ABSTRACT
2nd ULICoSTE 2021

Bandar Lampung, 27 - 28 August 2021

"Promoting Synergy through Collaborative Research in Science and Technology for Digital Transformation"

Institute of Research and Community Service
Universitas Lampung

The 2nd Universitas Lampung International Conference on Science, Technology, and Environment (ULICoSTE) 2021

"Promoting Synergy Through Collaborative Research in Science, Environment and Technology for Digital Transformation"

Friday-Saturday, August 27-28 2021
Emersia Hotel, Bandar Lampung, Indonesia

Scope of Conference:

- Sustainable Development
- Environmental Science
- Remote Sensing and GIS
- Climate Change
- Renewable Energy
- Natural Science
- Design and Implementation of a Technology-Rich Learning Environment

Organized by:

WELCOME MESSAGE FROM CONFERENCE CHAIR

Dear Colleagues,

The Institute for Research and Community Services of Universitas Lampung was honored to host the Second Universitas Lampung International Conference on Science, Technology, and Environment (ULICoSTE) 2021. We warmly welcome all respected paper presenters and participants to the 2nd ULICoSTE 2021. Due to the COVID-19 pandemic, we are now dealing with a paradigm of completely online-organized event using Zoom.

The world is now moving toward digitalization, where technology reigns supreme, the Conference is dedicated to promoting synergy through collaborative research in science and technology for digital transformation. Furthermore, the pandemic has forced us to go digital. As a result, today's digital transformation requires synergy with multiple parties through various research and innovations. Therefore, this 2nd ULICoSTE 2021 was an invitation to discuss various topics related to our Conference theme "Promoting Synergy through Collaborative Research in Science, Environment, and Technology for Digital Transformation."

We hope you have a good technical experience. The 2nd ULICoSTE 2021 promises to be both stimulating and informative with a fantastic line-up of keynote speakers from Murdoch University (Australia), Universitas Lampung (Indonesia), Universiti Teknologi MARA (Malaysia), and National Taiwan Normal University (Taiwan) to develop a relationship and exchange theoretical and practical ideas and knowledge whose interest is focused on collaborative interdisciplinary research in the areas of sustainable development, environmental science, remote sensing and GIS, climate change, renewable energy, and other related areas.

This conference includes invited sessions and panel discussions with notable speakers on a wide range of science and technology research topics. The interactive sessions allow all attendees to meet and communicate with one another online. We hope your experience with the 2nd ULICoSTE 2021 is a fruitful and long-lasting one.

We have raised the bar by focusing on better quality articles for acceptance to be published in reputable conference proceedings and journals. We expect that participants will recognize that publication is a lengthy and exhausting process that entails numerous rounds of reviews and corrections. For these reasons, we expect that participants will contribute by making a concerted effort to guarantee that the articles contributed are original, error-free, and meet the quality standards required. Thus, please assist us in assisting you and others, as a delay in submission by some individuals will have an impact on others.

The conference program represents the efforts of many individuals. Therefore, we would like to express our gratitude to the members of the organizing committee for putting much effort into ensuring the success of day-to-day operation of the conference and the reviewers for their hard work in reviewing submissions. We also thank the four invited

keynote speakers for sharing their insights with us. Finally, the conference would not be possible without the excellent papers contributed by authors. We thank all authors for their contributions and participation in the 2nd ULICoSTE 2021.

We wish all attendees of the 2nd ULICoSTE 2021 an enjoyable scientific gathering in Bandar Lampung, Indonesia. We look forward to seeing you next year at the 3rd ULICoSTE 2022 conference.

Conference Chair
Dr. Ryzal Perdana
Universitas Lampung, Indonesia

CONFERENCE SCHEDULE

The 2nd Universitas Lampung International Conference on Science, Technology and Environment

(ULICoSTE 2021)

RUNDOWN 2nd ULICoSTE

Friday

27th August 2021

The 2nd Universitas Lampung International Conference on Social Sciences, Technology and Environment (ULICoSTE), taking place on 27th and 28th August 2021, the city of Bandar Lampung, Lampung Province, Indonesia

Day/Date	Time Schedule		Activity	Speaker/PIC	Place	Moderator
	Time	Duration				
Friday, 27th August 2021	08.30-09.00 AM	30’	Registration of participants	Participants		
	09.00-10.00 AM	60’	1. Greeting and Dance Performance (10')	Committee Dewi Lestari (MC)	Emersia Hotel	
			2. Opening (5')	Dewi Lestari (MC)		
			3. National Anthem (5')	All participants		
			4. Welcoming address and opening speech. - Head of LPPM (10')	Dr. Ir. Lusmeilia Afriani, D.E.A.		
			- Rector of University of Lampung (10')	Prof. Dr. Karomani, M.Si.		
			5. Praying (10')	Dr. Mualimin, M.Pd		
			6. Photo Session and Closing (10')	All participants		
	10.00-10.45 AM	45'	Presentation 1	Prof. Peter Charles (Digital Transformation)	Zoom	Andi Nafisah Tendri Ajeng, S.Farm., M.Sc.

	10.45-11.30 AM	45'	Presentation 2	Prof. Chun Yen Chang (Sustainable Development)	Zoom	Andi Nafisah Tendri Ajeng, S.Farm., M.Sc.
	11.30-13.00 PM	90'	Break Session			
	13.00-13.45 PM	45’	Presentation 3	Muhamad Norhisyam Ph.D. (Research in Science)	Zoom	Dr. Agus, M.P.
	13.45-14.30 PM	45’	Presentation 4	Prof. Dr. Udin Hasanuddin (Environmental Science)	Zoom	Dr. Agus, M.P.
	15.00-16.00 PM	60’	Parallel Session	All Presenters	Zoom	

Saturday

28th August 2021

The 2nd Universitas Lampung International Conference on Social Sciences, Technology and Environment (ULICoSTE), taking place on 27th and 28th August 2021, the city of Bandar Lampung, Lampung Province, Indonesia

Day/Date	Time Schedule		Activity	Speaker/PIC	Place	Moderator
	Time	Duration				
Saturday, 28th August 2021	08.00-08.30 AM	30’	Participants joining in zoom	All Presenters	Zoom	
	08.30-11.30 AM	150’	Parallel Session	All Presenters	Zoom	
	11.30-12.00 AM	30’	Closing	Dr. Ryzal Perdana, M.Pd.	Zoom	

THE SPECIFIC SCHEDULE OF PARALLEL SESSION ULICoSTE 2021

DAY 1 (Friday, August 27th 2021)

ROOM 1

Moderator : Rafista Deviyanti **Time: 15.00 - 16.00 (60 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-32	DESIGN AND ELECTRIC CAR AERODYNAMICS STUDY GREEN CAMPUS UNILA	Akhmad Riszal, Martinus, Ahmad Yonanda	Lampung University	Sustainable Developmpment
2	PAPERID-77	DAILY COMMUTE OF CIRCULAR MIGRANT IN GREATER JAKARTA	Inayah Hidayati, Hafid Setiadi, Hayuning Anggrahita	Indonesian University	Sustainable Developmpment
3	PAPERID-83	THE IMPLEMENTATION OF FAMILY HOPE PROGRAM FOR THE WELFARE OF PEOPLE IN LEBAK REGENCY (A Study In District Of Malingping, The Regency Of Lebak, Banten Province	Mohamad Rosyid, Ahmad Sihabudin, Ipah Jumiati	Sultan Ageng Tirtayasa University	Sustainable Developmpment
4	PAPERID-95	THE EFFECT OF BOHASI PAITAN (TITHONIA DIVERSIFOLIA) AND RHIZOBIUM BACTERIA ON THE GROWTH AND PRODUCTS OF MUNG BEAN PLANT (VIGNA RADIATA)	Yati Rachmawati, Tina Riskawati, Cecep Hidayat, Rosihon Anwar	UIN Sunan Gunung Djati	Sustainable Developmpment

ROOM 2

Moderator : Khairun Nisa **Time: 15.00 - 16.00 (60 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-101	FAUNA ASPECT OF REPONG DAMAR INDONESIA (STUDY CASE IN KRUI, PESISIR BARAT DISTRICT LAMPUNG PROVINCE)	Sugeng Harianto, Afif Bintoro, Hendra Prasetia, Khoironi Anwar, Seftilia Sari.	Lampung University	Environmental Science
2	PAPERID-118	EFFECT OF NATURAL RUBBER LATEX ADHESIVE CONTENT ON THE PHYSICAL AND MECHANICAL PROPERTIES OF AGRIBOARD FROM CASSAVA STEM WASTES	Wahyu Hidayat, Nana Aprilliana, Sandi Asmara, Muhammad Lubis, Samsul Bakri, Sri Hidayati	Lampung University, Indonesian Institute of Sciences	Environmental Science
3	PAPERID-120	DESIGN OF INTEGRATED TECHNOLOGY IN TEXTILE WASTEWATER MANAGEMENT, GROWTH CONTROL OF WATER HYACINTH (EICHHORNIA CRASSIPES), AND ITS UTILIZATION AS RAW MATERIAL FOR HANDICRAFTS	Ilham Muhammad, Muhammad Amnan, Muhammad Taufiq Qurrahman	Diponegoro University	Environmental Science
4	PAPERID-176	POTENTIAL OF CASSAVA PEEL WASTE AND SEAWEED CARRAGEENAN (EUCHEUMA COTTONII) AS ECO-FRIENDLY FOOD PACKAGING (BIOPLASTIC) : A REVIEW	Esa Fadhallah, Nana Juwita, Septin Eksamayora, Rian Prayoga, Indah Assa'diyah	Lampung University	Environmental Science

ROOM 3

Moderator : Dian Shafwati **Time: 15.00 - 16.00 (60 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-59	GEOMORPHOLOGICAL STUDY OF BANDAR LAMPUNG CITY AND LANDSLIDE HAZARD ASSESSMENT	Rahmi Mulyasari, Aminudin Syah, Nandi Haerudin	Lampung University	Remote Sensing and GIS
2	PAPERID-110	CONVECTIVE CLOUD DISTRIBUTION PATTERNS IN BANTEN USING WEATHER RADAR DATA	Regina Dara Ninggar, Eko Usratmoko, Supriatna, Diana Siregar	Meteorological, Climatological, and Geophysics Agency Region II	Remote Sensing and GIS
3	PAPERID-155	PERFORMANCE OF EDGE DETECTION METHOD FOR IMAGE IDENTIFICATION	Umi Murdika, Anisa Darajat, Herlinawati	Lampung University	Remote Sensing and GIS
4	PAPERID-159	LAND POTENTIAL INDEX ANALYSIS IN SAMARINDA'S AGRICULTURAL AREAS USING GEOGRAPHIC INFORMATION SYSTEMS	Nurul Palupi	Mulawarman University	Remote Sensing and GIS

ROOM 4

Moderator : Fajar Riyantika **Time: 15.00 - 16.00 (60 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-78	ACCELERATING COFFEE CATTLE INTEGRATION IMPLEMENTATION AS CLIMATE-SMART AGRICULTURE BY FINANCIAL SUPPORT DEVELOPMENT	Suci Wulandari, Fadjry Djufry	Indonesian Center for Estate Crops Research Development	Climate Change
2	PAPERID-165	FIELD PERFORMANCE OF PLAGIOTROPIC COCOA IN TWO CLONALLY PROPAGATION METHODS : VEGETATIVE PHASE AND EARLY PRODUCTION	Teguh Santoso, Fakhrusy Zakariyya	Indonesian Coffee and Cocoa Research Institute	Climate Change
3	PAPERID-184	FARMER'S ADAPTATION TO CLIMATE CHANGE IN LAMPUNG PROVINCE	Helvi Yanfika	Lampung University	Climate Change
4	PAPERID-139	THE IMPACT OF THE COVID-19 PANDEMIC TO SUSTAINABLE DEVELOPMENT GOAL	Yuliana	Udayana University	Sustainable Developmpment

ROOM 5

Moderator : Gita Hilmi P **Time: 15.00 - 16.00 (60 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-35	AERODYNAMIC ANALYSIS OF HORIZONTAL AXIS WIND TURBINE (HAWT) DESIGN USING Q-BLADE SOFTWARE	Agus Sugiri, Akhmad Riszal	Lampung University	Renewable Energy
2	PAPERID-50	SENSITIVITY TEST AND ENHANCEMENT OF ACCELEROMETER INSTRUMENT PROTOTYPE CAPABILITY IN GEOTHERMAL FIELD	Karyanto, Acep Sihabudin, I Gede Boy Darmawan	Lampung University	Renewable Energy
3	PAPERID-58	PRODUCTION OF BIOGAS FROM COFFEE HUSKS USING RUMEN FLUID AND MIXTURE OF RUMEN FLUID AND COW DUNG	Hasrul Anwar, Andhika Titisan Sukma, Muhammad Ulya	Lampung University	Renewable Energy
4	PAPERID-143	MODELING OF HOURLY SOLAR IRRADIANCE FROM FIELD MEASUREMENTS IN BANDAR LAMPUNG	Lukmanul Hakim	Lampung University	Renewable Energy
5	PAPERID-175	PARAMETER ESTIMATION OF SOLAR CELLS USING MULTI-TRIAL VECTOR-BASED DIFFERENTIAL EVOLUTION	Zulmiftah Huda, Anjas Angger Wicaksono, Endah Komalasari, Osea Zebua, I Made Ginarsa	Lampung University	Renewable Energy

ROOM 6

Moderator : Rinaldo **Time: 15.00 - 16.00 (60 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-6	IDENTIFICATION OF DIASTASE ENZYME AS AN INDICATOR OF AUTHENTICITY OF SUMATRAN FOREST HONEY WITH NON-DESTRUCTIVE METHOD USING NIR SPECTROSCOPY	Diki Winanti, Pramita Anungputri	Lampung University	Natural Science
2	PAPERID-16	OPTIMAL CONTROL OF TUBERCULOSIS TRANSMISSION MODEL WITH VACCINATION INTERVENTION	Siti Chasanah, Yohana Utami, Dina Nurvazly, Bagoes Syachrannie	Lampung University	Natural Science
3	PAPERID-17	VARIATIONS OF GRACEFUL LABELLING OF SUBGRAPH OF MILLIPEDE GRAPH	Dina Nurvazly, Siti Chasanah, Ahmad Wiranto	Lampung University	Natural Science
4	PAPERID-19	POXIMATE ANALIZE OF WASTE FISH AS POTENTIAL PROTEIN SOURCE FOR ANIMAL	Etha Hasiib, RR Riyanti, Khaira Nova	Lampung University	Natural Science

ROOM 7

Moderator : Lilis Sholihah **Time: 15.00 - 16.00 (60 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-8	PROPORTIONAL AND SIMULTANEOUS CONTROL SYSTEM DESIGN FOR PORTABLE VENTILATORS BASED ON INTERNET OF THINGS	Aryanto, Ardian Ulvan, Melvi	Lampung University	Design and implementation of a technology-rich learning environment
2	PAPERID-13	TOTAL ORGANIC CARBON (TOC) PREDICTION USING MACHINE LEARNING METHODS BASED ON WELL LOGS DATA	Rahmat Wibowo, Ordas Dewanto, Muh Sarkowi	Lampung University	Design and implementation of a technology-rich learning environment
3	PAPERID-135	THE APPLICATION OF LIQUID ORGANIC FERTILIZER KIPAIT (TITHONIA DIVERSIFOLIA) ON THE GROWTH PAKCOY PLANTS (BRASSICA RAPA L) WITH THE FLOATING RAFT HYDROPONIC SYSTEM AND POPULATION OF SPODOPTERA LITURA F.	Ida Yusidah, Ahmad Taofik, Andi Gunawan	UIN Sunan Gunung Djati	Design and implementation of a technology-rich learning environment
4	PAPERID-136	PRELIMINARY STUDY OF DISASTER MITIGATION BASED LEARNING THAT FOCUS ON THE CHARACTER OF STUDENT DISASTER MITIGATION IN SENIOR HIGH SCHOOL PRONE TO VOLCANIC DISASTER	Irvan Prakoso, Daru Wahyuningsih, Dewanto Harjunowibowo	Sebelas Maret University	Design and implementation of a technology-rich learning environment

ROOM 8

Moderator : Dewi **Time: 15.00 - 16.00 (60 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-188	ON-LINE-BASED MSME DEVELOPMENT GOVERNANCE: OPPORTUNITIES AND CHALLENGES	Andi Nur	Makassar State University	Sustainable Developmpment
2	PAPERID-189	THE IMPACT OF REGULATIONS IN THE ENVIRONMENTAL SECTOR IN THE OMNIBUS LAW REGARDING FOREST AND ANIMAL SUSTAINABILITY IN SANGIHE ISLAND, NORTH SULEWESI	Imam Rifky	Lampung University	Sustainable Developmpment
3	PAPERID-191	CARCASS PERCENTAGE AND ORGANOLEPTIC QUALITY OF UNILA-1 SUPERIOR CHICKEN MEAT	RR Riyanti, Akhmad Dakhlan	Lampung University	Sustainable Developmpment
4	PAPERID-123	PONDS FUNCTION REVITALIZATION AS WATER SUPPLY TO INCREASE THE PRODUCTIVITY OF PALM PROCESSING FACTORY OF BEKRI BUSINESS UNITS	Amril Siregar	Lampung University	Sustainable Developmpment

DAY 2 (Saturday, August 28th 2021)

ROOM 1

Moderator : Rafista Deviyanti **Time: 08.30 - 11.30 (150 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-11	STREPTOMYCES HYGROSCOPICUS SUBSP. HYGROSCOPICUS STRAIN I18: EVALUATION OF INCUBATION TIME AND TRYPTOPHAN CONCENTRATIONS ON INDOLE-3-ACETIC ACID (IAA) HORMONE GENERATION	Hapin Afriyani, Achmad Arifiyanto, Mia Fitriani, Sumardi, Christina Ekowati	Lampung University	Sustainable Developmpment
2	PAPERID-12	ANTI-DIABETIC EFFECT OF CURCUMIN ANALOGS AS A-AMYLASE INHIBITOR	Devi Anisa	Lampung University	Sustainable Developmpment
3	PAPERID-38	THE BEHAVIOR OF PHOSPHORUS ADSORPTION ON SOIL IN THE GEOLOGICAL FORMATION OF RANAU TUFF USING THE LANGMUIR ISOTHERMIC MODEL TO SUPPORT FOOD SECURITY	Septi Aini, Wilda Yanti, Astriana Setiawati, Dedy Prasetyo, Jamalam Lumbanraja	Lampung University	Sustainable Developmpment
4	PAPERID-42	APPLICATION OF LIQUID ORGANIC BIOFERTILIZER FOR INCREASING SOIL FERTILITY, RICE PRODUCTION AND MINIMIZE THE USE OF CHEMICAL FERTILIZER TO SUPPORTING AGRICULTURE SUSTAINABLE	Winih Ramadhani, Ali, Defalki, Hery, Azan	Lampung University	Sustainable Developmpment
5	PAPERID-96	THE EFFECT OF PARTICLE SIZE AND DOSAGE COFFE LEATHER WASTE COMPOSE ON GROWTH AND PRODUC OF EDAMAME SOYBEAN (GLYCINE MAX L. MERILL) VARIETY RYOKO	Yati Rachmawati, Ahmad Fauzi, Ahmad Taofik	UIN Sunan Gunung Djati	Sustainable Developmpment
6	PAPERID-106	APPLICATION OF THE PASSIVE COOLING DESIGN CONCEPT AS AN EFFORT TO REDUCE CLIMATE CHANGE	Ai Munawaroh, Ahmad Jajuli, Anggun Angkasa Persada, Yeti Rohayati, Andiyan Andiyan, Tita Cardiah	Bandar Lampung University	Sustainable Developmpment
7	PAPERID-111	ANALYSIS OF INFRASTRUCTURE STANDARDS OF EARLY CHILDREN EDUCATION UNIT IN SOUTH SULAWESI PROVINCE	Jamaluddin Katutui, Andi Muliati, Sunarti Suwadi	Makassar State University	Sustainable Developmpment
8	PAPERID-114	A MINI-REVIEW OF LIGHT-EMITTING DIODE (LED) IMPLEMENTATION ON LETTUCE	Muhammad Achirul Nanda	Padjadjaran University	Sustainable Developmpment
9	PAPERID-121	COMPARISON OF GEE AND GLMM METHODS FOR LONGITUDINAL DATA (CASE STUDY: DETERMINANTS OF THE PERCENTAGE OF POOR PEOPLE IN INDONESIA, 2015-2019)	Pardomuan Sihombing, Khairil Notodiputro, Bagus Sartono	Bogor Agricultural Institute	Sustainable Developmpment
10	PAPERID-198	NO REFERENCE IMAGE QUALITY ASSESSMENT OF RETINAL IMAGE FOR DIABETIC RETINOPATHY DETECTION BASED ON FEATURE EXTRACTIONTI	Hanung Nugroho, Rani Himayani, Hery Septama, Titin Yulianti, Noor Setiawan	Gadjah Mada University	Sustainable Developmpment

