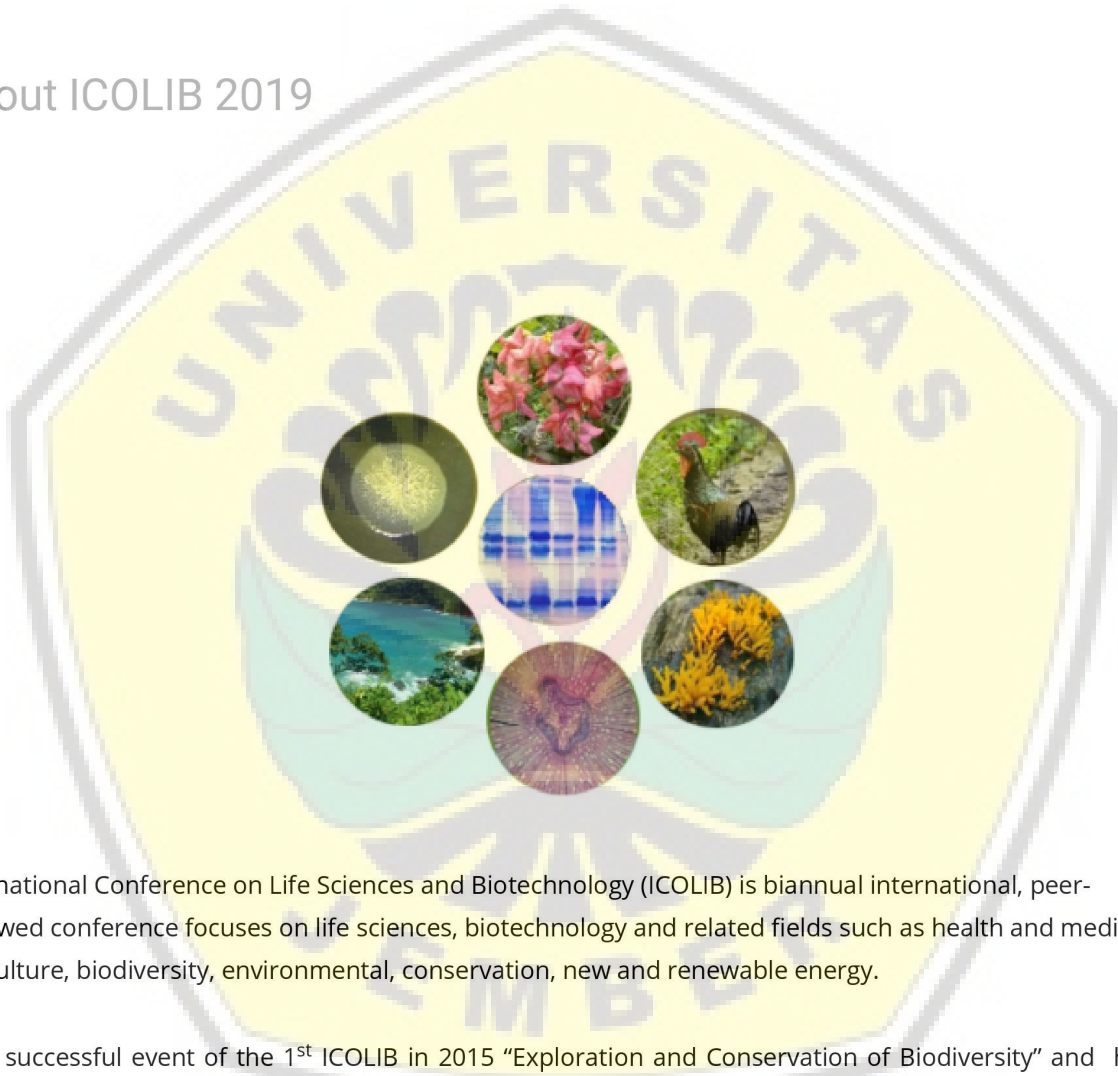


About ICOLIB 2019



International Conference on Life Sciences and Biotechnology (ICOLIB) is biannual international, peer-reviewed conference focuses on life sciences, biotechnology and related fields such as health and medicine, agriculture, biodiversity, environmental, conservation, new and renewable energy.

