, bathing, even for urination a defecation. One of the ways in improving personal hygiene is by conducting health education using Hea Belief Models (HBM) method. The purpose of this research was to improve knowledge and attitude elementary students in Gambut Regency about vulnerability, seriousness and the threat of diseases due poor personal hygiene. This research is an education of personal hygiene using Health Belief Models (HB method. This HBM method was conducted in two methods, coaching and forming social support for elementary students located near peat water area, aged 10-12 years old. The used instrument was validat questionnaire. The normality of the data was analyzed by Kolmogorov-Smirnov. Since the data value was n normally distributed, the Wilcoxon signed ranks test used alternatively nonparametric at thrust level of 95 The result was the average knowledge about personal hygiene before research was $73,82 \pm 13,67$ and af the research was $82,52 \pm 16,32$ (p=0,000). The average personal hygiene behavior before research w $54,10 \pm 10,32$ and after the research was $71,88 \pm 10,36$ (p=0,000). Persona hygiene education using HB method can improve knowledge and attitude personal hygiene in elementary students in Gambut Regency.

Keywords: personal hygiene, HBM method, knowledge, attitude

THE EFFECTIVENESS OF IMPLEMENTING BLENDED-LEARNING WITH COOPERATIVE SETTING IN NUMERICAL METHOD SUBJECT

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ABSTRACT

In the practice of education nowadays, mathematics learning outcomes are not balanced with the role of mathematics itself. Most mathematics students view mathematics as a difficult, boring and unappealing subject. Therefore, effective and creative learning delivery is needed, one of which is by utilizing the development of the use of technology in learning. This research aims to determine the effectiveness of the application of blended-learning with cooperative setting in numerical method subject. This research is categorized as experimental research, but due to other variables that might be involved in the results of experiments in this study, this type of research is pre-experimental. In this study, one class is needed to be used as a research sample. The experimental research design used was one group pre-test and post-test. The population of this study was all active students in the fifth semester of academic year 2018/2019 which consisted of 58 students. The sample of this study was taken using simple random sampling technique or random class selection, which was chosen as the research sample was class A2. The data was collected by using a questionnaire, observation, and a test. After the data was obtained according to the procedure of the data collection stage used in this study, the data was processed and it can then be assumed that the level of student mastery is related to the effectiveness of the application of cooperative blended-learning settings in numerical method subject. The data analysis technique used was descriptive statistical analysis and inferential statistics. The results of this study indicate descriptively and inferentially the average value of the posttest is greater than the KKM value specified in the numerical method course; descriptively and inferentially, the average score is in the medium category; descriptive and inferential students who complete learning is 85.71% greater than KK; the average student learning activity is in the active category; and the average of students' learning activity in active category.

Keywords: effectiveness, blended learning, cooperative

POTENTIALS OF JANGANG PLANTS IN INCREASING COMMUNITY ECONOMY IN BARITO RIVER

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ABSTRACT

South Kalimantan is a region with complex geographical characteristics, has become a mainstay in its economic development and development. The potential in South Kalimantan can be synergized with the pattern and direction of specific industrial development to produce products with high competitiveness. The handicraft industry is a sub-sector of the creative economy that is currently being promoted by the government. The jangang plant / fern fern grows is famous as a special raw material for skullcap crafts for the people of South Kalimantan. Barito River is one of the longest rivers in Kalimantan. Residents along the Barito River on average work as fishermen or river fish anglers, mostly gardening around their residential areas. Their economy is classified as middle to lower. Therefore, hopefully Jangang Plant Product Crafts can be an alternative source of economic improvement for them. Specifically, the purpose of this research is to explore the potential, and devise a development strategy for jangang plants as the creative economy of the Bantul River Barito community which is implemented in the form of handicrafts. This study uses qualitative research with the type of research is a case study. Data collection techniques are done by interview, observation, and study of documents. Community empowerment is done by optimizing the banks of the Barito River to become a commodity. The existence of this research is expected to be able to map the creative economic potential that can be done in order to improve the economy of the people on the banks of the Barito River. Then they can add skills and finally make preserving the culture and wisdom of the people along the Barito River. The limitation of this study is the research conducted by the Barito river banks and Jangang plants. This research is a forerunner of further research relating to economic development, creative designed for wisdom, wetlands for riverbank communities.

Keywords: *Jangang Plants, Creative Economy, Wetlands*

OBTURATOR IN 4 YEARS OLD CHILDREN WITH CLEFT PALATE AND NUTRITIONAL DEFICIENCY IN WETLAND.

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ABSTRACT

Backgroud: Cleft palate or palatoschisis is a congenital abnormality that occurs in palate during pregnancy, there is a defect between the palate and the nasal cavity. Defect in the palate can cause not only feeding and articulation disorders. **Purpose.** This research aims to determine the function of obturator in improving nutrition status and articulation before palatoplasty surgery repair is performed in wetland. **Methodology:** A boy 4-years-7 months old came to RSGM with complaint a defect in the maxillary palate. Based on general examination with a weight of 8 kg, high of 80 cm, medical history of he had twice surgery of two years ago, but still defect in the palate. Palatoplasty surgery repair with Furlow double opposing z plasty method should be delayed because he is nutritional deficiency. Child with nutritional deficiency is a complex problem in South Kalimantan, especially children with cleft palate oral cavity. He should improve his nutritional status before palatoschisis surgery repair was performed using removable acrylic resin obturator. Moulding the working model was performed using baseplate wax as spoon and alginate as a moulding material. Obturator was made from heat cured acrylic resin with C clasp as retention placed on the right maxillary canine, right and left first maxillary molars attached on acrylic plate for the closed defect of maxilla. He was instructed to use the removable obturator. Maintain his oral hygiene every day and follow up regularly every month for 3 months to evaluate his body weight and speech teraphy with practice speaking a few words for articulation. **Finding:** During the regular follow up for 3 months, patient's body weight becomes 12 kg. Obturator could aid improving the nutritional status and articulation of 4-year-7 months old children with cleft palate before palatoplasty surgery repair in wetland. **Research limitation:** Limited on professional ethics in working on surgical cases in children and limited on evaluation of articulation problems in children with cleft palate. **Originality / value:** Management of obturator use in children with cleft palate can resolve feeding and articulation problem especially in pre-school children.

Keywords: *Articulation, cleft palate, nutrition intake, obturator, palatoplasty*

A STUDY ON EFFECT OF GENERATED FEATURES FROM WORD2VEC VECTORS FOR TEXT CLASSIFICATION

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ABSTRACT

Text classification is one of the most important methods to organize and make use of the huge information that exists in unstructured textual format. Feature extraction or feature construction is one of the important processes in text classification. It converts unstructured textual format to be structured data that can be processed by machine learning algorithms to classify them into pre-determined classes. One of feature extraction technique commonly used is vector space representation in the form of matrix term-frequency. However, this technique may produce high dimension data that can increase computation time or sometimes the data cannot be processed due to memory limitation. In this research, we propose feature extraction technique to avoid producing high dimension data. This feature extraction takes benefit of Word2Vec vectors to control feature numbers of structured data. We also use hierarchical clustering to group Word2Vec vectors into a number of specified clusters. The results of this process are used to create new structured data and then we combine the features of these two structured data. Furthermore, the classification accuracy results for each data are analyzed to get the feature extraction technique which is the best for producing the best performance. To validate this technique, we apply our feature extraction on movie review dataset, and structured data are processed with the Support Vector Machine (SVM) classification algorithm. Generally, all feature extraction techniques that we use give the highest accuracy results between 0.0.869 - 0.877 if using generated structured data with the number of features between 300 - 1800.

