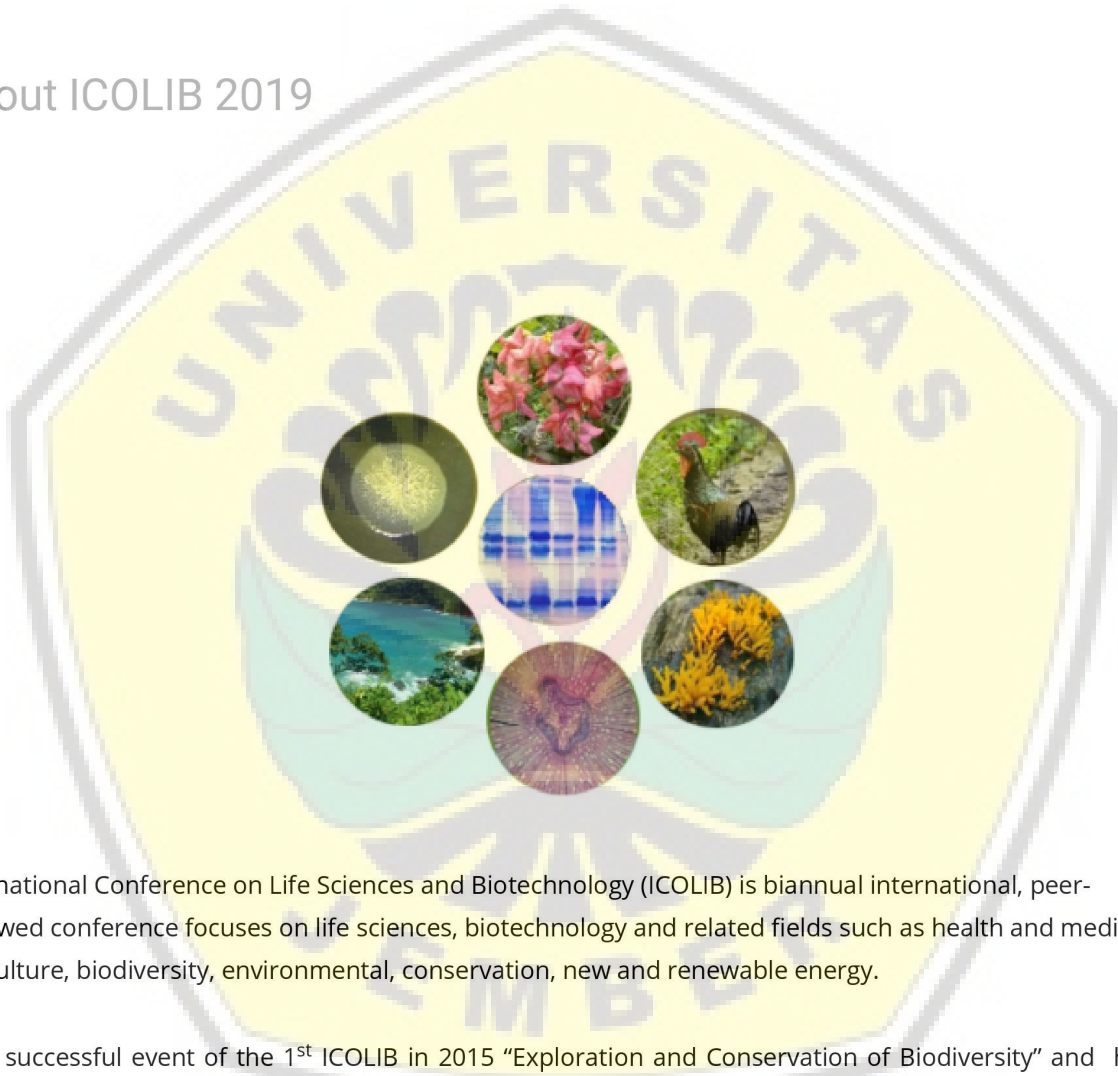


## About ICOLIB 2019



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 1<sup>st</sup> ICOLIB in 2015 “Exploration and Conservation of Biodiversity” and the 2<sup>nd</sup> ICOLIB 2017 “Integrated Biological Sciences for Human Welfare”. Biology Department, Faculty of Mathematics and Natural Sciences – University