After successful event of the 1st ICOLIB in 2015 “Exploration and Conservation of Biodiversity” and the 2nd ICOLIB 2017 “Integrated Biological Sciences for Human Welfare”. Biology Department, Faculty of Mathematics and Natural Sciences – University of Jember proudly present the 3rd ICOLIB 2019 with theme **“BIODIVERSITY : Molecules to Biosphere”**

The Conference invites researchers, academia, educators, industrial practitioners and professional to meet and share knowledge and results of research. We look forward for significant contributions to all major fields of biology and biology-related fields in theory, methodology and application.





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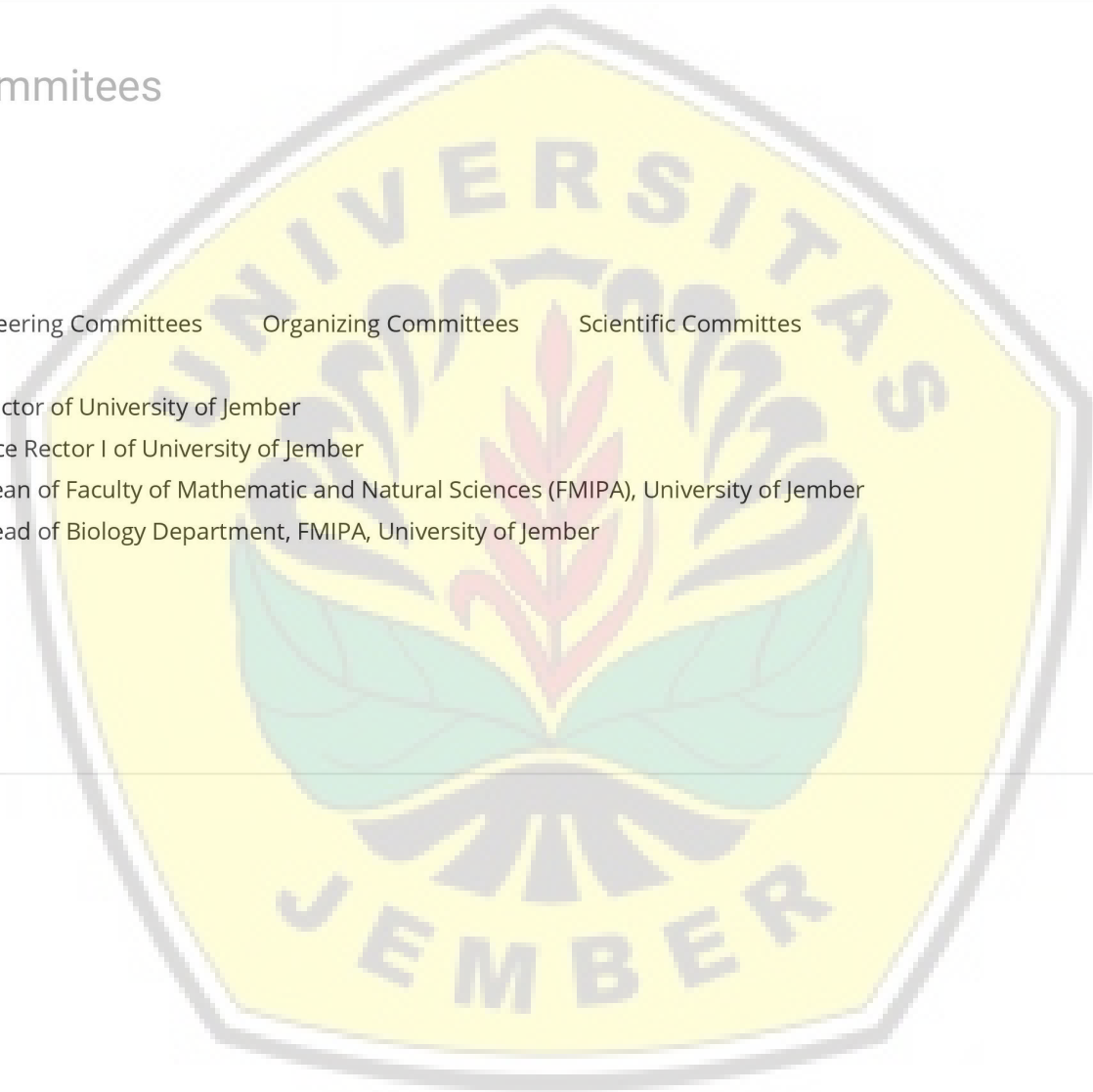
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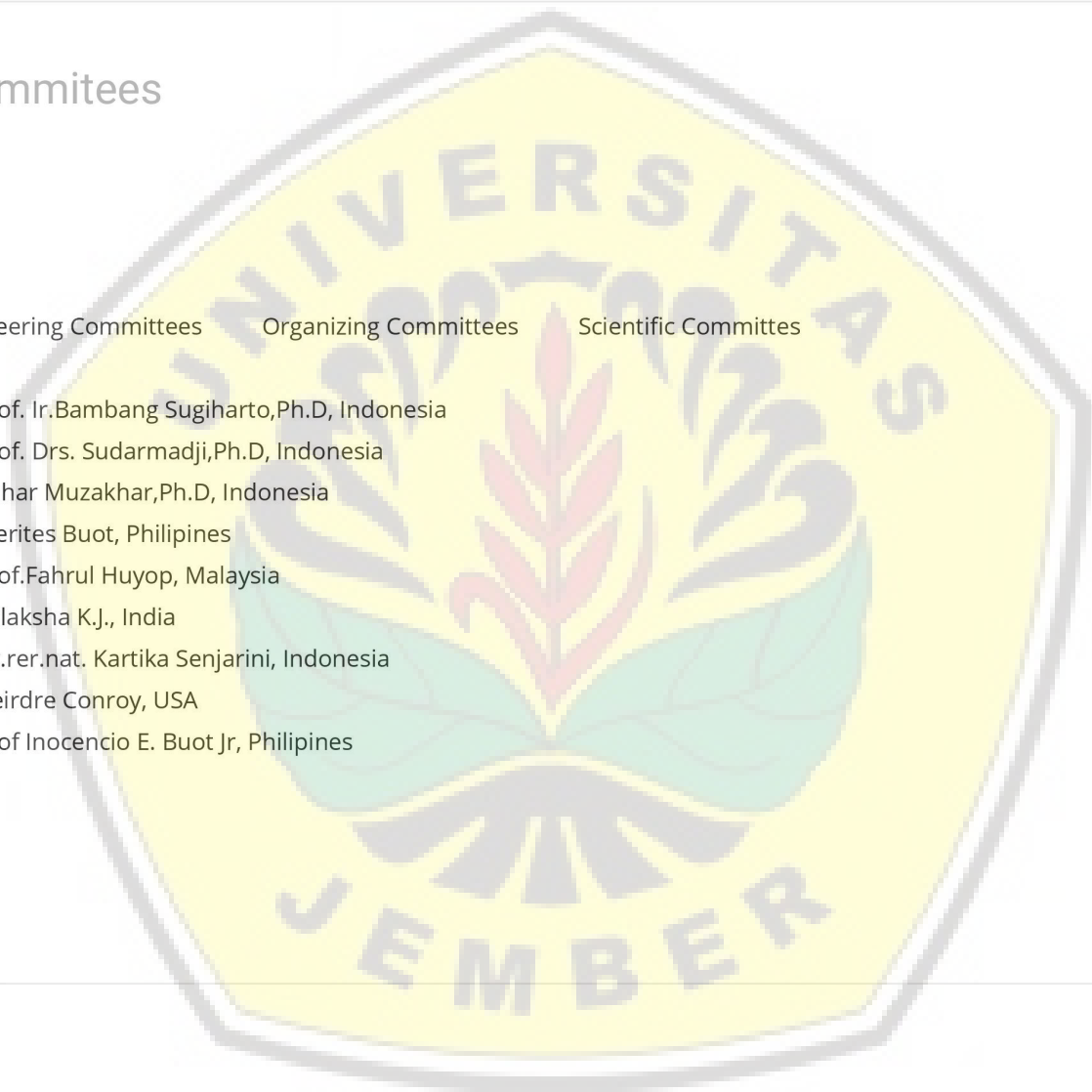
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Important Dates