Keywords: feature extraction, feature construction, word2vec, hierarchical clustering, text classification

THE CORRELATION STUDY OF ADULT MALE UPPER LEG LENGTH AND HEIGHT AMONG DAYAK BUKIT, DAYAK NGAJU, AND BANJAR HULU TRIBES

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ABSTRACT

In forensic anthropology, height is the one of biological profiles. Biological profiles are very useful for the identification process. Estimation with formula findings in specific populations can help to determine the height which useful to discover the identity. The aim of this study was to determine the correlation between the length of the upper leg and the height of the adult male Dayak Bukit tribe, the Dayak Ngaju tribe, and the Banjar Hulu tribe. The method of this study used observational analytics with a cross-sectional approach. The sampling technique was purposive sampling with a sample of 35 people each tribe aged 21 to 50 years and fulfilling the inclusion and exclusion criteria. The results of data analysis using the Pearson correlation test with a confidence level of 95% showed that the correlation coefficient on the right and left upper leg of the Dayak Bukit tribe were r=0.850 and r=0.850, the right and left upper leg of the Dayak Ngaju tribe were r=0.847 and r=0.846 and the right and left upper leg of the Banjar Hulu tribe are r=0.926 and r=0.918. Based on the results of this study, it can be concluded that there are very strong correlation between the length of the upper leg and the height of the adult male Dayak Bukit tribe, the Ngaju Dayak tribe, and the Banjar Hulu tribe.

Keywords: height, upper leg, Dayak Bukit tribe, Dayak Ngaju tribe, Banjar Hulu tribe.

CLIMATE VILLAGE PROGRAM AND COMMUNITY PERCEPTION TO ANTICIPATE FUTURE CLIMATE CHANGE

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ABSTRACT

Climate change is happening in developed and developing countries. Indonesia is one of the most vulnerable developing countries affected by climate change. Climate change increased in recent years. Climate change is happening globally and it is a common problem that needs to be controlled, Climate village program is one of the programs to control climate change. Perception is a basic for the formation of attitude and behavior. It is Necessary to build the correct perception about the existence of the Climate Village Program. The purpose of this study was how Climate Village Program and the public perception to deal with future climate change. This research is a quantitative descriptive. The population in this research are 300 people. The type and source of the data used are primary data and secondary data. Data processing by grouping the results of the questionnaire, and calculate the percentage. Categorized based on the percentage of bad, moderate and good. Survey analysis uses scoring with a Lickert scale approach and interval width. The analysis is based on the theory of Miles and Huberman include data reduction, data presentation, and conclusion. The findings of the study are climate village program and the public perception may be used to deal with future climate change. Limitations of the study are to limit the public perception of the climate village program. Perceptions of the program are limited to counseling, mitigation, and adaptation. The results showed that the public perception of the extension activities are still lower "bad", the public perception of adaptation activities category of "good" and the public perception of mitigation activities "good" category. Implementation of the climate village program to be supported by all of society. Climate village Program is expected to create a responsible society, to reduce the impact of climate change in the future.

Keywords: Climate Village Program, Public Perception, Climate Change

MICROBIAL BIODIVERSITY OF SHALLOT PLANTATION IN PEAT-LANDS APPLIED WITH THREE TYPES OF BOTANICAL PESTICIDES

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ABSTRACT

One method of controlling disease that is environmentally friendly is the use of plant-based pesticides also known as botanical pesticides. Some of the advantages of botanical pesticides are that they break down faster so plants will avoid residues and active ingredients contained in these pesticides so that it is safe if livestock eat them and do not leave residues that are harmful to humans or environment and have low toxicity.

The use of botanical pesticides has proven to be effective in controlling several species of pests and plant diseases. Botanical pesticides contain active secondary metabolite compounds such as alkaloids, flavonoids i.e. azadirachtin, meliantriol, and salanin, retenone, nicotine, etc. These compounds affect pathogenic microorganisms, so it is feared will also affect antagonistic microorganisms that are useful as natural enemies to control plant pathogenic microorganisms.

This research will find out the impact of the application of several botanical pesticides on shallots to microbial biodiversity, both of which are detrimental (as pathogens of onion plants) and which function as natural enemies.

The study was conducted in Peat-lands, Tegal Arum village, Landasan Ulin District, Banjarbaru City, South Kalimantan. Microbial identification was carried out at the Phytopathology Laboratory and the Laboratory of Biological Control of the Department of Pests and Plant Diseases, Lambung Mangkurat University, Banjarbaru, from April to September 2019.

The results showed that the application of plant-based pesticides from Kepayang fruit extract and Galam leaf extract had an influence in decreasing the population of microorganisms, respectively by 80.44% and 75.26%. Chirinyuh plant pesticide extract treatment increased the population of microorganisms by 36.60%, as well as the control treatment without given botanical pesticides, the population of microorganisms increased by 17.77%. Meanwhile the application of synthetic pesticide Dhitane M-45 reduced the population of microorganisms by 95.73%. Types of microbes found in the soil and onion rhizosphere are Pseudomonas flourescens, Bacillus sp., Fusarium sp., Aspergillus sp., Curvularia sp., Scopulariopsis sp., Stachybotrys bisbyi, and Penicillium sp.

The results of this study indicate that in the selection of botanical pesticides to control plant pathogens must be done carefully because some botanical pesticides will reduce the total number of microorganism populations as a whole, even though the type of microbes in the soil does not affect the application of botanical pesticides.

Keywords: biodiversity, botanical pesticides, microbes

PRODUCTION OF MICROCRYSTALLINE CELLULOSE (MCC) FROM LESS- UTILIZED FAST GROWING TREE SPECIES ARTOCARPUS ELASTICUS

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ABSTRACT

In this study, isolation of microcrystalline cellulose from terap wood (*Artocarpus elasticus)* was carried out by acid hydrolysis method. This study aims to determine the effect of HCl concentration on the characteristics of cellulose microcrystals produced based on *FTIR* and XRD testing. Isolation of microcrystalline cellulose was hydrolyzed using hydrochloric acid with various concentrations of 1.5 N, 2.5 N, and 3.5 N for 15 minutes at a temperature of 100-105o C. Microcrystalline cellulose produced was analyzed for changes in color, changes in functional groups and total Crystallinity Index (TCI) using *FTIR* and crystallinity index using XRD. Microcrystalline cellulose yields obtained from each concentration were 71.05%, 57.04%, and 53.23%. The color test results from milkrocrystalline cellulose showed a higher brightness level at a concentration of 1.5 N. Based on *FTIR* data, the *TCI* value increased at an optimum concentration of 2.5 N. Based on XRD data showed results on applied wood cellulose microcrystals which had two crystal types and crystallinity index of microcrystalline cellulose from each concentration on cellulose I was 69.03%, 69.39% and 67.25% while cellulose II was 80.03%, 82.73% and 75.86%.