ROOM 2

Moderator : Khairun Nisa **Time: 08.30 - 11.30 (150 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-9	2D MODELING GRAVITY METHOD FOR MAPPING SUBSURFACE BASIN OF BANDAR LAMPUNG CITY	Nandi Haerudin, Rustadi, Roniyus Marjunus	Lampung University	Enviromental Science
2	PAPERID-15	OPTIMIZATION OF PROTEIN PRODUCTION FROM BANANA PEEL FLOUR BY RHIZOPUS ORYZAE THROUGH SOLID-STATE FERMENTATION USING RESPONSE SURFACE METHODOLOGY	Andhika Sukma, Hasrul Anwar	Lampung University	Enviromental Science
3	PAPERID-56	IDENTIFICATION OF PHENOTIVE DIVERSITY AND PHYSIOLOGICAL APPEARANCE OF SWAMP BUFFALO (BUBALUS BUBALIS) LIVESTOCK AS AN IMPROVEMENT OF LIVESTOCK GENETIC QUALITY	Muhammad Hamdani	Lampung University	Enviromental Science
4	PAPERID-76	LIME-ENHANCED PHYTOEXTRACTION OF COPPER AND ZINC BY LAND SPINACH (IPOMOEA REPTANS POIR.) FROM HEAVY-METAL CONTAMINATED TROPICAL SOILS	Abdul Kadir Salam	Lampung University	Enviromental Science
5	PAPERID-80	MODIFICATION OF ACTIVATED CARBON FROM RUBBER FRUIT SHELLS WITH MAGNETITE COATING AND ADSORPTION OF BRILLIANT BLUE IN SOLUTION	Pina Pratiwi, Buhani, Suharso, Laili Lestari	Lampung University	Enviromental Science
6	PAPERID-81	CHARGE CONVERSION OF THE SURFACE OF NANNOCHLOROPSIS SP. WITH CATIONS AND THE ADSORPTION TEST FOR METHYLENE BLUE AND METHYL ORANGE DYES IN SOLUTION	Suharso, Nurul Miftahza, Buhani, Mita Rilyanti, Desria Monica	Lampung University	Enviromental Science
7	PAPERID-85	EFFECTS OF SWALLOW GUANO LEVEL ON GROWTH AND YIELD OF BABY CORN INFECTED PERONOSCLEROSPORA MAVDIS	Ahmad Taofik	UIN Sunan Gunung Djati	Enviromental Science
8	PAPERID-91	GROWTH AND YIELD OF THREE BEAN PLANT CULTIVARS (Phaseolus Vulgaris L) ON VARIOUS PLANTING MEDIA HYDROPONICALLY	Budy Qurrohman, Muhamad Subandi, Tedi Priatna, Ahmad Humam	UIN Sunan Gunung Djati	Enviromental Science
9	PAPERID-94	APLICATION ORGANIC MATTER AND AMF IN SWEET CORN (Zea Mays Saccharata) CULTIVATION ON POST-MINE SANDPITS SOIL	Cecep Hidayat, Yati Rachmawati, Dini Fatimah	UIN Sunan Gunung Djati	Enviromental Science
10	PAPERID-154	IN VITRO PROPAGATION OF TROPICAL PITCHER PLANT (*Nepenthes Ventricose*)	Liberty Chaidir, Delmata Hafiani Budiana, Noladhi Wicaksana, Deni Miharja	UIN Sunan Gunung Djati	Enviromental Science

ROOM 3

Moderator : Dian Shafwati **Time: 08.30 - 11.30 (150 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-163	EXPLANATORY ON RURAL DEVELOPMENT STAGES USING GEOGRAPHICALLY WEIGHTED REGRESSION BASED ON THE INTEGRATION OF SOCIO-ECONOMIC, DEMOGRAPHICAL AND LANDCOVER DATA	Mochamad Ghazali, Dian Rahmalia, Ukhti Ciptawati, Fitria Dewi, Muhammad Syuhada, Mirnawati	Lampung University	Remote Sensing and GIS
2	PAPERID-164	BLACK-BOX TESTING ON WEB-GIS OF FOREST HEALTH MONITORING USING EQUIVALENCE PARTITIONING TECHNIQUES	Agung Pangestu	Lampung University	Remote Sensing and GIS
3	PAPERID-170	LOCAL AND REMOTE DRIVE MECHANISM OF THE SURFACE CHLOROPHYLL-A DISTRIBUTION ALONG THE WESTERN COAST OF SUMATRA	Qurnia Sari, Iskhaq Iskandar, Eko Siswanto	Padjadjaran University	Remote Sensing and GIS
4	PAPERID-144	INTEGRATED SMART BUILDING FOR SUSTAINABLE AGRICULTURE AS A SOLUTION TO FOOD SECURITY AND FUTURE LAND CONSTRAINTS	Mahfud Sidik, Priyambodo, Kishy Herlanda, Eva Selviana, Putri Septiarini	Lampung University	Sustainable Develompment
5	PAPERID-145	THE APPLICATION OF THE SUSTAINABLE DEVELOPMENT CONCEPT IN INDONESIA'S ENVIRONMENTAL LAW	Nurmayani, Eka Deviani, Risa Mahdewi, Desia Banjarani	Lampung University	Sustainable Develompment
6	PAPERID-152	THE APPLICATION OF VERMICOMPOST ON KYURI CROP PRODUCTION	Esty Utami, Lavina Ayu Lestari, Suryaman Binardi	UIN Sunan Gunung Djati	Sustainable Develompment
7	PAPERID-162	HEALTH ASSESSMENT OF TAHURA BANTEN AS AN EFFORT TO PROTECT BIODIVERSITY	Nur Rohman, Rahmat Safe'i	Lampung University	Sustainable Develompment
8	PAPERID-199	BIPLOT ANALYSIS FOR MAPPING THE CHARACTERISTICS OF THE SAMPLE OF SWAW JITU, MARGA TIGA, AND TELUK RATAI LAMPUNG PROVINCE	Nusyirwan, Lusmeilia Afriani	Lampung University	Sustainable Develompment
9	PAPERID-133	OBSTACLE DETECTION USING RASPBERRY PI FOR DRIVING SAFETY BASED ON HOUGH TRANSFORM METHOD	Herlinawati, Tiya Muthia, Haedar Mahmud, Sri Purwiyanti, Fx Arinto Setyawan	Lampung University	Natural Science

ROOM 4

Moderator : Fajar Riyantika **Time: 08.30 - 11.30 (150 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
1	PAPERID-125	DROWSINESS DETECTION OF THE CARS DRIVER USING THE RASPBERRY PI BASED ON IMAGE PROCESSING	FX Arinto Setyawan, Rizky Meidianto, Sumadi, Afri Yudamson, Titin Yulianti	Lampung University	Natural Science
2	PAPERID-132	LOCAL CULTURE OF KRATOM (MITRAGYNA SPECIOSA) CONSUMPTION IN KAPUAS HULU DISTRICT	Rudy Utomo, Muhammad Wibowo, Nurmainah, Rusli Burhansyah	Research and Development of West Kalimantan	Natural Science
3	PAPERID-138	SYNTHESIS OF CARBAZOLE DERIVATIVE COMPOUNDS WITH THE MANNICH REACTION AND ANTIOXIDANT ACTIVITY	Zera Helga Vuvida Irgani Aftrid	Indonesian University	Natural Science
4	PAPERID-146	CITRUS EXPORT PERFORMANCES OF SOUTHEAST ASIAN COUNTRIES: A COMPARATIVE ANALYSIS	Dian Pratita, Rahmat Budiarto	Jember State Polytechnic	Natural Science
5	PAPERID-149	FRUIT QUALITY OF GUAVA (PSIDIUM GUAJAVA VAR. 'KRISTAL') UNDER DIFFERENT FRUIT BAGGING TREATMENT AND ALTITUDE OF GROWING LOCATION	Raden Ajeng Diana Widyastuti, Rahmat Budiarto, Kus Hendarto, Hayane Warganegara, Helvi Yanvika, Indah Listiana	Lampung University	Natural Science
6	PAPERID-150	YIELD AND METABOLITE FINGERPRINTING OF KAFFIR LIME LEAVES ESSENTIAL OIL IN RESPONSE TO PREHARVEST MILD SHADING	Rahmat Budiarto, Roedhy Poerwanto, Edi Santosa, Darda Efendi, Andria Agusta	Padjadjaran University	Natural Science
7	PAPERID-158	THE INFLUENCE OF CARBON-BASED ADDITION ON THE SUPERCONDUCTING PROPERTIES OF BPSCCO	Dini Rizqi Siregar, Nono Darsono, Sigit Yudanto, Septian Chandra, Eka Feby Lubis, Syahrul Humaidi	North Sumatera University	Natural Science
8	PAPERID-169	THE EFFECT OF Al2O3 AND MgO ADDITION ON THE SUPERCONDUCTING PROPERTIES OF Bi Pb-2223	Eka Feby Lubis, Nono Darsono, Sigit Yudanto, Septian Chandra, Dini Rizqi Siregar, Syahrul Humaidi	North Sumatera University	Natural Science
9	PAPERID-187	ESTIMATION OF ECONOMICAL MINERAL IN PESISIR BARAT, LAMPUNG BASED ON GEPHYSICAL MODELS	Akroma Hidayatika, Suharno, Ida Bagus Yogi, Hesti, Arif Wibowo	Lampung University	Natural Science
10	PAPERID-43	HISTOPATHOLOGICAL STUDY OF THE EFFECT OF SUPPLEMENTATION COMBINATION OF VITAMIN E, SELENIUM AND ZINC THROUGH DRINKING WATER ON SMALL INTESTINE OF BROILER	Muhammad Mirandy Sirat, Madi Hartono, Purnama Santosa, Ratna Ermawati, Nur Aini, Anugrah Wardhani, Ayu Lidyana, Sherlina Rahma, Fani Susandi	Lampung University	Natural Science

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1	PAPERID-166	EVALUATION OF DOUBLE ROW PLANT SPACING ON GROWTH AND PRODUCTION OF TWO COCOA CLONES (Theobroma Cacao L.)	Fakhrusy Zakariyya, Teguh Santoso, Rahmat Budiarto, Laily Widuri	Indonesian Coffee and Cocoa Research Institute	Enviromental Science
2	PAPERID-171	UNREPORTED FISHING AS A KIND OF CORRUPTION CRIME: A STUDY OF LEGAL ACTIONS	Rinaldy Amrullah, Diah Gustiniati, Maya Shafira, Agung Abadi, Desia Banjarani	Lampung University	Enviromental Science
3	PAPERID-173	OPTIMIZATION OF ACTIVATED CHARCOAL FROM AVOCADO SEEDS IN CHROMIUM (Cr) METAL ADSORPTION WITH H2SO4 AND HCl ACTIVATORS	Sari Sekar Ningrum, Dody Guntama	Binawan University	Enviromental Science
4	PAPERID-174	THE EFFECT OF DOSSAGE OF SOIL CONDITIONER ON COCOA GROWTH SEEDLING	Niken Sari, Febrilia Nur'aini, Fakhrusy Zakariyya	Indonesian Coffee and Cocoa Research Institute	Enviromental Science
5	PAPERID-177	MICROPLASTIC POLLUTION IN THE COASTAL WATER OF JAKARTA BAY, INDONESIA	Aqil Azizi	Bakrie University	Enviromental Science
6	PAPERID-180	CAPABILITY OF HYDROCARBON DEGRADING BACTERIA ISOLATES FROM PAOTERE PORT WATERS IN PRODUCING BIOSURFACTANTS	Adi Rahman	Hasanuddin University	Enviromental Science
7	PAPERID-183	IMPROVING EFFLUENT WATER QUALITY OF RUBBER LIQUID WASTE TREATMENT USING CERAMIC MEMBRANES BASED ON BENTONITE, ZEOLITE AND IRON ADDITIVES	Rizka Mayasari, Miftahul Djana	Lampung University	Enviromental Science
8	PAPERID-194	THE EFFECT OF VARIOUS NUTRIENT HYDROPONIC FORMULATION ON GROWTH AND YIELD OF THREE VARIETIES OF COMMON BEAN (Phaseolus Vulgaris L.) ON HYDROPONIC DRIP IRRIGATION SYSTEM	Muhammad Subandi	UIN Sunan Gunung Djati	Enviromental Science
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10	PAPERID-178	POTENTIAL FOR MANAGEMENT AND UTILIZATION OF LAMPUNG PROVINCE OF TOFU INDUSTRIAL WASTE	Novita Herdiana, Suci Rahmawati, Udin Hasanudin	Lampung University	Environmental Science

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Moderator : Rinaldo **Time: 08.30 - 11.30 (150 minutes)**

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2	PAPERID-57	POTENTIAL HAZARD ANALYSIS AND MECHANISM OF LANDSLIDE AND DEBRIS FLOW IN SEMAKA, TANGGAMUS	Aminudin Syah, Amril Siregar, Riki Wijaya	Lampung University	Natural Science
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4	PAPERID-75	IMPLEMENTATION OF NON-HIERARCHICAL CLUSTERING METHOD IN MAPPING THE DISTRIBUTION OF COVID-19 DATA IN INDONESIA, 2020	Netti Herawati, Khoirin Nisa, Subian Saidi	Lampung University	Natural Science
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6	PAPERID-86	SWIFTLET GUANO AND ROCK PHOSPHATE COMBINATION TO PROMOTE GROWTH AND YIELD OF BABY CORN	Salamet Ginandjar, Anna Roosda, Azzah Mahmudah, Ahmad Taofik, Aep Kusnawan	UIN Sunan Gunung Djati	Natural Science
7	PAPERID-88	AGRONOMIC CHARACTERISTICS AND QUALITY OF ROBUSTA COFFEE (Coffea Canephora Pierre Ex A. Froehner) GERMPLASM	Budi Martono, Eko Heri Purwanto	Indonesia Industrial and Beverages Crops Research Institute	Natural Science
8	PAPERID-90	GROWTH AND YIELD OF PAKCOY TREATED BY VARIOUS DOSES OF GOAT MANURE FERTILIZER IN DIFFERENT TIMES	Ajat Sudrajat, Ii Hamidah, Yati Rachmawati, Efrin Firmansyah, AH Fathoni	UIN Sunan Gunung Djati	Natural Science
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Moderator : Lilis Sholihah **Time: 08.30 - 11.30 (150 minutes)**

No	Paper ID	Title	Author	Affiliation	Theme
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2	PAPERID-39	INTERNET OF THING FOR SMART GARDEN: AUTOMATIC PLANT SPRINKLER	Humairoh Ayu, Dwina Syahputri, Arif Surtono, Donni Apriyanto	Lampung University	Design and Implementation of a technology-rich learning enviroment
3	PAPERID-45	MODIFICATION OF THE FILTERING SYSTEM IN RAINWATER HARVESTING TECHNOLOGY WITH CENTRIFUGAL SYSTEMS TO REDUCE LEVELS OF DISSOLVED SOLIDS	Riki Wijaya	Lampung University	Design and Implementation of a technology-rich learning enviroment
4	PAPERID-61	COURSE CLUSTERING IN MOODLE BASED LEARNING MANAGEMENT SYSTEM USING UNSUPERVISED LEARNING	Puput Wintoro	Lampung University	Design and Implementation of a technology-rich learning enviroment
5	PAPERID-68	NO REFERENCE IMAGE METHOD FOR RETINAL IMAGE QUALITY ASSESSMENT TO DETECT DIABETIC RETINOPATHY AND GLAUCOMA BASED ON FITUR EXTRACTION	Titin Yulianti, Hery Septama, Rani Himayani, Hanung Nugroho, Noor Setiawan	Lampung University	Design and Implementation of a technology-rich learning enviroment
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8	PAPERID-168	CONTROL OF MAGNETIC LEVITATION SYSTEM USING ADAPTIVE PID CONTROL	Swadexi Istiqphara, Zulmiftah Huda, Umi Murdika, Anisa Darajat	Sumatran Institute of Technology	Design and Implementation of a technology-rich learning enviroment
9	PAPERID-179	THE EFFECT OF CRIBS SLOPE ANGLE ON THE EROSION OF THE RIVERBANK	Achmad Syarifudin, Yeni Novitasari, Henggar Destania, Asrullah Haneman	Bina Darma University	Design and Implementation of a technology-rich learning enviroment
10	PAPERID-130	MODIFICATION AND PERFORMANCE TEST OF BROWN SUGAR SEMI-AUTOMATIC MACHINE IN EVAPORATION AND CRYSTALLIZATION PROCESS USING PALM OIL NEERA	Puspita Yuliandari, Lathifa Indraningtyas	Lampung University	Design and Implementation of a technology-rich learning enviroment

ROOM 8

Moderator : Dewi **Time: 08.30 - 11.30 (150 minutes)**

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5	PAPERID-125	DROWSINESS DETECTION OF THE CARS DRIVER USING THE RASPBERRY PI BASED ON IMAGE PROCESSING	FX Arinto Setyawan, Rizky Meidianto, Sumadi, Afri Yudamson, Titin Yulianti	Lampung University	Natural Science
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ABSTRACTS

Identification Of Diastase Enzyme As An Indicator Of Authenticity Of Sumatran Forest Honey With Non-Destructive Method Using NIR Spectroscopy

Diki Winanti[1*)], Pramita Anungputri[2)]

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Abstract: The demand for honey as an immunomodulator increase during the Covid-19 pandemic. Many types of honey, especially Sumatran forest honey, sold in the market. However, circulating fake honey that is difficult to distinguish from real honey. It potentially harm the consumers.The main indicator to determining freshness and authenticity of honey is the presence of diastase enzymes. Near infrared spectroscopy (NIRS) technology can be used to identify the authenticity of honey based on the diastase enzymes.This study aims to develop an authenticity test of several types of Sumatran forest honey based on the level of diastase enzymes with non-destructive methods using NIRS with partial least square (PLS) analysis. The data from NIRS method will be correlated with honey chemical test data (diastase enzyme levels, hidroksimetilfurfural, moisture content, sucrose content, and acidity) according to SNI procedures. The result of this study was activity of the enzyme diastase can be detected using NIRS. NIRS spectrum obtained from standard diastase enzyme solution samples was relatively the same as 5 types of Sumatran forest honey samples.

***Keywords**: diastase enzyme, NIRS, PLS, Sumatran forest honey.*

Proportional And Simultaneous Control System Design For Portable Ventilators Based On Internet Of Things

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Abstract: This research is about proportional and simultaneous monitoring of real-time ventilator automation systems based on the Internet of Things. The ventilator has a crucial role in the world of critical health, where its role is a substitute for respiratory function/ventilation for patients with respiratory function disorders. A ventilator is a means of breathing with negative or positive pressure that produces controlled air in the airway so that the patient can maintain ventilation and oxygen administration for a long time. The research method is by adding a breathing sensor per minute to measure the air pressure entering the ventilator, the ESP8266 Module as the controller. The research objective was to combine a simple ventilator system, monitoring with a smartphone in one device (standalone) wirelessly connected without a cable channel. Based on the design of the ventilator breathing apparatus, the tool can be done in real-time continuously for 5 days with breathing per minute on average it is 20 breaths per minute (normal human).

***Keywords**: Ventilator, Monitor, Internet of Things, ESP8266 Module.*

2D Modeling Gravity Method For Mapping Subsurface Basin Of Bandar Lampung City

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Abstract: The rapid population growth rate in Bandar Lampung City has an impact on the rapidly increasing demand for groundwater. This study aims to map groundwater basins in the Bandar Lampung area. It is necessary to carry out management and monitoring to monitor the availability of groundwater in the research area with an understanding of the existence of basins in the research area. Mapping of the subsurface basin was carried out using the gravity method to see the distribution of gravity anomalies in the study area. The low Bouguer anomaly which forms a circular closed closure is interpreted as a subsurface basin zone which is assumed to be a groundwater basin flanked by bedrock heights indicated by high gravity anomalies. 2D modeling of the research area can also show the presence of a basin and elevation zone composed of 4 rock layers, namely andesite, sandy tuff, clay tuff, and lava (andesite-basalt). The Bandar Lampung Basin is identified as being in the eastern part of the study area.

***Keywords**: Bouguer anomaly, 2D modeling, groundwater basin, sediment.*

Streptomyces Hygroscopicus Subsp. Hygroscopicus Strain I18: Evaluation Of Incubation Time And Tryptophan Concentrations On Indole-3-Acetic Acid (IAA) Hormone Generation

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Abstract: The demand for honey as an immunomodulator increase during the Covid-19 pandemic. Many types of honey, especially Sumatran forest honey, sold in the market. However, circulating fake honey that is difficult to distinguish from real honey. It potentially harm the consumers.The main indicator to determining freshness and authenticity of honey is the presence of diastase enzymes. Near infrared spectroscopy (NIRS) technology can be used to identify the authenticity of honey based on the diastase enzymes.This study aims to develop an authenticity test of several types of Sumatran forest honey based on the level of diastase enzymes with non-destructive methods using NIRS with partial least square (PLS) analysis. The data from NIRS method will be correlated with honey chemical test data (diastase enzyme levels, hidroksimetilfurfural, moisture content, sucrose content, and acidity) according to SNI procedures. The result of this study was activity of the enzyme diastase can be detected using NIRS. NIRS spectrum obtained from standard diastase enzyme solution samples was relatively the same as 5 types of Sumatran forest honey samples.