Early Bird Registration March 25 – August 25, 2019

Submission and Payment

Abstract Submission

September 25, 2019

October 25, 2019

Full Paper Submission

October 25, 2019

November 10, 2019

Deadline Payment

October 25, 2019

Conference

November 25-26, 2019



Speakers

	<p>Prof. Takatoshi Kiba/ Plant Signaling / Bioagricultural Sciences/ Nagoya University/ Japan</p> <p>“Nitrogen starvation responses in plants”</p>
	<p>Prof. Kim Jong Kee/ Holticulture/ Chung-Ang University/ Anseong/ South Korea</p> <p>“Regulation of Aliphatic Glucosinolates Biosynthesis in Radish (<i>Raphanus sativus</i> L.) Plant”</p>
	<p>Prof. Koichi Kato/ Biomedical and Health Sciences/ Hiroshima University/ Japan</p> <p>“Bioengineering Challenges Toward Regenerative Medicine”</p>
	<p>Prof. Budi S. Daryono/ Molecular Genetic and Breeding/ Gajah Mada</p>

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“The Dynamics and Evolution of Plant Viruses in Indonesia Influenced by Climate Change”



Hari Sulistiyowati, Ph.D./ Valuation Ecology/

[The University of Jember/](#) Indonesia

“The Need to Appraise Biodiversity: A Challenge for Ecological Valuation Perspective”



Prof. Dr. Fahrul Zaman/ Fakultas Sains/

[Universiti Teknologi Malaysia/](#) Malaysia

“Characterisation and Exploring Biotechnological Potential of Halophilic Bacterium Isolated from Hypersaline Environment for Bioremediation”



SCIENTIFIC PROGRAM

Monday, November 25th 2019

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07.00-08.00	Registration	
08.05-08.15	Indonesia Raya Anthem and Hymne UNEJ	
08.20-08.20	Speech: Chairman 3 rd ICOLIB : MukhamadSu'udi, Ph.D	
08.20-08.30	Speech: Rector of Jember University : Moh. Hasan, Ph.D	
08.30-08.40	Token of Appreciation	
08.40-08.45	Pray (Kosala, S.Si, M.Si)	
08.45-09.00	Gandrung Dance	
09.00-09.15	Opening ceremony	
09.15-09.45	Coffea Break	
09.45-10.30	Speaker 1. Bioengineering Challenges Toward Regenerative Medicine Prof. Koichi Kato , Department of Biomaterials, Graduate School of Biomedical and Health Science, Hiroshima University Chairperson: Prof. Dr. Ir. Bambang Sugiharto, M.Agr.Sc	
10.30-11.15	Speaker 2. The Dynamics and Evolution of Plant Viruses in Indonesia Influenced by Climate Change Prof. Budi Setiadi Daryono , Laboratory of Genetics and Breeding, Faculty of Biology, Universitas Gadjah Mada, Yogyakarta Chairperson: Prof. Dr. Ir. Bambang Sugiharto, M.Agr.Sc	
11.15-12.00	Speaker 2. Regulation of Aliphatic Glucosinolates Biosynthesis in Radish (<i>Raphanus sativus L.</i>) Plant Prof. Kim Jongkee , Department of Plant Science and Technology, Chung-Ang University, Anseong, South Korea Chairperson: Prof. Dr. Ir. Bambang Sugiharto, M.Agr.Sc	
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Tuesday, November 26th 2019

