

**MAKALAH ILMIAH**

**Ultrasound-Assisted Extraction of  
Fucoxanthin from Sargassum Sp: Effect of  
Extraction Variables to Antioxidant Activity**



OLEH:

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**Program Studi Teknik Kimia  
Fakultas Teknik Universitas Jember**

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Diselenggarakan oleh Fakultas Farmasi Universitas Jember

## Ultrasound-Assisted Extraction of Fucoxanthin from Sargassum Sp: Effect of Extraction Variables to Antioxidant Activity

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### ABSTRACT

Sargassum sp is a brown algae group that contains fucoxanthin with a molecular structure employing an *allenic* bond, an epoxy molecule, and a carbonyl group. This structure provides antioxidant activity to fucoxanthin. This study aims to perform fucoxanthin extraction and study the influence of extraction parameters (extraction time, ratio of raw materials to solvents, and particle size) on antioxidant activity. Sargassum sp is fed into a flask containing ethanol. Subsequently, the ultrasound waves are introduced to the flask during the extraction time. The liquid product is filtered off and purified by a rotary evaporator. A total of 17 experiments were conducted on various extraction conditions. This work used the DPPH method to determine antioxidant activity. This work achieved an optimum antioxidant activity at 10 minutes, the ratio of raw materials to solvents was 0.1 g/mL, and the raw material size was 60 mesh. Meanwhile, based on statistical analysis, extraction time is the most influential variable.

**Keywords:** *sargassum sp, fucoxanthin, ultrasound-assisted extraction, antioxidant activity*

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**PROGRAM BOOK**



**THE 1<sup>st</sup> INTERNATIONAL CONFERENCE  
ON MEDICINAL PLANTS 2022**







## Welcome Message from Dean Faculty of Pharmacy, University of Jember

Assalamualaikum wr. wb.

Let us express our gratitude to Allah SWT, for the abundance of His grace and guidance, so that the 1<sup>st</sup> International Conference on Medicinal Plants (The 1st ICMP) can be held. This conference is in conjunction with the 62<sup>nd</sup> meeting of the Working Group on Medicinal Plant and Traditional Medicine. The 1<sup>st</sup> ICMP theme is “A revelation on medicinal plants as antioxidant sources against metabolic disorders. Bioprospecting and conservation of *Marsilea crenata* C. Presl. and *Garcinia mangostana* L”.

This conference is an important pillar for universities as well as researchers and scholars to disseminate research results on medicinal plants and traditional medicines, which include preservation and cultivation of medicinal plants, postharvest, phytochemicals, efficacy and safety, pharmaceutical technology, marketing, regulation, database development, and quality control. Utilization of the results of this study is expected to improve the health status of the community.

This conference is expected to be a forum to communicate, build and strengthen cooperation between researchers, in research collaborations and joint publications. Thus, the development of science related to medicinal plants and traditional medicines will grow more rapidly.

On this auspicious occasion, on behalf of the Big Family of the Faculty of Pharmacy, University of Jember, we would like to thank the speakers willing to share their knowledge, experience, and cooperation at this 1<sup>st</sup> ICMP. Hopefully, we all get additional knowledge, and continue to improve our good deeds in the development of expertise in our respective institutions and can also provide benefits to the wider community. Apologies to all participants, if there may be shortcomings in the organization of this conference. Welcome to the seminar and see you at the next Faculty of Pharmacy activities at the University of Jember.

Jember, 21 October 2022

Faculty of Pharmacy, University of Jember

Dean,

Dr. apt. Nuri, S.Si., M.Si.



**The Speech of Chairman of Working Group on Medicinal Plant and Traditional  
Medicine (Working Group on MP&TM)  
The-62<sup>nd</sup> Indonesian Medicinal Plant Seminar  
Universitas Jember  
21<sup>st</sup>-22<sup>nd</sup> October 2021**

Assalammu'alaikum wr. wb

Selamat pagi

Salam sejahtera

Om swastiastu

Namo budaya

Salam kebajikan

**Your excellency**

**Minister of Health, Republic of Indonesia,**

Dear,

- Rector of Jember University
- Plenary and invited speakers: Prof. Mikio Mishizawa, Prof. Yuli Widiyastuti, Prof. Antje Labos, Dr. Khalid Hamid, Dr. Phurpa Wagcuk, Dr. Faizul Helmi, Dr. Sri Astutik, Dr. Moch. Hidayat, Prof. Abdul Rohman, Prof. Hari Sulistiyowati, Dr. Yuni Retnaningtyas, Dr. Dian Agung, Dr. Sami Abdullah, Dr. Burhan Ma'arif, Dr. Budipratiwi, Dr. Afifah, Dr. Gea Abigail, Prof. Ari Nugraha, and Dr. Ayik Rosita
- Dean and professor of Jember University
- All members of Working Group on Medicinal Plant & Traditional Medicine
- Researchers, academic community, and all audiences of The 62<sup>nd</sup> Indonesian Medicinal Plant Seminar

Good morning and greetings to all of us

In the name of Allah, the Most Beneficent and the Most Merciful. May peace, mercy, and blessings of Allah be upon you.

Alhamdulillah, thanks and thankfulness to Allah for allowing all of us who are present virtually to participate in The 62<sup>nd</sup> Indonesian Medicinal Plant Seminar and integrating the findings of that nation's study on medicinal plants and traditional medicine. In partnership with the Working Group on Medicinal Plant and Traditional Medicine (**Working Group on MP&TM**), the Faculty of Pharmacy, Jember University is hosting this seminar with the following theme: "**A revelation on medicinal plants as antioxidant and sources against metabolic disorders.**"

More than two years has passed since the pandemic actually started, and it has caused immense loss and damage to people all over the world. Finally, as effective vaccines are being decided to roll out, we can look to the future with full of hope dan optimism. This is the third year that we are holding our major annual event in a hybrid format. But this year, I am speaking to you in a much more positive context in terms of the public health situation.

**Dear Rector of Jember University and all distinguished speakers,**

The Working Group on Medicinal Plants and Traditional Medicines was established to coordinate upstream-downstream research activities, such as studies on medicinal plant conservation, cultivation, quality control, phytochemical, safety, and efficacy. The working group holds seminars on medicinal plants as one way to accomplish this goal. The seminars are held twice a year with two determined medicinal plants. Waterclover (*Marsilea crenata* C. Presl.) and



mangosteen (*Garcinia mangostana* L.) will be presented at the 62<sup>nd</sup> Indonesian Medicinal Plant Seminar as the selected theme plants.

The only *Marsilea* species that is indigenous to Indonesia is water clover (*Marsilea crenata*). Especially in rice fields, open spaces with inadequate lighting and high temperatures, or in muddy soil with standing water, this plant can thrive both in water and on dry land. The leaves of this plant have a very unique shape that resembles an umbrella made up of four opposed leaf petals. Young clover leaves are frequently utilized as food ingredients in Java; for instance, young clover is frequently used as a pecel mixture in Surabaya. According to a study, *Marsilea* has a water content of roughly 82.59%. Six bioactive substances—alkaloids, steroids, flavonoids, carbohydrates, reducing sugars, and amino acids—are present in the crude clover extract. With an IC<sub>50</sub> value of 634.73 ppm, water clover methanol crude extract exhibits the strongest antioxidant activity. At a 40% dosage, clover leaf extract and petiole can prevent urolithiasis in test animals. Another study's findings demonstrated the plant's methanol extract had high antioxidant activity.

The mangosteen is the second theme plant. Mangosteen is renowned for having strong antioxidant activity, just as clover. Since the 1990s, research has been conducted on the pharmacological qualities of mangosteen. Antioxidant, antibacterial, antifungal, antiviral, antiparasitic, anthelmintic, antihistamine, antidepressant, and analgesic activities are only a few of the purported medical benefits of this fruit. Mangosteen also includes bioactive substances such as xanthenes, terpenes, anthocyanins, tannins, phenols, and certain vitamins.

Many health issues have been treated with mangosteen. In Southeast Asia, the fruit's hull, bark, and roots have all been utilized medicinally for hundreds of years. Fruit hulls that have been dried and ground up are used as an antibacterial and antiparasitic remedy. Because of its anti-inflammatory characteristics, people have used mangosteen leaves and bark to treat eczema, hyperkeratosis, and other skin conditions. The rind decoction is used to treat cystitis, gonorrhea, gleet, and diarrhea.

This fruit with a dark purple appearance is from the genus *Garcinia* and family Clusiaceae. The genus has over 400 species that originated in Southeast Asia, including Indonesia, the Malay Peninsula, and East India. North Sumatera, West Sumatera, Riau, Central Kalimantan, East Kalimantan, and North Sulawesi are among the regions in this country where mangosteen planting centers can be found. Banyuwangi, Blitar, Purworejo, Banjarnegara, Wanayasa, Cilacap, Ciamis, Purwakarta, and Sukabumi are the main producing hubs for mangosteens in Java.

Antioxidant-rich medicinal plants can be utilized to stop the development of degenerative illnesses. This is due to the fact that antioxidants help to avoid oxidative stress, which is a contributing factor in a number of degenerative diseases. According to 2018 data from Basic Health Research, 95.5% of Indonesians consume fewer vegetables and fruits, 33.5% of people are inactive, 29.3% of people in productive age smoke every day, 31% have central obesity, and 21.8% of adults are obese.

#### Ladies and gentlemen,

For 32 years, the Working Group on MP&TM has been in operation. We have worked to achieve the Working Group's three key goals, which are as follows:

- To increase the usage of MP and preserving its use, including enhancing its dried material
- To carry out R&D on MP-TM to ensure the availability of safe and efficacious plant-based medicinal raw materials.
- To improve research productivity and advancement, avoiding research duplication, carrying out investigations, coordinating research, and communicating about MP-TM.

The Working Group on MP&TM has been managed by the Center for Medicinal Plant and Traditional Medicine Research and Development (MPTMRDC) as secretariat. Soon MPTMRDC will become functional unit of the Dr. Sardjito Hospital Yogyakarta, under the Directorate General of







Health Services, Ministry of Health. The National Institute of Health Research and Development which has issued the decree of the Working Group on MP&TM has also been being transformed into Health Development Policy Agency. Of course, this transformation has an impact on how the tasks and function are carried out. Since we are no longer a research institute and lack the resources necessary to complete this mission, it will be challenging for us to manage the Working Group on MP&TM. So, on this occasion, in our capacity as representatives of reliable research and academic institutions, we would like to ask the audience to take the future viability of the Working Group on MP&TM activities into consideration.

**Dear Rector of Jember University,  
and all blessed seminar participants,**

I would like to use this opportunity to extend my sincere gratitude to the Jember University of Jember's rector, the dean of Pharmacy Faculty, and all seminar committees for their excellent planning and execution of this event. The speakers and all attendees are sincerely appreciated for taking part in and contributing to this scientific activity.

