International Conference on Chemical and Bioprocess Engineering 2015

IOP Conference Series: Earth and Environmental Science

Volume 36

Kota Kinabalu, Malaysia 9 – 12 December 2015

Editors:

Awang Bono Chu Chi Ming Tham Heng Jin Noor Maizura Ismail Zykamilia Kamin

ISBN: 978-1-5108-2615-1

ISSN: 1755-1307

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2015) by the Institute of Physics All rights reserved. The material featured in this book is subject to IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact the Institute of Physics at the address below.

Institute of Physics Dirac House, Temple Back Bristol BS1 6BE UK

Phone: 44 1 17 929 7481 Fax: 44 1 17 920 0979

techtracking@iop.org

Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA

Phone: 845-758-0400 Fax: 845-758-2633

Email: curran@proceedings.com Web: www.proceedings.com

Table of contents

Volume 36

International Conference on Chemical and Bioprocess Engineering 9–12 December 2015, Kota Kinabalu, Malaysia

Published online: 27 June 2016

Preface

011001
OPEN ACCESS
International Conference on Chemical and Bioprocess Engineering

Rosalam Sarbatly, Awang Bono, Chu Chi Ming, Tham Heng Jin, Noor Maizura Ismail and Zykamilia Kamin

011002 OPEN ACCESS Peer review statement

Papers

Oil & Gas

012001 OPEN ACCESS

Characterization of Malaysian coals for carbon dioxide sequestration

M Abunowara, M A Bustam, S Sufian and U Eldemerdash.....1

OPEN ACCESS

<u>Performance evaluation of carbon dioxide-alkanolamine- water system by equation of state/excess Gibbs energy models</u>

H Suleman, A S Maulud and Z Man....9

012003

OPEN ACCESS

Solubility prediction of carbon dioxide in water by an iterative equation of state/excess Gibbs energy model

H Suleman, A S Maulud and Z Man....15

012004

OPEN ACCESS

Synthesis and characterization of supported sugar catalyst by dip coating method

J Janaun, N J Siambun and N N Safie.....21

012005

OPEN ACCESS

Physical explosion analysis in heat exchanger network design

M Pasha, D Zaini and A M Shariff.....29

012006

OPEN ACCESS

<u>Preparation and characterization of Polyacrylonitrile/ Manganese Dioxides- based Carbon</u> Nanofibers via electrospinning process

F E Che Othman, N Yusof, J Jaafar, A F Ismail, H Hasbullah, N Abdullah and M S Ismail.....36

012007

OPEN ACCESS

The incorporation of graphene oxide into polysulfone mixed matrix membrane for CO₂/CH₄ separation

K Zahri, P S Goh and A F Ismail.....43

OPEN ACCESS

Effect of evaporation time on cellulose acetate membrane for gas separation

W N R Jami'an, H Hasbullah, F Mohamed, N Yusof, N Ibrahim and R R Ali.....50

012009

OPEN ACCESS

Effect of coagulant bath on the gas permeation properties of cellulose acetate asymmetric membrane

F. Mohamed, H. Hasbullah, W. N. R. Jami'an, W. N. H. W. Salleh, N. Ibrahim and R. R. Ali.....56

012010

OPEN ACCESS

<u>The impedance characterization of Carbon Nanotubes - Fumed Silica Poly (vinyl alcohol)</u>
<u>Composites</u>

R N Othman and A N Wilkinson.....62

012011

OPEN ACCESS

Prediction aluminum corrosion inhibitor efficiency using artificial neural network (ANN)

Sh Ebrahimi, E G Kalhor, S R Nabavi, L Alamiparvin and R Pogaku.....69

012012

OPEN ACCESS

Reliability analysis on a shell and tube heat exchanger

S Lingeswara, R Omar and T I Mohd Ghazi.....76

012013

OPEN ACCESS

Flipping organic chemistry course: Possibilities and challenges

J Cha and H B Kim.....87

OPEN ACCESS

<u>Development and performance evaluation of Polydimethyl siloxane/Polysulfone</u> (PDMS/PSF) composite membrane for CO₂/CH₄ separation

M S Suleman, K K Lau and Y F Yeong.....94

012015

OPEN ACCESS

Morphological analysis of Polyethersulfone/polyvinyl Acetate blend membrane synthesized at various polymer concentrations