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08.00-08.45	<p>Speaker 4. Regulation of Nitrogen Acquisition Under Low Availability</p> <p>Prof. Takatoshi Kiba, Graduate School of Bioagricultural Sciences, Nagoya University, Japan</p> <p>Chairperson: Dr. Ir. Siswoyo, MSc.</p>	
08.45-09.30	<p>Speaker 5. The Need to Appraise Biodiversity: A Challenge for Ecological Valuation Perspective</p> <p>Hari Sulistiyowati, Ph.D, Associate professor of Biology Department, MIPA Faculty-University of Jember</p> <p>Chairperson: Dr. Ir. Siswoyo, MSc.</p>	
09.30-10.00	Coffea Break	
10.00-10.45	<p>Speaker 6. Characterisation and Exploring Biotechnological Potential of Halophilic Bacterium Isolated from Hypersaline Environment for Bioremediation?</p> <p>Prof. Dr. Fahrul Huyop, Biosciences Department, Faculty of Science, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Malaysia</p> <p>Chairperson: : Drs. Asmoro Lelono, MSc., Ph.D</p>	
VENUE: HALLROOM		
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VENUE: WIJAYA KUSUMA 1

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VENUE: WIJAYA KUSUMA 2

13.30-14.30

Parallel Oral Session II

Chairperson: Retno Wimbaningrum

	<ol style="list-style-type: none"> 1. Optimization of Extraction of Lemongrass Oil (<i>Cymbopogon citratus</i>) with Microwave- Assisted Hydrodistillation Using Response Surface Methodology D. S. Bhuna, H. Haqqyana, V. K. Susdiantanto, H. W. Purwanto, M. Mahfud..... 2. Growth and Chemical Content of Some Mushroom Exploration Results in The Raden Soeryo Forest Park Grown on Three Kinds of Media Fatimah Nursandi, Untung Santoso, Nina Rafa*atul Mahmudah, Umi Sulaima 3. Screening and Isolation of Heavy Metals Degradation Bacteria from Industial Batik Wastewater Vita Meylani, Edi Hernawan 4. Screening of Drought Resistant , Hight Production and Antioxidant Seed Content of Mutant 2 Red Rice With Ethyl Methanesulphonate (EMS) Denna Eriani Munandar, Tri Handoyo, Muhammad Nur Khozin 5. Utilization of Prebiotic Suweg Bulbs (<i>Amorphophallus campanulatus BI</i>) on Probiotic Bacterial Growth of <i>Lactobacillus casei</i> in Vitro Frisma Eri Saputri, Rudju Winarsa, Siswanto, Sattya Arimurti, Kahar Muzakhar, Esti Utarti, Sutoyo 6. Effect of Phenylalanine AminoAcid on Flavonoid Production by Apple Callus Culture Frisma Eri Saputri, Untung Santoso, Fatimah Nursandi, Rizka Nurfitariani 	<p>39</p> <p>39</p> <p>39</p> <p>39</p> <p>39</p> <p>39</p>
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Re-design and Exploration of Extraction of Phenolic Compounds from Sargassum Sp using Ethyl Acetate as Solvent

Dyah Mufidah Altafdilah¹, Meta Rizki Fitriana^{1,2}, Istiqomah Rahmawati^{1,2}, Bekti Palupi^{1,2}, Boy Arief Fachri^{1,2,*}