Keywords*: diastase enzyme, NIRS, PLS, Sumatran forest honey.*

Anti-diabetic Effect Of Curcumin Analogs As α-Amylase Inhibitor

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Abstract: The curcumin analogs compund showed anti-diabetic effects. Diabetes is one of the most chronic diseases resulting from inadequate insulin, both secretion and action, in the human body and raising the concentration of glucose in the bloodstream. The aimed of this study was to determine the activity of α-amylase inhibitor of curcumin analogs. In vitro anti-diabetic screening of Curcumin analog by α-amylase inhibition was carried out by DNS (3,5-dinitrosalicylic acid) method. Curcumin analog was tested for its inhibitory activity againts α-amylase enzyme with acarbose as the positive control. Curcumin analog was tested for its inhibitory activity against α-amylase enzyme with the variation of concentration of 0.0625 mM, 0.125 mM, 0.25 mM, 0.50 mM, and 1.00 mM and gived inhibition activity in 39.07%; 37.09%; 82.78%; 41.06%; and 84.11%, respectively. In this study, curcumin analogs indicated has a potential antidiabetic activity.

***Keywords**: Anti-diabetic, α-amylase, curcumin analog, inhibitor.*

Total Organic Carbon (TOC) Prediction Using Machine Learning Methods Based On Well Logs Data

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Abstract: TOC Determination is very important for the evaluation of each source rock unit. Methods that rely on extensive laboratory testing are limited by the availability and integrity of rock samples. Prediction of TOC from wells log data is available for most wells drilled providing rapid evaluation of organic content, providing a continuous record while eliminating sampling problems. Therefore, the ideal method for determining the TOC fraction in source rock units would be to use general well log data. The purpose of this study is to apply a machine learning method with the MLP-ANN technique to predict the best correlation from a new empirical correlation that can be used to estimate TOC using well logs. Eighteen data points from the Talang Akar Formation were used for training and testing the MLP-ANN model. The results obtained show that the MLP-ANN model predicts TOC using only well logs: bulk density (RHOB), compressional time (DT), deep resistivity (ILD), gamma-ray (GR), and neutron porosity (NPHI) with accuracy. high (CC 0.98 and average absolute percentage error (AAPE) 5%). The developed technique will help reservoir geophysicists and geologists to estimate TOC values using only well logs with high accuracy.

Keywords*: Total Organic Carbon (TOC); machine learning; artificial neural network (ANN).*

Optimization Of Protein Production From Banana Peel Flour By Rhizopus Oryzae Through Solid-State Fermentation Using Response Surface Methodology

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Abstract: Banana peel is one of the wastes from bananas with a composition of 35-40% of the weight of fresh bananas. The use of banana peels as feed and food ingredients is very limited due to the low protein content in banana peels. The purpose of this study was to increase the protein content in banana peel flour using Rhizopus oryzae FNCC 6157 with the solid-state fermentation method in a bioreactor tray. Optimization of protein production of banana peel flour was done using the central composite design by response surface methodology with three independent variables, including substrate thickness (1 to 3 cm), aeration rate (2 to 4 L/min), and moisture content (50 to 70%). Statistical analysis was carried out using ANOVA and resulted in a very good quadratic equation model indicated by the F-value and p-value of 17.77 and 0.0012, respectively, and was statistically significant ($p \leq 0.05$). The highest protein content of banana peel flour of 54.08% was obtained at the substrate thickness of 2 cm, aeration rate of 4 L/min, and moisture content of 60%.

Keywords*: banana peel, solid-state fermentation, Rhizopus oryzae, optimization, response surface methodology.*

Optimal Control Of Tuberculosis Transmission Model With Vaccination Intervention

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Abstract: Tuberculosis (TB) is an infectious disease that causes many deaths in the world. This paper will discuss optimal control strategies to control the spread of TB with vaccination in newborns and adults. The purpose is to minimize the cost of vaccination intervention and reduce the number of infected populations. Using the Pontryagin Principle, we obtain the optimal control characteristics of the model. Then, the result is transformed from a continuous to a semi-discrete function. It means that vaccination is given only at certain times. Next, numerical simulations were performed to obtain the optimal control interpretation. As a result, vaccination control is more effective in adults than newborns. Vaccination control to adults will be more optimal if given every four years because it will reduce the cost weight to vaccination and infected population.

***Keywords**: Optimal control, Tuberculosis, vaccination.*

Variations Of Graceful Labelling Of Subgraph Of Millipede Graph

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Abstract: One of the topics in graph theory is labelling. In 1967 Alex Rosa has introduced the theory of labelling. Alex Rosa introduced beta labelling which then by Golomb referred to as the graceful labelling. Graceful labelling itself has many variations, some of them are rho-hat labelling and odd-even graceful labelling. Millipede graph is a modification from ladder graph by adding r number of path graph which has length 1 at each vertex of the ladder graph so that the result of the graph resembles a millipede. In this paper, the researchers show that the subgraph of the millipede graph that has 1 and 2 rung have graceful labelling, rho-hat labelling, and odd-even graceful labelling.

***Keywords**: Graceful Labelling, Rho-Hat Labelling, Odd-Even Graceful Labelling, Subgraph of Millipede Graph.*

Poximate Analize Of Waste Fish As Potential Protein Source For Animal

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Abstract: This study aims to determined the moisture, dry matter, crude protein, extract ether, crude fiber, ash content of fish waste as protein source for animal. Fish waste was obtained from Fish Auction Market Gudang Lelang Bandar Lampung. The preparation process for processing fish waste into meals is done by selecting fish waste that has been sorted, then cutting fish waste into 3-5 cm. Next, the fish waste is dried in sun light, then put into an oven at 600C to dry as feed. The next stage is milling the fish waste with a mini mills to obtain meal. Proximate analysis of fish waste meal was carried out using AOAC method. The results of the proximate analysis showed that fish waste flour contained 7.42% moisture, 92.58% dry matter, 31.81% ash, 13.60% extract ether, 36.00% crude protein, and crude fiber. 2.17%. Based on this study, it can be concluded that fish waste meal can be used as a protein source for animal feed.

Keywords*: fish waste, proximate analize, feed.*

Design And Electric Car Aerodynamics Study Green Campus UNILA

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Abstract: The use of fossil energy is very influential on environmental sustainability. The impact we have felt is global warming with an uncertain season. So we must have a commitment to reduce the consumption of fossil fuels in order to maintain a sustainable environment. This is in line with the commitment of the University of Lampung (UNILA) in making the Unila campus a Green Campus. One of the technologies that can encourage the realization of a green campus is electric vehicles around campus. The purpose of this analysis is to determine the design of the shape or geometry of the vehicle and the aerodynamic analysis of the vehicle with speed variations of 10 and 20 m/s. This research uses the Research and Development (R&D) type of research and is carried out to make an optimal vehicle design with aerodynamic studies. This study uses the Software Ansys Workbench with CFD solver and using m etode k-epsilon turbulence realizable standard wall function.

Keywords*: aerodynamics, efficiency, cfd, meshing.*

Aerodynamic Analysis Of Horizontal Axis Wind Turbine (HAWT) Design Using Q-Blade Software

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Abstract: Energy is the source of human life to be able to carry out its activities. the more energy that is used, the more the impact that will be caused, especially the energy used is non-renewable energy. So for sustainability, the development of energy sourced from renewable energy is carried out. One of them is Electrical Energy. Utilization of wind energy into electrical energy can be produced with a conversion tool, namely a wind turbine. This study aims to design and analyze the fluid flow that occurs in the wind turbine according to the design. The research will be carried out design using the wind turbine using Q-Blade software. This research uses the NACA airfoil 4412. At this stage of the simulation, there will be a wide range of variation of the wind speed at a speed that is 1-7 m/s, Tip Speed Ratio (TSR) and variation of pitch angle in order to generate maximum value . In the design in this study, the maximum wind turbine design was obtained.

***Keywords**: diastase enzyme, NIRS, PLS, Sumatran forest honey.*

Deep Learning: Method For Leaf Identification (case Study: *Orthosiphon Aristatus*)

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Abstract: Many medicinal plants grow naturally. So many people do not know the types and benefits of medicinal plants. The application of computer vision technology that is widely used for image identification. Pictures or images of medicinal plant leaves are used as data representing certain types of medicinal plants. The data used is data that has been given special treatment in image collection. Preprocessing is carried out on the data obtained as the first step in data processing. Furthermore, the data is divided into training data of 2000 image data, validation data of 400 image data and test data of 200 image data. Training data is used to form a model pattern while validation data is used to validate the resulting model. The model is made using a convultional neural network. The results of data validation show the highest accuracy obtained, which is up to 80% with a processing time of 308 seconds.

***Keywords**: Medicinal Plants, pattern recognition, deep learning.*

The Behavior Of Phosphorus Adsorption On Soil In The Geological Formation Of Ranau Tuff Using The Langmuir Isothermic Model To Support Food Security

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Abstract: Langmuir Isothermic Model is a mathematical model that can be used to determine the capacity adsorption (Xmax) and the relative energy (KL) of phosphorus in the soil. This study was therefore aimed to obtain the information on the maximum phosphorus absorption capacity in the soil samples of Tuff Ranau Geological Formation (TRGF). Soil samples were collected from TRGF area at three zones in West Lampung Regency (1. ± 40; 2. ± 30; and 3. ± 20 km in the southern area of Lake Ranau). Soil samples were collected from two deph of soils (0 – 20 and 20 – 40 cm). This research was conducted in the Laboratory of Soil Science, Faculty of Agriculture, Lampung University. The results showed that soil in Balik Bukit has a maximum adsorption P value (Xmax) which is higher than that of the soil in Sekincau and Batu Brak on TRGF. The high value of Xmax is because Balik Bukit may have to do with a high Fe content of 35.95 mgkg-1, since Fe is one of the causes of high P sorption in the soil. The relative energy of phosphorus adsorption (KL) in subsurface horizons is relatively higher than that of in surface horizon.

***Keywords**: Adsorption, Langmuir Isothermic Model, Phosphorus, Soil, Tuff Ranau.*

Internet Of Thing For Smart Garden: Automatic Plant Sprinkler

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Abstract: This research is aimed at building a system to automatically water plants based on the internet by controlling soil moisture in plants and monitoring the water level in the reservoir using the ESP8266 module, soil moisture sensor and ultrasonic sensor. Soil moisture is one of the important factors that affects plant growth. Whether the soil is moist or not depends on the quantity of water. Dry soil will interfere with the photosynthesis process. This affects plant growth, resulting in low quality crop yields. The internet of things (IoT) based smart garden system was created to solve this problem. The results of the tests that have been carried out show that the system can perform automatic plant watering which can be controlled in real time.

Keywords*: soil moisture, water level, iot, smart garden.*

Application Of Liquid Organic Biofertilizer For Increasing Soil Fertility, Rice Production And Minimize The Use Of Chemical Fertilizer To Supporting Agriculture Sustainable

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Abstract: The low production of rice in Indonesia caused by low soil fertility, one of which is soil organic matter. One of the efforts to increase soil fertility is the addition of biofertilizers, one of which is LOB. Addition of LOB is expected to increase soil organic carbon, increase rice production and reduce the use of chemical fertilizers. This study used a randomized block design with 4 treatments: P0 (100% chemical fertilizer), P1 (100% chemical fertilizer), P2 (75% chemical fertilizer) and P3 (50% chemical fertilizer). Each treatment was added with LOB 15 L Ha-1. The results showed, addition of LOB can increase soil organic carbon, fungi in soil and weight of grain per clump of rice. Addition of LOB has a highers total carbon in soil, fungi in soil and weight of grain per clump if compared addition 100% chemical fertilizer. Treatment P3 very significant effect in increasing soil organic carbon, total fungi in soil and weight of grain per clump of rice if compared to the addition 100% chemical fertilizer treatment. With the addition of LOB which can increase rice production, so that it is expected to reduce the use of chemical fertilizers.

***Keywords**: Liquid Organic Biofertilizer, Rice Production, Soil Fertility.*

The Composition Of Modified High-Fat Diet And Its Effect On Histopathological Features Of Mice Liver As An Alternative Diet For Animal Model Of Liver Cell Damage

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Abstract: Researchers attempted to obtain animal models that experienced hypercholesterolemia and lead to liver damage to determine the performance of the liver. Rats were chosen because of the ease of handling, collecting organ and blood samples, but their high price and availability that are more difficult to find have made some researchers have to look for alternatives to other animal models such as mice. This study aims to determine the role of a modified high-fat diet as an alternative diet for mice to experience hepar damage. Male mice treated for 4 and 8 weeks with a modified high-fat diet, were sacrificed for their liver, then they were tested for histopathology using the paraffin method and HE staining. The characterization of hepar damage traits was carried out using the method of scoring the degree of parenchymal degeneration, hydropic degeneration, and necrosis. The results showed that the control group, 4 weeks and 8 weeks of atherogenic diet had more than 50% cell damage, presumably due to the role of the starch mixture in feed as a source of carbohydrates through the mechanism of converting carbohydrate pathways into fat which damages liver cells.

***Keywords**: modified high-fat diet, hepar damage, mice.*

Modification Of The Filtering System In Rainwater Harvesting Technology With Centrifugal Systems To Reduce Levels Of Dissolved Solids

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Abstract: The Rainwater harvesting of technology is needed nowadays. Limited water sources will certainly occur in the future. The dense development that occurs has an impact on the increasingly vibrant use of groundwater. This will cause the groundwater level to decrease. Of course, the availability of ground water cannot always be stable in conditions of the current high demand for water. Rainwater harvesting technology is the main solution in this case. Apart from being a water source, it can also restore the ground water level to its natural condition. The Rainwater harvesting of technology currently still needs a lot of development in order to produce better quality rainwater. For this reason, in this study a modification will be made to the initial filter to separate the initial sediment from pure rainwater when it rains. The centrifugal system in this case will be used to play a role in separating sediment from rainwater. It is hoped that the use of this system will be able to improve the quality of rainwater produced so that it can be ready for consumption and use as it should.

***Keywords**: Rainwater Harvesting, Sentrifugal System, Filter.*

Sensitivity Test And Enhancement Of Accelerometer Instrument Prototype Capability In Geothermal Field

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Abstract: The need to utilize accelerometer instruments in geothermal exploration has prompted this research to develop a prototype of the accelerometer instrument independently. However, this instrument has not been developed into direct use for geothermal exploration. Therefore, this research is critical to test the accelerometer instrument prototype developed by the research team to map microtremor activity in geothermal fields. This research method is to upgrade/increase the accelerometer instrument by adding an ADC module to increase the data bandwidth. The measurement results show an increase in sensor sensitivity up to two times with a bandwidth of up to 16-bit. The test results are also able to perform a sampling rate of 100 SPS without any lost data. Based on the Geothermal field test, the dominant frequency distribution pattern shows the alignment of the surface layer between the Kali Tiga manifestation and the Margodadi manifestation area. This finding strengthens the previous research's suspicion of a relationship between hot fluid flow in the west-east direction. Therefore, this prototype can be used in geothermal exploration at a certain level, especially in detecting surface patterns. Furthermore, it is necessary to test the instrument's characteristics at a lower frequency, especially in the <1 - 25 Hz.

***Keywords**: Accelerometer, Enhancement, Geothermal, Prototype, Way Ratai.*

Identification Of Phenotive Diversity And Physiological Appearance Of Swamp Buffalo (Bubalus Bubalis) Livestock As An Improvement Of Livestock Genetic Quality

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Abstract: This study aims to determine the phenotypic diversity and physiological appearance of swamp buffalo in Jati Agung sub-district, South Lampung. The research was carried out from January to July 2021 in six villages in the Jati Agung sub-district, South Lampung, namely Margo Lestari Village, Banjar Agung Village, Karang Anyar Village, Sumber Jaya Village, Sinar Rejeki Village and Jati Mulyo Village. The research subject consisted of 64 Swamp Buffalo consisting of 46 female buffalo and 18 male buffalo aged 2-6 years. The research methods used survey method with census data collection. The quantitative performance parameters measured were body length, chest width, shoulder height, chest depth, hip height, hip width, head length, head width, horn length and body weight. The qualitative performance observed was skin color, horn shape, head shape, chevron, the number of Hair whorl. The results showed that the quantitative performance unveiled significant difference ($P<0.05$). The qualitative performance of buffaloes was dominated by nyangkung horn shape, double cevron, curved back line, more than 1 hair whorl, and grayish black skin color. The findings for the physiological responses showed that they would have higher response in the afternoon than in the morning or at night.

***Keywords**: Jati Agung District, phenotypic diversity, physiological appearance, Swamp buffalo.*

Potential Hazard Analysis And Mechanism Of Landslide And Debris Flow In Semaka, Tanggamus

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Abstract: According to the Tanggamus Local Disaster Management Agency, landslides and floods occurred 3 times throughout 2020 in Semaka, namely on January 10, August 5, and September 30, 2020. This study aims to provide data/information on field survey, hydrological analysis, geotechnical investigation and mitigation techniques to reduce the disaster risk. This study begins with a preliminary investigation, field survey and data collection. This study was conducted to determine the mechanism and causes of debris flow, landslides that preceded and the potential hazard of debris flow and landslides in the future. Based on the the study result, landslides that occur along the flowpath are controlled by the geological conditions of the soil and rock layer. The soil layer consist of montmorillonite clay on bad rock in the form of breccia andesite which is very susceptible to move when triggered by water. Landslides can also block the flowpath and become natural dam which at any time transform into fast floods. The potential landslides that can transform into debris flows or flash floods requires structural mitigation efforts on unstable slopes. Non-structural mitigation efforts by community-based disaster education or early warning system can be carried out because of the advantages in terms of costs.

***Keywords**: disaster risk reduction, landslide, Tanggamus, back analysis, hazard.*

Production Of Biogas From Coffee Husks Using Rumen Fluid And Mixture Of Rumen Fluid And Cow Dung

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Abstract: Coffee husk is a lignocellulosic material which is abundant and can be used as raw material for biogas production. Biogas production can be increased by adding rumen fluid and cow dung. This study compares the production of biogas from coffee husks using rumen fluid and a mixture of rumen fluid and cow dung. This experiments were conducted in anaerobic batch reactor over 30 days with a working volume of 3.6 L at the mesophilic temperature. Several parameters were measured as total solid (TS), volatile solid (VS), volatile fatty acids (VFA), chemical oxygen demand (COD), biogas composition, and methane yield. COD of CR and CRC were 28.03 % and 40.92 % respectively. Yield of methane production for CR and CRC were 0.01 Nm^3/kg COD removal and 0.06 Nm^3/kg CODremoval respectively. When the addition of cow dung was done, the quality of methane increased from 18,4 % to 22.3 %. With rumen fluid, the composition of biogas was 18,4% CH_4, 14.11 % CO_2 and 0.52% H_2. With a mixed rumen fluid and cow dung , the composition of biogas was 22.30 % CH_4, 13.75 % CO_2 and 0.39 % H_2.

***Keywords**: Coffee husks, Cow dung, Rumen fluid ,Methana, Volatile fatty acid.*

Geomorphological Study Of Bandar Lampung City And Landslide Hazard Assessment

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Abstract: Bandar Lampung is a densely populated urban area consisting of land and water with several plateaus and mountains that stretch across this region. To support sustainable development in a city area, it is necessary to have a spatial planning concept that considers all aspects, one of which is the potential disaster aspect. One of the potential disasters in the city of Bandar Lampung is a landslide. In this research, a geomorphological study was conducted to produce a landslide susceptibility map. The purpose of this research is to produce a map of the hazards and vulnerability of landslide with a geomorphological approach as one of disaster mitigation efforts to support sustainable spatial planning and development. In this study, DEMNAS image was used for the interpretation of landforms in the city of Bandar Lampung. Landform is used as one of the parameters for assessing landslide hazards. By utilizing the geographic information system and the method of weighting and scoring against the parameters and variables used, the landslide hazard class can be assessed. The results showed that the research area was dominated by volcanic forms and coastal sediments. Based on this geomorphological condition, the landslide hazard level is obtained in the study area.

***Keywords**: geomorphology, landslide, Bandar Lampung.*

Course Clustering In Moodle Based Learning Management System Using Unsupervised Learning

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Abstract: The covid-19 pandemic has not shown a significant decline in graph, entering the beginning of 2021 the spread of covid-19 tends to continue to increase in several areas. This forces universities in Indonesia to conduct lectures online using a platform that suits the needs of the higher education institution. This refers to the Joint Decree of the Minister of Education and Culture (Mendikbud), Minister of Religion (Menag), Minister of Health (Menkes), and Minister of Home Affairs (Mendagri) regarding Guidelines for Implementation of Learning in the Academic Year 2020/2021 and Academic Year 2020/2021. during the Pandemic Coronavirus Disease 2019 (Covid-19). Moodle is a platform that is quite widely used by universities in conducting lectures. Moodle has complete features that can replace lecturing activities that have been carried out offline to online. In addition, Moodle also has a datalog that records all online learning activities for lecturers and students so that learning data can be analyzed and audited. One way to analyze online learning using Moodle is by clustering courses, especially on learning activities that have been carried out by lecturers and students that are recorded in the datalog. By clustering courses, it is hoped that the character of online learning courses can be seen as the initial basis for taking further action in order to maintain the quality of online learning at the institution.

***Keywords**: Clustering, Unsupervised Learning, data log.*

No Reference Image Method For Retinal Image Quality Assessment To Detect Diabetic Retinopathy And Glaucoma Based On Fitur Extraction

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Abstract: Retinal image is widely used for the detection of diseases such as diabetic retinopathy, glaucoma and other diseases. The quality of the retinal image is one of the important factors that influence the detection result. Therefore, the retinal image quality assessment is needed as a prescreening stage detection. It is necessary to develop a no-reference retinal image quality assessment method since the reference image is not always available. In additional, the region of interest (RoI) of each disease to be detected is different each other. That is not the entire area of retinal image to be assessed. This research developed a method for assessing the quality of the retinal image by cropping the RoI of the retinal image based on diseases to be detected, in this case it is focused on diabetic retinopathy dan glaucoma. Futhermore, extracting feature in the image and determines the level of retinal image quality by grouping them using clustering techniques. Clustering performance is tested by calculating the sensitivity, spesificity and accuracy. For the diabetic retinopathy case, the best performance is by extracting a combination of histogram feature, GLCM feature, and contrast of blood vessels with 77.36% specificity and 72.41% accuracy.

