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The organizing committee certifies that

Prof. Dr. Tati Suhartati

has contributed as

PARTICIPANT

at

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***“Natural Science, Mathematics, and Informatics in Industrial Revolution (IR) 4.0
toward The Sustainable Development Goals (SDGs)”***

Held by Faculty of Mathematics and Natural Sciences, University of Lampung
September 3rd – 4th, 2020, Bandar Lampung, Indonesia



Dr. Eng. Supto Dwi Yuwono, S.Si., M.T.
Dean

Prof. Dr. Rudi TM Situmeang, M.Sc.
Chairman



Book of Abstracts

ICASMI

3rd International
Conference on
Applied Science
Mathematics
and Informatics



“Natural Sciences,
Mathematics and Informatics in
Industri Revolution (IR) 4.0 Toward
The Sustainable Development Goals
(SGDs)”

2020

Faculty of Mathematics and Natural Sciences
University of Lampung

Introduction

The 3rd International Conference on Applied Science,
Mathematics, and Informatics (ICASMI)

Bandar Lampung, 3-4 September 2020

Faculty of Mathematics and Natural Sciences, University of Lampung (FMIPA, UNILA) is honored and proud to organize the 3rd International Conference on Applied Science, Mathematics, and Informatics (ICASMI). The theme of the conference is theme "Natural Sciences, Mathematics and Informatics in the Industrial Revolution (IR) 4.0 toward the Sustainable Development Goals (SDGs)."

ICASMI is a biennial event with the aims to bring together international and local scientists, researchers, academicians, also students for sharing their research, exchanging ideas, networking, opening collaboration research. Even in the covid19 pandemic, ICASMI is still held this year. This year, all conference will be held online.

The Keynote speakers are competent in their filed of study. They come from different countries, such as, Japan, Malaysia, Turkey and Indonesia. This conference will provide an opportunity for presenters to present their

current research and results, and also for participants to learn up-to-date topics and researches in their field of study.

Best wishes and we welcome you to the 3rd ICASMI held in Bandar Lampung, Indonesia.

Organized by

Faculty of Mathematics and Natural Sciences,
University of Lampung (FMIPA, UNILA)

Book of Abstracts | iii



Speech from the Rector of University of Lampung

Vice Rectors, Dean Faculty of Mathematics, Head of LPPM and LP3M in the University of Lampung. Distinguished Keynote Speaker, and participants.



Ladies and Gentlemen
Assalamu'alaykum Wr. Wb.
Tabik pun
Good morning

First of all I would like welcome all of you for participating in the 3rd International Conference on Applied Science, Mathematics, and Informatics (ICASMI) 2020, held by Faculty of Mathematics and Natural Sciences, University of Lampung. Thank you for participating in this Conference.

I would like to express my appreciation to our keynote speakers:

Prof. Kenji Satou (Kanazawa University, Japan)

Prof. Dr. Antonius Suwanto (IPB University, Indonesia)

Prof. Dr. Hasan Küçükbay (İnönü University, Turkey)

Prof. Harith Ahmad (Univeristy of Malaya, Malaysia)

Porf. Dr. Ismail Bin Mohd (AISMM, Malaysia)

Prof. Ivandini Tribidasari, A (University of Indonesia, Indonesia)

Prof. John Hendri, Ph.D (University of Lampung, Indonesia)

We are honored that you would be participating in this conference.

Even in this Covid-19 pandemic, we are still able participate in this conference.

Indonesia has been participating in ASEAN Economy Community (AEC) and Trans Pacific Partnership (TPP) since several years ago. If Indonesia is not prepared this can be a challenge for us. Global market, innovations and foreign workers with excellence skills will be faced by Indonesia. However, there are also opportunities. By improving research and innovations in Indonesia, also by strengthening the potency of the society in Indonesia, we can face these challenges. Our university, University of Lampung, also encourages strengthen the potency of Indonesian society and values ‘Creation and Innovation for the Nation’.

The aim is to improve quality of local products, varieties of invention in all field of study, such as: chemistry, biology, mathematics, physics, and computer science. It

is important to bring together experts in these fields, in hope that we can have better knowledge and produce innovations in Indonesia.