Keywords: Microcrystalline cellulose, FTIR, XRD, crystallinity index, and applied wood.

ANALYSIS INUNDATION TYPHOLOGY TOWARDS TO PLANCTONIC PRODUCTIVITY PAMINGGIR PEATLAND IN SOUTH BORNEO

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ABSTRACT

The vulnerability of peat land water fish resources is inseparable from the important role of ecosystem typology as a provider of inundation and natural food. Therefore, spatial analysis of inundation typology is a requirements for the future management of Inland fisheries. This study has been carried out to describe the inundation area and natural feed composition with the plankton approach, from the Paminggir peat land, South Borneo, Indonesia using remote sensing data, plankton sampling and field surveys. The modeling used was the supervised classification method from Landsat 1994, 2013, 2018. Overall Accuracy and Kappa inform the value of 88.48% and 0.8 from the training area. Permanent flooded areas are adjacent zone to reservoirs and rivers. The typology of permanent inundation decreased by 20% from 1994 to 2018, during the dry period of June is 43,275.584 hectares of the covered study area due to sedimentation and increase in water weeds. Phytoplankton biodiversity level is more dominant than zooplankton from freshwater Chlorophyta group as natural food for fish larvae and seeds.

Keywords: typology, peat land, inundation, spatial, plankton

THE SUB-BOTTOM PROFILER TECHNOLOGY APPLICATION TO DETECT SEDIMENTATION LAYER: SEISMIC FACIES AND ACOUSTICAL REFLECTIONS ANALYSIS

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ABSTRACT

Previously, In Indonesia, the sub-bottom profiler data usage was limited to measure sea depth. This study was expected to provide overview and updated information about sea depth, seabed and sedimentary layers characteristics based on generated acoustical reflection values and to identify information about abiotic compounding seabed (grain size) used Folk 1974 and Spread method. Resulted bathymetry data could explain the depth and topography of study areas, seabed characteristics, sea bed sediment classification that were expected to support the determination of shipping tracked lines, underwater pipelines construction, and to determine mineral compounds in the deep sea. The obtained data of field records were in digital *.odc format that is a standard format for BATHY-2010 software. Simplifying data processing, a series data was converted into other formats. Data processing of sub-bottom profiling was conducted by Kogeo-imaging software. For clearer and better display than the playback data, the processing data was filtered, stacked and additional gain. Then, data were digitally processed to interpret sediment layers. The sea depth of research location was around 52.59-97.03 m below the sea surface. Flat bottom was found on eastern part of the location. Steep basin or Aru Trough was in the western with gravelly mud type substrate. In general, recorded seismic cut (section) was in the time domain which created vertical and lateral velocity distortion that would produce seismic records that would be different with its actual. Seismic only enabled to detect lithology border if there any acoustical impedance exchange which would be bigger than detectable limit of used seismic waves.

Keywords: SBP, sediments, acoustic reflections

DEVELOPING A HANDBOOK OF *PEAT LANDS AND THE SMOG DISASTER*: AN ENGLISH FOR SPECIFIC PURPOSE (ESP)

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ABSTRACT

In 1998, 2002, and 2015, Indonesia experienced the worst smog disaster. Not only caused disruption in Indonesia, but the smog also caused problems in neighboring countries. Most people think that this is the result of forest fires, but in fact, the smog is caused by something else related to peat lands. This must be introduced to the people of Indonesia and the world so that there is no ongoing misunderstanding. Therefore, the authors developed an English for Specific Purpose (ESP) textbook related to peat lands and smog. This research is intended to develop a textbook on the relationship between peat lands and smog disasters which will be used for the educational process related to this matter which will be distributed in the form of textbooks. The methodology used in this research is Research and Development, where researchers will conduct data and information collection qualitatively. Furthermore, the findings will be the basis for the development of textbooks containing material about peat lands and smog. The results showed that the smog that occurred, especially in the Kalimantan area, was not pure due to the burning of forests for plantation land only. The smog turned out to be caused by burning peat lands where the fire was below the surface of the ground, making it difficult to extinguish and cause smoke to continue to spread for a long time. Root structure and content in peat lands is the main source of smog problems. This was then used as material for the preparation of English for Specific Purposes textbooks: Peat lands and the Smog Disaster. This research is limited only to peat lands in Kalimantan, smog, and developing textbooks as an educational tool. Since the focus of this study is only on the peat lands and the smog disaster developed for textbooks as educational reference material, the results of this study can be said to be classified as new research and have a high urgency to be carried out.

Keywords: peat lands, smog, ESP textbook

PROFIT SHARING PERFORMANCE OF ISLAMIC BANKS IN INDONESIA AND ITS DETERMINANTS

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ABSTRACT

This research aims to explore the determinant of Indonesian Islamic banks profit-sharing performance (PSP). Corporate governance, operating and financial performance as the internal factors and economic condition and gold price as the external factors are proposed to explain the bank profit-sharing performance. Time series with the autoregressive distributed lag model is employed to inspect proposed factors and the PSP co-integration during January 2014 to December 2018 of 10 sample Islamic banks in Indonesia. The result shows that there is a relationship between the Islamic bank PSP and its determinants. In more specific, corporate governance indicator can explain the bank PSP movement. As operating and financial performance increase, Islamic bank PSP responds positively. Surprisingly, condition of economy, represented by interest rate and GDP, has no effect on the PSP while the gold price movement affects the PSP negatively.

Keywords: Islamic Bank, Profit Sharing, corporate governance, interest rate, gold price.