***Keywords**: Diabetic Retinopathy, Retinal Images, No-reference image quality assessment, Feature extraction, clu.*

Effect Of Growing Medium On Germination And Vigority Of Macadamia Seeds (Macadamia Integrifolia Maiden & Betche)

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Abstract: This study aims to obtain the appropriate growing medium for macadamia seed germination. The research was conducted in a green house, Indonesian Industrial and Beverage Crops Research Institute, West Java, from October to December 2020. The study used a randomized block design with 9 medium treatments: 1) sawdust, 2) cocopeat, 3) husk charcoal, 4) Sand, 5) Soil, 6) Soil+sawdust (1:1), 7) Soil+cocopeat (1:1), 8) Soil+husk charcoal (1:1), 9) Soil+sand (1: 1). The treatment was repeated 4 times. The results showed that the medium had a significant effect on germination rate, plumule emergence time, seed height, root length and dry weight, except for seed germination and shoot-root ratio did not show any differences. Germination ranges from 80-100%. The germination rate on sand+soil medium 3 days, sawdust 3.3 days and sawdust+soil 3.5 days. The time of appearance of the plumules was between 15-21 days except for 24.4 days cocopeat. Seed height is between 5.61-5.72 cm. The longest roots were in soil and sawdust medium and the largest seedling dry weight was in sawdust medium. Medium sawdust, sawdust+soil, and soil have a shoot-root ratio value> 1 which means that it is very good for the growing medium.

***Keywords**: Germination, Macadamia, growing medium, seed.*

Implementation Of Non-Hierarchical Clustering Method In Mapping The Distribution Of Covid-19 Data In Indonesia 2020

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Abstract: The Coronavirus that appeared in (COVID-19), caused by SARSCoV-2, started at Wuhan in the Hubei province of China and has spread with great speed around the world; it has caused a severe health crisis all around the world, including Indonesia. This study aims to use a clustering technique to assess the risk of the COVID-19 pandemic in Indonesia, based on data obtained between March 2020 and July 2021 in that country (http://www.covid19.go.id). Provinces in Indonesia were grouped based on COVID-19 infection rates and mortality data. Since the data contained some outliers, i.e. provinces with a very high number of cases, we used a robust clustering method; this method is not sensitive to outliers. The analysis was performed using the Trimmed k-means clustering method. Based on the results of this study, with four provinces detected as outliers in the data, there were three optimal clusters with the maximum separation index. Cluster 1 consisted of 14 provinces, and clusters 2 and 3 consisted of 10 and 6 provinces, respectively. The four outliers, i.e. Jakarta, West Java, Central Java and East Java, formed a separate cluster.

Keywords*: covid-19, non-hierarchical cluster, fuzzy c-means, k-medoids.*

Lime-Enhanced Phytoextraction Of Copper And Zinc By Land Spinach (Ipomoea Reptans Poir.) From Heavy-Metal Contaminated Tropical Soils

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Abstract: Phytoextraction and liming were suggested to decrease the concentrations of heavy metals in contaminated soils. This research was to study the effects of liming and phytoextraction by land spinach in lowering the soil concentrations of Cu and Zn in heavy-metal contaminated tropical soils. Soil samples collected from a 22-years-old experimental field amended with heavy-metal containing waste at 0-60 Mg ha-1 were treated with lime at 0-5 Mg ha-1 and planted with land spinach in a glass-house experiment. After 4 weeks the soil and plant Cu and Zn were analyzed. The results show that the 60 Mg waste ha-1 significantly increased the soil concentrations of Cu and Zn and depressed the land spinach growth. Land spinach slightly lowered the soil concentrations of Cu and Zn in unlimed soils at waste levels ≤ 15 Mg ha-1. Liming significantly lowered the soil concentrations of Cu and Zn and improved the growth and Cu-Zn uptake of land spinach but attenuated the effect of land spinach in decreasing the soil concentrations of Cu and Zn. The Cu-Zn uptake of land spinach was well-correlated with the soil concentrations of Cu and Zn.

***Keywords**: Industrial Waste, Phytoremediation.*

Daily Commute Of Circular Migrant In Greater Jakarta

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Abstract: This research aims to explain the motive of the circular migrant worker in Greater Jakarta. As a destination city, Jakarta is an area with a relatively close distance to the Greater Jakarta area, and there are many choices of transportation. The circular migrant has an exceptional condition: they only move to work or education but do not settle in the destination. The study uses descriptive methods to understand the phenomenon of circular mobility to Jakarta. The data collected from the publication of Statistic Indonesia and in-depth interviews. The results showed that the majority of commuters to Jakarta came from Depok City and Bekasi City. The motives of commuters are for work (83 per cent) and education (17 per cent). The large proportion of commuters with the prior status of work activities shows that economic factors, especially higher income, are still the main reason for commuting. Circular migrant prefers electric railroad line (KRL) because it is relatively fast, cheap and free from traffic jams. The high level of traffic congestion in Jakarta forces commuters to choose the most profitable mode of transportation.

***Keywords**: Migration, Population mobility, Circular mobility, Commuter, Mass transportation, Greater Jakarta.*

Accelerating Coffee Cattle Integration Implementation As Climate-Smart Agriculture By Financial Support Development

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Abstract: Coffee livestock integration is one of the climate change adaptation practices. However, its implementation is still limited due to the limited financial capacity of smallholder plantations. Some farmers apply the coffee livestock integration, but the integration system is not running optimally. This study analyzes the financial support for smallholder coffee plantations to implement coffee livestock integration as a Climate-Smart Agriculture (CSA) practice. The analysis was performed using Descriptive Statistics. On the other hand, most farmers are interested in implementing livestock coffee integration but face constraints related to capital for implementation. Considering that the average ownership of coffee plantations is relatively low, the recommended livestock coffee integration is an integrated system based on farmer groups. Strategies to develop financial support for coffee livestock integration include increasing the availability of credit, increasing access, and diversifying and customizing products and services for different value chain actors. Not all components of investment and working capital can get funding support. Therefore, it is necessary to strengthen farmer institutions, both social and economic institutions. Establishing strategic partnerships with non-financial service providers and providing technical assistance towards optimal credit use will complement financial support for coffee cattle integration.

Keywords*: climate, coffee, smallholder, financialsupport.*

Modification Of Activated Carbon From Rubber Fruit Shells With Magnetite Coating And Adsorption Of Brilliant Blue In Solution

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Abstract: In this research, the synthesis and characterization of activated carbon from rubber fruit shells was carried out through physical-chemical activation (AC) followed by magnetite coating to produce magnetite-physical-chemical activated carbon (AC-Fe_3O_4) as a Brilliant Blue adsorbent. Activation of carbon was carried out physically by heating at 700℃ and chemically using a 10% H_3PO_4 solution as activating agent. The magnetite coating was carried out by the co-precipitation method. Characterization of activated carbon was carried out using X-Ray Diffraction (XRD) to identify the crystallinity level of carbon coated with magnetite particles and Scanning Electron Microscope-Energy Dispersive X-Ray (SEM-EDX) to determine surface morphology and identify elemental composition. This adsorption study aims to confirm ability of AC-Fe_3O_4 to adsorb Brilliant Blue. The optimum adsorption of Brilliant Blue is at pH of 3 (acidic condition), contact time of 90 min, and with a removal efficiency of 91.98%.

***Keywords**: activated carbon, rubber fruit shells, magnetite coating, adsorption, Brilliant Blue.*

Charge Conversion Of The Surface Of Nannochloropsis Sp. With Cations And The Adsorption Test For Methylene Blue And Methyl Orange Dyes In Solution

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Abstract: In this study, it was carried out the charge conversion of the algae biomass of Nannochloropsis sp. with Na^+ cations to produce algae-Na as adsorbent of methylene blue (MB) and methyl orange (MO). Adsorbent characterization was performed by using Infrared Spectrophotometer (IR) to identify functional groups on the adsorbent and Scanning Electron Microscopy with Energy Dispersive X-Ray (SEM-EDX) to analyze surface morphology and elemental composition in the adsorbent. The adsorption of MB and MO by the algae-Na adsorbent was tested with a pH range of 3-12. The adsorption process of MB is optimum at pH of 12 with removal efficiency of 75.53% while the adsorption process of MO is optimum at pH 3 with removal efficiency of 59%.

***Keywords**: Adsorption, Nannochloropsis sp, methylene blue, methyl orange.*

Utilization Of Cogongrass Bohasi To Increase Growth And Yield Of Soybean Var. Detap 1

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Abstract: Increasing soybean production through soil fertility improvement can be done by utilizing cogongrass bohasi. This study aimed to determine the appropriate dose of cogongrass bohasi to increase the growth and yield of soybean Var. Detap 1. This research was conducted at the experimental field of Universitas Padjadjaran Ciparanje, Sumedang from March to September 2018. The method used was a randomized block design (RBD) with one factor, namely: A = cogongrass bohasi of 0 t ha-1, B = 15 t ha-1, C = 20 t ha-1, D = 25 t ha-1 and E = 30 t ha-1 which were repeated 5 times. The further test used was Duncan Multiple Range Test. The results showed that the provision of cogongrass bohasi significantly affected the parameters of plant height, leaf area, leaf area index, number of pods, and fresh and dry weight of stover. The cogongrass bohasi 15 t ha-1 dose was the best dose to increase the growth and yield of soybean Var. Detap 1.

***Keywords**: Bohasi, Cogongrass, Soybean.*

The Implementation Of Family Hope Program For The Welfare Of People In Lebak Regency (A Study In District Of Malingping, The Regency Of Lebak, Banten Province)

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Abstract: The government has developed a program that encourages community welfare improvement, namely the Family Hope Program (PKH). The program provides conditional social assistance to low-income families as beneficiary families. This paper focuses on implementing the Family Hope Program (PKH) for Community Welfare in Lebak Regency (Study in Malingping District, Lebak Regency, Banten Province). The data collection method used a descriptive approach through observation, study and documentation. The study found that the PKH Program was considered to be beneficial for the beneficiary families. There was a change in the quality of education and health services but still not significant in reducing poverty. There is no uniformity in the data that is managed, and data anomalies are still found. Those are mismatches in names, population identification numbers (NIK), family card numbers (KK) and multiple IBDT numbers (Integrated Database Identity). Thus, there is still weak synergy in data management from RT/RW to the central government. There is also a lack of socialization and assistance to society. Besides that, financial assistance is often used outside the provisions by the beneficiary. Furthermore, there are problems with withdrawal services for PKH with the BRI Link service. Keywords :Policy Implementation, Family Hope Program, Welfare.

***Keywords**: Implementation, Keluarga Harapan Program, and benefit recipients.*

The Effects Of Swallow Guano Level On Growth And Yield Of Baby Corn Infected Peronosclerospora Mavdis

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Abstract: The downy mildew disease is one of the limiting factors to increasing the productivity of the corn. maize by the need for effective repairs. Swallow guano have function as fertilizer also have ability to protect plants from diseases. The purpose of this study was to study the ability of guano swallow as both fertilizer and the ability corn from downy mildew disease (Peronosclerospora maydis) and in increasing the growth of semi-corn plants. The experiment was carried out in the greenhouse of the Experimental Garden Padjajaran University, Jatinangor, the experimental design using Randomized Block Design (RBD), there are 9 treatments and 3 replications, namely: A = soil without pathogenic inoculum Peronosclerospora maydis + without swallow guano; B = without swallow guano + inoculum pathogen Peronosclerospora maydis; C = 8.5 t ha-1 swallow guano; D = 9 t ha-1 swallow guano; E: 9.5 t ha-1 swallow guano; F = 8.5 t ha-1 swallow guano + Peronosclerospora maydis inoculum; G = 9 t ha-1 swallow guano + Peronosclerospora maydis inoculum; H = 9.5 t ha-1 swallow guano + Peronosclerospora maydis inoculum. The conclusion that swallow guano with a dose of 9 t ha-1 is an effective dose to increase yield of baby corn.

Keywords*: swallow guano, baby corn, Peronosclerospora maydis.*

Swiftlet Guano And Rock Phosphate Combination To Promote Growth And Yield Of Baby Corn

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Abstract: Fertilizer is one of important components in plant growth, Baby Corn in particular. Organic fertilizer becomes an alternative solution to support plant growth and yield with eco-friendly system. Swiftlet guano has a high nitrogen content but a low phosphorus content. Rock phosphate provides a high phosphorus content, which supports cell division and flowers formation in plant. This research aimed to find out the effect of swiftlet guano and rock phosphate combination to promote growth and yield of Baby Corn. A Randomized Block Design was arranged with control and nine combinations of swiftlet guano (8.5 t ha-1, 9 t ha-1, 9.5 t ha-1) + rock phosphate (400 kg ha-1, 500 kg ha-1, 600 kg ha-1) The results imply significant effect on plant height. Combination of 9.5 t ha-1 swiftlet guano + 400 kg ha-1 rock phosphate supports plant height at 4 and 6 weeks after planting. The early harvest of corn, baby corn, indicates P and K will get the optimum absorption to form flowers, fruits and seeds at final stage of plant.

***Keywords**: baby corn, organic fertilizer, rock phosphate, swiftlet guano.*

Agronomic Characteristics And Quality Of Robusta Coffee (*Coffea Canephora Pierre Ex A. Froehner*) Germplasm

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Abstract: To produce high yielding varieties, it is necessary to have a gene source with a high level of diversity and have the desired characteristics. This study aims to determine the production, quality, and agronomic character of Robusta coffee germplasm. The research material consisted of 36 accessions of Robusta coffee germplasm planted with a spacing of 2.5 m x 2.5 m. The research was conducted at Pakuwon Experimental Garden, Sukabumi Indonesia from January 2019 to December 2020. The characters observed were production, taste quality, caffeine content, and agronomic characters. The results showed that there was a variation of fruit weight/tree characters, the number of fruit/tree, the number of corm /branches, and the distance between the corms. The average cherry weight ranged from 3,986.20 to 9,820 g/tree or an average of 5,990.18 g/tree. Accession B1-14-5, B1-17-3, B2-1-2, B2-1-7, B2-1-8, B2-2-6, B2-2-8, B2-2-9, B2 -3-1, B2-3-2, B2-3-9, B2-5-9, and B4-17-3 have above average production, with the highest production found in B2-5-9 accessions of 9,820 g/tree/year. Accession B4-17-1 had the lowest production but the final score of taste test was the highest (86.00) compared to other accessions. The caffeine content varied from 1.39 to 2.06% or an average of 1.72%.

***Keywords**: Robusta coffea, germplasm, agronomic characters, caffeine, taste quality.*

Growth And Yield Of Pakcoy Treated By Various Doses Of Goat Manure Fertilizer In Different Times

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Abstract: The aim of this research was to determine the effects of various doses of goat manure fertilizer given in different time to growth and yield of pakcoy (*Brassica rapa L.*). This research conducted using Randomize Block Design (RBD) with two factors namely doses of goat manure fertilizer and application times. The doses consists four level namely k_0 = 0 t/ha (control), k_1 = 10 t/ha, k_2 = 20 t/ha, and k_3 = 30 t/ha while the application times consists three level namely k_0 = 0 t/ha (control), k_1 = 10 t/ha, k_2 = 20 t/ha, and k_3. The data processed by using Duncan Multiple Range Test (DMRT). The result showed an interaction effect goat manure fertilizer dose and application time to growth and yield of pakcoy. The plant treated by 20 t/ha (k_2) of goat manure fertilizer applied 7 day before planting (w_2), gave the best effect on height, shoot-root ratio, ant fresh and dry weight of yield.

***Keywords**: Application times, Brassica, Goat manure fertilizer, Organic matter.*

Growth And Yield Of Three Bean Plant Cultivars (*Phaseolus Vulgaris L.*) On Various Planting Media Hydroponically

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Abstract: In the hydroponic irrigation system, the concentration of nutrients given continuously will have an impact on the accumulation of salt compounds in the growing media. The response of straight bean varieties to the characteristics of the growing medium was different. This study aims to measure the growth and yield of three varieties of green beans on different growing media. The research method used was factorial completely randomized design. The first factor is variety .(Balitsa 1, Balitsa 2, Balitsa 3) and the second factor is planting media (Husk Charcoal, Cocopeat, Peatmoss). Each experimental unit was repeated three times. The observed growth and yield parameters were plant height 21 days after planting, leaf area, number of pods and pod fresh weight per plant. The observed data were then analyzed using analysis of variance at the 5% level and Duncan's multiple range test at the 5% level. The analysis showed that there was no interaction between varieties and growing media. The independent effect of varieties and planting media occurred on leaf area and number of pods, while plant height and pod fresh weight per plant were influenced by the type of variety. The Balitsa 3 variety and the husk charcoal growing media showed the best growth and yields.

***Keywords**: EC value, drip irrigation, salinity stress.*

Combining Ability, Heterosis And Heterobeltiosis Of Eight Sweetcorn Inbred Lines Based On Diallel Analysis In West Java, Indonesia

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Abstract: Diallel Analysis is one of the important methods to select inbred line for hybrid formation. It can estimate the value of combining ability, heterosis and heterobeltiosis which is required to determine the best combination of crosses between parental lines. The objectives of this research were to obtain the best inbred line(s) that will be used as hybrid parent. The experiment conducted in West Java, Indonesia in Januari – April 2020. The results showed that 4 potential mutant maize inbreds can be used as hybrid parents based on the value of GCA. Ten pair crosses can be used as potential cross pair based on the value of SCA. Twelve hybrids exceeded the value of parents based on high parent heterosis and Heterobeltiosis value. These inbred lines could be considered for breeding program for high yield.

***Keywords**: Sweetcorn, Inbred line, Diallel, Combining ability, Heterosis, Heterobeltiosis.*

The Effect Of Intercropping Of Soybean (*Glycine Max L.*) And Refugia On The Yield And Competition Assessment

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Abstract: Intercropping will be profitable if the types of intercropping plants can interact profitably, but it has some disadvantages such as competition for growth factors. The purpose of this study was to determine the effectiveness of intercropping using the methods of competition assessment and intercropping results. This experiment was done in the experimental field of the Faculty of Agriculture, Tarogong Kaler District, Garut Regency, from August to November 2020. The research used an experimental method with Split-Plot Design which consisted of 2 treatment factor and 2 repetition. The main plot which was intercropping type consisted of t1 = border plant, t2 = mix cropping. The sub plot which was refugia types consisted of r1 = white zinnia flower (Zinnia elegans), r2=red zinnia flower (Zinnia elegans), r3= mexican marigold flower (Tagetes erecta), r4= ulam raja flower (Cosmos caudatus), r5= red cockscomb flower (Celosia cristata), r6= yellow cocksscomb flower (Celosia plumosa), r7= sunflower (Heliantus anuus), r8= four o'clock flower (Mirabilis jalapa).. The results showed that there was an interaction between types of intercrpping and types of refugia on the parameters of the number of pithy pods, soybean weight per plant and soybean weight per plot. The combination that gave the best effect was the intercropping of soybeans with red and white zinnia flowers as border plant that can increase the yield of soybean up to 22.8% compared to the monoculture of soybenas yield, so it can be recommended because it can increase the yield.

***Keywords**: competition; intercropping; refugia; soybean.*

Aplication Organic Matter And AMF In Sweet Corn (*Zea Mays Saccharata*) Cultivation On Post-mine Sandpits Soil

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Abstract: Land expansion for sweet corn cultivation can be achieved by utilizing the low fertility post-mine sandpits soil with the application of organic matter and AMF. The Research aimed to know the effect of AMF and organic matter type growth and yield of Sweet Corn (Zea mays saccharata) on post-mine sandpits soil. A field-polybag trial had been carried out from February to May 2020 at experiment station UIN Sunan Gunung Djati Bandung 681 m asl using a randomized block design two factors with factorial pattern and three replications. The first factor was the type of organic matter (with out organic matter, 15 t ha-1 Tithonia diversifolia bokhasi , 15 t ha-1 chicken manure, and 6 l ha-1 humic acid). The second factor was AMF dosage (without inoculation, 5 g polybag-1, and 10 g polybag-1). The results showed there was no interaction effect application AMF and organic matter type on growth and yield parameters. The main effect of 15 t ha-1 T diversifolia bokashi and 15 t ha-1 chiken manure occurs on growth and yield parameters . The experiment indicated that application 15 t ha-1 T diversifolia bokashi and 15 t ha-1 chiken manure could be used in sweet corn cultivation on post-mine sandpits.