Ladies and Gentlemen,

Hopefully in this Conference, there will be new ideas, discussion, collaboration between participants. I strongly believe that through the 3rd International Conference on Applied Science, Mathematics, and Informatics, we are able to improve our potency to face all challenges, and achieve more opportunities in the future.

I hope this Conference is able to inspire and deliver benefits to all participants, in which together we are able to contribute to science and research.

Once again, welcome to this conference and have a wonderful discussion.

Thank you very much.

Wassalamu'alaikum Wr. Wb.

Prof. Karomani,
Rector of University of Lampung





Speech from the Dean of Faculty of Mathematics and Natural Sciences

*Assalamu'alaikum Wr. Wb.
In the Name of Allah, The Most
Beneficent, the Most Merciful.
Tabik pun*

It is my great honor on behalf of Faculty of Mathematics and Natural Science, to welcome all participants to the 3rd International Conference on Applied Science, Mathematics, and Informatics (ICASMI). The theme of the conference is theme "Natural Sciences, Mathematics and Informatics in the Industrial Revolution (IR) 4.0 toward the Sustainable Development Goals (SDGs)." Even though in this Covid19 pandemic, we are still able to organize this Conference.

We hope this conference can be a platform to gather and disseminate new innovations and research in science, in particular natural science, applied science, mathematics, and also computer science/ informatics. Researchers, academicians, and students are able to share and discuss new findings and applications of science. The aim is to initiate collaborations academics, researches and industries, both national and international. As it stated in

the conference theme we encourage innovations and research to achieve the Sustainable Development Goals (SDGs).

Ladies and Gentlemen,

Faculty of Mathematics and Natural Sciences is one of the popular Faculty in University of Lampung. Currently, Our Faculty has more than 2,900 students, spread across 11 study programs. We have 1 Diploma Program, 6 Undergraduate Program, 4 Master Program, and 1 Doctoral Program. Our faculty member also includes 11 Professors and more than 50 Assistant Professor, therefor with these resources, there are many opportunities to conduct collaborations with Our Faculty. Besides, International Conference, Our Faculty also periodically organize National Conference that we call SNSMIAP. We have held this conference regularly also.

Thank you to the Rector of University of Lampung, Head of LPPM, the Head of LP3M, all the keynote speakers and participant. I would also like to give my gratitude to the organizing committee for their hard efforts in organizing this conference.

Wassalamu'alaykum Wr. Wb.

Dr. Eng. Suropto Dwi Yuwono, M.T
Dean of Faculty of Mathematics and Natural Sciences



Speech from the Conference Chairman

Good morning

Tabik pun

*Honorable Rector of University
of Lampung Prof. Karomani,*

*Dean of Faculty of Mathematics and Natural Sciences,
Dr. Eng. Suropto Dwi Yuwono, M.T,*

Head of LPPM and LP3M,

Prof. Kenji Satou (Kanazawa University, Japan)

Prof. Dr. Antonius Suwanto (IPB University, Indonesia)

Prof. Dr. Hasan Küçükbay (İnönü University, Turkey)

Prof. Harith Ahmad (Univeristy of Malaya, Malaysia)

Porf. Dr. Ismail Bin Mohd (AISMM, Malaysia)

*Prof. Ivandini Tribidasari, A (University of Indonesia,
Indonesia)*

*Prof. John Hendri, Ph.D (University of Lampung,
Indonesia),*

First of all, I would like to express my gratitude to the Rector of University of Lampung and the Dean of Faculty of Mathematics and Natural Sciences. Thank you for the support and encouragement the 3rd International Conference on Applied Science, Mathematics, and Informatics (ICASMI) can be held, even in this covid-19 pandemic. This year, the

conference is held online. All presentations and posters will be held online.

ICASMI aims is align with the vision and mission of University of Lampung which is to promote education and research in the field of science. On behalf of the committee, we are glad to report that we received great response from participants and from keynote speakers. There are more than 100 participants from various universities and institutions that will present their research in this conference. The keynote speakers are also very qualified in their field of research.

