



# **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

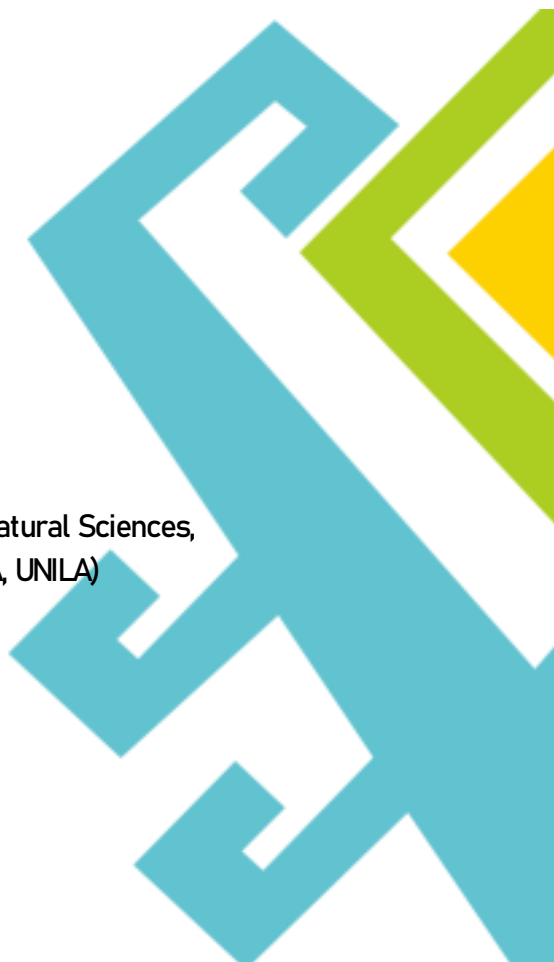
current research and results, and also for participants to learn up-to-date topics and researches in their field of study.

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

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## The use of MgO/SiO<sub>2</sub> as catalyst for transesterification of rubber seed oil with different alcohols

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### ABSTRACT

In principle, biodiesel production relies on the transesterification reaction of fatty acids contained in vegetable oil or waste rich in fatty acids with short-chain alcohols with the help of a catalyst. The purpose of this study was to obtain information about the most suitable alcohol for the transesterification of rubber seed oil into biodiesel. In this study, the transesterification of rubber seed oil was carried out with three different types of short-chain alcohols, namely methanol, ethanol, and 2-propanol. Each alcohol was used with a ratio of 3:1 to oil and transesterification was carried out in the presence of MgO/SiO<sub>2</sub> catalyst with an amount of 10% (by weight of catalyst/volume oil) at 70 °C for 6 h. Transesterification products were analysed using Gas chromatography-mass spectrometry (GC-MS) analysis to confirm the conversion of fatty acids in the oil into esters. The results showed that the reactivity of alcohols is in the order of methanol > ethanol > 2-propanol with the percentages of conversion of oil to esters are 90, 73, and 63%, respectively. These results indicate that methanol is the most suitable alcohol for transesterification of rubber seed oil.

**keyword :** MgO/SiO<sub>2</sub> catalyst, transesterification, rubber seed oil, biodiesel, alcohols