***Keywords**: sweet corn, organic matter, post-mine sandpits soil, growth, yield.*

The Effect Of Bohasi Paitan (*Tithonia Diversifolia*) And *Rhizobium Bacteria* On The Growth And Products Of Mung Bean Plant (*Vigna Radiata*)

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Abstract: Mung bean (*Vigna radiata*) is one of the food stuffs whose needs are constantly increasing, but production has decreased. Salat one effort to increase production results is by providing organic fertilizer Tithonia diversifolia bokashi and rhizobium bacteria sp. The purpose of this study is to determine the effect of T. diversifolia bokashi and *Rhizobium sp.* interactions on the growth and yield of mung bean (Vigna radiata) and can determine the optimum dosage of T. diversifolia bokashi on each *Rhizobium sp*. combination level against the growth and yield of mung bean (*Vigna radiata*). The method used in this study is a Randomized Blok Design with 2 factors and 3 replication. The first factor is: T. diversifolia bokashi = 0 t ha-1 (k0), 5 t ha-1(k1), 10 t ha-1(k2), and 15 t ha-1(k3). The second factor is *Rhizobium bacteria sp* = without rhizobium (b0), 3.5 g per 250 g of seed (b1); 7.5 g per 250 g of seed (b2); and 11.5 g per 250 g of seed (b3). The results showed no interaction in the treatment of bokasi paitan and Rhizobium sp against the number of nodules, amount of chlorophyll, leaf area, weight of seeds and harvest index.

Keywords*: rhizobium bacteria sp, bokasi paitan, mung bean, organic fertilizer.*

The Effect Of Particle Size And Dosage Coffe Leather Waste Compose On Growth And Produc Of Edamame Soybean (*Glycine Max L. Merill*) Variety Ryoko

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Abstract: Coffee skin's waste has not been utilized optimally, causing the stench and fluid that pollute the environment. One effort to overcome these problems is by utilizing the waste of coffee skin to compost. Therefore, the provision of coffee skin's waste compost is expected to increase the growth and yield of edamame soybean. This research was conducted in Kp. PasirVillage Cinta karya Samarang District Garut Regency. Conducted in October - December 2016. Using factorial randomized block design (RBD) with 2 factors. The first factor, particle size of 2 levels are (a1) coarse particle size of coffee compost (> 74 μ) and (a2) fine particle size of coffee compost (< 74 μ). The second factor, dose consisting of 4 levels 5 t ha-1 (t1) or 20 g plant-1, 10 t ha-1 (t2) or 40 g plant -1, 15 t ha-1 (t3) or 60 g Plant-1, 20 t ha-1 (t4) or 80 g plant-1 to obtain 8 combinations of treatment level and repeated 4 times. Treatment (a2) fine particle size of coffee compost (< 74 μ) and dose of (t4) 20 t ha-1 or 80 g plant-1 had an effect on the height parameters of the plant at 7 - 21 HST with the highest yield average 13,72 cm, 22,48 cm and 34,58 cm, particle size treatment and coffee skin's compost dose influenced independently that is plant height at 28 th day after plant, the ratio of dusk root, the number of seeds per crop, the number of pod per crop and pod weight.

***Keywords**: Compost, Dosage, Edamame, Particle Size, Waste of Coffee's Skin.*

Fauna Aspect Of Repong Damar Indonesia (Study Case In Krui, Pesisir Barat District Lampung Province)

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Abstract: Repong Damar has biodiversity which is an important habitat for fauna. The diversity of fauna is one indicator of a good or decrease environment. The diversity of fauna indicates a good habitat for wildlife. This study aims to analyze the types of fauna, the benefits of their existence, and the community's perception of the presence of fauna in Repong Damar. The research location in the community is in Krui, Pesisir Barat District, Lampung Province. Research time in April-May 2021. The method used in this research were interviewing 238 respondents and using a Likert scale for analysis. The research had been found 19 species of animals in Repong Damar. The benefits of the existence of fauna in the repong damar area had been roles as seed dispersers, as consumers in the food chain, assist in the process of pollinating plants, and source germplasm and support the use of environmental services. 96 respondents .(40.24%) chose to agree with the number of animals living in the Repong Damar area. 91 respondents (38.24%) have stated that animals are not pests of plant diseases in Repong Damar. 104 respondents (43.67%) have stated that the animals did not destroy the resin. 114 respondents (47.90%) have stated that there were no animals that attacked humans or resin farmers. Respondents of 97 (40.76%) fauna that used Repong Damar as habitat and also suitable as a animal corridor.

***Keywords**: Repong Resin, Fauna, Krui, Wildlife.*

Designing An Augmented Reality-Based Math Learning Model For Learning Disabilities Students

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Abstract: Students with learning disabilities show low learning achievement particularly in mathematics class. The use of Augmented Reality (AR) can help students with learning difficulties characterized by difficulties in understanding abstract concepts. Augmented Reality (AR) helps students understand abstract concepts to become real. This study aimed to design an Augmented Reality based mathematics learning model for students with learning disabilities. This study used a model of Research and Development (R & D). The design of the AR learning model design consists of four initial stages, namely, needs analysis, prototype, validation, and final model. In the early stages, a questionnaire was created for special teachers in inclusive schools. The research showed that teaching mathematics for students with learning disabilities was found to be very difficult since they have limited understanding on abstract concepts and symbols. Based on the research findings, the design of an AR-based learning model can help them reveal the abstract concept into reality. Hence, mathematic teachers can make use of AR to help such students overcome their problems in understanding mathematics learning more easily. In addition, the use of AR can increase motivation and understanding through real-life learning.

***Keywords**: Augmented Reality, Math Learning, Learning Disabilities.*

Application Of The Passive Cooling Design Concept As An Effort To Reduce Climate Change

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Abstract: Climate change caused by many factors. One of the factors that influence climate change is building. This can happen from planning, constructing, using, and maintaining. One thing that can do to prevent buildings from contributing to climate change is to prepare them as best as possible at the planning stage. This study aims to explore the form of a dormitory building that applies the concept of passive cooling. The research method carried out qualitatively with a descriptive approach. The method used in this research done by created a building model using design software. The results of the study found that to apply passive cooling buildings were some ways. Firstly, plant vegetations around the building. Secondly, make building orientation to the north and south. Thirdly, design the alleys that allow wind to enter the building area. Fourthly, use the sun shading in front of the windows to reduce excess heat. Fifthly, use materials that can reduce heat and make cool the rooms. Seventhly, provide pedestrian paths comfortably in the dormitory environment to reduce vehicle use. Finally, plant the grasses and use paving blocks in the landscape area around the dormitory to reduce rainwater runoff and maintain water supply around the site.

***Keywords**: climate change, passive cooling, building, design concept, dormitory.*

Collaborative Governance In The Implementation Of Vocational Schools In Makassar

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Abstract: This study aims to determine collaborative governance in the implementation of vocational schools in Makassar City as formulated by Ansell and Gash in the collaborative governance process, namely: face-to-face dialogue, commitment to the process, and building trust. The research method used qualitative with empirical and theorycal approach. . The method used in conducting the research conducted interviews with all stakeholders related to the object of research. Then the discussion uses primary and secondary data with data collection techniques for literature and field studies. The results showed that collaborative governance in the implementation of vocational schools in the city of Makassar has not fully carried out collaborative governance following Ansell and Gash's formulation. There are still stakeholders who have not participated in a field of work. The supporting factors for collaborative governance in the implementation of vocational schools in Makassar are (1) the existence of a hierarchical structure, (2) the existence of commitment in carrying out the task/purpose to commitment, (3) the existence of shared decision making / distributive responsibility. Meanwhile, the obstacles are (1) The absence of an institutional design/institutionalization that specifically works for collaboration in organizing vocational schools in the city of Makassar. (2) The existence of a culture of indifference/apathy for all stakeholders in collaboration for organizing vocational schools in Makassar.

***Keywords**: Collaborative, Stakeholders, Vocational Study.*

Utilization Testportal In Microsoft Teams To Optimize The Digital Assessment Process In Class V Primary School Students

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Abstract: The 2013 curriculum urges that the assessment of learning outcomes be carried out in an authentic, comprehensive, and balanced manner between aspects of students' knowledge, attitudes, and skills. The context of learning that is carried out online causes the learning system to change, including the assessment system that must be done digitally. Teachers are expected to be able to take full advantage of digital technology or applications. However, in reality, teachers still have not utilized digital technology to its full potential. Teachers use Microsoft Teams as a platform in carrying out online learning (on a network). Through observations made, it was found facts that occurred in the field, teachers had not utilized the platform used optimally. In the digital assessment process, both teachers and students experience technical problems. In addition, there are still many students who submit assignments or late tests and there are even students who do not collect assignments given by the teacher. Therefore, the purpose of this paper is to examine the use of Testportal in Microsoft Teams in order to optimize the assessment process in online learning. Testportal can help teachers in carrying out the assessment process optimally. Testportal has Askes to see student progress when working on assignments, check assignments automatically, form questions vary and finally integrate with Microsoft Teams. It can be concluded that through the use of Testportal in Teams, it helps to optimize online assessments according to the expected expectations. Suggestions for further writing the teacher can explore and use the Testportal or other applications in developing a better assessment. The data analysis technique used is a qualitative analysis technique.

***Keywords**: Testportal, Microsoft Teams, Assessment, Online learning.*

Convective Cloud Distribution Patterns In Banten Using Weather Radar Data

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Abstract: Convective clouds play an essential role in the dynamics of the atmospheric system and the hydrological cycle. Convective cloud development is often associated with bad weather such as thunderstorms, heavy rain, tornadoes, strong winds, hail, and the other phenomena. This study will analyze the convective cloud distribution pattern and synthesize the relationship between weather factors and physical conditions of the area such as mountainous, coastal, and urban areas on the formation of convective clouds in Banten using weather radar data. The results showed that the convective cloud distribution pattern was higher during the daytime period in the rainy season. The weather factors that affect the development of convective clouds in Banten are regional scales in the form of Madden-Julian Oscillation (MJO) activation, cold surges, and wind shear or convergence, local-scale factors in the form of relative humidity conditions, and the stability index of the K-Index parameter.

Keywords*: convective cloud, weather radar, pattern, distribution, weather factor..*

Analysis Of Infrastructure Standards Of Early Children Education Unit In South Sulawesi Province

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Abstract: Early age (0-6 years) is a very important period and affects all stages of human development. This period is often referred to as the golden age because in this period the potential for children's intelligence develops more rapidly than in the next period. Early childhood needs educational services so that their potential can develop optimally. In the framework of implementing this Early Childhood Education, supporting educational facilities and infrastructure are needed. The infrastructure required for each educational unit must have infrastructure which includes land, classrooms, leadership rooms, teachers' rooms, administration rooms, library rooms, sports venues, places of worship, places to play, to support the learning process. Facts in the field show that there are still many people who do not understand the infrastructure needed by the Early Childhood Education unit that is by with the needs of children and do not know how to manage it. This can be seen based on the results of the analysis of infrastructure standards that have been carried out by exploratory studies in the district and municipal early childhood education units in South Sulawesi province.

***Keywords**: infrastructure standards, early childhood education programs.*

A Mini-Review Of Light-Emitting Diode (LED) Implementation On Lettuce

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Abstract: Lettuce (Lactuca sativa L.) is high economic horticulture that is usually cultivated in greenhouse. In a greenhouse system, light is an essential factor for photosynthesis and photomorphogenesis. In the last decade, solid-state lighting technology based on light-emitting diode (LED) has offered a significant breakthrough in horticultural lighting. In the LED implementation, a selection of colour combination is an attractive primary concern to discuss. Therefore, this study aimed to examine the potential of LED in lettuce, in terms of phytochemical, morphological and economic aspect. Based on the analysis, red and blue LED can increase the phytochemical content in lettuce leaves such as β-carotene, chlorophyll a and b, phenolic, etc. In terms of morphological, the application of red LED gives good results to increase the biomass, height, and leaf width. Furthermore, economic analysis confirmed that LED technology could reduce production costs than traditional lamp lighting, i.e., high-pressure sodium (HPS). In the end, LED technology has the potential to be applied in greenhouse, especially in lettuce production in Indonesia.

***Keywords**: Light-emitting diode, lettuce, phytochemical, morphological and economic.*

The Effect Of PEG (*Poly Ethylene Glycol*) On The Morphology Of Lampung Local Rice At The Germination Stage

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Abstract: Abstract. One effective and efficient selection method to obtain initial information on drought-tolerant genotypes is to observe growth in the germination phase using PEG (*Poly Ethylene Glycol*). The purpose of this study was to examine the morphological response of Lampung local rice, Lumbung Sewu Cantik variety under PEG-induced drought stress in the germination stage. The concentrations of PEG given were 0%, 10%, and 20%. The research design was a completely randomized design with three replications. Observational data were analyzed for variance at the level a test = 0.05 and further analysis used Duncan's Multiple Range Test (DMRT). Observation of morphological responses showed that PEG induced water stress which affected the growth of Lumbung Sewu Cantik rice varieties during germination. Plumulae growth was inhibited because the concentration of PEG increased. However, the radicle root grew longer at 20% PEG. In addition, Lumbung Sewu Cantik can maintain the dry weight of the radicle and seminal root at increased PEG concentrations

Keywords*: PEG, Lampung local rice, morphology, germination, Lumbung Sewu Cantik, drought stress.*

Effect Of Natural Rubber Latex Adhesive Content On The Physical And Mechanical Properties Of Agriboard From Cassava Stem Wastes

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Abstract: Indonesia is one of the largest cassava producers globally, where the cassava wastes have not been optimally utilized yet. Cassava stems are lignocellulosic materials that are potential as raw materials for composite boards. This study aims to determine the effect of the adhesive content of Natural Rubber Latex (NRL) adhesive on physical and mechanical properties of agriboard from cassava stems. The NRL-based adhesives were formulated from natural rubber, poly(vinyl) alcohol, and isocyanate. Levels of NRL adhesive used were 10%, 15%, and 20%. Agriboard panels were prepared with a size of 40 cm x 40 cm x 1 cm and a target density of 0.7 g/cm3. The board was hot-pressed at 60°C under 10 MPa of pressure for 30 minutes. Evaluation of physical and mechanical properties was done according to JIS 5908-2003 standard. The results showed that the density of agriboard ranged from 0.65–0.74 g/cm3, and the moisture content was around 4.51–5.34%. Water absorption and thickness swelling of agriboard panel ranged from 61.84–70.84% and 23.67–28.77%, respectively. The results revealed that the dimensional stability of agriboard increased with the higher adhesive content, indicating that the urethane linkages produced from the reaction between –NCO of isocyanate and –OH of cassava stems enhanced the adhesion strength of the panel. The MOE and MOR values of agriboard were in the range of 67.91–98.19 N/mm2 and 1.66–2.09 N/mm2, respectively. The mechanical properties of the panel also increased with higher adhesive content, and the optimum result was obtained by using 15% of adhesive content. In addition, the NRL-bonded panel did not emit formaldehyde, as the panel did not bond with formaldehyde-based adhesives. The results showed that cassava stems and NRL adhesive could be used as an alternative composite product that is renewable and environmentally friendly, particularly for non-structural and interior applications.

***Keywords**: cassava stem, composite board, natural rubber latex, adhesive content, bio-based adhesive.*

Design Of Integrated Technology In Textile Wastewater Management, Growth Control Of Water Hyacinth (*Eichhornia Crassipes*), And Its Utilization As Raw Material For Handicrafts

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Abstract: In the era of the industrial revolution, the environment is often the bearer of the negative impacts of industrial development through environmental pollution. One example is water pollution due to textile waste. Disposal of textile waste into rivers is considered dangerous because textile waste contains heavy metal elements such as cadmium (Cd) and lead (Pb). The impact is that the river water becomes cloudy and the population of living things in the river ecosystem die. One solution is through the use of Eichhornia crassipes as heavy metal adsorbent. However, the growth of water hyacinth is often uncontrolled, causing algae blooms. Blooming algae causes the oxygen content in the water to decrease so that living things in the water die. The purpose of this research is to create an integrated technology in the efficient use of water hyacinth in adsorbing textile waste and controlling its growth. In addition, with this technology, aging water hyacinth plants can be harvested and used as raw materials for handicrafts. The type of research used in this research is research and development. The methods we use include atomic absorption spectrophotometry (SNI 06-6989.16-2004) to test the content of cadmium and atomic absorption spectrophotometry (SNI 06-6989.8-2004) to test the lead content. In addition, the TC S3200 sensor is also used which is connected to the application to directly monitor the absorption of cadmium and lead metals based on the analysis of water turbidity. The results of this study showed that the technology made, proved to adsorb 36.9% lead and 77.34% cadmium, compared to without using the technology which was only able to adsorb 29.76% lead and 42.36% cadmium. This is because in the way it works there are 3 types of rooms including solid separation zone, adsorption zone, and final sedimentation zone which emphasizes sedimentation and phytoremediation techniques.

***Keywords**: Cadmium, Lead, Textile Waste, Water Hyacinth.*

Comparison Of GEE And GLMM Methods For Longitudinal Data (Case Study: Determinants Of The Percentage Of Poor People In Indonesia, 2015-2019)

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Abstract: Development model of GLM for longitudinal data that is not normally distributed (but is still in the exponential family) and has a correlation between response variables is the Generalized Estimating Equations (GEE) and Generalized Linear Mixed-effects Model (GLMM) model. This study compares the GEE and GLMM models on longitudinal data in modeling the poverty in Indonesia in 2015-2020. The data source used is from the publication of the BPS-Statistics Indonesia. Based on the smaller RMSE and AIC criteria, the GLMMs model is better than the GEE model in modeling the determinants poverty in Indonesia. The Gini ratio, the percentage of households in slum neighborhoods and the percentage of informal workers have a significant positive effect on the number of poor people. Meanwhile, Household percentage who have access to decent housing, , HDI, economic growth, domestic investment and international investment have a significant negative effect on the number of poor people.

***Keywords**: GEE, GLMM, longitudinal, poverty.*

Water Supply Improvement And Payment For Environmental Services For Lower-income Coastal Communities In Tegal Regency

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Abstract: Adequate drinking water sources for households are one part of sustainable development goals, especially for lower-income coastal communities whose quality and quantity of water are vulnerably affected by climate change. This study aims to determine the willingness to pay (WTP) to improve drinking water quality with piped water services. The second is to calculate the value of WTP for piped water installations by accommodating payment for environmental services for conservation in new clean water sources. This study uses a survey with the contingent valuation method (CVM). Respondents are low-income communities on the coast of the Tegal regency, with a total of 150 people selected based on purposive random sampling. The results of this study are that the variables of income, expenditure for drinking water, home-ownership, PES value and payment method are significant factors affecting willingness to pay for piped drinking water services. The average WTP for piped drinking water services is IDR 1,030,333.33. Meanwhile, the average PES value is IDR 4,733.33 monthly paid. Piped drinking water services can be implemented immediately with good cooperation from local governments through regional water companies to reach these communities by providing subsidies or grants that can increase willingness to improve their water supply.

***Keywords**: WTP, coastal, water, supply, PES, SDGs.*

Ponds Function Revitalization As Water Supply To Increase The Productivity Of Palm Processing Factory Of Bekri Business Units

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Abstract: Bekri Business Unit is one of the palm oil factories owned by PT. Perkebunan Nusantara VII (Persero) located in Sinar Banten Village, Central Lampung. The processing capacity of the factory is 50 Tons/Fresh Fruit Bunches/Hour. However, since the 2014 – 2020 period, the average mill capacity was only 38.13 Tons/TBS. One of the problems faced is the lack of water supply for the treatment process, while the potential for managed water comes from ponds as reservoir that are available near the factory site. There are four existing ponds locations, while only one pond is operated because the other ponds have become sedimentation siltation. Thus, it is necessary to study the revitalization of the function of the ponds so that the volume of water storage can be increased. The results of data analysis and calculations show that the consumption of palm oil processing utilities into CPO in factory at the research site is 1.57 tons of water/FFB where normal conditions require 1.7 tons of water/FFB. The results of field measurements show that the existing pond capacity is 50,182 m3 with an average water level of 1.5 m in the pond. The storage volume is only able to fulfill the average production for 25.58 days per month so that it cannot meet the expected production target. Optimization efforts of the existing 4 ponds by returning the depth of the ponds to 3 m resulted in an average holding capacity of 207,686.33 m3 or an increase of 413.86% from the current pond capacity. Thus, normalization can increase the number of days of production due to the availability of the volume of water that can be used for production by 131.6% the average number of days of annual production and even the excess volume of water storage can be used for other needs.

Keywords*: Bekri Business Unit, Ponds Revitalization, Increased production capacity.*

Drowsiness Detection Of The Cars Driver Using The Raspberry Pi Based On Image Processing

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Abstract: Drowsiness while driving is one of the biggest factors causing traffic accidents. To prevent this, it is necessary to make an automatic system that can detect the drowsiness of vehicle drivers. In this research, the driver's face and eye positions were detected using a camera and processed using a Raspberry Pi. The position of the face and eyes was obtained using the Viola Jones method and then continued with determining the condition of the driver's eyes. The number of frames processed per second is set to 5 frames, so as not to burden the computation. The research was conducted on the object of the driver with glasses and without glasses by placing the camera at a distance of 20 to 80 cm from the driver. The study was conducted indoors and in the car cabin with lighting intensity between 0 to 100 Lux. In this study, eye position detection reached 100% at an illumination intensity of 20 to 100 Lux with a camera distance of 20 to 80 cm for drivers without glasses and an illumination intensity from 20 to 60 for drivers with glasses. Drowsiness condition is determined if three consecutive frames are detected when the eyes are closed.