BIODIVERSITY, CONSERVATION AND CULTIVATION OF INDIGENOUS MEDICINAL PLANTS LINKAGES WITH COMMERCIALIZATION

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ABSTRACT

Medicinal plants are an important part of community life, especially as a source of livelihood. Generally 80% of the world's population relies on medicinal herbs. People was living around forest areas have local knowledge in the utilization of forest plants, one of them is for traditional medicine, conducted since the days of our ancestors and passed down from generation to generation indirectly. Some ethnic groups in Kalimantan were dependent existence of herbs as ingredients to support health and to maintain fitness. They believe in the efficacy of traditional herbs and they are relying on the forest. Based on research of RISTOJA 2012 is that Dayak Bukit Ethnic in Hulu Sungai Selatan Region found 62 medicinal plants, and 60 potions derived from medicinal plants from forests, while the research results of RISTOJA 2015, on Ethnic Harakit in Tapin found as many as 111 species of medicinal plants and 93 potions, of which 82% are derived from forests. Most of them has not done cultivation yet. In reality only 20% of medicinal plants are cultivated, it indicates that the research and development of native medicinal plants is very low. In order to prevent the extinction and commercialization of medicinal plants it is essential to develop the cultivation of medicinal plants either in-situ or ex-situ. Some result of researches states that domestication is a method to maintain the productivity of natural medicinal plants. Ministry of Forestry Republic of Indonesia stated that the directions of the preparation of medicinal plants need to pay attention to the technical aspects, especially the abiotic environment, including: soil and microclimate condition. Based on that, as an initial step in order domestication of some medicinal plants used by the people of Malinau and Harakit, South Kalimantan, it is necessary to do a study of habitat, especially site and microclimate from the original habitat of plants, so that later can be developed elsewhere, with state media planting that resembles the original. It is very important because in the cultivation of medicinal plants avoided the use of fertilizers and chemicals. The results showed that soil permeability of medicinal plant habitat ranges: 0.17 to 4.66 cm /hour, it is included the slow-to-moderate category. Bulk density ranges from 0.94 to 142 g/cm3, including medium density. Particle density (2.28 to 2.84 g / cm3) were moderate, porosity everything including special (minimum 25%). Total N content (from 0.07 to 0.18) was high, organic C (1.17 to 3.74%), including low to moderate P content (9.48 to 47.49 mg / 100 g), including low until high. The degree of acidity of the soil ranged from 4.29 to 6.45, including acid to slightly acid, it shows that medicinal plants can grow in less fertile soil. Most of them grown at an altitude of 132-223 m above sea level, has a micro climate is very variable, temperature of 28-41 ° C, humidity 53% - 89%, and light intensity 1-100%.

Keywords: medicinal plants, biodiversity, conservation, cultivation, commercialization

EXTRACT OF KELAKAI (STENOCHLAENA PALUSTRIS (BURM. F.) BEDD) PROTECTS MOUSE SKIN (RATTUS NORVEGICUS) INDUCED BY ACUTE UV: STUDY OF ERYTHEMA AND MELANIN INDEX

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ABSTRACT

Introduction: Kelakai is a swamp plant, which is used for the functional food of the people of Kalimantan. Kelakai contains active compounds such as polyphenols, flavonoids, alkaloids, and others. These active compounds can act as antioxidants, which can be scavenger reactive oxygen produced from UV exposure. Therefore, this research was conducted.

Methode: This study used 8-week old male rats (Rattus norvegicus) weighing 200-3000 gr and divided into 4 groups. s. Control group (P0) was without acute UV induced for 24 hours+ KE; P1 group was induced by acute UV; P2 group was induced by KE, and P3 was induced by acute UV for 24 hours and KE. This research had passed ethical clearance test No.815/KEPK-FK UNLAM/EC/VIII/2018) from Health Research Ethics Commission of the Medical Faculty, Lambung Mangkurat University. The Kelakai plant was obtained from Gambut District, South Kalimantan. Determination of the plant was done in the Biology Department, Mathematic and Natural Science Faculty of Lambung Mangkurat University (No: 143c/LB.LABDASAR/XI/2018). Melanin and erythema index were measured based on coloring system L^*a^*b, while H_2O_2 and tyrosine levels were measured using the colorimetric method by spectrophotometer.

Conclusion: UV exposure can increase the erythema and melanin index and H_2O_2 levels. The use of extracts to protect against UV-exposed skin by reducing the index of erythema and melanin and H_2O_2 levels.

PHYTOCHEMICALS CONTENT
OF MANGGARSIH (*Parameria laevigata* (Juss.) Moldenke
AFTER EX-SITU CULTIVATION

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ABSTRACT

Manggarsih (*Parameria laevigata* (Juss.) Moldenke are empirically known has effect on health such as curing wound, treating uterine pain and cure the vaginal discharge problem. Vaginal discharge is a common symptom experienced by most women caused by *Candida albicans* infection. Unfortunately, this plant is endangered. Therefore it is necessary to attempt its cultivation. Study on cultivation of manggarsih has been done. It can be planted to outside of its habitat (ex-situ cultivation). However, how the phytochemical content was after ex-situ cultivation compared to their original habitat are unknown. The aim of this research was to analyze phytochemical content of Manggarsih before and after ex-situ cultivation. The method was used phytochemical screening (qualitative test) using Harborne's method (1987) and quantitative test using Robinson's method. Parts of the plants studied are the roots/stems and leaves. Components of Manggarsih roots and leaves to analyse are flavonoid, steroid, tannin, alkaloid, saponin, terpenoid and sterol. The results showed that the phytochemical screening both of them are similar, but quantitative testing showed different results. Phytochemical content may increase or decrease depending on the part of plant and its chemical component type.

Keywords: Manggarsih (*Parameria laevigata* (Juss.) Moldenke, phytochemicals screening, ex-situ cultivation, habitat

THE LAND BURNER FOR PLANTATION: BETWEEN COMMUNAL TRADITION AND POSITIVE LAW OF INDONESIA

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ABSTRACT

The purpose of this research is to study the land burning for plantation in the perspective of Dayak Kotabaru tradition in South Kalimantan Province and positive law perspective in Indonesia. This study uses normative juridical research methods. This normative legal research is carried out in a descriptive qualitative manner. The legal material is collected, sorted for subsequent research and analysis of their contents, so that the synchronization level, the appropriateness of norms, and the submission of new normative ideas. The results of this study found that in the customary culture of the Dayak Kotabaru tribe of South Kalimantan Province there is a tradition of burning land for plantation, which is also related to the concept of shifting cultivation. Customary tradition regarding the burning of land is not prohibited in customary law as long as it is in accordance with customary procedures and traditions. Whereas in positive law prohibits the burning and for plantation with a few exceptions related to the local culture of the indigenous community. In-depth studies are needed so that regulations aimed at eliminating the massive impact of haze still do not sacrifice indigenous rights with their lifestyle.

Keywords: *Burning, Swamps, Customs.*

THE CORRELATION STUDY OF ADULT MALE UPPER LEG LENGTH AND HEIGHT AMONG DAYAK BUKIT, DAYAK NGAJU, AND BANJAR HULU TRIBES

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In forensic anthropology, height is the one of biological profiles. Biological profiles are very useful for the identification process. Estimation with formula findings in specific populations can help to determine the height which useful to discover the identity. The aim of this study was to determine the correlation between the length of the upper leg and the height of the adult male Dayak Bukit tribe, the Dayak Ngaju tribe, and the Banjar Hulu tribe. The method of this study used observational analytics with a cross-sectional approach. The sampling technique was purposive sampling with a sample of 35 people each tribe aged 21 to 50 years and fulfilling the inclusion and exclusion criteria. The results of data analysis using the Pearson correlation test with a confidence level of 95% showed that the correlation coefficient on the right and left upper leg of the Dayak Bukit tribe were $r=0.850$ and $r=0.850$, the right and left upper leg of the Dayak Ngaju tribe were $r=0.847$ and $r=0.846$ and the right and left upper leg of the Banjar Hulu tribe are $r=0.926$ and $r=0.918$. Based on the results of this study, it can be concluded that there are very strong correlation between the length of the upper leg and the height of the adult male Dayak Bukit Tribe, the Ngaju Dayak Tribe, and the Banjar Hulu Tribe.