Last but not least, welcome to the 62<sup>nd</sup> Indonesian Medicinal Plant Seminar! Hopefully this event will actually contribute to the advancement of science and technology that supports the promotion and prevention of health in Indonesia via the use of traditional medicines and medicinal plants.

Billahi taufik wal hidayah, wassalam'mu alaikum wr. wb.

Tawangmangu, 21 October 2022

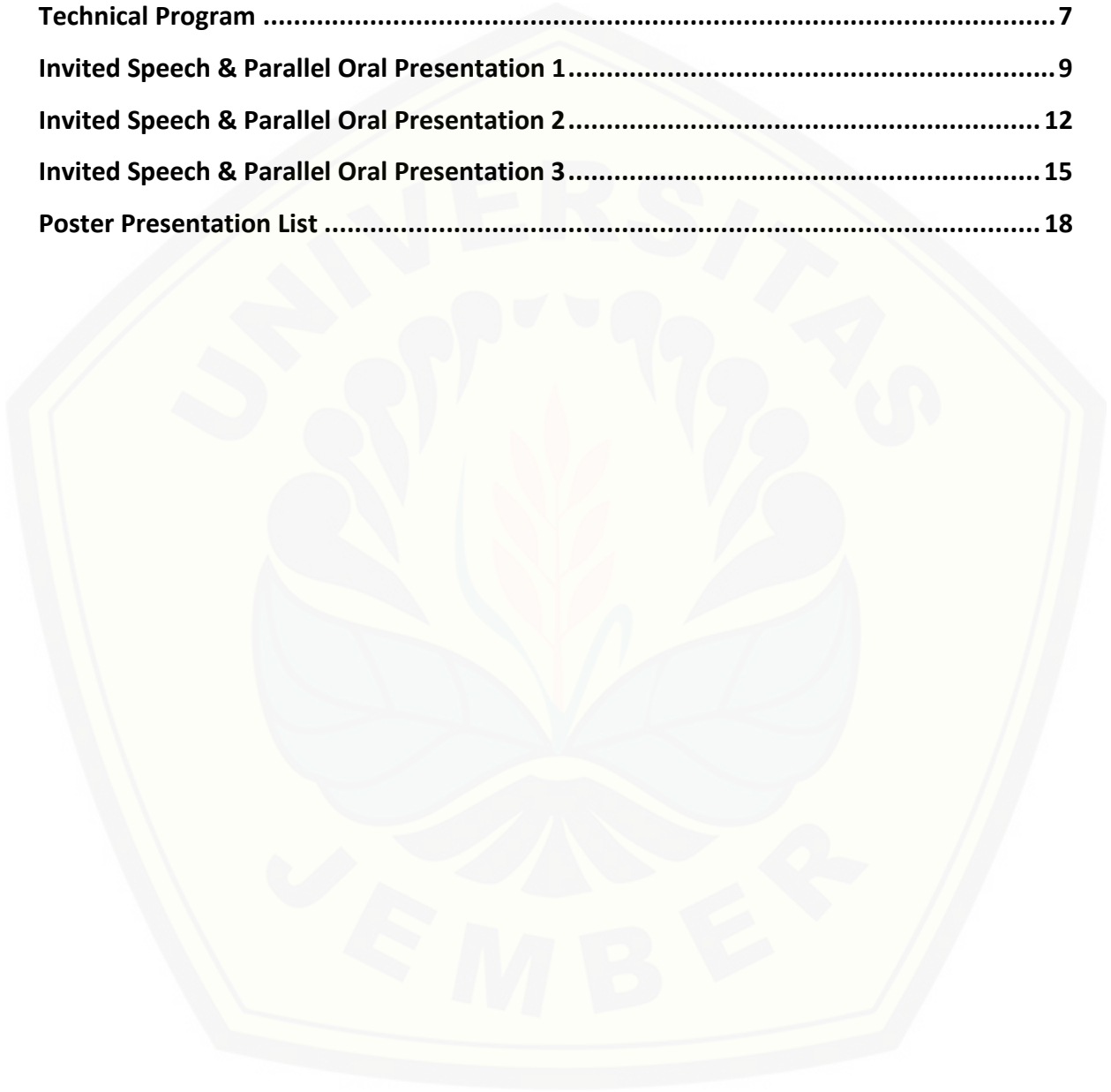
Chairman  
Working Group on MP&TM,

Akhmad Saikhu, SKM, MSc.PH



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## TECHNICAL PROGRAM

Friday, 21<sup>st</sup> October 2022

Time (GMT+7)	Event
07.30-08.00	Participant Registration <b>1. Opening Ceremony</b> <b>2. Keynote Speech:</b> on behalf of Ministry of Health, Indonesia Dr. Dra. apt. Agusdini Banun Saptaningsih, MARS Director of Pharmaceutical Production and Distribution Directorate General of Pharmaceutical and Medical Devices
09.10-11.00	<b>Plenary Session 1:</b> 1. Prof. Mikio Nishizawa, M.D., Ph.D. (College of Life Sciences, Ritsumeikan University, Japan) "Traditional Japanese medicine (Kampo drugs)"  2. Prof. Dr. Ir. Yuli Widiyastuti, M.P. (National Research and Innovation Agency, Indonesia) "Botany, phytochemistry, and pharmacology of mahkota dewa ( <i>Phaleria macrocarpa</i> ): an endemic medicinal plant from Papua" Moderator: Prof. Dr. Irmanida Batubara, M.Si. (IPB University, Indonesia)
11.00-13.00	Break & Poster Presentation 1
13.00-14.50	<b>Plenary Session 2:</b> 1. Prof. Dr. Antje Labes (Flensburg University of Applied Sciences, Germany) "Drugs from the sea? Marine natural products with special focus to marine photosynthetic organisms"  2. Dr. Khalid Hamid Musa (Qassim University, Kingdom of Saudi Arabia) "Antioxidant of <i>Phoenix dactylifera</i> " Moderator: Assoc. Prof. apt. Ari Satia Nugraha, Ph.D. (University of Jember, Indonesia)
14.50-15.00	Break
15.00-17.00	<b>Invited Speech &amp; Parallel Oral Presentation 1</b>



Saturday, 22<sup>nd</sup> October 2022

Time (GMT+7)	Event
07.45-08.10	Participant Registration
08.10-10.00	<b>Plenary Session 3:</b> 1. Dr. Phurpa Wangchuk (James Cook University, Australia) “Bioprospecting antioxidant plants for combating metabolic diseases”  2. Dr. Faizul Helmi Addnan (Universiti of Sains Islam Malaysia, Malaysia) “Medicinal plants & their potential roles on diabetes” Moderator: Dr. apt. Agung Eru Wibowo, M.Si. (National Research and Innovation Agency, Indonesia)
10.00-12.00	<b>Invited Speech &amp; Parallel Oral Presentation 2</b>
12.00-13.00	Break & Poster Presentation 2
13.00-15.00	<b>Invited Speech &amp; Parallel Oral Presentation 3</b>
15.00-15.10	Break
15.10-17.00	<b>Plenary Session 4:</b> 1. Sri Astutik M.Sc. (PhD candidate Technische Universität Dresden, Germany) “Re(conciliation) of medicinal plants production systems and forest conservation towards rural livelihood improvement in Java, Indonesia: options or challenges?”  2. Dr. apt. Moch. Amrun Hidayat, M.Farm. (Faculty of Pharmacy University of Jember, Indonesia) “Application of paper based-sensor on food, beverage, and medicinal plant extract determination” Moderator: apt. Afifah Machlaurin., S.Farm., M. Sc. (University of Jember, Indonesia)
17.00-17.15	<b>Closing ceremony</b> Best Oral & Poster Presenter

## Invited Speech & Parallel Oral Presentation 1

Friday, 21<sup>st</sup> October 2022, 15.00-17.00 (GMT+7)

Class name: **Marsilea**

Zoom link <https://unej.id/Marsilea>

No	Participant	Abstract Code	Presentation Title
1	Gea Abigail U. Ecoy, R.Ph., M.Sc	<b>Invited Speaker</b>	Exploration of marine drugs for metastasis suppression
2	Noveri Rahmawati, Nor Hadiani Ismail, Fatma Sri Wahyuni, Dachriyanus*	<b>OP-05</b>	Cytotoxic effects of <i>Uncaria nervosa</i> leaves extract and fraction on breast cancer cells MCF-7
3	Anuar Sani*, Wan Omar Abdullah	<b>OP-11</b>	Treatment of psoriasis using sweet potato ( <i>Ipomoea batatas</i> ) Leaf extracts on mouse model
4	Irene Puspa Dewi, Fatma Sri Wahyuni, Yufri Aldi, Dira Hefni, Dachriyanus*	<b>OP-16</b>	Cytotoxicity of several Indonesian medicinal plants extracts on Raw 264.7 macrophages
5	Rofiatun Solekha*, Putri Ayu Ika Setiyowati, Ni Nyoman Tri Puspaningsih, Hery Purnobasuki	<b>OP-17</b>	The effectiveness of flavonoids in citronella grass extract ( <i>Cymbopogon nardus</i> L.) as angiotensin converting enzyme (ACE) inhibitors in reducing hypertension
6	Olivia Zora, Felita Rajifa Pemela	<b>OP-22</b>	Provision of Sinom drinks for the muscular strength of PORDES FC KALISAT football athletes
7	Endah Puspitasari*, Nuri, Siti Muslichah, Bawon Triatmoko, Dewi Dianasari	<b>OP-27</b>	Revealing anti-inflammatory mechanism of <i>Tithonia diversifolia</i> leaves extract and fractions as cancer chemopreventive agent: an <i>in vitro</i> study
8	Nuralifah, Fadhliyah Malik, Parawansah, Nur Ramadhani A.Sida, dan Waode Marianti	<b>OP-28</b>	Acute toxicity test using BSLT (brine shrimp lethality test) method and antioxidant activity using FRAP (ferric reducing antioxidant power) method from teak leaves ethanolic extracts ( <i>Tectona grandis</i> L.)
9	Teguh Hafiz Ambar	<b>OP-46</b>	Synthesis of [ <sup>131</sup> I]i-apigenin labeled compound: applications for pharmacokinetic studies





### Invited Speech & Parallel Oral Presentation 1

Friday, 21<sup>st</sup> October 2022, 15.00-17.00 (GMT+7)

