



# **SICEST** **2018**

**SRIWIJAYA INTERNATIONAL CONFERENCE ON  
ENGINEERING, SCIENCE & TECHNOLOGY**

**Aryaduta Hotel - Palembang, Indonesia**

**October 15 - 16, 2018**

***"Advanced Research and Development Towards Industrial Revolution 4.0"***

# **PROGRAM BOOK**

## PARALLEL SESSIONS SUBTOPIC: Chemical Science and Engineering

### Meeting Room 3 - 15 October 2018 (14.00 – 16.45)

No.	Time	Paper ID	Title	Authors	Affiliation
1	14.00 – 14.15	1570477169	Microwave Assisted ZnCl <sub>2</sub> Activation of Salacca Peel Derived Activated Carbons as Adsorbents for Cu(II) Removal from Aqueous Solution	Arenst Arie	Parahyangan Catholic University Indonesia
2	14.15 – 14.30	1570482890	Monoglyceride and Monoglyceride Derivatives from Glycerol Generated in Catfish Based Biodiesel Production Process	Hue Bui, Jr	Can Tho University
3	14.30 – 14.45	1570487886	Utilization of PT. HOK TONG Liquid Waste Rubber Industry in Making of Liquid Organic Fertilizer with Addition of Eceng Gondok and EM4 (EFFECTIVE MICROORGANISM 4)	Farida Ali	Sriwijaya University
4	14.45 – 15.00	1570491342	Ultrafiltration of Oil-In-Water Emulsion Stabilized with Surfactant	Nita Aryanti	Diponegoro University
5	15.00 – 15.15	1570491485	Treatment of Batik Wastewater Using Plant Derived Surfactant-Enhanced Ultrafiltration Membrane	Aininu Nafiunisa, Nita Aryanti, Luli Irmalasari, Dyah Wardhani, Iin Nisa	Diponegoro University
6	15.15 – 15.30	1570492774	Electrodecolorization of Remazol Violet with Graphite Electrodes: Application of Statistical Designs and Regression Analysis	Siti Fatimah, Wiharto Wiharto, Rois Fatoni	Pabelan Kartosuro Surakarta, Universitas Muhammadiyah Surakarta, Universitas Sebelas Maret

(1570477169)

**Microwave Assisted ZnCl<sub>2</sub> Activation of Salacca Peel Derived Activated Carbons as Adsorbents for Cu(II) Removal from Aqueous Solution**

Arenst Arie

Parahyangan Catholic University, Indonesia  
Corresponding email: arenst@unpar.ac.id

In this present study, salacca peel based activated carbons (SPAC) were prepared by microwave assisted ZnCl<sub>2</sub> activation method. The effects of microwave power, activation time and impregnation ratio on the characteristics of activated carbon were studied. The activated carbons were characterized by N<sub>2</sub> adsorption-desorption and scanning electron microscopy (SEM) instruments. The BET surface area of 1796 m<sup>2</sup>/g were obtained at a microwave power of 540 W, activation time of 25 minutes with an impregnation ratio (ZnCl<sub>2</sub>:salacca peel) of 4:1. The resulting activated carbon was used for removal of Cu(II) from aqueous solution. The prepared activated carbons were then used as adsorbents for removing Cu(II) metal ions from aqueous solutions. The adsorption equilibrium was investigated using Langmuir, and Freundlich model equations. It was found that the adsorption equilibrium data followed the Langmuir isotherm equations with maximum capacity of 1262.62 mg Cu(II)/g SPAC at room temperature. The adsorption kinetics were also studied using the pseudo first order, pseudo second order and intraparticle diffusion models. The adsorption kinetics was shown to fit well with the pseudo second-order kinetic model.

(1570482890)

**Monoglyceride and Monoglyceride Derivatives from Glycerol Generated in Catfish Based Biodiesel Production Process**

Hue Bui, Jr

Campus II, 3/2 Street, Ninh Kieu, Can Tho, Vietnam  
Corresponding email: btbhue@ctu.edu.vn

Glycerol is a major byproduct in the biodiesel manufacturing process which causes environmental problem since glycerol cannot be released without treatment. In this study, crude glycerol was refined into a pure form by using phosphoric acid. Esterification of the purified glycerol with oleic acid afforded glycerol monooleate in 43% yield using p-toluenesulfonic acid as a catalyst. The obtained glycerol monooleate was then allowed to react with lactic acid, acetic acid or diacetyl tartaric acid to provide the corresponding lactylated, acetylated or diacetyl tartarylated glycerol monooleate, respectively, in reasonable yields. These ester derivatives of monoglycerides have been known to be the most commonly used food surfactants.

(1570487886)

**Utilization of PT. HOK TONG Liquid Waste Rubber Industry in Making of Liquid Organic Fertilizer with Addition of Eceng Gondok and EM4 (EFFECTIVE MICROORGANISM 4)**

Farida Ali

Sriwijaya University of Palembang, Indonesia  
Corresponding email: faridaali@ft.unsri.ac.id

The liquid waste of the rubber industry is currently not fully utilized, whereas the industrial rubber waste is the nutrient needed by plants, especially nitrogen (N), phosphate (P<sub>2</sub>O<sub>5</sub>), and potassium (K<sub>2</sub>O). The presence of macro nutrients contained in the liquid waste of rubber industry is expected to be an alternative material for the manufacture of liquid compost. Water hyacinth is a plant that also contains a good macro nutrients for plants, so it can be used as an additional material to improve the nutrient elements of liquid compost fertilizer. This research aims to know the utilization of industrial rubber waste in the manufacture of liquid compost fertilizer with the addition of water hyacinth and EM4. The method used in making this liquid organic fertilizer was anaerobic fermentation process. The variables studied were addition of water hyacinth and volume of EM4 added. The results of fermentation were analyzed to obtain data of percentage of nitrogen, phosphate, and potassium content. Obtained results of liquid compost fertilizer, with the largest nitrogen content is 1.6% found in EM4 25 mL and water hyacinth 30 gr, the highest percentage of Phosphate 0.160% found in liquid compost fertilizer with addition of water hyacinth as much as 20 gr and EM4 25 mL, highest percentage of Potassium equal to 0.358% is found in water hyacinth as much as 25 gr and EM4 25 mL.