***Keywords**: Drowsiness, Raspberry Pi, Viola Jones, Car driver.*

Produced Water Treatment Using Integrated Modified Surface Of Kapok Fibers And Ceramic Membrane System

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Abstract: The treatment of produced water from oil and gas fields before reinjection into reservoirs is an effort to reduce oil and grease include heavy metals that harmful to water bodies. In the current work, the modified kapok fiber .(Ceiba pentandra L) surface using hot water for oil and grease removal was investigating on a laboratory scale. The present work aims to evaluate the modified kapok fibers surface using hot water as an adsorbent and commercial ceramic membrane in removal some contaminants of produced water, especially for barium ion. Some parameters of produced water determined were pH, chemical oxygen demand (COD), total dissolved solids (TDS), oils and grease, and barium ion concentration. The effect of hot water treatment on the modified kapok fiber surface was evaluating using SEM-EDX. Results show that modified kapok fibers surfaces using hot water at 85 oC effectively removed 99.9% oil and grease from produced water. The removal percentage of COD, TDS, and barium ion is 98.30%, 73.60%, and 62.10%, respectively. It concluded that the modified kapok fiber surface is the potential method for produced water treatment.

***Keywords**: ceramic filter, kapok fibers, produced water, barium removal.*

Manufacturing Sustainability And Sustainable Community Development In Kampung Batik Laweyan Surakarta

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Abstract: This study aims to examine the influence of economic, environmental, and social factors on manufacturing sustainability, which subsequently affects community development as reflected by well-being and social capital. The research was conducted at Kampung Batik Laweyan, one of the oldest batik industry communities in Indonesia. Data were obtained using questionnaires and analysed using Structural Equation Model (SEM). The results showed that economic, environmental, and social factors significantly influence manufacturing sustainability, community well-being and social capital. It also shows that the presence of the batik industry largely determines the existence of the Kampung Batik Laweyan community as a manifestation from the stability of the Triple Bottom Line concept, namely, economic, environmental, and social factors. This study is expected to be a model for interested parties in preserving the existence of Laweyan as a batik village in Indonesia.

Keywords*: manufacturing sustainability, community development, well-being and social capital.*

Local Culture of Kratom (*Mitragyna speciosa*) Consumption in Kapuas Hulu District

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Abstract: Kratom leaves (Mitragyna speciosa Korth) have been used by people in West Kalimantan, especially Kapuas Hulu District, as local culture, for traditional medicine. This research was conducted to obtain facts and data on utilization and complaints due to the use of kratom leaves in local culture by the people of Kapuas Hulu Regency. In order to achieve these objectives, a survey and descriptive analysis were conducted on 222 respondents. Data obtained by interview using a questionnaire and the determination of the respondents is done by snowball. The relationship between period, dose and frequency of kratom leaf consumption and complaints was searched statistically using the chi-quadrate. Of the 222 respondents, it was found that 152 respondents who consumed kratom leaves. The main reason respondents consume kratom leaves to overcome fatigue or get stamina (49%) and to treat illness 25%. Generally, 46% of respondents consume kratom leaves for less than 1 year, although 25% of them are more than 5 years. Most of the respondents consumed kratom leaf powder at a dose of ¼ teaspoon (0.5 g) with the highest frequency once a day (27.94%). Chi-a-square analysis showed that there was no very significant relationship between the period of drinking kratom leaves and complaints, but there was a very significant relationship between the dose of kratom leaf consumption and complaints and between the frequency of drinking kratom leaves and complaints. There were no complaints such as symptoms of narcotics and drug users. Generally, respondents stated that they did not experience complaints 93.42%. About 6.58% of complaints were feeling tired, drowsy and achy.

***Keywords**: kratom, medicine, complaints.*

The Application Of Liquid Organic Fertilizer Kipait (*Tithonia Diversifolia*) On The Growth Pakcoy Plants (*Brassica Rapa L*) With The Floating Raft Hydroponic System And Population Of *Spodoptera Litura F.*

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Abstract: Pakcoy cultivation can be done with a hydroponic system. One of the main obstacles that inhibits production both in quality and quantity is the presence of pests, one of which is Spodoptera litura F attack. The control has be done but almost using synthetic (chemical) pesticides with suspected pesticides. It is more practice to controlling the attack of plant-disturbing organisms. However, these controls can cause negative impact, so it needs alternative environmentally friendly controls. One of them is by using weed plants such as kipait which are reported to have the potential to reduce damage by plant-disturbing organisms. The research was carried out in the greenhouse of the Experimental Garden of Padjadjaran University, Ciparanje, Jatinangor, Sumedang Regency, West Java. Research time is August 2019 - September 2019. The research method used is using a completely randomized design (CRD) method with 5 treatments consisting of A = AB mix fertilizer, B = liquid organic fertilizer, C = AB mix fertilizer + Spodoptera litura F, D = Liquid organic fertilizer + Spodoptera litura F, and E = Liquid organic fertilizer + Spodoptera litura F + POC Spray. The results showed that there was no effect of Liquid Organic Kipait Fertilizer (Tithonia diversifolia) on the growth of pakcoy plants, but liquid Kipait organic fertilizer was able to suppress the population of caterpillar pests Spodoptera litura. F and able to reduce the intensity of damage Pakcoy plants. Therefore the liquid Kipait organic fertilizer can be recommended as a biopesticide.

***Keywords**: Hydroponics, Liquid organic fertilizer kipait, S. litura F, Pakcoy Plants..*

Preliminary Study Of Disaster Mitigation Based Learning That Focus On The Character Of Student Disaster Mitigation In Senior High School Prone To Volcanic Disaster

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Abstract: Indonesia is located in disaster prone area, so disaster mitigation-based learning needs to be taught. Disaster mitigation-based learning is not implemented effectively in schools. Mostly provide a theory of disaster mitigation without being connected in learning activities. The purpose of the research needs analysis is to determine the mitigation character of students in disaster-prone schools that use mitigation based-learning. Preliminary research was conducted on the disaster-prone senior high school of Semeru Mountain, Lumajang-East Java. Collecting data using a questionnaire method related to the mitigation character of students. The questionnaire data analysis used quantitative descriptive. The results of the questionnaire are presented as a percentage of the level of students' mitigation characteristics. The results of the analysis show that the level of disaster mitigation character of students are categorized as less strong by 50%. Indicators on the character of student disaster mitigation for this research include: (A1) knowledge, (A2) handling, (A3) response, (A4) readiness, (A5) action. Suggestions based on the results of preliminary research that disaster mitigation-based learning requires to need more attention by research and development for supporting models or teaching materials.

Keywords*: disaster mitigatation-based learning, mitigation character, environment.*

Adsorption Kinetic Of Fe (II) And Mn (II) Ions In Synthetic Acid Mine Water Using Calcium Carbide Residue

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Abstract: This study aims to determine the effectiveness of calcium carbide residue (CCR) as an adsorbent in reducing synthetic acid mine water containing Fe (II) and Mn (II) metal ions in a column. In this experiment, synthetic acid mine water preparing using a reagent grade of FeSO4, MnSO4, and Al2(SO4)3. Some parameters investigate in the present study were operating time, the concentration of metal ions, and the mass of the CCR. The results indicated that CCR is suitable as an adsorbent to reduce the concentration of Fe(II) ions at an operating time of 60 min. The Fe (II) metal ions decreased to almost 99 % for the range of initial concentration of 40 mg/L, 60mg/L, 80 mg/L, and 100 mg/L, respectively. The CCR also increases the pH of the synthetic acid mine from 2.5 to 11.8. The adsorption of Fe (II) ions on the CCR is fit to the Freundlich isotherms with an equation of q_e = 0.1706 C_e^1.806. Meanwhile, for the adsorption of Mn(II) ions on the CCR, the Langmuir adsorption isotherm is suitable with the model equation q_e = (0.04352C_e)/(1 + 0.068C_e). In addition, the adsorption kinetics of a mixture of Fe (II) and Mn (II) solution by the CCR adsorbent was a pseudo-second-order kinetic model. It also confirms that the adsorption of Fe (II) and Mn (II) by the CCR is a chemisorption process. It concluded that calcium carbide residues have potential as heavy metal adsorbents, especially for Fe (II) and Mn (II) metal ions in synthetic acid mine water.

***Keywords**: Adsorption, Calcium Carbide Residue, Synthetic Acid Mine Water.*

Synthesis Of Carbazole Derivative Compounds With The Mannich Reaction And Antioxidant Activity

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Abstract: Carbazole derivative compounds belong to the group of heterocyclic compounds. The structure of this compound has been investigated to provide biological activity properties in the pharmaceutical field such as antibacterial, antioxidant, anti-inflammatory, antihistamine, antifungal and antitumor. In this study, modification of carbazole with several reagents produces biological activities such as antioxidant. Characterization of the synthesized product was carried out to prove the success of the synthesis, using a fourier-transform infrared spectroscopy (FTIR), ultraviolet-visible (UV-Vis), and Liquid Chromatography-Mass Spectroscopy (LC-MS) and melting point. In addition, an antioxidant test was carried out using the DPPH method. The synthesized carbazole derivative compound had a yield of 41,96% with the IC50 value in the antioxidant test of 14,26.

***Keywords**: Carbazole, heterocyclic, Mannich Reaction, Antioxidant.*

The Impact Of The COVID-19 Pandemic To Sustainable Development Goal

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Abstract: The COVID-19 pandemic has impacts on social, health, and economic aspects, including Sustainable Development Goal globally. Sustainable Development Goal is defined by Gaia. The goal is to reach a better technology and resource implementation. This paper aims to describe the changes related to Sustainable Development Goal. Methods: This is a literature review. Databases were Science Direct and Google Scholar. Keywords were COVID-19, impact, Sustainable Development Goal. Inclusion criteria were full text, review, and research. Exclusion criteria were short notes and commentary. Results revealed that huge changes in the world during the COVID-19 pandemic cause new enlightenment for global solidarity in technology, healthcare, economy, culture, education, policy, and environment. Behavior changes are seen globally. The priorities are given to four goals, namely no poverty, good health, life below water, and life on land. Those are critical to ensure a healthy human and environmental life. Social, health, and economic lives are priorities. Conclusion: Refocusing on Sustainable Development Goal during the COVID-19 pandemic must be done to obtain global well-being and recovery of world trade.

***Keywords**: COVID-19, impact, Sustainable Development Goal.*

Modeling Of Hourly Solar Irradiance From Field Measurements In Bandar Lampung

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Abstract: Utilization of photovoltaic systems has increased recently for both large-scale and home applications. Consequently, a better understanding of solar irradiance uncertainty in planning and operation of a photovoltaic system is a necessity. For most capacity planning or system sizing and simulation, an hourly model of solar irradiance is required. In this research, field measurements of solar irradiance were carried out for six months with a one-minute interval from 6 a.m. to 6 p.m. A probabilistic model was developed for each hourly solar irradiance at the specific measurement site in Bandar Lampung. We proposed split samples into four-modes or four-groups for describing the multi-modality of the distribution. The developed model based on estimates of the shape parameters was used to reconstruct random numbers and tested against the original data by graphical inspection and the Kolmogorov-Smirnov 2-sample test satisfactorily. Results obtained from this work can be extended for optimal photovoltaic system sizing and simulations.

Keywords*: solar irradiance, hourly model, probability distribution, beta distribution.*

Integrated Smart Building For Sustainable Agriculture As A Solution To Food Security And Future Land Constraints

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Abstract: The importance of food security in Indonesia is one of the government's priorities for the welfare of its people. There are several staples that are widely consumed in Indonesia that the government has not been able to fulfill, including wheat seeds, meslin seeds, soybeans and so on. Geographical conditions are one of the main factors, therefore the futuristic constructive idea that we design is a sustainable and environmentally friendly agricultural and livestock system without depending on natural conditions such as weather, geography, and climate. This idea is in the form of a high-tech agricultural building, square in shape with a fish pond right in the middle of the building. More detail consists of 4 floors and a basement. Each part of this building, namely (1) the basement consists of a Microbial Fuel Cell (MFC) room which will process livestock waste into electrical energy and a rainwater storage room, (2) the first floor is filled with livestock such as goats, cows or sheep, (3) the second and (4) third floors contain staple crops such as rice, wheat, soybeans and so on, (5) the fourth floor has hydroponic vegetables and (6) the roof is where solar panels are located, on the other hand there are also ponds that can be used for consumption fish cultivation. This building is expected to be a solution to the constraints of limited land in agriculture and animal husbandry in Indonesia in the future.

***Keywords**: Limited land, Smart building, Sustainable farming.*

The Application Of The Sustainable Development Concept In Indonesia's Environmental Law

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Abstract: The reality of state life is places the environment in sustainable development as an integral part of the national dynamics development. Indonesia itself has issued various policies and instruments in the development of environmental law. The development of environmental law cannot be separated from efforts to develop environmental law in accordance with international and national concepts or principles, one of which is the concept of sustainable development. However, environmental problems in Indonesia often occur, for example forest fires, river pollution, air pollution, garbage, etc. This can raise doubts for the Indonesian people regarding the concept of sustainable development has really been applied in environmental law regulations in Indonesia. So that it is necessary to examine the application of the sustainable development concept in Indonesia's environmental law. Based on this background, the problem will be discuss in this paper is how the concept and application of sustainable development in Indonesia's environmental law? The method used in this article is normative legal research with a library law approach. The results of the study indicate that environmental law regulations in Indonesia such as: Law Number 4 of 1982 concerning Basic Provisions for Environmental Management, Law Number 23 of 1997 concerning Environmental Management, Law no. 32 of 2009 concerning Environmental Protection and Management, and Law no. 11 of 2020 concerning Job Creation, has been in accordance with the concept of sustainable development as stated in the articles in each of these laws.

***Keywords**: Environtment, Sustainable Development.*

Citrus Export Performances Of Southeast Asian Countries: A Comparative Analysis

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Abstract: This study aimed to comparatively analyze export performances of citrus among Southeast Asian countries (ASEAN), that represented by top 5 larger exporter, namely Indonesia, Vietnam, Singapore, Malaysia, and Thailand. This study applied several approaches, i.e., RCA (Revealed Comparative Advantage), ECI (Export Competitiveness Index), TSI (Trade Specialization Index), AR (Acceleration Ratio), and EPD (Export Product Dynamics). The secondary data is derived from the International Trade Center during 2010 to 2020. The result showed that those five countries having a low comparative advantage (RCA < 1), but Vietnam had a better performance than other countries. other. However, Indonesia displayed an upward trend in citrus exports in the last two years (ECI>1) compared to other countries in ASEAN. If we look further, Indonesia was still in the initial stage for the citrus export activity to the world market (TSI -0.9), in similar with Singapore and Malaysia, while Vietnam's position was more advanced (TSI 0.9). Indonesia still has a chance to maintain its market share even though the current RCA value showed a weak comparative advantage and was in the initial stage for exports, but the trend of its trade tended to increase.

***Keywords**: Revealed Comparative Advantage, Export Competitiveness Index, Trade Specialization Index, Accelerati.*

Fruit Quality Of Guava (*Psidium Guajava Var.* '*Kristal'*) Under Different Fruit Bagging Treatment And Altitude Of Growing Location

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Abstract: Fruit quality is one of important aspect to concern, however, there is still limited study applied in 'Kristal' guava fruit quality. This study aimed to evaluate the effect of bagging treatment and altitude of growing orchard on fruit quality of guava (Psidium guajava var. 'Kristal'). This study was conducted at two local orchards managed by small scale farmer, at Gunung Batu, Tanggamus (100 meter above sea level, m asl) and Brajaselebah, East Lampung (800 m asl), Lampung Province, Indonesia. Nested design was applied to test 5 levels of bagging treatments and 2 levels of land altitude. Fruit quality was assessed on both physical and chemical characteristics. Fruit size indicated by fruit weight and diameter was significantly improved in low land compared to high land. The TSS was significantly higher in low land rather than high land, while TA showed an opposite result. Vitamin C was varied from140 to 146 mg per 100 g, however there was no significant effect of fruit bagging and land altitude. Fruit scar intensity was higher in low land, especially in fruit with no bagging treatment. Fruit bagging reduced the fruit scar intensity in 'Kristal' guava fruit, both in low and high altitude of growing location.

Keywords*: guava orchard, preharvest factor, fruit scar incidence, fruit softness..*

Yield And Metabolite Fingerprinting Of Kaffir Lime Leaves Essential Oil In Response To Preharvest Mild Shading

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Abstract: Mild shading previously reported to increase leaf production of kaffir lime (Citrus hystrix DC), however, there is limited study regarding its effect on kaffir lime leaves essential oil (KLL EOs). This study aimed to analysis the yield and composition of KLL EOs in response to preharvest factor in form of mild shading. Leaves were collected at March 2019 from a-year-old plant cultured under mild shading (24% light reduction) and open sun in Bogor, Indonesia. The result showed no significant effect of mild shading on yield of KLL EOs. In contrast, there was a variation of KLL EOs metabolite fingerprinting in response to shading. Preharvest mild shading increased the relative percentage of bergamal, citronellol, caryophyllene oxide, citronellic acid, isopulegol, isopulegyl formate, limonene, linalool, linalool oxide. However, citronellal quantification analysis showed a significant decline for more than 10 % as the effect of preharvest mild shading compared to open sun.

***Keywords**: Citronellal, Citronellol, GCMS, Limonene, Linalool.*

The Application Of Vermicompost On Kyuri Crop Production

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Abstract: The large number of kitchen waste can be use as fertilizer by vermicomposting. Vermicompost is the end-product of non-thermophilic decomposition of organic material by certain species of earthworms and their associated microbes. Vermicompost also contain rich nutrients and could conditioning the soil. The aim of the research was to obtain the effect of vermicompost on Kyuri cucumber crop production. The dosage of vermicompost was 0 t ha-1 (K0), 5 t ha-1 (K1), 10 t ha-1(K2), and 15 t ha-1 (K3). Plant height with 15 t ha-1 in 4 weeks after plating was the highest plant. The parameters fresh weight fruits and shoot root ration also affected by the dosage 15 t ha-1. Overall the result indicated the potential of vermicompost in increasing kyuri cucumber crop production.

***Keywords**: fertilizer, organic, horticulture, production.*

Performance Of Edge Detection Method For Image Identification

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Abstract: An important goal of image processing is to obtain meaningful and significant information in an image efficiently. One of the most important steps in image interpretation is extracting edge information from the image correctly. The inner edge of an image is a basic feature of the image and can be formed from the outline of an object. Edge detection is generally used in image analysis and processing. In this paper, edge detection used to identify the image and the performance of each edge detection method was evaluated. The performance analysis of five edge detection methods to provide information about number of objects, characters identification using various images were considered, namely Prewitt, Sobel, Canny, Roberts and Laplacian of Gaussian. It was observed from the experimental results that the Canny edge detector performed better than other tested edge detectors. This work was implemented in Matlab R2015a.

***Keywords**: Identification, Edge Detection method, binary mask, MSER pixel.*

The Influence Of Carbon-Based Addition On The Superconducting Properties Of BPSCCO

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Abstract: In this study, we investigate the effect of two samples carbon-based (carbon nanoparticles and carbon nanotubes) addition on the critical temperature of the $Bi_1.6Pb0.4Sr_2Ca_2Cu_3O10+\delta$ (BPSCCO) high temperature superconductors. BPSCCO samples added with 0.1 wt.% carbon nanoparticles and nanotubes are prepared from synthesized using the sol-gel method. Measurement of low-temperature resistivity, R(T) to determine the superconducting properties of the sample is carried out using Cryogenic Magnets. From SEM-EDX results, it is observed that the BPSCCO superconductor morphological characteristic seems to dominate the microstructure for all samples. From XRD results, it is determined the phase formed of the samples and indicates the dominant phase formed is Bi(Pb)-2212 with a volume fraction of 73,73% and 78,30% with the addition of carbon nanoparticles and nanotubes. The best results was found in the BPSCCO samples with the addition of 0.1 wt% carbon nanoparticles.

***Keywords**: Bi(Pb)-2223; sol-gel; addition; carbon.*

Land Potential Index Analysis In Samarinda's Agricultural Areas Using Geographic Information Systems

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Abstract: Land Potential has an important function in land cultivation and how to use it. Land use should be appropriate for the land potential. If the land potential is high, the yield is high otherwise if the land potention is low, the yield is low as well. Inappropriate land use causes damaged soil and land degradation. The goal of this study is to determine the distribution of the Land Potential Index on agricultural land use in Samarinda City. The research was conducted from December 2020 to March 2021 in Samarinda City East Kalimantan. The method used in this research are scoring and overlay to the analysis of land potential index on agricultural land use in Samarinda City and the distribution of each class. This research used 5 parameters to arrange the land potential index, which are slope, lithology, soil, rainfall, and flood risk. The Land Potential Index in Kota Samarinda for the area of agricultural use has an area of 10,383.60 Ha of the total area. The results of land analysis obtained in the agricultural area obtained 3 classes, were as follows: very low class with an area of 9,569.15 hectares or 13.10% after overlapping with agricultural areas obtained an area of 1,284.82 Ha or about 12.37%, the low class has a total area of 60,050.15 ha or about 81.46% after analyzing the agricultural use area has an area of 8,923.85 Ha or about 85.94%, the medium class has an area of 4,008.74 Ha or around 5.44% and after being analyzed based on the agricultural area, the medium class area was 174.94 Ha or 1.68%. The agricultural landuse in the Samarinda yields positive results. This is based on the assessment of land potential in general. These area, in particular, can be used due to limited land capacity.