Class name: **Garcinia**

Zoom link <https://unej.id/Garcinia>

No	Participant	Abstract Code	Presentation Title
1	Assoc. Prof. apt. Ari Satia Nugraha, Ph.D.	<b>Invited Spekaer</b>	National Park: biodiversity and bioprospecting
2	Richa Kusuma Wati	<b>OP-01</b>	Medicinal orchids and their conservation in Bogor Botanic Gardens
3	Imam Taufik, Kresyan Penthury , Hilkatul Ilmi , Irfan Rayi Pamungkas, Adita Ayu Permanasari , Lidya Tumewu, Achmad Fuad Hafid Mochammad Yuwono, Aty Widyawaruyanti *	<b>OP-03</b>	Inhibitory activity of ethanol extract of <i>Artocarpus altilis</i> (Parkinson) Fosberg leaves from Bali Island, Indonesia against <i>Plasmodium falciparum</i> and <i>Plasmodium berghei</i>
4	Octafiani Vira, Nurul Jadid, Iska Desmawati	<b>OP-13</b>	Phytochemical profile of epiphytic plant <i>Pothos scandens</i> Linn from different hosts in the Sumber Pawon Forest, Kediri
5	Lusi Kristiana	<b>OP-18</b>	Medicinal plants used by traditional healers as main ingredients for herbs to overcome diarrhea-related diseases
6	Ni Luh Putu Indah Suryani, Ni Putu Ariantari*	<b>OP-30</b>	Bioprospecting fungal natural products in the search for new antimycobacterial agents
7	Nurul Fifi	<b>OP-50</b>	Isolation ligninolytic bacteria from rainbow forest Ijen Geopark, Bondowoso
8	Fuad Bahrul	<b>OP-63</b>	Antimicrobial activities and GC-MS analysis of <i>Bulbophyllum odoratum</i> (Blume) Lindl from Mount Gunitir Jember, Indonesia
9	Noviita Kartika Indah	<b>OP-70</b>	The plant diversity for the body treatment of candidate bride of Ethnic Madura, East Java



### Invited Speech & Parallel Oral Presentation 1

Friday, 21<sup>st</sup> October 2022, 15.00-17.00 (GMT+7)

Class name: **Curcuma**

Zoom link <https://unej.id/Curcuma>

No	Participant	Abstract Code	Presentation Title
1	Dr. apt. Dian Agung Pangaribowo, S. Farm., M.Farm.	<b>Invited Speaker</b>	Cinnamic acid hybrids and their biological activity
2	Amalia Khairunnisa*, Samsul Hadi, Sefa Nur Khalifah	<b>OP-26</b>	Antioxidant activity of ethanol extract of The ceguk plant ( <i>Combretum indicum</i> L.) rounded type leaves in South Kalimantan
3	Samsul Hadi	<b>OP-32</b>	DPPH radical scavenging activity at various levels of the stem kaik-kaik ( <i>Uruparia multiflora</i> ) fraction
4	Hanifan Mutiara Pinangkaan	<b>OP-40</b>	Potential plant for antioxidant sources: kenikir ( <i>C. caudatus</i> K.), beluntas ( <i>Pluchea indica</i> L.), and purple corn ( <i>Zea mays</i> L.)
5	Himalaya	<b>OP-43</b>	Effect of drying method variation on avocado ( <i>Persea americana</i> Mill.) and mango leaves ( <i>Mangifera indica</i> L.) on the strength of antioxidant activity in the combination of 96% ethanol extract of avocado and mango leaves
6	Binar Asrining	<b>OP-48</b>	Antioxidant and antimicrobial activities of subfractions derived from ethyl acetate fraction of jeruju ( <i>Acanthus ilicifolius</i> ) leaves
7	Boy Arie	<b>OP-55</b>	Ultrasound-assisted extraction of fucoxanthin from <i>Sargassum</i> sp: effect of extraction variables to antioxidant activity
8	Fadlilatulrahmah	<b>OP-56</b>	Test of antioxidant activity of the n-butanol fraction of sungkai leaves ( <i>P. anescens</i> Jack.) using the DPPH method
9	Erna Tri Wulandari	<b>OP-61</b>	Effect of different extraction methods on the antioxidant activity of sidaguri leaf extract



## Invited Speech & Parallel Oral Presentation 2

Saturday, 22<sup>nd</sup> October 2022, 10.00-12.00 (GMT+7)

Class Name: **Centella**

Zoom link <https://unej.id/Centella>

No	Participant	Abstract Code	Presentation Title
1	Dr. apt. Burhan Ma'arif, M.Farm.	<b>Invited Speaker</b>	Effects of <i>Marsilea crenata</i> C. Presl. in inhibiting the development of estrogen deficiency-induced degenerative diseases
2	Yuswan A1, Yuliani T*, Tjandrawati2, Hilmi IL, Sholih MG	<b>OP-10</b>	Simple methods for bone density measurement in ovariectomy-induced osteoporosis rat model
3	Angga Dwi Kusuma, Maria Caecilia N. Setiawati H	<b>OP-19</b>	The effect of ethanol extract of butterfly pea flower ( <i>Clitoria ternatea</i> L) on reducing blood glucose levels in Wistar strain mice with fructose induction
4	Soraya riyanti	<b>OP-33</b>	Evaluation of alpha-glucosidase inhibitory activity of forest honje ( <i>Etligeria hemisphaerica</i> (Blume) R.M. Sm.)
5	Mutia hardiyuna	<b>OP-68</b>	<i>Curcuma xanthorrhiza</i> aqueous extract enhances pro-inflammatory cytokines (TNF- $\alpha$ and IL-6) gene expression in RAW 264.7 macrophage cells
6	Maris kurniawati	<b>OP-45</b>	Characterization of the acidophilic-alkaliphilic 1,3- $\beta$ -glucanase enzyme from the metagenomic library of the digestive gland of <i>Achatina fulica</i>
7	Yelfi	<b>OP-49</b>	The chemical compounds and antidiabetic activity of vetiver essential oil ( <i>Vetiveria zizainoides</i> L.) in Wistar rats
8	Zuraida	<b>OP-52</b>	Role of flavonoid fraction of pulai ( <i>Alstonia scholaris</i> R.Br) stem bark on LDL oxidation at <i>Macaca fascicularis</i> macrophage cells
9	Evi Umayah Ulfa, Mei Syafriadi, Ratih Kusuma Wardhani, Iski Weni Pebriarti	<b>OP-53</b>	Evaluation of anticancer activity of <i>Thyponium flagelliforme</i> extract on fibrosarcoma mice





## Invited Speech & Parallel Oral Presentation 2

Saturday, 22<sup>nd</sup> October 2022, 10.00-12.00 (GMT+7)

Class Name: **Hibiscus**

Zoom link <https://unej.id/Hibiscus>

No	Participant	Abstract Code	Presentation Title
1	Prof. Dr. apt. Abdul Rohman, M.Si.	<b>Invited Speaker</b>	Quality control of <i>Garcinia mangostana</i> L. using fingerprinting and metabolomic approaches in combination with chemometrics
2	Dr. apt. Yuni Retnaningtyas., S. Farm., M.Si	<b>Invited Speaker</b>	A new colorimetric hydrogen peroxide (H <sub>2</sub> O <sub>2</sub> ) sensor based on silver nanoparticles (AgNPs) synthesized using <i>Coffea canephora</i> L.
3	Vita Meylani*, Rinaldi Rizal Putra, Muhammad Miftahussurur, Sukardiman Sukardiman	<b>OP-02</b>	Chemical composition analysis and GC/MS profile of <i>Cinnamomum zeylanicum</i> bark extract as antifungal candidates
4	B. Kuswandi*, D Lantika, R.F. Reza , and I. Y. Ningsih	<b>OP-06</b>	Paper-microzones biosensor for screening of anti-hyperuricemia activity in herbal extracts
5	Pramudita Riwanti*, Filicia Regya Primadini, Ravy Irsyad Ramadhan, Erika Nur Maulidiah, Burhan Ma'arif	<b>OP-08</b>	Standardization of 96% ethanol extract of beluntas ( <i>Pluchea indica</i> L.), kenikir ( <i>Cosmos caudatus</i> Kunth.) leaves and purple corn ( <i>Zea mays</i> L.)
6	Nuralifah, Fadhliah Malik, Parawansah, Nur Ramadhani A.Sida, dan Waode Marianti	<b>OP-41</b>	Analysis of omega-3 levels on fatty acid and the qualities of purslane ( <i>Portulaca oleraceae</i> L.) herbs from Southeast Sulawesi as a raw material for herbal preparations
7	Rifan Nurfalah	<b>OP-65</b>	Growth, productivity of phenolics and flavonoids in <i>Adenostemma madurense</i> based on different fertilizer applications
8	Dona Octavia	<b>OP-66</b>	The secondary metabolites content of phenolic and starch content of arrowroot tuber in agroforestry systems
9	Siti Nur Assyifa	<b>OP-67</b>	Multi-level screening of essential oil compounds as anti-aging with ensemble virtual screening method
10	Arista Wahyu Ningsih*, Sukardiman , Achmad Syahrani , Edo Pratama , Ivan Charles S. Klau , Dewi Rahmawati	<b>OP-72</b>	Identifying metabolite profiling and phenolic content in unripe fruits of kayu banana ( <i>Musa paradisiaca</i> L. var.kayu) by using LCMS instruments in different extraction methods

## Invited Speech & Parallel Oral Presentation 2

Saturday, 22<sup>nd</sup> October 2022, 10.00-12.00 (GMT+7)

Class Name: **Camellia**

Zoom link <https://unej.id/Camellia>

No	Participant	Abstract Code	Presentation Title
1	Dr. Sami Althwab and Dr. Essam Hamad	<b>Invited Speaker</b>	Garden cress ( <i>Lepidium sativum</i> Linn.) seeds: nutritional value and nutraceutical characteristics
2	Tri Wiyono *, Khoirun Nisa, Sri Handayani, Anjar Windarsih, Septi Nur Hayati, Martha Purnami Wulanjati, Eti Nurwening Sholikhah, Woro Rukmi Pratiwi	<b>OP-07</b>	Ameliorative effect of quercetin against pancreatic damage in rat: a meta-analysis
3	Indah Solihah*, Herlina, Miksusanti, Syafrina Lamin, Virgiawan Leo Putra, Taufiqurrahman, Hadi Kurniawan Putra, Ari Putra Utama, Febby Primananda, Elvara Alvionita, Zahrani Anggita Putri, Peggy Yulianda	<b>OP-12</b>	The antioxidant and hepatoprotective effect of <i>Artocarpus champedens</i>
4	Sahidin I*, Nohong, Marianti A. Manggau, Adryan Fristiohady, Wahyuni, Nur Syifa Rahmatika, Agung W. M. Yodha, Nur Upik En Masrika, Abdulkadir Kamaluddin, Andini Sundowo8, Sofa Fajriah	<b>OP-15</b>	Biological activities and phytochemical profile of ethyl acetate extract of <i>Arachis hypogaea</i> L. stems from Southeast Sulawesi: a potential source for nutraceuticals
5	Deni setiawan	<b>OP-36</b>	Phytochemical screening and antioxidant activity ethanol extract of tandui ( <i>Mangifera rufocostata</i> Kosterm.)
6	Devanus lahardo	<b>OP-47</b>	Influence of <i>Saccharomyces cereviceae</i> variation on content of betasianin, betaxantin and antocyanin and antioxidant activities on beetroot alcoholic fermentation by DPPH method
7	Arnida Arnida	<b>OP-58</b>	Phytochemical screening and antioxidant detection using TLC method of <i>n</i> -hexane fraction of bajakah tampala ( <i>Spatholobus littoralis</i> Hassk.) stem from Central Kalimantan
8	Dewi Pertiwi	<b>OP-69</b>	Antioxidant activity of <i>Artocarpus lacucha</i> by DPPH and CUPRAC methods
9	Septi Nur Hayati	<b>OP-71</b>	Antioxidant activities of cocoa ( <i>Theobroma cacao</i> ) pod extract