Keywords : *height, upper leg, Dayak Bukit Tribe, Dayak Ngaju Tribe, Banjar Hulu Tribe*

Pendahuluan

Negara Indonesia merupakan salah satu negara dengan multikultural dan potensi rawan bencana terbesar di dunia. Selain itu, keadaan geografis yang membagi wilayah Indonesia atas kurang lebih 3.000 pulau yang tersebar di daerah ekuator sepanjang kurang lebih 3.000 mil dari timur ke barat dan lebih dari 1.000 mil dari utara ke selatan, merupakan faktor yang sangat besar pengaruhnya terhadap terciptanya pluralitas suku bangsa di Indonesia.[1,2,3] Populasi beragam suku tersebut terdistribusi di berbagai pulau di Indonesia termasuk Kalimantan. Kalimantan dihuni penduduk dari berbagai suku diantaranya Suku Dayak Bukit, Suku Dayak Ngaju, dan Suku Banjar Hulu. Menurut hasil studi, kesamaan bahasa dan kesadaran tentang asal-usul nenek moyang membuat adanya kesimpulan jika Suku Dayak Bukit yang berasal dari rumpun yang sama dengan Suku Banjar Hulu, sedangkan ada juga studi lain yang mengkategorikan Suku Dayak Bukit sebagai sub Suku Dayak Ngaju karena persamaan sistem ekonomi, sistem kepemilikan tanah, dan sistem kekerabatannya.[4]

Identitas suku bangsa penting untuk diidentifikasi dalam kondisi terjadinya bencana alam, kecelakaan, tindak kejahatan serta penemuan mayat tak dikenal yang melibatkan berbagai jenis suku sehingga dapat mempersempit dan memberikan arah pada identifikasi. Identitas suku bangsa akan menjadi sulit untuk diidentifikasi karena beberapa hal sebagai berikut, contohnya kemiripan antar suku. Untuk di Kalimantan kita bisa mengambil contoh kemiripan antara Suku Dayak Bukit, Suku Dayak Ngaju, dan Suku Banjar Hulu menjadi salah satu faktor yang mempersulit proses identifikasi forensik sedangkan tidak ada data tentang ciri-ciri populasi suku di Indonesia yang lengkap.[4]

Indonesia sangat berpotensi untuk terjadi bencana. Bencana merupakan salah satu faktor yang dapat menyebabkan penemuan jenazah dalam keadaan yang tidak utuh sehingga mempersulit proses identifikasi untuk penemuan identitas suku bangsa. Potensi rawan bencana negara Indonesia dibuktikan dengan data dari Badan Nasional Penanggulangan Bencana (BNPB) melalui Data Informasi Bencana Indonesia (DIBI), di Indonesia mulai 1 Januari 2017 – 26 Mei 2018 terdapat 3.475 kejadian bencana di Indonesia. Bencana gempa di Lombok pada Agustus 2018

dengan 563 korban meninggal, dan gempa tsunami Palu, Donggala dengan 2.073 korban meninggal pada Oktober 2018.[5,6]

Pada kasus penemuan mayat, identifikasi akan menjadi lebih sulit jika mayat sudah tidak dapat dikenali lagi, misalnya pada korban bencana alam, kecelakaan kerja, kecelakaan alat transportasi yang menewaskan banyak orang, kasus mutilasi, kasus peledakan bom serta korban peperangan dimana potongan-potongan yang ditemukan berkemungkinan tidak lengkap. Pada kasus seperti ini, penyidik memerlukan penjelasan dalam hal perkiraan saat kematian, usia, jenis kelamin, tinggi badan, dan ras, serta asal sisa-sisa potongan tubuh. Oleh karena berbagai hal tersebut, proses identifikasi sangat diperlukan mengingat pentingnya mengungkap identitas korban yang hanya dapat diukur bagian tubuh tertentu saja seperti tungkai atas untuk memperkirakan tinggi badan individu ketika masih hidup. Tinggi badan dapat memegang peranan penting dalam menentukan identitas yang pada beberapa kasus yang hanya dapat ditemukan dan diperiksa adalah tubuh yang telah terpisah-pisah misalnya hanya potongan tubuh bagian tungkai atas saja.[7,8,9,10]

Korelasi antara tinggi badan dengan panjang tungkai atas telah dibuktikan oleh banyak penelitian pada populasi yang berbeda-beda. Hasil dari penelitian tersebut menunjukkan adanya korelasi yang kuat antara tinggi badan dengan panjang tungkai atas.[7,8,9,10]

Berdasarkan uraian di atas dan belum adanya penelitian korelasi panjang tungkai atas dengan tinggi badan pada laki-laki dewasa Suku Dayak Bukit, Suku Dayak Ngaju dan Suku Banjar Hulu, maka penelitian ini penting untuk dilakukan. Tujuan penelitian ini untuk menganalisis korelasi antara panjang tungkai atas dan tinggi badan laki-laki Suku Dayak Bukit, Suku Dayak Ngaju, dan Suku Banjar Hulu serta menemukan formula yang dapat digunakan untuk estimasi tinggi badan dalam proses identifikasi.

Metode Penelitian

Penelitian ini merupakan observasional analitik dengan pendekatan *cross-sectional*. Populasi pada penelitian ini adalah laki-laki dewasa dari tiga suku yang diteliti yaitu Suku Dayak Bukit di Desa Kiyu Kecamatan Batang Alai Timur, Suku

Dayak Ngaju di Desa Bukit Bamba Kecamatan Kahayan Tengah, dan Suku Banjar Hulu di Desa Benua Kepayang Kecamatan Labuan Amas Selatan, yang memenuhi kriteria inklusi dan eksklusi. Teknik pengambilan sampel menggunakan metode *purposive sampling.* Jumlah subyek penelitian 35 orang untuk tiap suku yang diteliti. Pengukuran tinggi badan dilakukan dengan alat mikrotoa 200 cm dengan keakuratan 1 mm. Mikrotoa ditarik dari 200 cm sampai ujung kepala subjek penelitian, angka yang didapatkan merupakan tinggi badan subjek penelitian. Waktu pengukuran untuk setiap subjek penelitian dilakukan pada rentang waktu yang sama, yaitu pada jam 17.00-21.00 WITA. Panjang tungkai atas yang diukur dalam penelitian ini adalah panjang tungkai atas kiri dan kanan dengan menggunakan penggaris yang dimodifikasi dengan keakuratan 1 mm. Subjek penelitian diminta untuk berbaring dan menyingsingkan pakaian bawah atau melepaskan pakaian luar bagian bawah untuk memudahkan pengukuran agar tungkai atas dapat diukur. Pengukuran dilakukan pada kedua tungkai atas dengan posisi berbaring. Panjang tungkai atas diukur dari *trochanter major os. femur percutaneus* sampai *epicondylus lateralis os. femur percutaneus*. Data hasil penelitian dianalisis dengan uji linearitas, uji korelasi *Pearson dan* uji regresi linear.

