

2021

Book of Abstracts

of The 11th International Conference
on Green Technology

p-ISSN: 2580-7080 | e-ISSN: 2580-7089



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

EVENTS AGENDA

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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SUPPORTED BY :



MATICS
Jurnal Ilmu Komputer dan Teknologi Informasi
(Journal of Computer Science and Information Technology)
Department of Computer Science - Faculty of Science and Technology - Universitas Islam Negeri Maulana Malik Ibrahim

Accredited SINTAS
p-ISSN : 1978-161X
e-ISSN : 2477-2550



Journal of
Islamic Architecture

ISSN print: 2086-2636
ISSN online: 2336-4644



CAUCHY
Jurnal Matematika Murni dan Aplikasi

p-issn : 2086 - 0382
e-issn : 2477 - 3344



NEUTRINO
Jurnal Fisika dan Aplikasinya

EISSN:2460-5999 ISSN: 1979-6374



ALCHEMY
Journal of Chemistry

e ISSN 2460-6871



El-Hayah
Jurnal Biologi

e-ISSN: 2657-0726
p-ISSN: 2086-0064
Available at:
<http://ejournal.uin-malang.ac.id/index.php/bio/index>

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FRACTIONATION AND ACTIVITY TEST OF 4-VINYLPYRIDINE OLIGOMER AS ORGANIC CORROSION INHIBITORS OF MILD STEEL IN BRINE SOLUTION SATURATED CARBON DIOXIDE (CO₂) MEDIUM**Ilim¹, L. Hidayah², S. Bahri³, R. Marjunus⁴, W. Simanjuntak⁵**^{1,3,5}Department of Chemistry, the University of Lampung, Bandar Lampung, Indonesia²Graduate Student of Department of Chemistry, the University of Lampung, Bandar Lampung, Indonesia⁴Department of Physic, Faculty of Mathematics and Natural Sciences, the University of Lampung, Bandar Lampung, Indonesia

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Organic inhibitors offer an environmentally friendly solution, low-cost process, the addition of a small number of ingredients, and can be modified in structures are interesting and challenging. The organic inhibitor 4-vinylpyridine oligomer, O(4-VP) was classified based on its molecular weight through a fractionation process using Sephadex LH-20 as the stationary phase and methanol as the solvent in a separation column, then each fraction was characterized using Thin Layer Chromatography (TLC), Fourier Transform Infra-Red (FTIR) spectrophotometer, and estimated molecular weight of each fraction based on mass spectroscopy (MS) data from O(4-VP). Then, its activity was tested as a corrosion inhibitor of mild steel in medium corrosive brine solution saturated with CO₂ using the weight loss method, Electrochemical Impedance Spectroscopy (EIS) method, and the Tafel Plot method, each method using an inhibitor concentration of 150 ppm at temperature 50°C. Surface analysis on mild steel was observed using a Scanning Electron Microscope-Energy Dispersive X-Ray (SEM-EDX). The results showed that the fractionation produced 5 fractions, namely F1, F2, F3, F4, and F5. The fraction that has the highest activity as a corrosion inhibitor based on the weight loss method is F2, the EIS method is F1, while the Tafel method is F3. The results of surface analysis showed that F1 to F4 are able to reduce the corrosion rate, and F5 encouraged corrosion. The activity test stated that the difference in the molecular weight of the O(4-VP) fraction affected its ability to inhibit the corrosion rate, as evidenced by the difference in the percent protection (%P) of each fraction.

Keyword: 4-vinylpyridine oligomer; organic corrosion inhibitor; fractionation; sephadex-LH 20