### Invited Speech & Parallel Oral Presentation 3

Saturday, 22<sup>nd</sup> October 2022, 13.00-15.00 (GMT+7)

Class Name: **Phaleria**

Zoom link <https://unej.id/Phaleria>

No	Participant	Abstract Code	Presentation Title
1	Dr. apt. Ayik Rosita P., S. Farm., M. Farm	<b>Invited Speaker</b>	Cytotoxic activity of <i>Erechtites valerianifolia</i> fraction against MCF-7 cell line.
2	Lucie Widowati	<b>OP-09</b>	Pharmacology study for <i>Phaleria macrocarpa</i> fruit to be developed as an antidiabetic drug
3	Aditya Faradina Salsabilla	<b>OP-21</b>	Antiplatelet activity of methanol extract from stem bark of <i>Artocarpus champeden</i> Spreng
4	Frismandani, E., Umayah, E. U., Arimurti., S.	<b>OP-29</b>	Anticoagulant and thrombotic activities of ethanol extract from cayenne pepper ( <i>Capsicum frutescens</i> ) <i>in vitro</i>
5	Pratika Viogenta	<b>OP-34</b>	Analysis of the metabolite profile of the endophytic fungus <i>Phytophthora capsici</i> extract from <i>Luvunga sarmentosa</i> (Blume) Kurz
6	Uswatun Khasanah	<b>OP-39</b>	<i>In silico</i> study of antimalarial activity from phytoconstituents of <i>Alstonia scholaris</i> against <i>Plasmodium falciparum</i> protein targets
7	Noorfadzilah	<b>OP-44</b>	<i>Phoenix dactylifera</i> improves haematological parameters and body iron status in iron deficient rats
8	Yuswan A, Yuliani T*, Tjandrawati, Hilmi IL, Sholih MG	<b>OP-57</b>	Screening of multi-drug resistant bacteria growth inhibition and the cytotoxic activity on HEPG2 cell line by Meliaceae plant extracts
9	Blanche Marie	<b>OP-64</b>	Antiuro lithiatic activity of <i>Annona muricata</i> Linn (1753) methanol leaf extract in chemically-induced calcium oxalate urolithiasis in male Sprague Dawley rats







### Invited Speech & Parallel Oral Presentation 3

Saturday, 22<sup>nd</sup> October 2022, 13.00-15.00 (GMT+7)

Class Name: **Tithonia**

Zoom link <https://unej.id/Thithonia>

No	Participant	Abstract Code	Presentation Title
1	Dr. apt Budipratiwi Wisudyaningsih, S. Farm., M. Sc	<b>Invited Speaker</b>	Crystal engineering of quercetin: physicochemical and stability properties of quercetin co-crystals
2	Syalza Mumpuni Kusuma Dewi, Nikmatul Ikhrom Eka Jayani, Karina Citra Rani*	<b>OP-04</b>	Study effect of storage temperature and packaging methods on physical characteristics of gelatin-based moringa leaf extract chewable gummy
3	Yanabila Wahyu Ilahi*, Diah Novita Anggraini, Budipratiwi Wisudyaningsih, Yudi Wicaksono	<b>OP-20</b>	Preparation of resveratrol-2,5-dihydroxybenzoic acid multicomponent solids to improve solubility properties
4	Wa Ode Sitti Zubaydah*, Astrid Indalifiany, La Ode Baytul Abidin	<b>OP-25</b>	Formulation and characterization of self-nanoemulsifying drug delivery system (SNEDDS) ethanol extract sponge <i>Xestospongia</i> sp. using Tween 80 as surfactant
5	Dina Rahmawati	<b>OP-35</b>	Shallot skin: turning a food waste into a sunscreen cream
6	Lina Winarti	<b>OP-37</b>	Effect of bitter melon seed oil combination with oxybenzone and octyl methoxy cinnamate on the effectiveness of sunscreen cream
7	Lidya Ameliana	<b>OP-42</b>	Optimization of xanthan gum and carbopol in preparation of peel-off gel masks secang wood extract ( <i>Caesalpinia sappan</i> L.) as topical antioxidants
8	Destria Indah	<b>OP-54</b>	Physical characteristic and antioxidant properties of <i>Aquilaria macrocarpa</i> leaves extract gel after storage



### Invited Speech & Parallel Oral Presentation 3

Saturday, 22<sup>nd</sup> October 2022, 13.00-15.00 (GMT+7)

Class Name: **Zingiber**

Zoom link <https://unej.id/Zingiber>

No	Participant	Abstract Code	Presentation Title
1	Assoc. Prof. Hari Sulistyawati, Ph.D.	<b>Invited Speaker</b>	Potential value of medicinal plants for health and conservation-lesson learned from University Jember
2	apt. Afifah Machlaurin., S.Farm., M. Sc	<b>Invited Speaker</b>	Scaling-up BCG vaccination coverage in outreach high-incidence regions through a no-restriction open vial policy combined with home visits: a cost-effectiveness study
3	Fatimah Siti, Iska Desmawati, dan Indah Trisnawati Dwi Tjahjaningrum	<b>OP-14</b>	Species diversity of the Smilax genus as medicinal plants in the source forest of Pawon, Wates, Kediri
4	Afifah K. Vardhani, Mahdi Jufri, Erni Purwaningsih, Hidayah Sunar Perdanastuti, Nadia Bunga Anggraini	<b>OP-23</b>	Total phenolic content in black rice ( <i>Oryza sativa</i> L. indica) bran ethanolic extract from two different regions in Java, Indonesia
5	Nahdiya Rahmah, Aditya Maulana Putra Perdana,Okta Muthia Sari*, Yusrinie Wasiaturrahmah	<b>OP-24</b>	Potential drug-drug interactions in covid-19 patients in Hospital X Banjarmasin period January-March 2021
6	Sofia*	<b>OP-31</b>	The use of houseyard for cultivating javanese chili ( <i>Piper retrofractum</i> Vahl) to increase the farmer's income.
7	Husnawati	<b>OP-51</b>	Antibreast cancer activity of endophytic fungi <i>Phomopsis</i> sp from Indonesian isolate <i>Annona muricata</i> leaves: from production to preclinical study – a review
8	Fadlul Azim Fauzi Mansur	<b>OP-59</b>	Consumption of date palm fruit ( <i>Phoenix dactylifera</i> var. ajwa) reduce <i>Trichuris trichiura</i> egg count in infected school children.
9	Oeke Yunita	<b>OP-60</b>	Preparation of database on suppliers and distributors of traditional medicine products in East Java, Indonesia
10	Arry Y Nurhayati	<b>OP-62</b>	Mung bean waste fertilizer for organic tomato growth: a prospect for a bio-circulatory model for household community tomato growing



### Poster Presentation List

Abstract Code	Participant	Title
PP-1	Lindawati Setyaningrum	Validation and development of TLC-densitometry method for standardization in antioxidant compound of <i>Vernonia amygdalina</i> leaves fraction
PP-2	Sri Wahyuningsih	Antihyperuricemic activity of fraction of red betel leaf ethanol extract ( <i>Piper crocatum</i> Ruiz & Pav) on male Wistar rats
PP-3	Shinta Mayasari	Antihypercholesterol activity of bay leaf ( <i>Syzygium polyanthum</i> ) [Wight] Walp and pandan Leaf ( <i>Pandanus amaryllifolius</i> Roxb) ethanol extract combination in Wistar rats with diabetes mellitus.
PP-4	Elsa Mutiara Santi	The effectivity of bay leaf ethanol extract ( <i>Syzygium polyanthum</i> ) as a photoprotective agent in avobenzone and octyl methoxycinnamate sunscreen creams
PP-5	Ferdianti Ayu	Development of paper-based sensors for determination of caffeine levels in tea
PP-6	Qorina Mumtazah Isnaini	Optimization of praelatinized corn starch and guar gum in ibuprofen orally disintegrating tablets
PP-7	Ayu Indah Noor Safitri	Optimization of praelatinized corn starch and chitosan in ibuprofen orally disintegrating tablet
PP-8	Yudi Purnomo	Antioxidant activity of pulutan ( <i>Urena lobata</i> ) leaf fractions and analysis of their total phenol content
PP-9	Raden Lucky Rachmawan	Activity test of 50% ethanol extract of javanese ginseng root ( <i>Talinum paniculatum</i> Jacq. (Gaertn)) as an inhibitor of oxidative stress
PP-10	Sofindra Miftakhuddin	Alpha-glucosidase inhibitory activity of ethanolic extracts of gambas ( <i>Luffa acutangula</i> ), winged bean ( <i>Psophocarpus tetragonolobus</i> ), and moringa ( <i>Moringa oleifera</i> )
PP-11	Nisa' Nur Laily Asyrofiyah	Phytochemical screening and <i>in vitro</i> antihyperglycemic test of dichloromethane fraction of merbau pantai ( <i>Intsia bijuga</i> ) stem bark
PP-12	Atiq Fashihatun Nadhiroh	Phytochemical screening and <i>in vitro</i> antituberculosis test of eboni ( <i>Diospyros celebica</i> Bakh.) stem bark extract
PP-13	Muftinatul Hasanah	Phytochemical screening and <i>o</i> antihyperglycemic test of hexane fraction of merbau pantai ( <i>Intsia bijuga</i> ) stem bark
PP-14	Ridho Syifa' Annafi	Anthelmintic activity of mondokaki ( <i>Tabernaemontana divaricata</i> ) root methanol extract against <i>Caenorhabditis elegans</i>
PP-15	Novitasari Puspita Dewi	Synthesis of silver nanoparticle with eggplant ( <i>Solanum melongena</i> L.) peel extract and their antioxidant activity
PP-16	Fathur Rahman	Systematic mapping review: use of natural ingredients in traditional treatment for non-communicable diseases in Austronesian countries
PP-17	Vina Amalia Damayanti	Potency of methanol extract of <i>Dianella ensifolia</i> (L.) Dc. herbs as anthelmintic agent toward <i>Caenorhabditis elegans</i>
PP-18	Yuni Mumpuni	Anthelmintic activity of methanol extract of jaha leaves ( <i>Terminalia bellirica</i> ) against <i>Caenorhabditis elegans</i>
PP-19	Erna Putri Iliyin	Determination of sodium benzoate content in syrup using NIR ( <i>near infra-red</i> ) spectroscopy and chemometric methods
PP-20	Zunia Miftakhurrohmah	Green synthesis of silver nanoparticle with robusta coffee ( <i>Coffea canephora</i> L.) leaf extract and their antifungal activity
PP-21	Ella Aurelya	Antibacterial activity test of silver nanoparticles (AgNPs) robusta coffee leaf extract ( <i>Coffea canephora</i> L.) against <i>Staphylococcus Aureus</i> and <i>Escherichia Coli</i>



