



# **Book of Abstracts**

## **ICASMI**

**3<sup>rd</sup> International  
Conference on  
Applied Science  
Mathematics  
and Informatics**



**“Natural Sciences,  
Mathematics and Informatics in  
Industri Revolution (IR) 4.0 Toward  
The Sustainable Development Goals  
(SGDs)”**

# **2020**

**Faculty of Mathematics and Natural Sciences  
University of Lampung**

## Introduction

The 3<sup>rd</sup> International Conference on Applied Science,  
Mathematics, and Informatics (ICASMI)

Bandar Lampung, 3-4 September 2020

Faculty of Mathematics and Natural Sciences, University of Lampung (FMIPA, UNILA) is honored and proud to organize the 3<sup>rd</sup> International Conference on Applied Science, Mathematics, and Informatics (ICASMI). The theme of the conference is theme "Natural Sciences, Mathematics and Informatics in the Industrial Revolution (IR) 4.0 toward the Sustainable Development Goals (SDGs)."

ICASMI is a biennial event with the aims to bring together international and local scientists, researchers, academicians, also students for sharing their research, exchanging ideas, networking, opening collaboration research. Even in the covid19 pandemic, ICASMI is still held this year. This year, all conference will be held online.

The Keynote speakers are competent in their filed of study. They come from different countries, such as, Japan, Malaysia, Turkey and Indonesia. This conference will provide an opportunity for presenters to present their

current research and results, and also for participants to learn up-to-date topics and researches in their field of study.

Best wishes and we welcome you to the 3<sup>rd</sup> ICASMI held in Bandar Lampung, Indonesia.

*Organized by*

Faculty of Mathematics and Natural Sciences,  
University of Lampung (FMIPA, UNILA)

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# BIOGASOLINE PRODUCTION BY ZEOLITE-A CATALYZED CO-PYROLYSIS OF TORREFIED CASSAVA ROOT AND PALM OIL

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## ABSTRACT

In this study, cassava root was subjected to torrefaction pretreatment prior to catalytic pyrolysis, with the main objective to investigate the effect of torrefaction time on chemical composition of bio crude oil (BCO) distillate resulted. For this purpose, the root was torrefied at 200°C for 30, 60, 90, and 120 minutes. The torrefied samples were then mixed with palm oil and then pyrolyzed at 450°C in the presence of zeolite-A, prepared from rice husk silica (RHS) and food grade aluminum foil, as catalyst. A sample without torrefaction was pyrolyzed in a similar condition for comparison. The bio-crude oil (BCO) obtained was distilled at 150°C, and the chemical composition of the distillate was determined using gas chromatography-mass spectrometry (GC-MS) method. The components of the distillates produced from torrefied samples are composed of mainly C<sub>6</sub>-C<sub>13</sub> hydrocarbons, which are considered as biogasoline, while that produced from the sample without torrefaction was found to contain ketone in addition to hydrocarbon. The experimental results also demonstrate that the chemical compositions of the BCO distillates produced from the samples torrefied at 30, 60, and 90 minutes are not significantly different, but significantly different composition was observed for the sample torrefied at 120°C.

**keyword :** torrefaction, cassava root, pyrolysis, zeolite-A, bio-crude oil, biogasoline