



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
University of Lampung**

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)

Book of Abstracts | iii





Pyrolytic Conversion of Palm Oil into Using Protonated Zeolite-X Prepared from Rice Husk Silica and Aluminum Foil as Catalyst

T D Febriyanti¹, W Simanjuntak^{2*}, K D Pandiangan²

¹ Postgraduate Student of Chemistry Department, University of Lampung, Jl. Sumantri Brodjonegoro no 1, Bandar Lampung 35145, Indonesia

² Department of Chemistry, Faculty of Mathematics and Natural Sciences, University of Lampung, Jl. Sumantri Brodjonegoro no 1, Bandar Lampung 35145, Indonesia

corresponding email: wasinton.simanjuntak@fmipa.unila.ac.id*
email: tikadwifebriyanti16@gmail.com¹, kamisah.delilawati@fmipa.unila.ac.id²

ABSTRACT

Zeolite-X was successfully synthesized based on silica of rice husk and aluminum foil with the variation of sodium silicate aging time of 24, 48, 72, and 96 hours with a crystallization time of 96 hours as evidenced by XRD analysis with a 2θ angle peak diffractogram pattern similar to the IZA standard. Zeolite-X with sodium silicate aging time of 24 hours is the best zeolite-X with XRF analysis with components Na_2O 0.436%, Al_2O_3 33.933%, and SiO_2 65.631%, and the SEM surface morphology shape crystal is homogeneous cubes. Protonated zeolite-X or zeolite H-X has been successfully synthesized through the ion exchange process of zeolite-X with 2M NH_4NO_3 solution which has been proven by XRF analysis to reduce Na_2O from 0.436% to 0.179%. Zeolite-X and zeolite H-X have the same 2θ angle diffractogram pattern. In SEM analysis, the surface morphology of zeolite H-X has a formless surface morphology. Zeolite H-X was applied in pyrolysis experiments using palm oil to produce liquid fuel. Liquid fuel was analyzed by GC-MS with components 77% hydrocarbon, 16% acid, and 7% ketones.

keyword : zeolite-X, zeolite H-X, pyrolysis, liquid fuel.