Hasil dan Pembahasan

Pada Tabel 1 dan 2 menunjukkan rata-rata terbesar tinggi badan yaitu Suku Banjar Hulu dan rata-rata terbesar panjang tungkai atas kanan dan kiri yaitu Suku Dayak Ngaju jika dibandingkan dengan kedua suku lainnya. Tabel 2 juga menunjukkan bahwa panjang tungkai atas kanan dan kiri subjek penelitian pada semua suku memiliki selisih panjang yang sangat kecil yaitu 0,1 cm.

Tabel.1. Rata-rata tinggi badan subjek penelitian

Suku	Pengukuran	Tinggi Badan (cm)
Suku Dayak Bukit	Rata-rata tinggi badan ± SD	156,5±5,5
Suku Dayak Ngaju	Rata-rata tinggi badan ± SD	160,1±4,6
Suku Banjar Hulu	Rata-rata tinggi badan ± SD	161,5±7,1

Tabel 2 Rata-rata panjang tungkai atas subjek penelitian

| Suku	Pengukuran	Panjang Tungkai Atas (cm)	
		Kanan	Kiri
Suku Dayak Bukit	Rata-rata panjang tungkai atas ± SD	34,6 ± 3,7	34,6 ± 3,7
Suku Dayak Ngaju	Rata-rata panjang tungkai atas ± SD	37,2 ± 3,2	37,1 ± 3,2
Suku Banjar Hulu	Rata-rata panjang tungkai atas ± SD	36,3 ± 3,9	36,3 ± 3,9

Berdasarkan tinggi badan setiap suku menunjukkan selisih rerata tinggi badan Suku Dayak Bukit dengan Suku Dayak Ngaju adalah 3,6 cm, Suku Dayak Bukit dengan Suku Banjar Hulu 5 cm, dan Suku Dayak Ngaju dengan Suku Banjar Hulu 1,4 cm. Ditemukan rerata tinggi badan Suku Dayak Bukit dan Suku Banjar Hulu memiliki selisih rerata tinggi badan terbesar dan Suku Dayak Ngaju dan Suku Banjar Hulu memiliki selisih rerata tinggi badan terkecil.

Berdasarkan panjang tungkai atas kanan setiap suku menunjukkan selisih rerata panjang tungkai atas kanan Suku Dayak Bukit dengan Suku Dayak Ngaju adalah 2,6 cm, Suku Dayak Bukit dengan Suku Banjar Hulu 1,7 cm, dan Suku Dayak Ngaju dengan Suku Banjar Hulu 0,9 cm. Sedangkan, berdasarkan panjang tungkai atas kiri setiap suku menunjukkan selisih rerata panjang tungkai atas kanan Suku Dayak Bukit dengan Suku Dayak Ngaju adalah 2,5 cm, Suku Dayak Bukit dengan Suku Banjar Hulu 1,7 cm, dan Suku Dayak Ngaju dengan Suku Banjar Hulu 0,8 cm. Ditemukan panjang tungkai atas kanan dan kiri Suku Dayak Bukit dengan Suku Dayak Ngaju memiliki selisih rerata panjang tungkai atas terbesar dan Suku Dayak Ngaju dengan Suku Banjar Hulu memiliki selisih rerata panjang tungkai atas terkecil.

Hasil uji linearitas untuk mengetahui apakah variabel memiliki hubungan yang linear atau tidak, serta sebagai prasyarat dalam analisis korelasi atau regresi linear. Hasil uji linearitas pada panjang tungkai atas dengan tinggi badan dapat dilihat pada gambar 1, 2, dan 3.
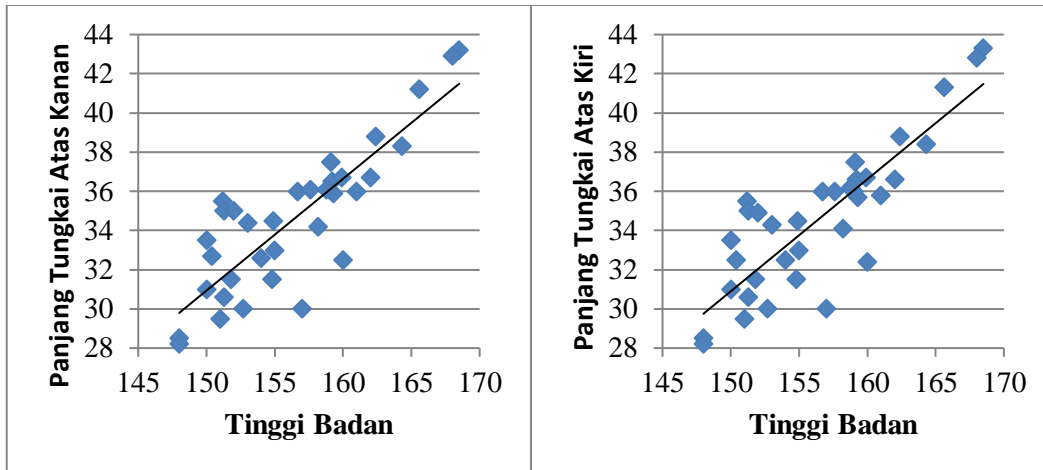
Gambar 1.   Hasil Uji Linearitas Panjang Tungkai Atas dengan Tinggi Badan Suku Dayak Bukit
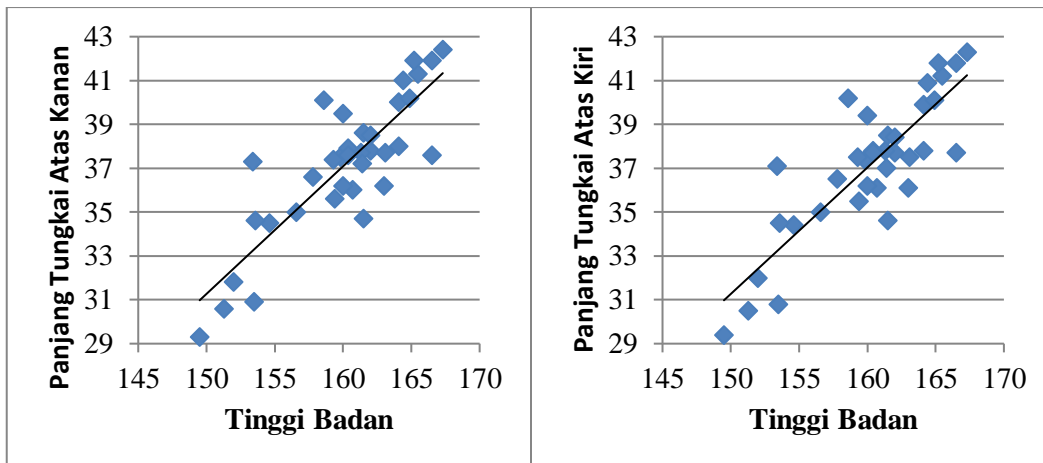
Gambar 2.   Hasil Uji Linearitas Panjang Tungkai Atas dengan Tinggi Badan Suku Dayak Ngaju
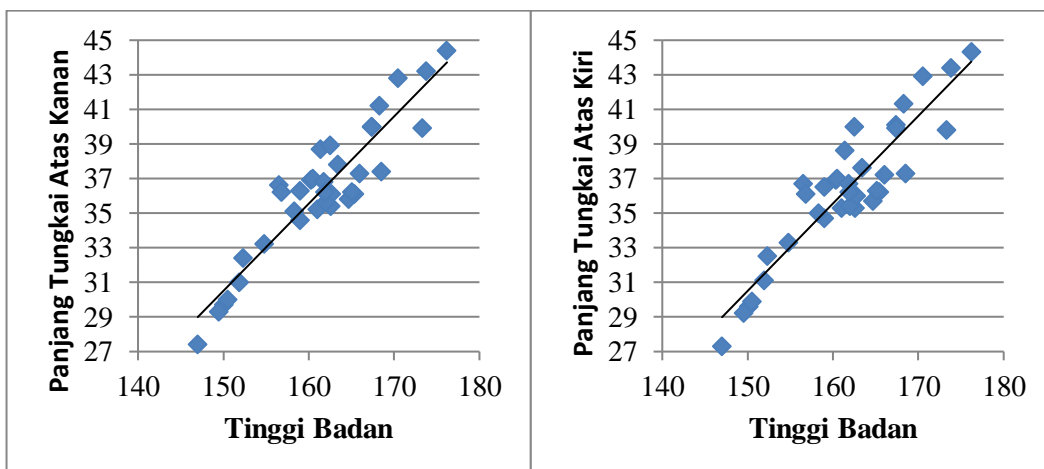
Gambar 3.   Hasil Uji Linearitas Panjang Tungkai Atas dengan Tinggi Badan Suku Banjar Hulu