Ladies and Gentlemen,

I would also like to report that the paper presented in this conference like the previous conference, will be Published in Journal of Physics: Conference Series. This is a reputable Proceedings as it indexed by Scopus Q3 and with SJR 0.23.

Finally, I hope this Conference is able to inspire and deliver benefits to all participants, in which together we are able to contribute to science and research.

Thank you very much for your attention and I hope you will enjoy this conference.

Prof. Dr. Rudy T.M. Situmeang
Chairman of the 3rd IC

TABLE OF CONTENT

	<i>Page</i>
<i>Introduction</i>	<i>ii</i>
<i>Speech from the Rector of University of Lampung</i>	<i>iv</i>
<i>Speech from the Dean of Faculty of Mathematics and Natural Sciences</i>	<i>vii</i>
<i>Speech from the Conference Chairman</i>	<i>ix</i>
<i>Table of Content</i>	<i>xi</i>

Keynote Speakers	
Title	Page
Problems and Approaches in Animal Behavior Analysis Kenji Satou	1
Pulsed Laser Generation Using Thulium Fluoride Fiber In S Band Region Harith Ahmad, Siti Aisyah Reduan, Kavintheran Thambiratnam	2
Basic Sciences in Molecular Biotechnology: From Genetic Engineering to Genome Editing Antonius Suwanto	6
A Globally Convergent Interval Newton-Tanti-Zahra's Method for Simple and Multiple Real Roots of a Function with One variable I b Mohd and Y Dasri	4
Modified-Boron-Doped Diamond for a Direct Urea Fuel Cell Ivandini Tribidasari Anggraningrum	5
Modified-Boron-Doped Diamond for a Direct Urea Fuel Cell Ivandini Tribidasari Anggraningrum	5
Benzotriazole-mediated synthesis of indole-peptide conjugates N. Yıldırım, H. Küçükbay	6
Bioproduct and Inventory of Biodiversity John Hendri, Andi Setiawan, Aspita Laila, NLG Ratna Juliasih, M. Komarudin	7

Biology Code	Title	Page
BIO_01	The Diversity and the Abundance of Corn Planthopper (Hemiptera: Delphacidae) in Lampung Province	9
BIO_02	Identification of SNPs Associated with Iron Toxicity Tolerance in Rice	10
BIO_03	EXTRACT OF METHANOL LEAVES <i>Avicenia marina</i> AND TAURIN IN THE HELa CANCER CELLS IN VITRO	11
BIO-04_Ps	Diversity and Density of Gastropod in the Biluhu Timur Coastal Region of Gorontalo, Indonesia	12
BIO_05_Ps	Molecular characterization of fermentative bacteria on Local Microorganisms of <i>Pomacea canaliculata</i>	13
BIO_06	Characterization Of morfology structure flower from variation cultivars of pisang kepok (<i>Musa paradisiaca</i> L.)	14
BIO_07	Altering Physical Characteristics of Sinking Fish-Feed through Sub-Optimal Fermentation Using Tempeh Mould without Mechanical Extrusion	15
BIO_08	Isolation and identification of entomopathogen fungi as candidate of bioinsecticide from flies and cockroaches' (Insect vector's disease)	16
BIO_09	Monosex male formation of juvenile redclaw crayfish using natural steroid hormone from gamma sea cucumber and different doses of honey bee	17
BIO_10	Micropropagation of Red Ginger (<i>Zingiber officinale</i> Rosc. Var. <i>Rubrum</i>) Using Several Types of Cytokinins	18
BIO_11	Antidiabetic Potency of Jeruju (<i>Acanthus ilicifolius</i> L.) Ethanol Extract and Taurine on Histopathological Response of Mice Kidney (<i>Mus musculus</i> L.) Induced by Alloxan	19
BIO_12	Growth and Estimation of Potential Carbon Absorption by Transplantation Branching Coral Reefs on Mahitam and Pahawang Islands, Pesawaran Regency, Lampung Province	20
BIO_13	Isolation and characterization of mercury-resistance for ammonia-oxidizing bacteria from mangrove sediment, hanura lampung beach	21
BIO_14	Antibacterial effects of <i>Pheretima javanica</i> Extract and bioactive chemical analysis using Gas Chromatography Mass Spectrum	22