of Jember proudly present the 3<sup>rd</sup> 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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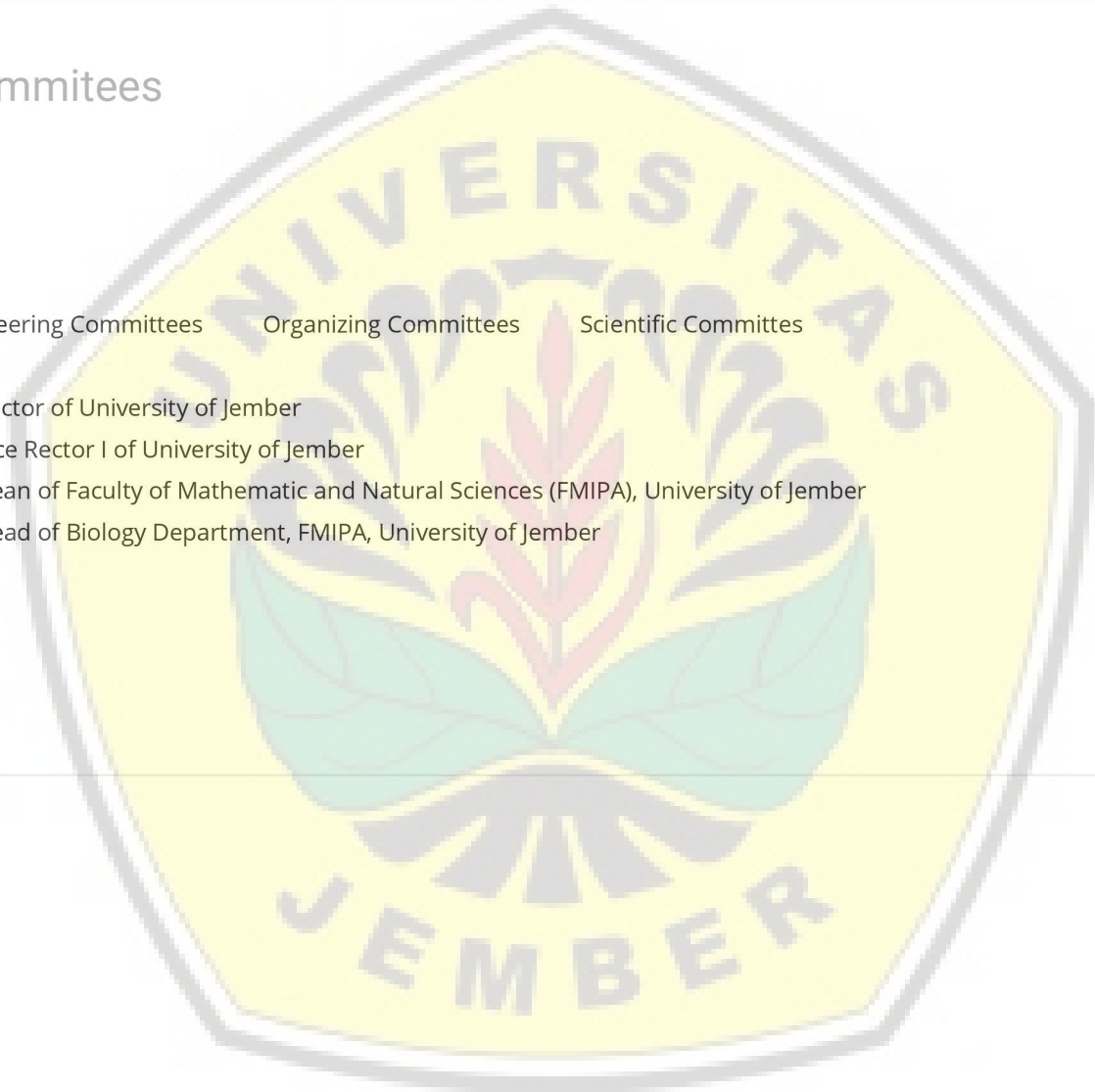
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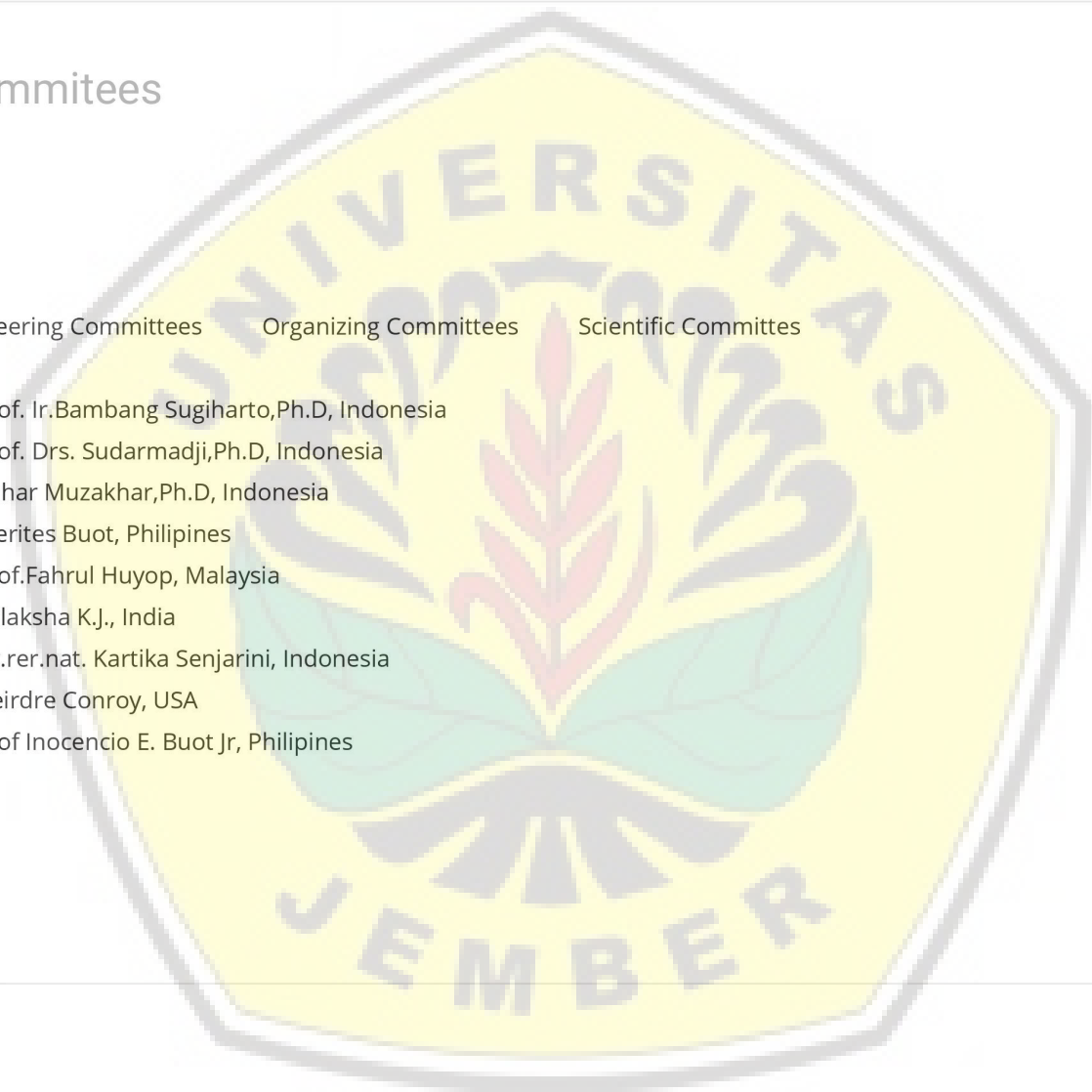
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## Important Dates