Ketiga gambar diatas menunjukkan bahwa tinggi badan dengan panjang tungkai atas kanan dan kiri pada setiap suku memiliki hubungan yang linear. Makna dari hubungan yang linear ini

adalah berbanding lurus. Bertambahnya tinggi badan diikuti oleh peningkatan panjang tungkai atas. Hal ini yang dapat membuat panjang tungkai atas menjadi indakator yang dapat digunakan sebagai prediktor dalam penentuan tinggi badan.[7,8,9,10]

Analisis korelasi dengan uji *Pearson* untuk mengetahui nilai korelasi antar variabel. Hasil analisis data dapat dilihat pada tabel 3. Data dikatakan memiliki korelasi yang bermakna apabila nilai p<0,05.

Tabel 3. Hasil Uji *Pearson*

Pengukuran	Koefisien Korelasi (r)	p	N
PTA kanan dengan tinggi badan Suku Dayak Bukit	0,850	0,000	35
PTA kiri dengan tinggi badan Suku Dayak Bukit	0,850	0,000	35
PTA kanan dengan tinggi badan Suku Dayak Ngaju	0,847	0,000	35
PTA kiri dengan tinggi badan Suku Dayak Ngaju	0,846	0,000	35
PTA kanan dengan tinggi badan Suku Banjar Hulu	0,926	0,000	35
PTA kiri dengan tinggi badan Suku Banjar Hulu	0,918	0,000	35

Keterangan :
PTA = panjang tungkai atas
N = jumlah subjek penelitian

Tabel 3 memperlihatkan bahwa korelasi antara panjang tungkai atas dengan tinggi badan pada semua suku diperoleh nilai p=0,00, artinya panjang tungkai atas dengan tinggi badan memiliki korelasi yang bermakna (p<0,05). Nilai uji korelasi *Pearson* (r) pada Suku Dayak Bukit sebesar r=0,850 (tungkai atas kanan) dan r=0,850 (tungkai atas kiri) berarti arah korelasi positif dengan kekuatan korelasi sangat kuat. Nilai uji korelasi *Pearson* (r) pada Suku Dayak Ngaju sebesar r=0,847 (tungkai atas kanan) dan r=0,846 (tungkai atas kiri) yang berarti arah korelasi positif dengan kekuatan korelasi sangat kuat. Nilai uji korelasi *Pearson* (r) pada Suku Banjar Hulu sebesar r=0,926 (tungkai atas kanan) dan r=0,918 (tungkai atas kiri) yang berarti arah korelasi positif dengan kekuatan korelasi sangat kuat. Hal ini menunjukkan bahwa setiap bertambahnya tinggi badan seseorang, maka panjang tungkai atasnya juga akan bertambah. Hal ini menunjukkan bahwa panjang tungkai atas dapat digunakan sebagai prediktor dalam estimasi tinggi badan seseorang. Penelitian terdahulu oleh Mangayun *et al* (2013) dan Obialor *et al* (2015), melakukan penelitian korelasi panjang tungkai atas dengan tinggi badan dengan hasil penelitian memiliki kekuatan korelasi yang bermakna dan kuat sampai sangat kuat, sehingga panjang tungkai atas dapat dijadikan prediktor untuk estimasi tinggi badan seseorang.

Selanjutnya dilakukan uji regresi linear. Uji ini dilakukan untuk mendapatkan formula yang dapat menggambarkan hubungan antara panjang tungkai atas kanan dan kiri dengan tinggi badan sehingga dapat menentukan estimasi tinggi badan seseorang.[34]

Rumus yang didapatkan dapat dilihat pada tabel 4.

Tabel 4 Rumus Regresi

No			Rumus Regresi
1.	TB Suku Dayak Bukit	=	112,566 + 1,268 x PTA kanan Suku Dayak Bukit
2.	TB Suku Dayak Bukit	=	112,730 + 1,264 x PTA kiri Suku Dayak Bukit
3.	TB Suku Dayak Ngaju	=	114,307 + 1,233 x PTA kanan Suku Dayak Ngaju
4.	TB Suku Dayak Ngaju	=	114,049 + 1,242 x PTA kiri Suku Dayak Ngaju
5.	TB Suku Banjar Hulu	=	99,766 + 1,700 x PTA kanan Suku Banjar Hulu
6.	TB Suku Banjar Hulu	=	100,963 + 1,667 x PTA kiri Suku Banjar Hulu

Keterangan :

TB = Tinggi badan dalam sentimeter (cm)

PTA = Panjang tungkai atas dalam sentimeter (cm)