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Abstract - A Marine brown algae, *Sargassum sp.*, is well-known as a bioactive compound. One of the most important compounds is polyphenol substance. This research is ongoing to obtain the highest yield soluble extract of polyphenol. In spite of ethanol, ethyl acetate is one of the biobased solvents which is strongly considered as safe for food and health supplement product. The objective of this study is to define the optimum condition to extract phenolic content from *Sargassum sp.* using ethyl acetate. The maceration method was conducted by pouring the ethyl acetate into the flask containing *Sargassum Sp* powder. Since the extraction time is completed, the extract was separated and purified. The total phenol was quantitatively determined using the folin ciocalteau method. The constituent of extract was checked qualitatively by thin-layer chromatography. To define the optimum condition, response surface method based on central composite design was employed. The process variables in this experiment are particle size (60-100 mesh), ratio *Sargassum Sp* to solvent (1:2-1:4 gr/mL) and extraction time (1-3 days). This work concludes that optimum condition is achieved at a particle size of 100 mesh, extraction time of 3 days and ratio *Sargassum* to solvent of 1:4 g/mL. This optimum condition provides the highest yield (47 wt %) as well.

Keywords: *sargassum sp.*, extraction, polyphenol

I. Introduction

Seaweeds, commonly known as marine macroalgae, are mainly subdivided into brown, red, and green algae depending on its pigmentations. Some of these seaweeds are widely used by directly consumed as food in many coastal areas of various countries. Edible seaweeds have also found as sources of thickening, gelling, stabilizer, and emulsifying agents in some food industry. (Venkatesan J., et al, 2017). One of them is *sargassum sp.* that represents marine multicellular brown algae. *sargassum sp* holds an important role as an organism in the marine ecosystem according to its advantages in food, pharmaceutical, medicals and other industries (K.K. Asanka Sanjeeva, et al 2018; I. Savitri, et al., 2019).

Other than as a food source, recently most of people studies have shown that *Sargassum sp.*, a genus of marine brown algae is a rich source of novel biologically active compounds such as lipids, carotenoids, polysaccharides, proteins, and ω -3 fatty acids and also by secondary metabolites, such as polyphenols and terpenoids (K.K.A. Sanjeeva, et al, 2018). These bioactive compounds have drawn many potentials in medical because of their perceived health benefits including anticoagulant,

antioxidant (Chale-Dzul et al., 2017; Hifney et al., 2016), antitumor, antiviral, immunomodulation, antimicrobial, anti-inflammatory, osteoprotective, anticancer, antigenomic, anti-herpes and antihyperlipidemic activity. (P. Shobharani, et al. 2014; Jesumani, V., et al. 2019). Phenolic compounds and flavonoids also have oxidation inhibitory activity LDL, Angiotensin Converting Enzyme (Gazali, et al, 2018; Nagappan et al. 2017). Some studies also reported that *sargassum* contains 20-30% dry weight phenolic compounds (Gazali et al., 2018). To obtain the active substance, extraction is needed to dissolve the components from solid particle of *sargassum sp.* Various methods have been carried out to extract the active substances from *sargassum sp.* with a variety of conditions that carried out in different experiments.

The process of extracting active compounds in *sargassum sp.*, in general, goes through a process of drying and grinding first. This is functioned so that the solvent used can more easily attract dissolved active substances into it. The solvent used in the extraction must also be compatible with the compound to be extracted. This can be known by comparing the polarity of the compound to be extracted with the solvent used (Susanty and Bachmid, 2016). The solvent must have a polarity similar to a compound so that the extraction process can provide optimum and efficient results (Septina and Asnani., 2013). phenol compounds are compounds that are polar so that polar or semipolar solvents are commonly used in the process of extracting brown seaweed because the efficiency of the extraction process is very determined by the chemical structure of each phenol compound contained in the sample. Ethyl acetate was chosen because of its polarity properties similar to the active compound to be dissolved (Gazali M. et al., 2018).

Therefore the objective of this study was to extract polyphenol contents of *Sargassum Sp* and to investigate the effect of variables process on total phenol yield.

II. Material And Method

A. Material

Sargassum sp. biomass was purchased from J. Hasanah Group "Seaweed Cultivation And Processing Center Indonesia" Surabaya, East Java, Indonesia that had been cultivated from Lampung, Indonesia. Ethyl acetate pa was bought from SMARTLAB (98 %).