Abstract Code	Participant	Title
PP-22	Dimas Aloisius	Potential anthelmintic activity of <i>Artemisia cina Berg</i> (mungsi Arab) leaves
PP-23	Rizka Adjeng Wulandari	Determination of salicylic acid levels in face toner solution using NIR (near infrared) and chemometric spectroscopy methods
PP-24	Karima Pratiwi	Determination of diclofenac diethylamine levels in emulgel preparations using NIR spectroscopy combined with chemometrics
PP-25	Wulan Fitria Dewi	Optimization of hydroxypropyl methylcellulose (HPMC) and carboxymethylcellulose sodium (CMC-Na) in peel-off gel mask cashew leaf ( <i>Anacardium occidentale L.</i> )
PP-26	Lakshyta Alifia Bimassya	Optimization of carboxymethylcellulose sodium and Carbopol <sup>®</sup> in peel-off gel mask cashew leaf ( <i>Anacardium occidentale L.</i> )
PP-27	Hasnia Pratiwi	Optimization of Carbopol <sup>®</sup> and hydroxypropyl methylcellulose (HPMC) in peel-off gel mask cashew leaf ( <i>Anacardium occidentale L.</i> ) extract
PP-28	Erwi Putri Setyaningsih	Antibacterial activity of ethanol, ethyl acetat, and n-hexane extracts of bidara laut lignum ( <i>Strychnos lucida R.Br.</i> ) against <i>Staphylococcus aureus</i> and <i>Escherichia coli</i>
PP-29	Nadia Khorunnisa	Anthelmintic activity of <i>Tinospora crispa</i> (Brotowali) stem methanol extract againts <i>Caenorhabditis elegans</i>
PP-30	Dedi Irawanto	Evaluation of drug use in hypertensive patients with complications of chronic kidney failure at RSUD Ibnu Sina Gresik
PP-31	Yasiroh Azmil Fausiana Nasution	Validity and reliability of self-efficacy for appropriate medication use in scale (SEAMS) questionnaire in Madura language version for stroke patient
PP-32	Zenna Adella	The use of natural products in traditional medicine of infectious disease and injuries in Austronesia: a systematic mapping review
PP-33	Farah Yumna Salsabila	Profile of adverse events following immunization of COVID-19 in Jember Regency
PP-34	Reynaldi Edo Mahendra	phytochemical screening and anthelmintic assay of methanol extracts of aerial <i>Indigofera linnaei</i> against <i>Caenorhabditis elegans</i>
PP-35	Ollive Filsa Hawa	Potential study of silver nanoparticles (AgNPs) using bioreduction of <i>Theobroma cacao L.</i> leaf extract as antioxidant activity and hydrogen peroxide (H <sub>2</sub> O <sub>2</sub> ) sensing ability
PP-36	I Gusti Agung Ayu Kartika	Phytochemical profile and bodhi tree leaf extract ( <i>Ficus religiosa L.</i> ) on nitrite oxide and catalase as a natural antioxidant
PP-37	Nuri	Antilipase activity of kemuning ( <i>Murraya paniculata</i> ) leaves extract and its fractions
PP-38	Anisya Widiastuti	Phytochemical screening and <i>in vitro</i> Antihyperglychemic test of ethyl acetate fraction of merbau pantai ( <i>Intsia bijuga</i> ) stem bark
PP-39	Devintasari Rahma Wardani	Green synthesis AgNPs with cocoa leaf extract bioreductor ( <i>Theobroma cacao. L.</i> ) and their antifungal activity
PP-40	Ovalina Sylvia Ginting	Development of ginger and lemongrass plants as family medicinal plant products (TOGA) integrated in improving health self-medication
PP-41	Diana Holidayh	Antidiabetes activity of arabica coffee leaves extract on diabetic mice
PP-42	Dewi Sekar Arum	Determination of total flavonoid levels and classification model of <i>Moringa oleifera L.</i> leaf powder in different altitude of planting area by NIR spectroscopy-chemometric method



Abstract Code	Participant	Title
PP-43	Naurah Fiehaya	NIR-chemometric classification model and determination of total phenolic content of basil leaf powder ( <i>Ocimum basilicum</i> L.) in different altitude
PP-44	Lintang Nurani Aisyah Seen	Classification model and determination of total phenolic content of green betel leaf powder ( <i>Piper betle</i> L.) in different altitude
PP-45	Maqinun Amin	Determination of total phenolic content and classification model of papaya leaf powder ( <i>Carica papaya</i> ) at different altitude
PP-46	Nora Safira	Determination of total flavonoid content and classification model of cassava leaf powder ( <i>Manihot esculenta</i> Crantz) in different altitudes
PP-47	Erna Maya Febriana	Determination of total flavonoid content and classification model for pegagan leaf powder ( <i>Centella asiatica</i> L.) in different altitude
PP-48	Fransiska Maria Christianty	Acute and sub-chronic toxicity of green coffee extract based on rat kidney function
PP-49	Arde Toga	Ethnomedicine studies: Looking at the relationship heritage and religion with traditional medicine used
PP-50	Puspa Sari Dewi Sholihah	Red ginger ethanol extract has the best antioxidant activity than turmeric or garlic ethanol extract
PP-51	Farauk	The effect of heating time on rosmarinic acid level of cat whiskers ( <i>Orthosiphon aristatus</i> (Blume) Miq.) of purple variety
PP-52	Siti Mudaliana	An <i>in silico</i> study of the associations of <i>Curcuma xanthorrhiza</i> to prevent stunting in children
PP-53	Tanfudz Al Islah	The study of safety and skin lightening efficacy of mulberry ( <i>Morus alba</i> ) roots lotion
PP-54	Sukmahwati	Determination of curcumin levels and antiinflammatory test of extract and fraction temu giring rhizome using membrane stability and protein denaturation methods <i>in vitro</i>
PP-55	Heni	Antioxidant and antihyperalgesia activity of ethanolic extract of cocoa pod husk in neuropathy diabetic model
PP-56	Dewi Dianasari	The effect of the extraction method of apu-apu ( <i>Pistia stratiotes</i> ) on antioxidant activities and identification of their active compounds
PP-57	Siti Muslichah	Phytochemical composition and ethnomedicinal study of <i>Kaempferia galanga</i> L. and <i>Kaempferia rotunda</i> L. in Madura Indonesia
PP-58	Lestyo Wulandari	Determination of total citronelal levels and development of FTIR-chemometric classification model <i>Cymbopogon winterianus</i> Jowitt oil from different altitude of planting areas
PP-59	Indah Purnamasari	NIR spectroscopy to determine total phenolic content of powdered dried rhizomes
PP-60	Fifteen Aprila Fajrin	Antioxidant and antihyperalgesia activity of ethanol extract and fraction from red ginger ( <i>Zingiber officinale</i> var. <i>rubrum</i> ) in early painful diabetic neuropathy mice
PP-61	Fuad Bahrul Ulum	Metabolite profile of <i>Dumortiera hirsuta</i> (Sw.) Nees from Mount Gunitir, Indonesia and two antimicrobial compounds detected from GC-MS
PP-62	Indah Solihah	The antioxidant potential of kecombrang ( <i>Etligeria elatior</i> )
PP-63	Bungawati Zaing	Antifertility effects of some mangrove root extracts ( <i>Sonneratia alba</i> S., <i>Rhizophora mucronata</i> L., and <i>Achantus ilicifolius</i> L.) in feed against spermatozoa mice ( <i>Mus musculus</i> L.) quality
PP-64	Tri Candra Setiawati	Application of ameliorant and plant growth promotion Rhizobacteria on some soil nutrient, uptake and secondary metabolite of rice in acid soil



# The 1<sup>st</sup> International Conference on Medicinal Plants

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# Ultrasound-Assisted Extraction of Fucoxanthin from Sargassum Sp: Effect of Extraction Variables to Antioxidant Activity

Boy Arief Fachri, Istiqomah Rahmawati, Meta Fitri Rizkiana, Bektu Palupi,  
Helda Wika Amini

Department of Chemical Engineering, Faculty of Engineering, Universitas Jember

# Objectives

This study aims to

1. Perform fucoxanthin extraction and
2. Study the influence of extraction parameters (extraction time, ratio of raw materials to solvents, and particle size) on antioxidant activity.



# OUTLINE

- Introduction
- *State of art*
- Methodology
- Results
- Conclusion



# INTRODUCTION

## Sargassum sp

Abundant & Easily Cultivated



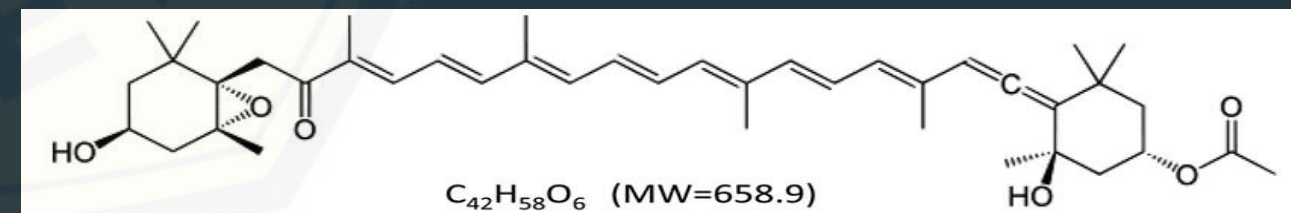
### Composition

- Carbohydrate (33,74-55,69%)
- Protein ( 14-17%)
- Alginic acid(32,18%)
- Phlorotannin (1-14%)
- Lipid (2,5-3,4%)
- Fucoidan (2,4%)
- Fucoxanthin (0,02-0,58%)