**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





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<b>Conference</b>	<b>November 25-26, 2019</b>
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## Speakers

	<p>Prof. Takatoshi Kiba/ Plant Signaling / Bioagricultural Sciences/ <a href="#">Nagoya University</a>/ Japan</p> <p><b>“Nitrogen starvation responses in plants”</b></p>
	<p>Prof. Kim Jong Kee/ Holticulture/ <a href="#">Chung-Ang University</a>/ Anseong/ South Korea</p> <p><b>“Regulation of Aliphatic Glucosinolates Biosynthesis in Radish (<i>Raphanus sativus</i> L.) Plant”</b></p>
	<p>Prof. Koichi Kato/ Biomedical and Health Sciences/ <a href="#">Hiroshima University</a>/ Japan</p> <p><b>“Bioengineering Challenges Toward Regenerative Medicine”</b></p>
	<p>Prof. Budi S. Daryono/ Molecular Genetic and Breeding/ <a href="#">Gajah Mada</a></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 25<sup>th</sup> 2019**

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

**12.00-13.30 ISHOMA and Poster Session**

### VENUE: HALLROOM

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08.45-09.30	<p><b>Speaker 5.</b> The Need to Appraise Biodiversity: A Challenge for Ecological Valuation Perspective</p> <p><b>Hari Sulistiyowati, Ph.D</b>, Associate professor of Biology Department, MIPA Faculty-University of Jember</p> <p><b>Chairperson: Dr. Ir. Siswoyo, MSc.</b></p>	
09.30-10.00	<b>Coffea Break</b>	
10.00-10.45	<p><b>Speaker 6.</b> Characterisation and Exploring Biotechnological Potential of Halophilic Bacterium Isolated from Hypersaline Environment for Bioremediation?</p> <p><b>Prof. Dr. Fahrul Huyop</b>, Biosciences Department, Faculty of Science, Universiti Teknologi Malaysia, 81310 UTM Johor Bahru, Malaysia</p> <p><b>Chairperson: : Drs. Asmoro Lelono, MSc., Ph.D</b></p>	
<b>VENUE: HALLROOM</b>		
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10.45-12.00

