



Book of Abstracts

ICASMI

**3rd 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

Introduction

The 3rd 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 3rd 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 3rd ICASMI held in Bandar Lampung, Indonesia.

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





Transesterification of coconut oil (*Cocos nucifera* L.) into biodiesel using zeolite-A catalyst based on rice husk silica and aluminum foil

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ABSTRACT

In this research, zeolite-A was synthesized by hydrothermal method using silica of rice husk and aluminum foil as raw materials. For zeolite preparation, a particular amount of silica was dissolved in NaOH solution which is then aged with variation time of 24-96 hours, the mixed solution was then added with aluminum foil and again aged for 24 hours, the crystallization process was carried out in an oven of 100 °C 96 hours. The resulting zeolite was then calcined at 550 °C for 6 hours. The zeolite characterization by XRD showed that zeolite-A had been formed and had characteristics following the zeolite-A standard from IZA. The resulting zeolite-A has good crystallinity as indicated by the sharp peaks on the resulting diffractogram. The zeolite-A catalytic test on transesterification of coconut oil showed high catalyst performance, characterized by the conversion of fatty acids in coconut oil to methyl esters with 100% conversion percent. The formation of the methyl ester was proven based on the results of the analysis with FTIR and GCMS which showed the characteristics of methyl ester at wavenumbers 1744 cm^{-1} (C=O), 2922 cm^{-1} (C-H), 1170 cm^{-1} (C-O), with the highest percentage in the form of methyl laurate at 31.80%.

keyword : zeolite-A, hydrothermal, transesterification, biodiesel