### Usage

- Functional food
- Antioxidant

### Fucoxanthin

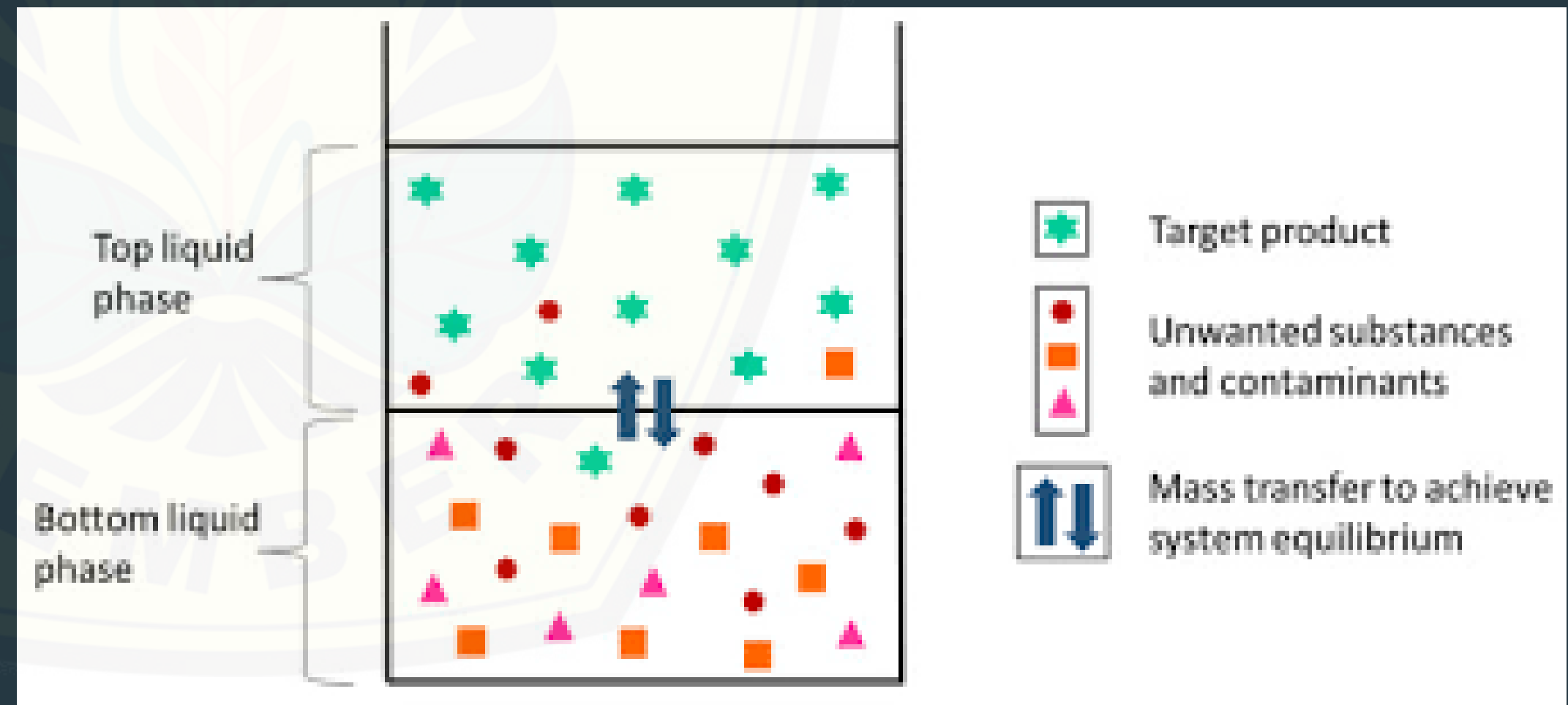
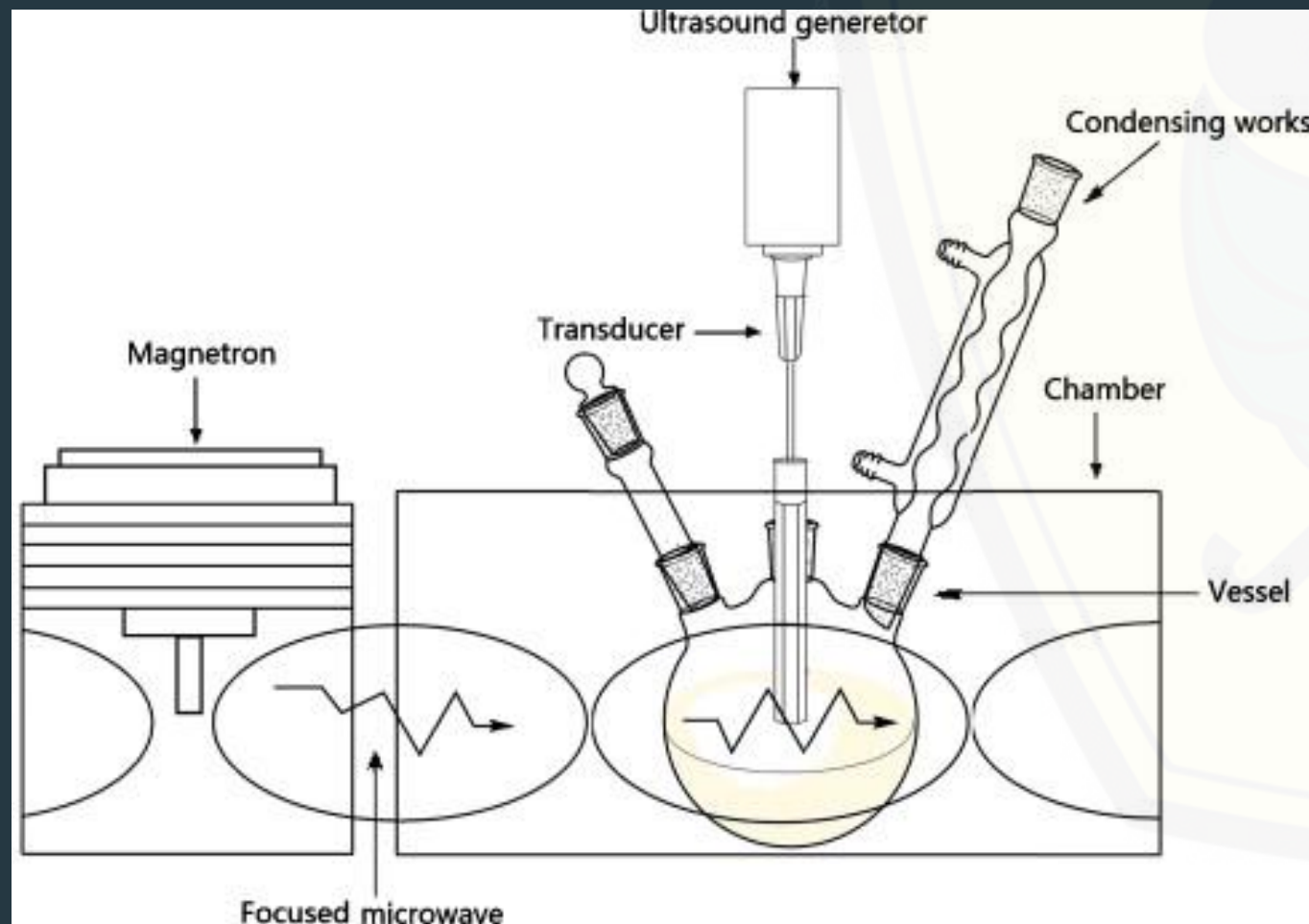


# STATE of ART

Feedstock	Extraction method	Yield
Chaetoceros calcitrans	Liquid biphasic system	16,09 mg/g
Sargassum fusiforme	Ultrasound-assisted extraction	0,7 mg/g
Phaeodactylum tricornutum	Pressure-liquid	0,69 mg/g
Sargassum polycystum	Maceration	0,41 mg/g
Sargassum Sp	UAE	599,47 $\mu$ g/gr

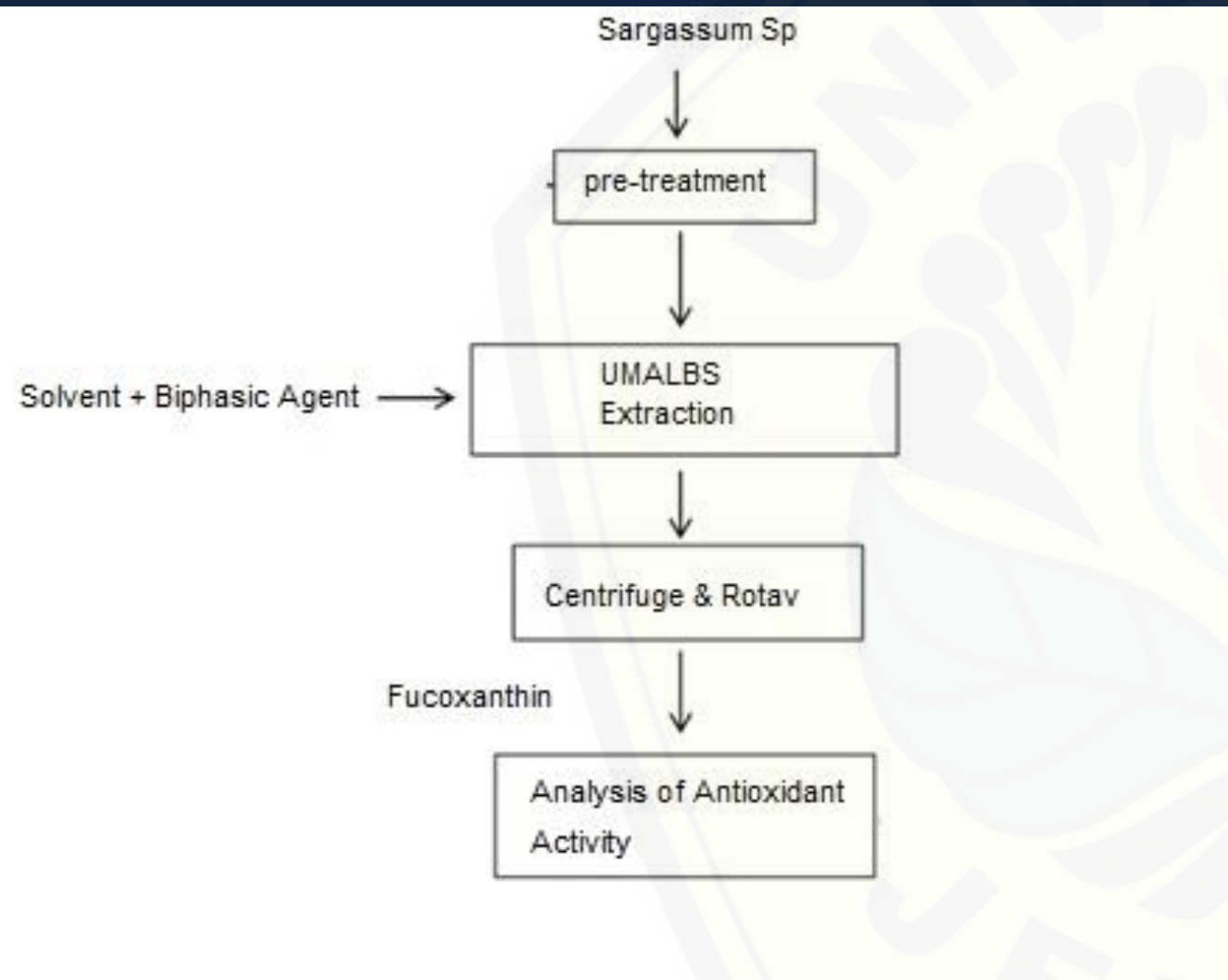
# ULTRASOUND-MICROWAVE ASSISTED LIQUID BIPHASIC SYSTEMS

A method involving ultrasound, microwave, and liquid biphasic system to optimize the extraction performance