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**VENUE: HALLROOM**

13.30-14.30

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Chairperson: Syubbanul Wathon, S.Si ,M.Si

- 1. **Optimization of Cellulase, Pectinase and Xylanase**



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# Extraction of Phenolic Compound from Sargassum Sp. in Ethanol: effect of Particle Size, Extraction Time and Ratio Substrate to Solvent on The Yield of Phenol

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**Abstract**—Sargassum Sp., a part of brown algae, traditionally is used as animal feed. In spite of this, Sargassum containing phenolic compound which shows a promising as a natural antioxidant feedstock. This work is to extract the phenolic compound from Sargassum Sp in ethanol and to investigate the effect of the process on the yield of phenol. Amount of dried Sargassum Sp was milled in a specific size and macerated in a flask containing ethanol. Process variables were particle size (60-100 mesh), extraction times (1-3 days) and ratio dried Sargassum Sp to Ethanol (1:2-1:4 gr/gr). The phenol compound was quantified using the gallic acid method. The DPPH method was performed to check the antioxidant activity. To investigate the effect of the process, the response surface method based on central composite design was applied in this work. This work informs the highest total phenol (131.5 mg/L) was gained at the condition of t=2 days, ratio Sargassum Sp to Ethanol of 1:1.7, and particle size of 80 mesh. This work also shows that among other variables, particle size is the most significant factor in this process. Yet, the antioxidant activity (IC<sub>50</sub>) of Sargassum Sp extract is 37.2 mg/g.

**Keywords:** Sargassum Sp, phenolic compound, ethanol, maceration

## I. Introduction

Indonesia is a country rich in natural resources which has the potential to be developed. One of the natural resources in Indonesia is algae. Algae production in Indonesia in 2017 reached 52,034,702 kg, an increase of 80.20% compared to 2016 FAO (2018). Utilization of brown algae has not been developed optimally by the community.

Algae is one of the superior commodities that has potential nutrients and bioactive compounds that are widely used for human health (Brown et al, 2014). Algae according to the pigment it contains can be divided into three namely brown, red and green seaweed. Brown seaweed is divided into several types, namely sargassum, padina, and turbinaria (Wouthuyzen et al, 2016). Brown algae contains many chemical compounds such as carbohydrates 54.3-73.8%, vitamins (vitamins B1, B2, B6, B16, C, and niacin), protein 0.3-5.9%, minerals especially calcium, sodium, magnesium, potassium, iodine, iron, and contain bioactive compounds namely phenolic compounds, natural pigments, fibers, sulfate polysaccharides, and other

bioactive compounds (Erniati et al, 2016). Brown algae has other ingredients such as carotenoids, alginates, fukoidan, laminarin, phlototanin, and the content of phenolic compounds used for sources of antioxidants (Nursid et al, 2013; Firdaus 2013). Antioxidants are used to fight free radicals in the human body (Djapiala et al, 2013).

The color of brown algae comes from a mixture of pigments that have a chlorophyll group and a carotenoid group. Fucosantin pigment is the main pigment in the carotenoid group found in brown algae (Sargassum sp.) And fucosantin pigment is estimated to reach more than 10% of the total natural carotenoid than other biota. Fucosantin including compounds from flavonoids produced from secondary metabolites of brown seaweed (Sargassum sp.) (Limantara and Hariyanto, 2010).

The active component of brown algae has been widely studied. Regarding natural sources of antioxidants, brown algae are high in phenolic compounds. Plorotanin is a member of a family of specific phenolic compounds found in brown algae, and is known to have very strong antioxidant bioactivity (Le Lann et al., 2016; Sanjeeva et al., 2016).

## II. Materials and Methods

### A. Materials

The material used is brown algae (Sargassum sp.) Obtained from Lampung. Another ingredient used is 98% ethanol solvent is pure analytic (Smartlab). The instrument used was a maceration unit, the UV-Vis Hitachi U-1800 spectrophotometer

### B. Methods

The stages of the research carried out consisted of preparation, extraction, and identification of fucoxantin compounds. All processes carried out in the dark or in a room with low light intensity. The variables used are ratio, time, and particle size. The stages of the research carried out consisted of preparation, extraction, and identification of fucosantin compounds. All processes carried out in the dark or in a room with low light intensity. The variables used are ratio, time, and particle size.

### Preparation