BIO_15	Inhibitory Study Of Cassava Leather Ethanol Extract As Natural Antimicrobial In Reducing Salmonella Sp. And Escherichia Coli On Contamination Chicken Meat (Gallus Domesticus)	23
BIO_16	The Potential of Temephos as Larvacide for Malaria Vector Control in Katibung Subdistrict, South Lampung	24
BIO_17	Effect of Duwet fruit (<i>Syzygium cumini</i>) extract on MDA level and Caspase 3 expression in Rat (<i>Rattus sp</i>) Testes exposed to cigarette smoke	25
BIO_18	Bacterial support as a biostimulant agent (BPNIII, Azzofor) for marginal soil fertility and stimulating seedlings growth in nursery	26
BIO_19	Antioxidant and Antimicrobial Activity of Endophytic Fungi Isolated from <i>Syzygium aqueum</i> Leaves	27
BIO_20	Analysis of the Effect of Different Types of Coffee Shade on Robusta Coffee Productivity	29
BIO_21	Analysis of Total Carbohydrate and Chlorophyll Content of The Orchid Plantlet [<i>Phalaenopsis amabilis</i> (L.) Bl.] Resistant Fusarium Wilt Disease	30
BIO_22	The Effect of Fermentation on Acidity, Caffeine and Taste Cascara Robusta Coffee	31
BIO_24_Ps	Effect of immersion time in extract gonad of sea urchin on masculinization of betta fish (<i>Betta sp</i>)	31
BIO_25	Identification of Against Virus Infection on Native Orchid in Liwa Botanical Garden	32
BIO_26	Solvent extraction effects on Phytochemical Constituents and Antioxidant Activities of Buds of <i>Punica granatum L.</i> grown in Adiyaman- Turkey	33
BIO_27_Ps	Effect different doses of extract gonad of sea urchin on masculinization of betta fish (<i>Betta sp</i>)	34
BIO_PRES_01	Application of Xylanolytic Fungi Inoculum of <i>Aspergillus Tubingensis</i> R. Mossery In Bamboo Litter (<i>Bambusa Sp.</i>) Composting	35
BIO_PRES_02	ANTICANCER POTENCY OF JERUJU LEAF (<i>Acanthus ilicifolius</i>) AND SEAGRASS (<i>Enhalus acoroides</i>) METHANOL EXTRACT AND TAURIN IN CELL CULTURE OF HELA CERVICAL CANCER	36
BIO_PRES_03	Resistance of Red Chilies (<i>Capsicum annum L.</i>) to <i>Fusarium oxysporum</i> Attack as a Result of 0.2 mT Magnetic Field Induction	37

Chemistry Code	Title	Page
CHEM_01	The Use of SIMCA Method and NIR Spectroscopy with Two Different Hand Held and Portable Spectrometers Equipped with Integrating Sphere for Classification of Two Different Indonesian Specialty Coffees	38
CHEM_02	Simple analytical method based on UV-visible spectroscopy coupled with SIMCA method for authentication of Lampung robusta coffee with geographic indications (GIs)	39
CHEM_03	Solar-Powered Electrocoagulation System for Tofu Wastewater Treatment and its Characteristic	40
CHEM_05	Microcapsule from PCL/PEG as Controlled Nifedipine Drug Delivery Carrier	41
CHEM_06	Controlled Drug Delivery Carrier of Nifedipine Using Biodegradable Microcapsule Polymer from Poly (D,L-Lactic Acid) and Polyethylene Glycol	42
CHEM_07	Efficiency of Natural Folic Acid in Infant Poured Cream Soup using Mocaf for Complementary Feeding	43
CHEM_08	Adsorption Kinetic and Isotherm of Solution Pair of Methylene Blue and Crystal Violet by Algae-Silica-Magnetite Hybrid Adsorbent on Porphyridium sp. Algae	45
CHEM_09	Transition Energy, Spectral Fine Structure, and Absorption Coefficient of Norbixin (9'-cis-6,6'-diapocarotene-6,6' dioic acid) in Different Polar Solvents	46
CHEM_10	Modification of Activated Carbon from Elaeis Guineensis Jacq Shell with Magnetite (Fe ₃ O ₄) Particles and Study Adsorption-Desorption on Ni(II) Ions in Solution	47
CHEM_11	Preparation and Characterization of LaCr _{0.99} Fe _{0.01} O ₃ Nanomaterial	48
CHEM_12	BIOGASOLINE PRODUCTION BY ZEOLITE-A CATALYZED CO-PYROLYSIS OF TORREFIED CASSAVA ROOT AND PALM OIL	49
CHEM_13	Synthesis of Zeolite-Y from Rice Husk Silica and Food Grade Aluminium Foil Using Modified Hydrothermal Method	50
CHEM_14	Structure Elucidation of Betulinic Acid from Sesbania grandiflora Root	51
CHEM_16	Transesterification of coconut oil (Cocos nucifera L.) into biodiesel using zeolite-A catalyst based on rice husk silica and aluminum foil	52
CHEM_17	Pyrolytic Conversion of Palm Oil into Using Protonated Zeolite-X Prepared from Rice Husk Silica and Aluminum Foil as Catalyst	53
CHEM_18	Isolation and Identification of Endophytic Fungi Associated with Indonesian Sesbania grandiflora Plant	54