***Keywords**: Land Potential Index, Geographic Information System, Agriculture.*

Health Assessment Of Tahura Banten As An Effort To Protect Biodiversity

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Abstract: The Forest Park (Tahura) Health Assessment is intended to assess and report on the current health condition (status) of Tahura based on ecological indicators of forest health. However, awareness of the importance of the health of Tahura in efforts to protect biodiversity is still lacking, so that the health problems of Tahura have so far not received serious attention. This study aims to obtain the value of the health condition of Tahura Banten at the location of the plant and or animal collection block. I conducted this research on 12 plots with the design of Forest Health Monitoring (FHM) clusters at the plant and or animal collection block location. The health assessment of Tahura is based on the results of measurements using the FHM technique on indicators of tree crown condition and tree species diversity. Processing and analysis of the measurement of Tahura health indicators using the Forest Health Assessment Information System. The results showed that the health status of Tahura Banten at the location of the plant and or animal collection block had a value range of 1,45 – 2,05 with an average value of 1,60 health status (good category). This illustrates that the condition of health status is in good condition for efforts to protect biodiversity in Tahura Banten at the location of the plant and/or animal collection block.

***Keywords**: Forest health, Tahura Banten, status, value.*

Explanatory On Rural Development Stages Using Geographically Weighted Regression Based On The Integration Of Socio-Economic, Demographical And Landcover Data

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Abstract: In the context of rural development, each rural area has unique characteristics in determining its development level. The monitoring on global land use–land cover (LULC), LULC change, the normalized difference vegetation index (NDVI), estimated data of crop yield and income, and demographical factors include total population and percentage growth rate during 2015 to 2020 have corresponded with the rural development stages (RDS). These parameters are used in the geographically weighted regression (GWR) has resulted that local regression gave the advantages on the perspective of how the rural areas can be managed and to what extent the environment variable can use to assist the RDS. This paper aimed to show the relationship between the RDS and through the analysis of socio-demographical, derived economic data and the trend of LULC change. The final result has shown that the rural areas located in the forested areas, have a remote location and rough topography tend to have the lowest local regression values compare by the range of R2 values at about 0 to 0.15. The GWR has shown that all explanatory variable has a weak positive correlation to the RDS, even though it shows the pattern of clustered in the entire of Way Sekampung.

***Keywords**: Rural Development Stages, geographically weighted regression, Socio-Economic, Land cover, NDVI.*

Black-box Testing On Web-GIS Of Forest Health Monitoring Using Equivalence Partitioning Techniques

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Abstract: Current forest conditions, changes and possible trends can be identified by monitoring forest health. The web-GIS for forest health monitoring which is still in the development stage can be used to find out data and information regarding the distribution of locations and the results of forest health monitoring. Therefore, it is necessary to test the functionality. This study aimed to obtain an overview of whether the forest health monitoring web-GIS has specifications according to monitoring forest health needs. Black-box testing with the type of testing used is the equivalence partition technique used in this study. Overall total, there are three class-tested with three tests, and 15 test scenarios were tested in this study. The test results show that all the scenarios tested on the web-GIS forest health monitoring follow the expectations, meaning that the test results are all valid. Thus, the forest health monitoring web-GIS has been developed according to the existing plan.

***Keywords**: Black-box testing, Equivalent partitioning, Forest health, Forest health monitoring, Web-GIS..*

Field Performance Of Plagiotropic Cocoa In Two Clonally Propagation Methods: Vegetative Phase And Early Production

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Abstract: Plagiotropic cocoa is an alternative of cocoa branching architecture that derived from clonally propagation, especially from grafting and cuttings. Propagation by cuttings and grafting have long been practiced even though in smallholders scale but the information in cocoa were limited. This study sought to observe the vegetative and production aspect of plagiotropic cocoa derived from cutting and grafting. The research was conducted in Kaliwining Experimental Station in East Java start from 2017 – 2020. The research was consisted of two propagation methods of plagiotropic cocoa i. e. cutting and grafting. The following parameter were measured: vegetative stage (plant height, stem diameter, number of leaves, branching angle), rooting performance, and generative stages (number of pods and production component). In vegetative stages, that plant height, stem diameter, and number of leaves derived from cutting propagation method was higher than grafting propagation method. The production of plagiotropic cocoa derived from cutting propagation showed earlier and higher production than grafting propagation.

***Keywords**: Cocoa, Plagiotrop, Cutting, Grafting, Clonal Propagation.*

Evaluation Of Double Row Plant Spacing On Growth And Production Of Two Cocoa Clones (*Theobroma Cacao L.*)

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Abstract: The planting spacing affected on plant height, canopy width, VSD intensity, number of pod rot, number of pods attacked by Helopeltis sp., Pod Number/Plant at 4 years old. Meanwhile, the clone affected on VSD intensity, number of pod rot, and bean count. Cocoa tree that was planted with dense 2 × 2 × 5 m plant spacing would be higher of the plant height and thinner of canopy width. VSD intensity and Helopeltis sp. attack was found higher in 3 × 3 m (wider) plant spacing. Pod rot was higher in lined with the denser of plant spacing. At the 3 Y. A. P. (first production period), the best production was demonstrated in MCC 02 with 2 × 2 × 5 m plant spacing. At 4 Y. A. P., the plant spacing affected the production. The highest pod harvested was showed in 2 × 2 × 5 m (61.18 pods/tree/year equals to 2.96 tonnes/ha). It demonstrated that double row system with 2 × 2 × 5 m plant spacing could be an alternative of plant spacing in cocoa plantation at the young cocoa stage.

***Keywords**: Cocoa, Plant Spacing, Clones, Double row.*

Control Of Magnetic Levitation System Using Adaptive PID Control

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Abstract: Currently, magnetic levitation (maglev) technology has begun to be developed and applied in several ways, namely in the fields of transportation, promotional media and learning media. In the control field, when an object has different parameters, it can cause the control system to have a steady state error or not reach the desired set point. Meanwhile, the maglev for transportation has a high probability of changing the parameters, for example, the mass parameter. The control system of magnetic levitation is important to levitate the metal object. In this research, the PID control system is applied to control the solenoid maglev and using computer simulation to obtain the performance result.

***Keywords**: Magnetic levitation, PID control.*

The Effect Of Al_2O_3 And MgO Addition On The Superconducting Properties Of Bi Pb-2223

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Abstract: In this study, we investigate the effect of Al2O3 and MgO addition on the critical temperature of the (Bi, Pb)$_2Sr_2Ca_2Cu_3O_{10}^+$ (Bi, Pb-2223) superconductors. The Bi, Pb-2223/ Al2O3 and Bi, Pb-2223/MgO composite were synthesized by using a sol-gel method. BPSCCO with nominal composition was sintered at 840°C for 60 hours Phase investigation and Morphology observation were examined by using an X-Ray Diffraction (XRD) and Scanning Electron Microscope (SEM), respectively. Critical onset temperature (Tc-onset), and critical offset temperature (Tc-offset) used the four-point probe technique. SEM image showed that the BPSCCO superconductor's morphological characteristics seem to dominate the microstructure for all samples. The best result was found in the (Bi, Pb-2223) with addition 1% MgO

***Keywords**: Bi Pb-2223, Sol-Gel, Al2O3, MgO.*

Local And Remote Drive Mechanism Of The Surface Chlorophyll-A Distribution Along The Western Coast Of Sumatra

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Abstract: It is well known that the fishery resources supported and enriched by the nutrient and phytoplankton biomass variability. Phytoplankton biomass is often associated with the chlorophyll-a (chl) abundance. Thus, the chl plays important role as indicator of the high primary productivity in waters. The western coast of Sumatra is part of Fishery Management Area WPP 572 in Indonesia and important region located in the eastern Indian Ocean region. Therefore it is important to investigate more comprehensive the mechanism ocean dynamics may influence chl variability along western coast of Sumatra. Because of the broad ranging area coverage, the chl distribution investigated using remotely sensed data on the surface. The spatial analysis was conducted using the Moderate Resolution Imaging Spectroradiometer (MODIS) Aqua ocean colour data for a period of January 2003 to December 2015. On seasonal time scale, the surface chlorophyll-a (schl) concentration in the southern tip of Sumatra is higher than the schl in the northern tip of Sumatra. Our results found that the schl concentration in the southern tip of Sumatra increases (decreases) during the southeast (northwest) monsoons. The equatorial western - central wind in Indian Ocean control the dynamics ocean. Interestingly, Its interactions with the southeast monsoon wind result in intensify enhanced coastal upwelling along the monsoon trough in July - August. It triggered a large bloom of schl concentration from the upwelling region of southern tip Sumatra. Meanwhile, opposite situation of the schl concentration observed low along the western coast of Sumatra during the northwest monsoon. At the same time, strong upwelling observed at the northern tip of Sumatra where associated with intense cooling on the sea surface temperature. It triggered a large bloom of high schl a water from the upwelling region of northern Sumatra Island.

***Keywords**: Equatorial wave, MODIS, Surface chlorophyll-a, western coast of Sumatra.*

Unreported Fishing As A Kind Of Corruption Crime: A Study Of Legal Actions

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Abstract: The problem in this study rises when the results of fish catching transactions in the middle of the sea are not reported or unreported fishing. According to the author, a case like this can be categorized as a corruption crime which it is one of illegal fishing type. Another problem arises when there is no regulation that regulates which party is authorized to take action against the perpetrators who transact fish catches in the middle of the sea. So in this case it is necessary to establish clear regulations related to unreported fishing and the provision of criminal sanctions in order to have a deterrent effect on the perpetrators. From these two problems, the formulation of the problem that will be studied in this paper is: How can unreported fishing be classified as corruption crimes? and how to take legal action related to the fish catching transactions in the middle of the sea without reporting? This study uses a juridical normative legal method and supported by empirical juridical research that uses a law approach and field studies. From this study, the results will show that the practice of buying and selling fish catching in the middle of the sea is a corruption crime because it is fulfill the characteristics of Article 2 paragraph (1) of Law Number 31 of 1999 concerning the Eradication of Corruption Crime. This practices are need to solve immediately with preventive and repressive measures so as not to harm state finances in the fisheries and marine sector.

***Keywords**: Unreported, Fishing, Corruption..*

Optimization Of Activated Charcoal From Avocado Seeds In Chromium (Cr) Metal Adsorption With H_2SO_4 And HCl Activators

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Abstract: Avocado seed waste can be used as activated charcoal. The process of making this activated carbon through the process of carbonization, activation, and washing. The activator used is hydrochloric acid (HCl) and sulfuric acid (H2SO4) with a concentration of 2.5%, 5%, 7.5%, and 10%, respectively. The characteristics tested were ash content, moisture content, absorption of iodine, and absorption of chromium metal. Testing the absorption of chromium metal using the Inductive Coupled Plasma (ICP) test. From the test results obtained optimal results on the absorption of metal chromium (Cr) using an HCl activator at a concentration of 5%.

***Keywords**: adsorption, avocado seeds, activated charcoal, inductive coupled plasma (ICP).*

The Effect Of Dossage Of Soil Conditioner On Cocoa Growth Seedling

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Abstract: Cocoa plantation in Indonesia still face some issues such as low soil quality, low organic matter, and soil physical characteristic that have less capability on supporting the plant growth and development. The application of soil conditioner is an alternative to accelerate the recovery of soil quality. The objective of the research was to know the optimum dosage of soil conditioner on plant growth seedlings. The research was conducted in Kaliwining Experimental Station, Jember, Indonesia. The research was arranged by using Completely Randomized Design with 4 treatments and 10 replications. The treatments were control (no soil conditioner), 200 grams/pot soil conditioner, 400 grams/pot soil conditioner, and 600 grams/pot soil conditioner. The result showed that the increment of plant growth in 4 months after application was in lined with the addition of soil conditioner dosage. The higher soil conditioner dosage, the higher plant growth would be. The optimum dosage for cocoa seedling growth of soil conditioner was 400 grams/pot.

***Keywords**: Soil Conditioner, Seedling, Growth, Theobroma cacao L..*

Parameter Estimation Of Solar Cells Using Multi-Trial Vector-Based Differential Evolution

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Abstract: This paper presents the use of a multi-trial vector-based differential evolution (MTDE) algorithm to estimate the parameter values of solar cells or modules. Information from the manufacturer is used as data in estimating the parameter values of the solar cells or modules model. Various types of commercial solar cells or modules are used for testing purposes. The minimum value of the difference between the actual value and the estimated value is used as an objective function to be achieved. The test results show that the MTDE algorithm can estimate the parameter values of the models accurately by producing the objective function value close to zero for all types of solar cells or modules.

***Keywords**: parameter estimation, solar cell model, MTDE,.*

Potential Of Cassava Peel Waste And Seaweed Carrageenan (Eucheuma Cottonii) As Eco-Friendly Food Packaging (BIOPLASTIC) : A Review

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Abstract: Plastic waste continues to increase every year along with the increasing number of industries and population. Plastic waste has a negative impact on the environment due to its difficulties to decompose and can cause some environmental problems such as lower soil fertility, air pollution, the effects of global warming because it produces CO2 and HCN gas when burned. An alternative to this problem is to make eco-friendly plastics or bioplastics that are easily decomposed by the soil and are made from renewable materials. This study aims to explore bioplastics produced from cassava peels as food industry waste and seaweed carrageenan (Eucheuma cottonii). The method used was an effective literature review. The cassava peel waste and carrageenan have the potential to be made into bioplastics because they contain one type of polysaccharide that can make films based on the principle of gelatinization. The development of bioplastics from cassava peel waste and seaweed carrageenan potentially being able to solve two problems indirectly, such as reducing plastic waste which has many negative impacts as well as being able to utilize cassava peel waste from the industry and maximize the potential of seaweed which is abundant in Indonesia, to promoting the environmental sustainability.

***Keywords**: Bioplastic, Cassava Peel, Plastic, Carrageenan, Waste.*

Microplastic Pollution In The Coastal Water Of Jakarta Bay, Indonesia

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Abstract: The increased usage of plastic for personal protective equipment (PPE), single-use plastic grocery bags, and food packaging during the COVID-19 pandemic raised concerns on microplastic pollution. This study aimed to investigate the shape, abundance, and type of microplastics in the seawater of Jakarta Bay where is most likely to be polluted by anthropogenic activities as well as being the endpoint of 13 river systems. The seawater from Tanjung Priok, Ancol Beach, and Sunda Kelapa Port, were collected and extracted using the density separation method. The microplastics were counted and categorized under a microscope and polymer of microplastics were identified using FTIR. The differences in microplastic abundance in three different stations were determined using one-way ANOVA. The results show that the Sunda Kelapa Port (2577.78 214.30 particle/m3) had the highest abundance of microplastic, which was significantly different ($p<0.05$) from Tanjung Priok (2022.22 203.67 particle/m3) and Ancol Beach (1822.22 101.83 particle/m3). The microplastic shapes in the Sunda Kelapa Port were dominated by fragments (36.2%), meanwhile, Tanjung Priok and Ancol Beach were dominated by fibers, comprising 37.34% and 35.44%, respectively. The results of the FT-IR test show that the most common types of microplastic polymers are Polypropylene, Polyethylene, Polystyrene, and Polyamide.

***Keywords**: Abundance, Jakarta Bay, Microplastic, Shape, Type, Seawater.*

Potential For Management And Utilization Of Lampung Province Of Tofu Industrial Waste

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Abstract: Based on research conducted by the Lampung Provincial Office, it was found that 200 industries were able to maintain their level of productivity. One type of industry that is most in demand is the tofu industry. In the tofu production process, high amounts of solid waste and liquid waste are generated. The resulting liquid waste will cause an uncomfortable odor and if it is dumped directly into the river it will pollute the river flow, this happens because of the high levels of BOD, COD, TSS, minerals and pH also not in accordance with the waste water quality standards. Therefore, the purpose of this study was to examine and determine the management and utilization techniques of tofu wastewater with the right technology. The method used in this research is Literature Review. The results of the studies that have been carried out are all journals showing that the management of tofu liquid waste is to reduce the levels of BOD, COD, TSS, minerals and pH to conform to water quality standards according to the Regulation of the Minister of the Environment of the Republic of Indonesia Number 5 of 2014 concerning Wastewater Quality Standards. The management can be done naturally using materials that are around the environment including vetiver, chitosan, coconut shell charcoal, water jasmine and tamarind and modern management includes continuous electro-coagulation methods, aeration, batch system and combination of aeration, precipitation and filtration so as to reduce environmental pollution caused by tofu waste. In addition, the common use of tofu liquid waste is as an organic liquid fertilizer that can increase the economic value of liquid waste and the use of liquid waste into biogas as an effort to fulfill sustainable development goals (SDGs) which are expected to improve the quality of sustainable life without causing environmental pollution.

***Keywords**: Lampung, Tofu Industrial waste.*

The Effect Of Cribs Slope Angle On The Erosion Of The Riverbank

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Abstract: A study laboratory experiment was carried out to determine the pattern of cliff collapse at river bends and the effect of the slope angle of the cribs not escaping the water as a cliff collapse control as well as sediment control in channels with various bend angles.The model is made in a channel 25 × 20 cm, a river length of 600 cm. Sediment from fine sand that is not homogeneous and the flow is clear (clear water). The angle and distance of the cribs installation are varied. The cribs used in this experiment were 5 cribs with a tilt angle of 30° and 60°. Each treatment was observed with parameters related to erosion and sedimentation in the river bank bends, including velocity (v), time (t), depth of erosion (de), sedimentation (ds). The dimensional analysis method is used to see the relationship between dimensionless parameters with the Langhaar method. The results showed that the maximum relative sedimentation (ds5/t) max for the crib angle of 30° occurred in the fifth crib of 0.025 at a relative speed (v/t) of 0.06. While the maximum relative erosion depth (ds3/t) max for the tilt angle of 30° crib occurs in the first grout, which is 0.012 at a relative speed (v/t) of 0.0042. At the angle of 60° cribs, there is a maximum relative erosion depth (ds3/t) of 0.082 at a relative speed (v/t) of 0.006 on the third crib. The increasing of the relative velocity (v/t) the greater the value of the relative erosion depth (ds/t).

***Keywords**: River bank landslides, groove structure, Langhaar method, relative erosion depth.*

Capability Of Hydrocarbon Degrading Bacteria Isolates From PAOTere Port Waters In PROducing Biosurfactants

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Abstract: The use of biosurfactants and biosurfactant-producing microbes is an alternative and environmentally friendly method that has begun to be widely developed in remediation technology for polluted environments. The purpose of this study was to understand the correlation between petroleum biodegradation by marine bacterial isolates and the presence and composition of biosurfactants in vitro. One bacterial isolate has the potential to degrade petroleum by producing biosurfactants. The culture in the early exponential phase was highlighted because the emulsification test showed the lowest optical density then the chromatogram also showed the shortest carbon bonds as well as on the tensiometer scale the lowest scale was 48.57 dyne/cm from the addition of 4 ml of biosurfactant. Proving that there is a correlation between biosurfactant production and efforts to degrade petroleum in liquid medium.

***Keywords**: biosurfactant, petroleum, emulsification, chromatogram, tensiometer.*

Improving Effluent Water Quality Of Rubber Liquid Waste Treatment Using Ceramic Membranes Based On Bentonite, Zeolite And Iron Additives

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Abstract: The effluent water quality from rubber liquid waste treatment has the potential to be recycled as raw water for clean water. The purpose of this study was to examine the most effective composition of ceramic membranes from the composition of bentonite, zeolite, and iron additives and to determine the efficiency of reducing the concentration of TDS, T-Coliform, and LAS parameters according to the quality standard in the Minister of Health Regulation Republic of Indonesia Number 32 of 2017. The stages of this research are the manufacture of ceramic filters, the filtration process using bentonite and zeolite-based ceramic membranes with iron additives. Variation of filtration operating time for 5 hours with sampling once every hour using an up-flow system. The results showed that the four variations in the composition of ceramic membranes had been effective in improving effluent water quality. The highest efficiency for decreasing TDS parameters was found in the CF4 membrane-type at the third hour of operation as much 23,64%, the T-Coliform parameter was found in the CF4 membrane-type at the fifth hour of operation as much 64%, and LAS parameter in all variations of tires in various operating time with optimal reduction efficiency above 99%.

***Keywords**: bentonite, ceramic membranes, zeolite.*

Farmer's Adaptation To Climate Change In Lampung Province

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Abstract: This study aims to analyze the impact of climate change on rice farming productivity, know the knowledge, attitudes, and adaptability to climate change, and present analysis of studies and criticisms for product updates related to mk legislation. Respondents to the study numbered 100 rice farmers in Lampung Province. The data is statistically descriptive, using Crosstabs analysis to calculate the frequency and percentage of two or more variables at once while to see the influence of farmer behavior used path analysis. The results of this study show that the impact of climate change greatly affects rice farming which leads to a decrease in the productivity of rice farming farmers. Lack of knowledge of farmers about climate change, the attitude of farmers in the face of climate change is a big concern, but in action to curiosity and problem solving tends to be less, this is due to farmers are less enthusiastic in determining the attitude of climate change, the level of adaptation of farmers to climate change only occurs when determining planting time, so it is necessary to increase the income power due to climate change. Recommendations from these results, among others, related to regulations that require updates. This update obtained two perspectives, namely the legal perspective and the perspective of the development of climate issues itself. In the legal aspect, changes to the Meteorological, Climatology and Geophysics Law are required to conform to the latest and current conditions that have been irrelevant both formil and materil. As for the developmental aspects of the issue, international discourse today still has a focus on climate affairs. The renewal of the MCG Law needs to be done to conform well with the current legal regime and to respond to international issues related to climate.