Kelayakan dari rumus regresi yang diperoleh dapat dinilai dari nilai output ANOVA pada uji regresi linear. Rumus regresi dapat dikatakan layak apabila nilai $p < 0,05$. Nilai output ANOVA yang didapatkan untuk panjang tungkai atas kanan dengan tinggi badan maupun panjang tungkai atas kiri dengan tinggi badan pada ketiga suku adalah $p = 0,00$ artinya rumus regresi yang telah didapatkan layak untuk digunakan.[34]

Perbedaan hasil korelasi tersebut dapat disebabkan oleh berbedanya subjek penelitian yang digunakan. Sejumlah faktor yang dapat mempengaruhi tinggi badan seperti usia, jenis kelamin dan suku. Pada penelitian ini subjek penelitian memiliki rentang usia 21-50 tahun. Pada usia tersebut tulang telah tumbuh maksimal dan lempeng epifisis tulang menutup total pada usia 20 tahun sehingga pertambahan tinggi badan sudah berhenti pada usia 21 tahun. Beberapa penelitian menjelaskan pada usia rata-rata 50 tahun sudah mulai terjadi penurunan fungsi hormon, khususnya fungsi hormon pada laki-laki. Selain itu, subjek penelitian yang digunakan berasal dari suku yang berbeda-beda, dimana rumus regresi untuk tinggi badan biasanya hanya digunakan pada populasi yang spesifik, dengan adanya pola yang cenderung menetap dalam populasi yang memiliki ras yang sama.[7,9,35,36,37,38]

Hasil penelitian terdahulu oleh Mangayun *et al* (2013) mendukung hasil penelitian ini. Mangayun *et al* (2013) meneliti hubungan panjang tungkai atas dengan tinggi badan etnis Sangihe

di kelurahan Madidir Ure di kota Bitung dengan menggunakan subjek penelitian 56 orang laki-laki berusia 21-55 tahun, dengan hasil r=0,658 (panjang tungkai atas kanan) dan r=0,659 (panjang tungkai atas kiri) yang berarti kekuatan korelasi kuat dan memiliki arah korelasi yang positif. Selain itu ada hasil penelitian lain yang dilakukan oleh Obialor *et al* (2015) pada populasi penghuni Oguta, Nigeria dengan sampel 123 laki-laki berusia 22-70 tahun, meneliti panjang tungkai atas dan tinggi badan dengan hasil r=0,993 yang berarti kekuatan korelasi sangat kuat dan memiliki arah korelasi positif. Sehingga dapat disimpulkan bahwa panjang tungkai atas dapat digunakan sebagai parameter untuk menentukan tinggi badan seseorang.[9,26]

Dari hasil beberapa penelitian terdahulu dinyatakan bahwa setiap populasi memiliki rumus regresi yang berbeda satu dengan yang lainnya. Berbagai faktor yang mempengaruhi tinggi badan di setiap populasi seperti usia, ras, jenis kelamin, dan nutrisi yang akan mempengaruhi pertumbuhan dan perkembangannya. Sehingga perbedaan rumus regresi linear diperlukan pada populasi yang berbeda.[7,8,9,26] Dengan demikian, rumus yang didapatkan pada penelitian ini hanya bisa digunakan pada suku yang spesifik di wilayah Kalimantan, yaitu Suku Dayak Bukit, Suku Dayak Ngaju, dan Suku Banjar Hulu.

Faktor-faktor yang mempengaruhi tinggi badan yaitu faktor genetik dan faktor lingkungan. Faktor genetik misalnya pada gen HMGA2 yang mempengaruhi tinggi rendahnya badan seseorang. Gen HMGA2 dipengaruhi dari kedua orang tua, jika kedua orang tua memiliki badan yang tinggi akan berpengaruh besar terhadap gen HMGA2 pada anaknya, maka anaknya dapat memiliki badan yang tinggi juga sama seperti orang tuanya. Gen HMGA2 di atas tidak mutlak mempengaruhi tinggi badan seseorang dikarenakan masih ada beberapa faktor genetik lainnya dan beberapa faktor lingkungan. Faktor lingkungan yang dapat berpengaruh terhadap tinggi badan misalnya nutrisi dari asupan makanan selama masa pertumbuhan dan perkembangan anak, kemudian letak geografis tempat tinggal seperti di daerah pedesaan maupun daerah pegunungan dapat dipengaruhi dari aktivitas fisik dan pekerjaan sehari-hari.[27,28,29,40]

Keterbatasan pada penelitian ini adalah pengukuran pada tungkai atas yang relatif lebih sulit dilakukan pada subjek penelitian yang gemuk untuk menemukan titik *trochanter major os femur* dan titik *epicondylus lateralis os femur*, sehingga pada subjek penelitian yang gemuk lebih dilakukan palpasi lebih dalam untuk menemukan *trochanter major os femur* dan *epicondylus lateralis os femur*.

Simpulan

Berdasarkan hasil penelitian, maka dapat disimpulkan sebagai berikut:

1. Terdapat korelasi signifikan antara panjang tungkai atas dengan tinggi badan pada wanita laki-laki dewasa Suku Dayak Bukit (SDB), Suku Dayak Ngaju (SDN), dan Suku Banjar Hulu (SBH) dengan nilai p=0,00.

2. Terdapat korelasi positif dan sangat kuat antara panjang tungkai atas dengan tinggi badan pada Suku Dayak Bukit, Suku Dayak Ngaju, dan Suku Banjar Hulu dengan nilai r pada Suku Dayak Bukit sebesar r=0,850 (tungkai atas kanan dan kiri), pada Suku Dayak Ngaju sebesar r=0,847 (tungkai atas kanan) dan r=0,846 (tungkai atas kiri), dan pada Suku Banjar Hulu sebesar r=0,926 (tungkai atas kanan) dan r=0,918 (tungkai atas kiri).

3. Hubungan panjang tungkai atas dengan tinggi badan laki-laki dewasa Suku Dayak Bukit, Suku Dayak Ngaju, dan Suku Banjar Hulu dapat ditunjukkan pada formula sebagai berikut:

   a. TB SDB   =   112,566 + 1,268 x PTA kanan SDB

   b. TB SDB   =   112,730 + 1,264 x PTA kiri SDB

   c. TB SDN   =   114,307 + 1,233 x PTA kanan SDN

   d. TB SDN   =   114,049 + 1,242 x PTA kiri SDN

   e. TB SBH   =   99,766 + 1,700 x PTA kanan SBH

   f. TB SBH   =   100,963 + 1,667 x PTA kiri SBH

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CERTIFICATE OF PRESENTATION

This is to awarded to

Roselina Panghiyangani

Lambung Mangkurat University

For the manuscript entitled

"The Correlation Study of Adult Male Upper Leg Length and Height among Dayak Bukit, Dayak Ngaju, and Banjar Hulu Tribes"

Presented at

International Conference on Wetland and Multidiscplinary Research
(ICWRES 2019)

November 11-12, 2019 | Utsunomiya University, Japan

Sutarto Hadi
Lambung Mangkurat University

Futoshi Ishiguri
Utsunomiya University