CHEM_19	STUDY OF PHENOL TRANSPORT USING POLYMER INCLUSION MEMBRANE (PIM) METHOD WITH COPOLY(EUGENOL-DIVINYLBENZENE) AS CARRIER	55
CHEM_20	The effect of initiator concentrations on corrosion inhibition activity of polymeric derivatives of 2-vinylpyridin	56
CHEM_21	Crosslinking effects of borate additives on the structure and properties of sago starch - polyvinyl alcohol blend films	58
CHEM_22	Identification and activity test of flavonoid compounds from wood branches of the pudau plant (<i>Artocarpus kemando</i> Miq.) as antibacterial	59
CHEM_23	Production, purification and characterization of the α -amylase from local bacteria isolate <i>Bacillus subtilis</i> ITBCCB148	60
CHEM_24	Effect of glutaraldehyde addition on the stability of the α -amylase from <i>Bacillus subtilis</i> ITBCCB148	61
CHEM_25	Synthesis, characterization, and antioxidant activity of some organotin(IV) 2-nitrobenzoate using the 2,2-diphenyl-1-picryl-hydrazyl (DPPH) method	62
CHEM_26	Synthesis, characterization and the antifungal activity test of some organotin(IV) benzoates	63
CHEM_27	The use of MgO/SiO ₂ as catalyst for transesterification of rubber seed oil with different alcohols	64
CHEM_28	Isolation and Identification of Terpenoid Compound from Vetiver Grass-Root (<i>Vetiveria zizanioides</i> Stapf) as a Repellent against Termite (<i>Cryptotermes</i> sp.) through Bioactivity Assay	65
CHEM_29	Docking Interaction of Chromium(III) Picolinate and Chromate Ion Compounds with Protein Tyrosine Phosphatase as Insulin Receptors	67
CHEM_30	Biodegradation of Agricultural Residues Containing High Cellulose by Local Isolate Fungi	69
CHEM_31	Utilization of zeolite H-MOR based on bagasse ash silica as a catalyst for the hydrolysis reaction of cassava peel cellulose for glucose production	70
CHEM_32	The effect of Vanadium dopant on Bandgap Energy of Ni _{1-x} V _x Fe ₂ O ₄ nanospinel	71
CHEM_33	Virtual Screening of Active Ligands from Natural Compounds as Anti-Asthma Candidates using PAF-r Protocol and Rupa ₁ as Lead Compound	72
CHEM_34-Ps	The Potency of Cinnamon as An Anti-Diabetic and Anti-Covid19 based on Its Mineral Content and Phenolic Compounds	73
CHEM_35	Dynamics of Lid lipM ₁ NK on Lys229Gln Mutation by Molecular Dynamics Simulation Approach	74

