

2021

Book of Abstracts

of The 11th International Conference
on Green Technology

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October 26, 2021

**OPTIMIZING TECHNOLOGY
FOR SUSTAINING
PRODUCTIVITY
DURING COVID-19**

Organized by :

 **Fakultas Sains Dan Teknologi
UIN Malang**



 **GreenTech**

PREFACE
DEAN OF SCIENCE AND TECHNOLOGY FACULTY
STATE ISLAMIC UNIVERSITY MAULANA MALIK IBRAHIM MALANG

We are pleased to welcome all participants to the 2021 11th International Conference on Green Technology (ICGT 2021) in the Faculty of Science and Technology, Universitas Islam Negeri Maulana Malik Ibrahim Malang, although we can only meet virtually. The main topic of the conference is “*Optimizing Technology for Sustaining Productivity during Covid 19*”. Right now, we are still recovering from a pandemic that hit us hard. Thus, we hope through this conference we can contribute our research in recovering global condition. We hope this conference can bring academic scientists, engineers, industry researchers together to discuss, exchange, and share their experiences and research results about green technology, especially in sustaining productivity during the pandemic era.

We want to thank:

1. Rector and Vice-Rectors of Universitas Islam Negeri Maulana Malik Ibrahim for their assistance and support for the 11th International Conference on Green Technology.
2. Science and Technology Faculty vice-Deans for supporting The 11th International Conference on Green Technology.
3. All the keynote speakers who willingly attended this conference.
4. Academic board committee for work in abstract and paper review.
5. The event organizing committee for managing this conference.
6. Special Thanks to the Journal of Islamic Architecture, ALCHEMY Journal of Chemistry, NEUTRINO Journal, CAUCHY, and MATICS for supporting this conference.

We wish all participants of the 11th International Conference on Green Technology get an enjoyable scientific virtual meeting. We look forward to seeing all of you next year at the 12th International Conference on Green Technology.

Dean of Faculty of Science and Technology
UIN Maulana Malik Ibrahim Malang

Dr. Sri Harini

PREFACE

Chairperson of The 11th International Conference On Green Technology

Dear Colleagues,

We have the pleasure to welcome you to the 11th International Conference on Green Technology 2021. The conference is annually organized by Science and Technology Faculty, State Islamic University Maulana Malik Ibrahim. We hope through this event we can exchange and explore the issues, innovations, and integrated perspectives towards environmental sustainability.

The emergence of science and technology has offered solutions for daily life's problems in the modern era, including the covid-19 pandemic. The Covid-19 pandemic ultimately evolves our life patterns, from how companies work to accomplishing our daily activities while adhering to the health protocols. However, research revealed across the economy, productivity tends to be stable and even more, increase. This happens at the cost of innovations in the science and technology field. Therefore, it is not too much to say that the Covid-19 pandemic makes room for innovations and research in science and technology.

Concerning this, we set "Optimizing Technology for Sustaining Productivity during Covid-19" as the main topic of the 11th International Conference of Green Technology (ICGT). The 11th ICGT will be held on 26th October 2021.

This booklet contains the abstracts of contributions presented at the conference, either as a keynote speaker or oral presentation.

Finally, I would like to thank the Rector and Vice-Rectors of UIN Maulana Malik Ibrahim Malang for supporting this event. And thanks to Dean and Vice-Deans for the guidance and support for this event. And also for all the committee who helped in the organization of this conference, big thanks to all of you.

Johan E.W. Prakasa

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Time (GMT+7)	AGENDA
<i>Oct, 26 2021</i>	<i>The 11th International Conference on Green Technology</i>
07:30 - 08:00	Registration & Technical Check
08:00 - 08:15	Opening Ceremony
08:15 - 08:45	Welcome Speech by Rector of UIN Maulana Malik Ibrahim Malang Welcome Speech by Dean of Science and Technology Faculty
08:45 – 09:00	Opening Prayer
09.10-09.50	Speaker 1 Session (Dr. Sakinah Ali Pitchay - Universiti Sains Islam Malaysia.)
09.50-10.30	Speaker 2 Session (Dr. Dian Indrayani Jambari – Universiti Kebangsaan Malaysia)
10.30-11.10	Speaker 3 Session (Ismail Fahmi, Ph.D- UII Yogyakarta)
11.10-11.50	Speaker 4 Session (Prof. Dr. Eng. Kuwat Triyana, M.Si - Univ. Gajah Mada)
11:50 - 12:15	Main event closing
12:15 - 13:00	Break
12:45 - 13:15	Preparation & Technical Check
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	<u>Parallel Session Room 5:</u> Submission ID: 54, 108, 84, 64, 66, 44, 146, 147
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	92	Toxicity Test and Identification of Steroid Isolates Fraction n-Hexane from Sonication Extraction with Methanol Solution in Microalgae of <i>Chlorella</i> sp.	Jeffry Anggatra Kuntha Asmara
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GRAFTING ENGINEERING OF HYDROGEL MICROCOMPOSITE MATERIALS OBTAIN FROM BAGASSE CASSAVA WASTE CELLULOSE FACTION RESIDUAL**Heri Satria¹, Renny Andreia Antika², Kamisah D. Pandiangan³, Nurhasanah⁴, Aspita Laila⁵**^{1,2,3,4,5}Departement of Chemistry, FMIPA University of Lampung, Bandar Lampung, Indonesiae-mail: ¹heri.satria@fmipa.unila.ac.id

Numbers of Indonesian medicinal raw materials importing continue to increase recently, so efforts are needed to utilize natural resources to substitute these types of imported medicinal raw materials. This research was developed to utilize cellulose contain in cassava solid waste residue processed into microcrystalline-cellulose. Furthermore, the cellulose is used as a hydrogel composite material with grafting modification between micro-cellulose and polyacrylamide, which can be used as raw material for medicinal preparations. The cellulose purification method was conducted by conventional heating procedures and partial acid hydrolysis by using dilute H₂SO₄. Ultrasonication with a frequency of 40 KHz for 60 minutes was applied to produce microcrystalline cellulose. Furthermore, this material was cross-linked with N,N-methylene-bis-acrylamide to produce a hydrogel micro-composite. Characterization was carried out by analysis using Fourier Transform Infrared Spectroscopy (FTIR) and Scanning Electron Microscope (SEM). This research succeeded in obtaining 1.190 m micro-crystalline in the form of a white powder. The cross-linking reaction was successfully carried out by obtaining a hydrogel which has the swelling ability of 18 times with a swelling percentage of 1716,18%. Analysis micro-composite using a FTIR instrument showed several absorption areas at 1654 cm⁻¹ indicated the reading of the C=O group and 3190 cm⁻¹ signed the N-H stretching reading which indicated that the crosslinking process for the monomer was successful. Using a concentration of 600 g/mL amoxicillin in the loading the hydrogel micro-composite material obtained, it was able to significantly inhibit the growth of *Escherichia coli* and *Staphylococcus aureus*. This study shows the potential of cassava waste as a material that can be used for medicinal raw materials.

Keywords: *Cassava peel; grafting; microcomposite hydrogel; medicinal raw materials*