***Keywords**: adaptation, climate, farmers, productivity, regulation.*

Estimation Of Economical Mineral In Pesisir Barat, Lampung Based On Gephysical Models

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Abstract: Gold mineral (Au) is formed due to an increase in the residual solution of magma deposited at high temperature and pressure. This study aims to estimate the potential of gold minerals in some areas of Pesisir Barat Regency based on resistivity geophysical models. Based on geological data, gold minerals in the West Coast are classified as epithermal hydrothermal deposits in the form of low sulfide quartz veins. The results of the subsurface interpretation were identified as a gold mineralization zone associated with the rock in the form of volcanic rock which has a resistivity value of 400Ω.m. The source rock volume has been estimated at 130,000 m3 and ≤133,000 m3. So that the Au mineral content in the study area is estimated at 0.5-2.09 tons.

Keywords*: economical mineral, pesisir barat, geophysics.*

On-Line-Based Msme Development Governance: Opportunities And Challenges

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Abstract: This study aims to examine strategies for developing entrepreneurship in the empowerment of online-based small and medium enterprises in the city of Makassar, South Sulawesi. MSME entrepreneurship development strategies can be carried out by designing governance by local governments, in capturing various entrepreneurial opportunities for online small and medium business empowerment. This study uses a mixed methods research approach that combines or relates qualitative and quantitative forms. This approach involves empirical assumptions, to apply qualitative and quantitative approaches, in integrating them. The Makassar City Government needs to encourage the community and MSME activists or entrepreneurs to have an optimal will to develop and improve online MSME entrepreneurial activities in Makassar City, South Sulawesi. The importance of implementing on-line-based governance strategies: through in-depth studies in research and development, analysis of strengthening the creative economy, expansion of marketing networks, increasing production quality, education and training through incubators, speed and adaptability for entrepreneurs.

Keywords*: Strategy, Development, Entrepreneurship, Empowerment, On-Line Based Small and Medium Enterprises.*

The Impact Of Regulations In The Environmental Sector In The Omnibus Law Law Regarding Forest And Animal Sustainability In Sangihe Island, North Sulewesi

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Abstract: Indonesia is a state of law should be built based on the principles of democracy and populist. The omnibus law regulation will have a very serious impact on the policies of the agrarian sector and the environment. In this article research uses a normative juridical method based on legal regulations, legal principles, in analyzing the impact of omnibus law regulations in the environmental and agrarian sector. The threat to the preservation of forests and animals on Sangihe Island due to the permitting of gold mining by foreign companies by the Indonesian government is the impact of the omnibus law that can greatly worsen environmental and agrarian conditions and the omnibus law is only the government's attempt to pamper capitalism and foreign or private capital owners.

***Keywords**: Omnibus Law, Agrarian, Environment..*

Carcass Percentage And Organoleptic Quality Of Unila-1 Superior Chicken Meat

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Abstract: The aim of this study was to determine the percentage of carcass and organoleptic quality (color, aroma, tenderness and taste) of superior chickens of Unila-1 compared to broilers and native chickens. The research material used was 10 superior Unila-1 chickens aged 2 months, 10 broiler chickens aged 1 month and 10 free-range chickens aged 7 months. This study used a completely randomized design with 3 treatments of chicken species, 6 replicates on the percentage of carcasses and 20 panelists who performed organoleptic tests on the color, aroma, texture and taste of each chicken. Samples for organoleptic test were thigh and breast meat from each treatment. Samples of thigh meat and breast meat were cut into pieces with a size of 4 x 4 cm. The thigh meat and breast meat are wrapped in aluminum foil, steamed for 35 minutes and drained for 5 minutes. A total of 20 people aged 20-55 years served as panelists for the organoleptic test. Each panelist received a serving of meat samples for all treatments, one glass of water and a list of questions (questionnaire). The questionnaire contains the observed variables, namely the physical properties of the meat which included the color, aroma, tenderness, and taste of the meat. The results showed that the carcass percentage and organoleptic quality (color, aroma, tenderness and taste) of superior chicken of Unila-1 aged 2 months were relatively the same as broiler chickens aged one month and free-range chickens aged seven months.

Keywords*: carcass percentage, organoleptic quality, superior chicken of Unila-1, broiler, native chicken.*

The Effect Of Various Nutrient Hydroponic Formulation On Growth And Yield Of Three Varieties Of Common Bean (*Phaseolus Vulgaris L.*) On Hydroponic Drip Irrigation System

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Abstract: Common bean productivity has a reduction due to land limitations that are suitable for the common bean crop environment. One of way to resolve this problem is hydroponic cultivation and choose the best nutrition formula with the best common bean varieties. The research was conducted in March to May at the Screen house of Padjadjaran University, Jatinangor subDistrict, Sumedang district, West Java. Using a completely randomized design (RAL) of two factors, the first factor was the variety of hydroponic nutritional formulas (Formula Sutiyoso, Formula Aroca, Formula Chaoui, Formula Hoagland) and the second factor was the variety of common beans (Balitsa-1, Balitsa-2, Balitsa-3) thus there were 12 combinations were repeated three times with two plants in each experimental unit. The results showed the interaction between nutritional formulas and common bean varieties on the growth of common bean plants on plant height parameters (14 DAP) and independent tendencies on plant height parameters (7, 21, 28, 35 DAP), leaf area, flowering appear, number of flowers, ratio root loss, dry weight per plant, fresh weight of pods per plant, and grading. The use of Sutiyoso's formula and Balitsa-1 variety could increase the productivity of common bean plants.

***Keywords**: Common Bean, Hydroponic, Nutrition Formula, Variety.*

Exploring Environmental DNA For Barcoding Analysis Of Sumatran Rhino In Way Kambas National Park

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Abstract: The Sumatran rhino (Dicerorhinus sumatrensis) is one of five species of rhino in the world. The existence of the Sumatran rhino is also considered very vulnerable to habitat degradation, internal cross-breeding, disease and hunting. The Sumatran rhino population will experience extinction if there are no mature management measures for the long term. It is assumed that the dynamics of the natural ecosystem in the Sumatran rhino's natural habitat will have a negative effect on the existence of its population. Sumatran rhino puddle water is one of the remaining sources of environmental genetic material. Extraction of eDNA in the puddle water of individual Sumatran rhinos in Sumatra Rhino Sanctuary, Way Kambas National Park aims to determine the results of testing the quality of genetic material from Sumatran rhino puddle water in the Sumatran Rhino Reserve, Way Kambas National Park using simple and molecular methods. DNA extraction using a simple method detects 0/12 samples, whereas using molecular methods can detect 11/12 samples. These results should be followed by detection using specific primers to ensure that the eDNA extracted is Sumatran rhino eDNA.

***Keywords**: Sumatran rhino, eDNA, Way Kambas National Park.*

Effectiveness Of Immunomodulator Supplementation Sambiloto (*Andrographis Paniculata*) Against Total Erythrocytes And Leukocytes Of Broiler

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Abstract: This research aims to determine the effect and the best dose of supplementation of immunomodulator Sambiloto (Andrographis paniculata) against total erythrocytes and leukocytes of broiler. The research was conducted on May - June 2021 in broiler farm unit at Karang Anyar, Jati Agung, South Lampung, Lampung, used completely randomized design, five treatments, five replications, each consisted of five broilers of Cobb CP 707 strain, total 125 heads. A. paniculata was added to drinking water in five treatments for 30 days, namely without A. paniculata (P0, control); with A. paniculata/kg BW 3 mg (P1); 6 mg (P2); 12 mg (P3); 24 mg (P4). Total 25 blood samples was taken through the brachial vein, analyzed parameters at Palembang Health Laboratory Center. Data were analyzed descriptively. The highest total broiler erythrocytes was P0, the lowest was P4, mean total erythrocyte in normal range for all treatments. The highest total broiler leukocytes P2, the lowest P3, mean total leukocyte for all treatments were above normal range. Conclusion were supplementation of Sambiloto (Andrographis paniculata) through drinking water could maintain total erythrocytes in the normal range and increasing total leukocytes as an immune response after vaccination with best supplementation dose in drinking water 6 mg/kg BW..

***Keywords**: Andrographis paniculata, Broiler, Total Erythrocytes, Total Leukocytes.*

Effect Of Azolla Flour Supplementation (*Azolla Microphylla*) On Total Plasma Protein And Red Blood Cells Of Broiler

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Abstract: The purpose of this study was to determine the effect and the best dose of Azolla flour in broiler feed rations on the total plasma protein and red blood cells. The experimental study used four treatments and five replications. The provision of Azolla flour as a supplement was added to the feed ration with different doses according to broiler body weight, namely P0: ration without flour supplementation (control); P1: ration with flour supplementation 2.5% ; P2: ration with flour supplementation 5%; P3: ration with flour supplementation 7.5%. Sampling of broiler blood samples aged 28 days with a total of 20 samples. The results showed that the highest total plasma protein value was in P2 and P3, namely 4 g/ml, while the lowest total plasma protein value was in P3, which was 3 g/ml and the highest red blood cell value found in P2 which is worth 4.01 x 106/mm3, while the lowest red blood cell value is in P3 was 2.02 x 106/mm3. Conclusion of this research were the supplementation of A. microphylla flour in the ration have an effect on total plasma protein and broiler red blood cells, as well as the best level each 2.5% and 5%.

***Keywords**: Azolla mycrophyla, Broiler, Ration, Red blood cells, Total plasma protein.*

Biplot Analysis For Mapping The Characteristics Of The Sample Of Swaw Jitu, Marga Tiga, And Teluk Ratai Lampung Province

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Abstract: Biplot analysis aims to demonstrate a matrix by overlapping the vectors representing the row vectors with the vectors representing the column vectors of the matrix. Biplot is done by describing singular value decomposition (SVD). SVD aims to describe the singular value of the Y matrix which is an X matrix of size n x p which has been corrected with the mean, and then generated the G and H matrices. Biplot results. The results of the biplot analysis showed that there were 3 groups of soil samples based on the similarity of soil characteristics for the Rawa Jitu and Marga Tiga areas, namely: group 1 consisted of soil samples that had similar maximum dry density, California bearing ratio, and specific weight of solids; group 2 consisted of soil samples that had similar Atterberg Plastic Limit, Atterberg Liquid Limit, and Atterberg Plasticity Index; while group 3 consisted of soil samples which had similar moisture content and optimum moisture content, and % Lose No. 200. While in the Teluk Ratai area there are 2 groups of soil samples, namely: group 1 consists of soil samples that have the same maximum dry density, and % pass filter No. 200; group 2 consists of soil samples that have similarities from test results using the CBR or California Bearing Ratio, Atterberg Plastic Limit, Atterberg Liquid Limit, moisture content, and optimum moisture content. The highest diversity and can be said to be a relatively high soil characteristic in Margatiga and Rawa Jitu is % Lose No. 200. Meanwhile in the Teluk Ratai area, the highest diversity is at the Atterberg Liquid Limit. If the water content in the soil sample increases, the Atterberg Liquid Limit and Atterberg Liquid Limit values will also increase. It is better if % passed the filter No. 200 is smaller, the CBR value also increases.

***Keywords**: Biplot, Singular Value Decomposition (SVD).*

Business Analysis Of Integration Aquaponic Technology In Cultivation Catfish (*Clarias Sp.*) In Strengthening MSMEs Scale Businesses

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Abstract: Catfish (*Clarias Sp.*) farming can be classified on the scale of MSMEs (Micro, Small and Medium EnteIDRrises) because the business is run by individuals, households, or small business entities. MSMEs are one of the drivers of the nation's economy that making them suitable as business alternatives, especially in situations such as the current Covid-19 pandemic. The aquaponic technology is a technology that integrates fish cultivation and plant maintenance with a mutualism symbiotic system in one fish farming container. The purpose of this study was to analyze the implementation efforts of aquaponics technology integration in conventional fish farming. The research was conducted for 3 months (May - August 2021) in Marga Agung Village, South Lampung Regency. The feasibility analysis of catfish farming that integrated with aquaponics technology with a density of 250 catfish / m2 with a stocking size of 5-7 cm / fish and maintained for 3 months for harvesting. The total revenue obtained was IDR. 3,224,870/cycle whereas the profit was IDR 346,536/cycle. Based on the analysis of the R / C ratio with the value of 1.12, it is concluded that the aquaponic technology of aquaculture at the freshwater pond in Marga Agung Village is feasibleto be continued.

***Keywords**: Aquaponic technology, Business analysis, Catfish (Clarias sp.), Integration, Covid-19 pandemic.*

Modification And Performance Test Of Brown Sugar Semi-Automatic Machine In Evaporation And Crystallization Process Using Palm Oil Neera

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Abstract: Brown sugar semi-automatic machine is designed to improve production process of brown sugar. The problems of research are 1) Production process of palm oil brown sugar (evaporation and crystallization) is not optimal and has to be modified; 2) The speed of agitation in evaporation is not optimal; and 3) Cooling system in crystallization causes caramelization process. This research aims to 1) Modify brown sugar semi-automatic machine by improving rotation speed in the agitation system of evaporation and cooling system in crystallization; and 2) Compare the performance test of brown sugar semi-automatic before and after modification. This research is conducted by observing machine, analyzing system engine (specification and modification planning), designing of machine modification, evaluating of modified machine, and comparing the performance test. The final targets of this research are producing a good quality of brown sugar contains uniform crystall size due to an improving semi-automatic machine and improving the production process of brown sugar more effective and efficient. The outputs are: 1) Modification of brown sugar semi-automatic machine to improve evaporation and crystallization process, 2) Good quality of brown sugar contains uniform crystall size; 3) Articles that will be presented at scientific meeting; and 4) National journal.

***Keywords**: Aquaponic technology, Business analysis, Catfish (Clarias sp.), Integration, Covid-19 pandemic.*

Obstacle Detection Using Raspberry Pi For Driving Safety Based On Hough Transform Method

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Abstract: The rapid development of digital image processing technology can be used to simplify human life. This technology can be used in automotive technology which is also growing rapidly. Automotive technology leading to driverless automation cars is in dire need of image processing technology. This research aims to detect obstacle objects based on the detection of line changes emitted by line lasers. The line laser beam is captured using a camera and then using a Raspberry Pi to determine whether there is an obstacle or not. This research uses the Python programming language with the Hough Transform method. The Hough Transform method is used to detect lines in an image that is processed by looking at the consistency of the line laser. This research uses a box and a ball as obstacle objects. Research data collection was carried out in the afternoon in a closed room with an Illumination intensity of 10 Lux with parameters such as distance, camera angle, and line laser angle. An object can be said to be an obstacle if an image there is a laser line that is broken or not at the same pixel position. However, if in the image there is a consistent line or there is no line position change, then in the image there is no obstacle object. Based on the evaluation results of the calculation of the accuracy of the obstacle distance between the actual distance and the distance calculated by the program, the accuracy is above 90%.

***Keywords**: Obstacle detection, Hough Transform, Raspberry Pi, Image Processing.*

Modification And Performance Test Of Brown Sugar Semi-Automatic Machine In Evaporation And Crystallization Process Using Palm Oil Neera

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Abstract: Brown sugar semi-automatic machine is designed to improve production process of brown sugar. The problems of research are 1) Production process of palm oil brown sugar (evaporation and crystallization) is not optimal and has to be modified; 2) The speed of agitation in evaporation is not optimal; and 3) Cooling system in crystallization causes caramelization process. This research aims to 1) Modify brown sugar semi-automatic machine by improving rotation speed in the agitation system of evaporation and cooling system in crystallization; and 2) Compare the performance test of brown sugar semi-automatic before and after modification. This research is conducted by observing machine, analyzing system engine (specification and modification planning), designing of machine modification, evaluating of modified machine, and comparing the performance test. The final targets of this research are producing a good quality of brown sugar contains uniform crystall size due to an improving semi-automatic machine and improving the production process of brown sugar more effective and efficient. The outputs are: 1) Modification of brown sugar semi-automatic machine to improve evaporation and crystallization process, 2) Good quality of brown sugar contains uniform crystall size; 3) Articles that will be presented at scientific meeting; and 4) National journal.

***Keywords**: Aquaponic technology, Business analysis, Catfish (Clarias sp.), Integration, Covid-19 pandemic.*

The Effect Of Sucrose And Combination Of Plant Growth Regulatories For The Growth Of Meristem Explants Of Garlic (*Allium Sativum*) Lumbu Hijau Variety In Vitro

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Abstract: Garlic, Amarydaceae family, has a lot of benefit, while the production unable to fulfil the demand due to conventional cultivation. The conventional cultivation increases the probability of virus transfer, which decrease the seed quality, even, damage the seeds. Tissue culture is one of biotechnology device to deal with the problem and provides large number of seeds in a short time and resistant to viruses. The research aimed to get the optimal composition of sucrose and the combination of BAP + GA3 for the growth of garlic meristem explants in vitro. This research was conducted from January to June 2020 at the Tissue Culture Laboratory of UIN Sunan Gunung Djati. The planting material used bulb meristem of garlic lumbu hijau variety from Sentra Tani, Sukorejo, Kendal Regency, Central Java. The research designed using descriptive method with sucrose (30 g, 60 g, 90 g, 120 g) and combination of BAP (2 ppm, 4 ppm, 6 ppm) and GA3 (0.5 ppm, 1.0 ppm, 1.5 ppm). The result indicated that there was an effect between sucrose 90 g and the combination BAP 2 ppm + GA3 0.5 ppm in producing highest explant length for 5.5 cm.

Keywords*: in vitro, lumbu hijau, sucrose.*

In Vitro Propagation Of Tropical Pitcher Plant (*Nepenthes Ventricose*)

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Abstract: Tropical Pitcher Plant (Nepenthes ventricosa) is a unique ornamental plants because it has pockets located at the tips of the leaves. Nepenthes also has benefit as medical plants. This plant is included in the CITES Appendix 1 and 2 list because of endangered plant species status. The rare of this plant is due to overexploitation without cultivation effort. In vitro propagation of Nepenthes is one way to multiply plants with the desired results. This study aimed to determine the concentration of MS media which was more effective on Nepenthes growth. This research was conducted at the Tissue Culture Laboratory, Agrtotechnology Department, Faculty of Science and Technology UIN Sunan Gunung Djati Bandung from January 2020 to July 2020. The material used was Nepenthes ventricosa explants with an average age of 12-18 months. The method used was the T-test with 2 treatments namely ½ MS and 1 MS full with 8 replications. The results of this study indicated that the media concentration of ½ MS was more effective than MS full with numbers of pitchers an average of 22.37 in each culture bottle.

***Keywords**: in vitro, nepenthes, propagation.*

No Reference Image Quality Assessment Of Retinal Image For Diabetic Retinopathy Detection Based On Feature Extractionti

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Abstract: Retinal image is widely used for the detection of diseases such as diabetic retinopathy, glaucoma and other diseases. The quality of the retinal image is one of the important factors that influence the detection result. Therefore, the retinal image quality assessment is needed as a prescreening stage detection. It is necessary to develop a no-reference retinal image quality assessment method since the reference image is not always available. Some research have developed the retinal image quality assessment methods based on feature extraction and classify it. Its mean that the methods involve a class which is an assessment by an expert or opthalmologist. It still contains the subjectivity in assessing the quality of the retinal image. In additional, the region of interest (RoI) of each disease to be detected is different each other. That is not the entire area of retinal image to be assessed. This research developed a method for assessing the quality of the retinal image by cropping the RoI of the retinal image based on diseases to be detected, in this case it is focused on diabetic retinopathy dan glaucoma. Futhermore, extracting feature in the image and determines the level of retinal image quality by grouping them using clustering techniques. Clustering performance is tested by calculating the sensitivity, spesificity and accuracy. For the diabetic retinopathy case, the best performance is by extracting a combination of histogram feature, GLCM feature, and contrast of blood vessels with 77.36% specificity and 72.41% accuracy.

***Keywords**: Diabetic Retinopathy, Feature Extraction, No Reference Image Assessment, Retinal Image.*

Histopathological Study Of The Effect Of Supplementation Combination Of Vitamin E, Selenium And Zinc Through Drinking Water On Small Intestine Of Broiler

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Abstract: Research aim was determine the combination of Vitamin E, Selenium and Zinc supplementation on the potential to increase various parameters in the small intestine of broilers. The research was conducted for 30 days (June-July 2021) in a broiler farm unit in Adimulyo Village, Gading Rejo, Pesawaran, Lampung. The research was experimental using CRD, five treatment groups, five replications (five heads/replication), total 125 broilers. Supplementation of Vitamin E, Selenium and Zinc added to drinking water with 5 treatments different doses (P0, P1, P2, P3, P4). Five broilers per group were randomly necropsied on 31 days old, taken samples of small intestine, fixed with formalin 10% and histology preparations at Lampung Veterinary Disease Investigation Center. The observation using Leica DM500® Binocular Microscope to calculate parameter sizes. Average measurement data were analyzed using one way ANOVA, followed by Tukey test. Results were P3 had a significant effect ($P<0.05$) increasing crypt depth of duodenum; P2 had a significant effect ($P<0.05$) increasing size of apex villi width of ileum; P4 had a significant effect ($P<0.05$) on crypt depth of ileum. Conclusion was supplementation combination of Vitamin E, Selenium and Zinc increased the villi area and crypt depth in the small intestine of broilers.

***Keywords**: Broiler, Vitamin E, Selenium, Small Intestine, Zinc..*

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