CHEM_36_Ps	Preparation of Watermelon Mesocarp Powder (<i>Citrullus lanatus</i> Thunb.) with Freeze Drying Method and Test its Potential as Anti Obesity and Anti COVID-19.	76
CHEM_37	Simultaneous Bioconversion of Rice Straw into Intermediate Product using Ionic Liquid and Native Extracellular Hydrolytic Enzyme from Indigenous Actinomycetes	77
CHEM_PRES_01	Synthesis of TiO ₂ nanowires with molten-salt method and effect of metal addition on its characteristics and application for reduction of 4-nitrophenol	78
CHEM_PRES_02	Development of an LC-MS/MS method for simultaneous determination of aflatoxins in nutmeg	80
CHEM_PRES_03	The effect of temperature during casting process for Polyvinylidone Fluoride membrane and its derivative	81
CHEM_PRES_04	Simultaneous Analysis of Benzoic Acid, Methylparaben, and Butylparaben in Soy Sauce by Liquid Chromatography: Method Validation and Uncertainty Evaluation	82
CHEM_PRES_05	Cloning, Heterologous Expression and Purification of Serine Hydroxymethyltransferase from thermophilic bacteria <i>Pseudoxantomonas taiwanensis</i> AL89	83
CHEM_PRES_06	SYNTHESIS OF Cr(ASPARTATE) ₃ AND Cu(ASPARTATE) ₂ COMPLEXES AS ANTIDIABETIC COMPOUNDS	84
CHEM_PRES_07	SYNTHESIS AND CHARACTERIZATION OF MAGNETIC MOLECULARLY IMPRINTED POLYMERS FOR PRACONCENTRATION OF BISPHENOL A	85
CHEM_PRES_08	Preparation of Magnetic Activated Carbon from Cassava Peel for Removal of Tetracycline Antibiotic in Aquatic Environment	86
CHEM_PRES_09	Fractination of Fucoxantin from <i>Cyclotella striata</i> using Medium Performance Liquid Chromatography (MPLC)	87
CHEM_PRES_10	NiO/ZSM-5 catalyzed transesterification of rubber seed oil with methanol	88
CHEM_PRES_11	ISOLATION AND CHARACTERIZATION OF BIOACTIVE COMPOUNDS OF MANGROVE <i>Avicennia marina</i> ENDOFIT MUSHROOM IN THE BAY OF LAMPUNG	89
CHEM_PRES_12	Synthesis of Curcumin Analogs Under Ultrasound Irradiation	90
CHEM_PRES_13	Characterization of Selected Lipolytic Bacteria from Domestic Waste Composting Process	91
CHEM_PRES_14	CHARACTERIZATION OF MESOPHILIC LIPASE ENZYME FROM COMPOST ISOLATE BACTERIA	92



Identification and activity test of flavonoid compounds from wood branches of the pudau plant (*Artocarpus kemando* Miq.) as antibacterial

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ABSTRACT

In this research, isolation, identification, and antibacterial bioactivity test of flavonoid compounds have been carried out. These compounds were obtained from the branches of the pudau plant originating from Karang Anyar village, Penengahan, South Lampung Regency, Lampung Province. Flavonoid compound extraction was carried out by maceration method using methanol, while fractionation and purification using chromatography. The purity of the compounds was determined by the melting point test and thin layer chromatography, the identification of compounds was carried out by UV-Vis and IR spectroscopy. The results of the isolation obtained two compounds, artocarpin (1) and cycloartocarpin (2). Compound (1), 92 mg, in the form of a yellow needle crystal with a melting point of 184.9 -187.5 °C; compound (2), 20 mg, in the form of yellowish white needle crystals with melting point 280 - 283 °C. In the antibacterial bioactivity test against *Bacillus subtilis*, compounds (1) had very strong antibacterial activity at a concentration of 0.4 mg/disk and against *Escherichia coli* in the strong category at a concentration of 0.5 mg/disk; whereas compound (2) has antibacterial activity against bacteria *B. subtilis* and *E. coli* in the strong category at a concentration of 0.5 mg/disk.

keyword : *Artocarpus kemando* Miq, flavonoids, artocarpin, cycloartocarpin, *B. subtilis*, *E. coli*.