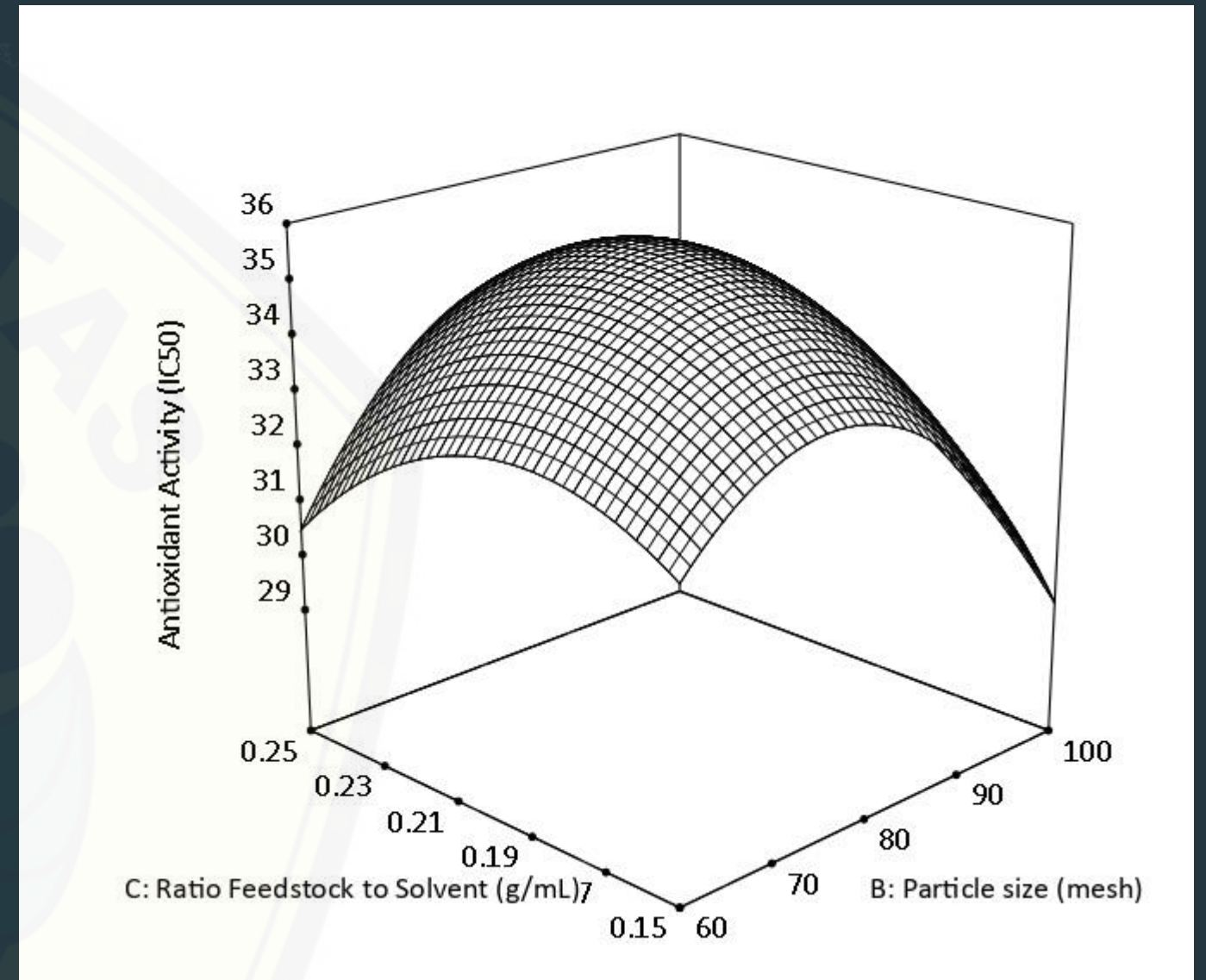
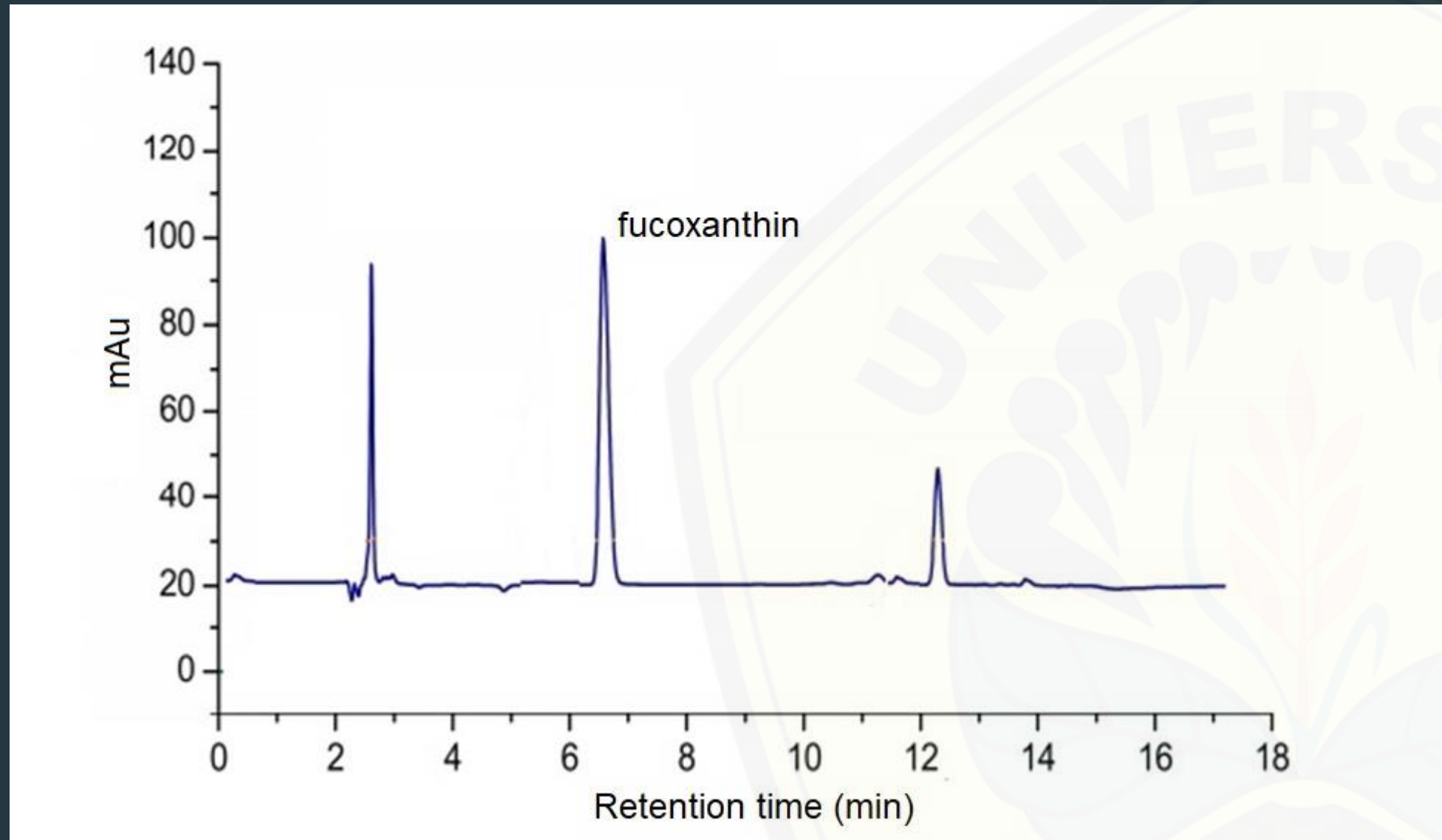




