GreenTech

2019
Book of Abstracts

10th International Conference on Green Technology 2019

Empowering the 4.0 Industrial Revolution Through Green Science and Technology

Malang, October 2nd- 3rd, 2019

Organized by :

IOP Conference Series Materials Science and Engineering

ALCHEMY Journal of Chemistry

CAUCHY Jurnal Matematika Murni dan Aplikasi

JURNAL NEUTRINO Jurnal Fisika dan Aplikasinya

MATICS Jurnal Ilmu Komputer dan Teknologi Informasi

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PREFACE

THE DEAN OF FACULTY OF SCIENCE AND TECHNOLOGY

UNIVERSITAS ISLAM NEGERI MAULANA MALIK IBRAHIM MALANG

It is our pleasure to very warm welcome all participant to the 2019 10th International Conference on Green Technology (ICGT 2019) in Faculty of Science and Technology, Universitas Islam Negeri Maulana Malik Ibrahim Malang. The ICGT have started ten years ago and this year, the theme of the conference is "*Empowering the Fourth Industrial Revolution through Green Science and Technology*". Now, we are entering the fourth industrial revolution which will influence all aspect in the civilization of humankind. Thus, we hope through this conference we can contribute by the result of green science and technology in Empowering the Fourth Industrial Revolution through Green Science and Technology. And also, 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.

We would like to thank:

1. Rector and Vice-Rector of Universitas Islam Negeri Maulana Malik Ibrahim for their assistance and support for 10th International Conference on Green Technology.
2. Academic board committee for work in abstract and paper review.
3. The event organizing committee for managing this conference.
4. All the keynote speaker who willingly attended this conference.
5. Special Thanks to IOP Conference Proceeding Series, Journal of Islamic Architecture, ALCHEMY Journal of Chemistry, NUTRINO Journal, CAUCHY, and MATICS.

We wish all participants of 10th ICGT an enjoyable scientific meeting in Malang, Indonesia. We look forward to seeing all of you next year at 11th ICGT

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

Dr. Sri Harini

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Catalytic Performance of Hierarchical ZSM-5 Synthesized from Sugarcane Bagasse Ash in Transesterification Reaction of Coconut Oil for Biodiesel Production

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The catalytic performance of hierarchically porous ZSM-5 (Zeolite Secony Mobile-5) prepared using silica extracted from bagasse ash in the transesterification of coconut oil into biodiesel has been carried out. The silica was extracted from bagasse ash using NaOH solution and subsequently crystallized using the Solid State Conversion (SSC) method to produce pore hierarchical ZSM-5. The catalytic activity of the zeolite was evaluated through a series of transesterification reactions at varied experimental conditions including reaction time, the ratio of methanol to oil, and the amount of catalyst. The results show that bagasse ash silica is amorphous and can crystallize to produce a hierarchical pore ZSM-5 at 170 °C for 48 h. Transesterification experiments demonstrated that the zeolite is able to convert coconut oil with a yield of 88% with a reaction time of 2 h, 1: 9 oil to methanol ratio and 9% catalyst amount. This achievement suggests that sugarcane pulp has the potential as a source of silica for development of advanced material, to support development of energy sources in the future.

Keywords: silica, sugarcane bagasse ash, hierarchical ZSM-5, transesterification, biodiesel

CERTIFICATE

NO: 2821/FST/PP.09/10/2019

This certificate is hereby awarded to:

MITA RILYANTI

Our sincerest gratitude for your contribution as

Poster Presenter

during the conduct of

INTERNATIONAL CONFERENCE ON GREEN TECHNOLOGY

"Empowering the 4.0 Industrial Revolution through Green Science and Technology"

Held on October 2th - 3rd, 2019 at Savana Hotel & Convention Malang, East Java, Indonesia

Chairperson

Green Tech
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Rachmawati Ningsih, M.Si

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