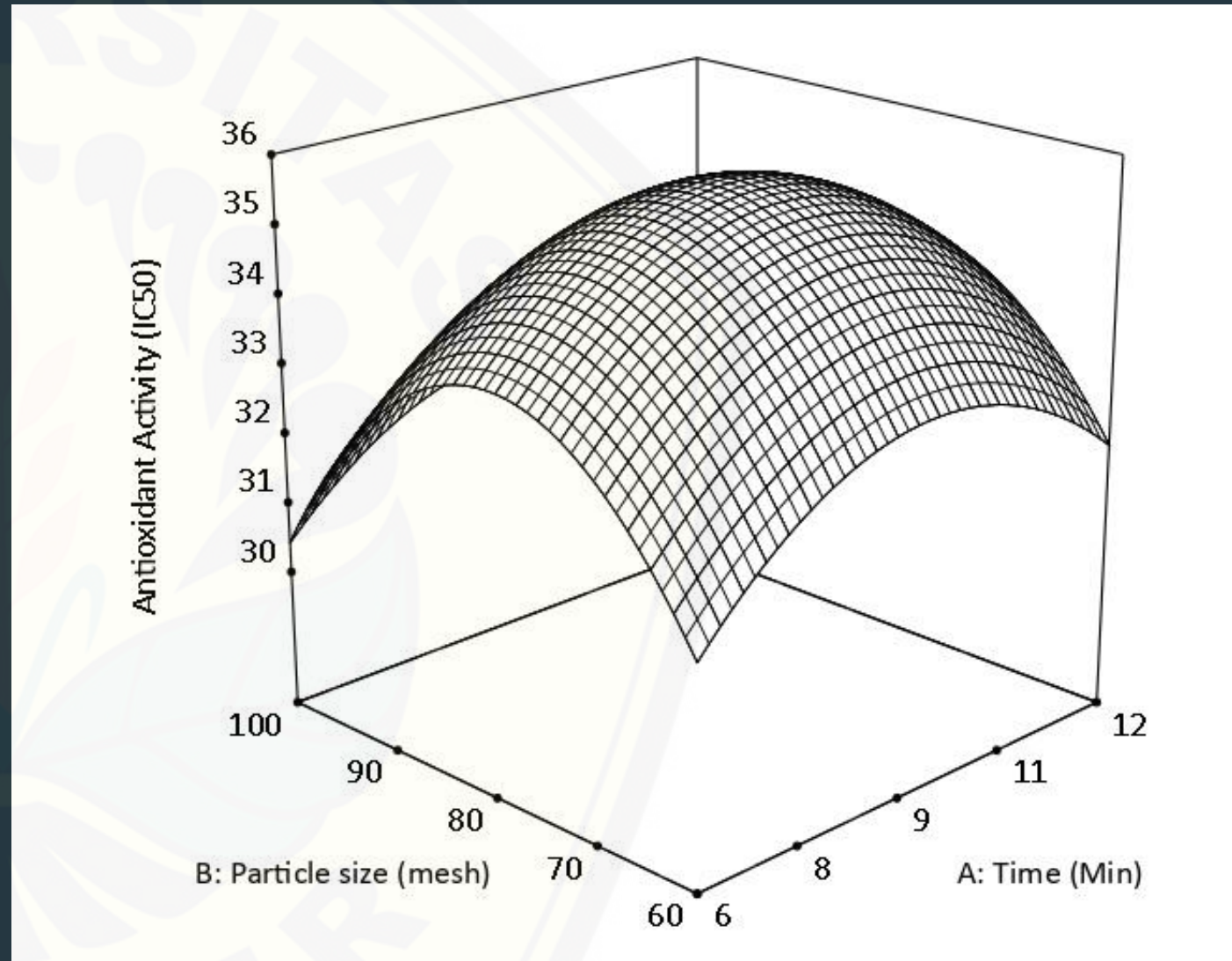
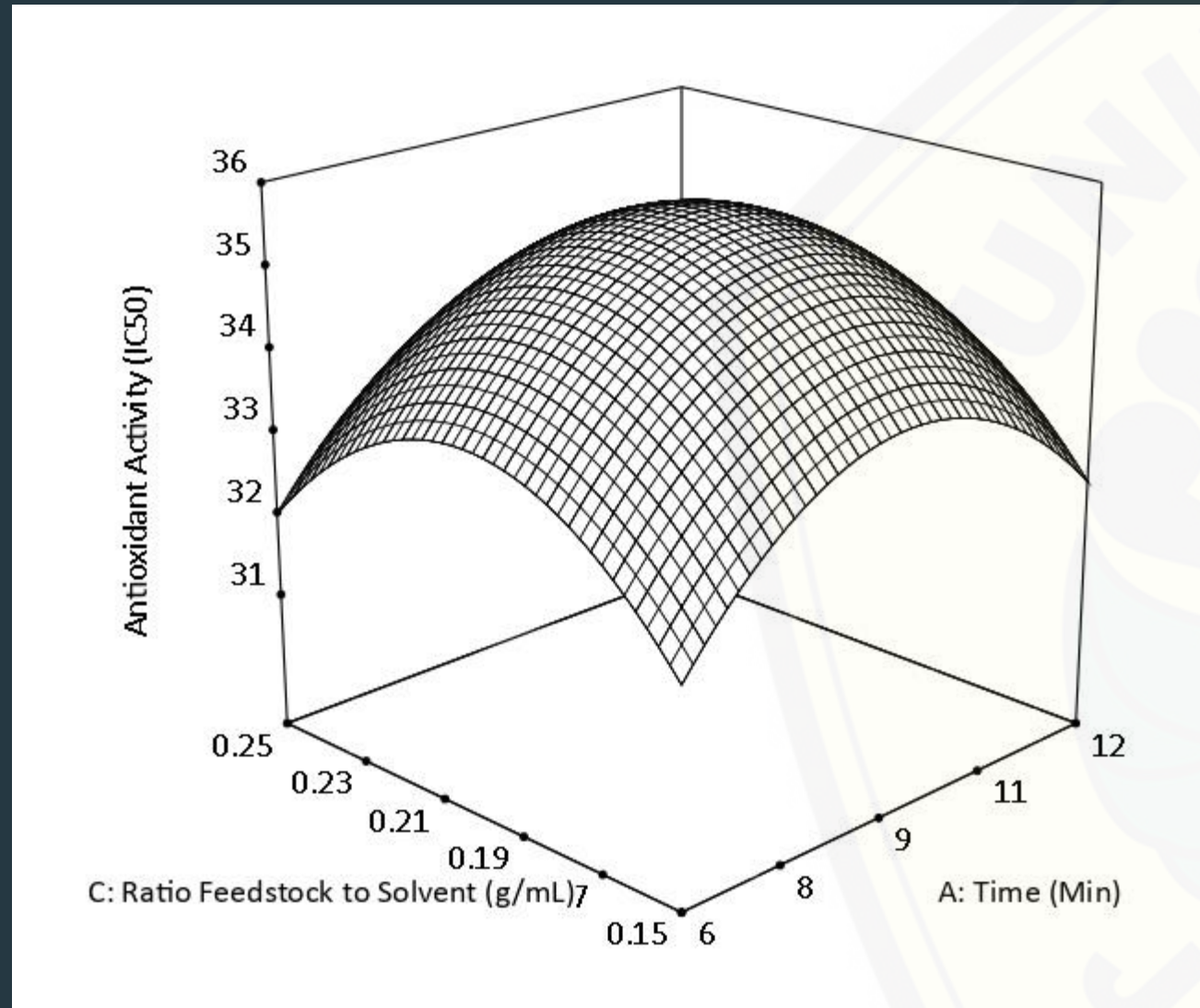
# METHODOLOGY



# RESULTS



# RESULTS





# Conclusion

1. The ultrasound-microwave assisted liquid biphasic system shows promising to extract fucoxanthin from Sargassum Sp.
2. The extraction parameters (extraction time, ratio of raw materials to solvents, and particle size) strongly plays the role on antioxidant activity.





The 1<sup>st</sup> International Conference on Medicinal Plants  
Faculty of Pharmacy University of Jember  
icmp@unej.ac.id

## Letter of Acceptance

Dear Boy Arief Fachri

Abstract Code: OP-55

First of all, we thank you for your participation in The 1<sup>st</sup> International Conference on Medicinal Plants (The 1<sup>st</sup> ICMP) which will be held on October 21<sup>st</sup>- 22<sup>nd</sup>, 2022 in virtual platform.

Along with this letter, the organizing committee of The 1<sup>st</sup> International Conference on Medicinal Plants (The 1<sup>st</sup> ICMP) is pleased to inform you that your abstract entitled **Herbal medicine (formulation, standardization, phytochemistry, efficacy, toxicology)** has been accepted for Oral presentation

Please submit your video for Oral presentation presentation [here](http://unej.id/icmpvideoform) (unej.id/icmpvideoform) no later than **October 12<sup>th</sup>, 2022**. Before submitting, please make sure that your video file meets the requirements. (See [guideline poster presentation and oral presentation](#))

Oral and poster presenters can publish their research results in certain reputable international or national journals. Please submit your fullpaper [here](http://unej.id/icmpfullpaperform) or click here (unej.id/icmpfullpaperform) no later than October 15<sup>th</sup>, 2022. Guideline and template for fullpaper can be found on the conference website.

Furthermore, you can pay attention to further information regarding all about this conference at **The 1<sup>st</sup> ICMP website address**

Should you need further information, please feel free to contact us via email at [icmp@unej.ac.id](mailto:icmp@unej.ac.id) or contact person (<https://icmp.farmasi.unej.ac.id/contact-us/>)

Sincerely,  
The 1<sup>st</sup> ICMP Scientific Committee  
Faculty of Pharmacy University of Jember  
Jember – Indonesia  
[icmp@unej.ac.id](mailto:icmp@unej.ac.id)



# CERTIFICATE OF APPRECIATION

This certificate is proudly awarded to:

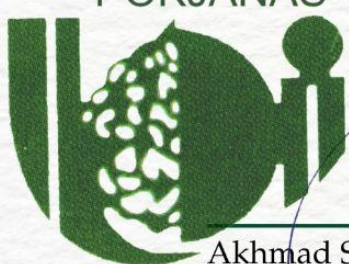
**Boy Arief Fachri**

for the invaluable contribution as  
Oral Presenter  
in


The 1<sup>st</sup> International Conference on Medicinal Plants (The 1<sup>st</sup> ICMP):  
62<sup>nd</sup> Meeting of Working Group on Medicinal Plant and Traditional Medicine (POKJA TOOT)  
Jember, October 21<sup>st</sup>-22<sup>nd</sup> 2022

SKP.043/PP.IAI/1822/IX/2022	
Plenary/Invited Speaker	4.5 SKP
Moderator	1.5 SKP
Committee	1.5 SKP
Oral/ Poster Presenter	3 SKP
Participant	12 SKP

POKJANAS



Akhmad Saikhu, M. Sc.PH.  
Head of POKJA TOOT



Dr. apt. Nuri, S.Si., M.Si.  
Dean of Faculty of Pharmacy, University of Jember





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Nomor : 10316/UN25.11/EP/2022

09 November 2022

Lampiran : **Permohonan Surat Keterangan Karya Deposit (SKKD)**

Hal : **Prosiding Seminar Internasional**

Yth. Kepala UPT Perpustakaan  
Universitas Jember

Bersama ini kami kirimkan dengan hormat karya deposit Staf Pengajar Fakultas Teknik Universitas Jember dengan data sebagai berikut:

NAMA	PANGKAT/GOL	JABATAN
Helda Wilka Amini, S.Si., M.Si., M.Sc NIP 760018071	Dosen	Dosen
Ir. Meta Fitri Rizkiana, S.T., M.Sc NIP 760017111	Dosen	Dosen
Ir. Istiqomah Rahmawati, S.Si., M.Si. NIP 760017101	Dosen	Dosen
Ir. Beki Palupi, S.T., M.Eng NIP 198905272022032008	IIIa/Penata Muda	Dosen
Boy Arief Fachri, ST., MT, PhD NIP 197409011999031002	Pembina	Lektor Kepala

JUDUL : **Ultrasound-Assisted Extraction of Fucoxanthin from Sargassum Sp: Effect of Extraction Variables to Antioxidant Activity**

NAMA SEMINAR: **The 1st International Conference on Medicinal Plants**

TEMPAT : **Jember Jawa Timur**

TANGGAL : **21-22 Oktober 2022**

Kami mohon agar segera diterbitkan Surat Keterangan Karya Deposit bagi yang bersangkutan, sesuai dengan data tersebut di atas.

Atas perhatian dan kerjasamanya disampaikan terima kasih.



a.n Dekan  
Wakil Dekan I

**Dr. Ir. Gaguk Jatisukamto, S.T., M.T., IPM**  
NIP 196902091998021001

Tembusan disampaikan Kepada Yth.

1. Dekan Fakultas Teknik
2. Dosen Yang Bersangkutan
3. Arsip