S H A A Hadi, H A Mannan, H Mukhtar, M S Shaharun and T Murugesan.....100

012016

OPEN ACCESS

Polymer blend membranes for CO₂ separation from natural gas

H Mukhtar, H A Mannan, D Minh, R Nasir, D F Moshshim and T Murugesan.....106

Waste

012017

OPEN ACCESS

Anaerobic digestion of wastewater screenings for resource recovery and waste reduction

N Wid and N J Horan....112

012018

OPEN ACCESS

Enhancement of activated sludge disintegration and dewaterability by Fenton process

G C Heng and M H Isa....119

012019

OPEN ACCESS

Synthesis, Characterization, and Catalytic Activity of Sulfonated Carbon-Based Catalysts
Derived From Rubber Tree Leaves and Pulp and Paper Mill Waste

J Janaun, E Sinin, S F Hiew, A M T Kong and F A Lahin.....125

012020 OPEN ACCESS

Adsorption study of Ammonia Nitrogen by watermelon rind

A Ibrahim, L Yusof, N S Beddu, N Galasin, P Y Lee, R N S Lee and A Y Zahrim.....133

012021

OPEN ACCESS

Adsorption isotherm of non-azeotropic solution onto porous adsorbents

A Bono, N A Ramlan, S M Anisuzzaman, C M Chu and Y Y Farm....139

012022

OPEN ACCESS

Development of carbon dioxide adsorbent from rice husk char

S Abang, J Janaun, S M Anisuzzaman and F S Ikhwan....146

012023

OPEN ACCESS

<u>Highly sensitive determination of sunset yellow FCF (E110) in food products based on Chitosan/Nanoparticles/MWCNTs with modified gold electrode</u>

K Rovina, S Siddiquee and S M Shaarani.....155

012024

OPEN ACCESS

Effect of titania nanotubes on the flux and separation performance of polyethersulfone membranes

M N Subramaniam, P S Goh, A F Ismail and W J Lau.....162

012025

OPEN ACCESS

Decolourisation of palm oil mill biogas plant wastewater using Poly-Diallyldimethyl Ammonium Chloride (polyDADMAC) and other chemical coagulants

A Y Zahrim and Z D Dexter.....167

012026 OPEN ACCESS

Preliminary studies on immobilization of lipase using chicken eggshell

S Salleh, N A Serri, S Hena and H A Tajarudin.....173

012027

OPEN ACCESS

The potential of papaya leaf extract in controlling *Ganoderma boninense*

Z H Tay and K P Chong.....179

012028

OPEN ACCESS

Fruit waste adsorbent for ammonia nitrogen removal from synthetic solution: Isotherms and kinetics

AY Zahrim, Y Lija, L N S Ricky and I Azreen....186

012029

OPEN ACCESS

A review on palm oil mill biogas plant wastewater treatment using coagulation-ozonation

Z D Dexter, C G Joseph and A Y Zahrim....192

012030

OPEN ACCESS

Polishing of POME by Chlorella sp. in suspended and immobilized system

F A Lahin, R Sarbatly and E Suali.....197

012031

OPEN ACCESS

A preliminary study for removal of heavy metals from acidic synthetic wastewater by using pressmud-rice husk mixtures

H Ahmad, C J Ee and N S Baharudin....207

OPEN ACCESS

Water desalination by air-gap membrane distillation using meltblown polypropylene nanofiber membrane

S Rosalam, C K Chiam, S Widyaparamitha, Y W Chang and C A Lee....215

Biomass & Biofuels

012033

OPEN ACCESS

<u>Characterisation of crude palm oil O/W emulsion produced with Tween 80 and potential</u> in residual oil recovery of palm pressed mesocarp fibre

N H Ramly, R Zakaria and M N Naim.....221

012034

OPEN ACCESS

A review on the cords & plies reinforcement of elastomeric polymer matrix

S S Mahmood, H Husin, M.S. Mat-Shayuti and Z Hassan.....229

012035

OPEN ACCESS

Numerical prediction of kinetic model for enzymatic hydrolysis of cellulose using DAE-QMOM approach

N M Jamil and Q Wang.....236

012036

OPEN ACCESS

The study of solid circulation rate in a compartmented fluidized bed gasifier (CFBG)

S K Wee, Y W Pok, M C Law and V C C Lee.....242

012037

OPEN ACCESS

<u>Characteristics of post-impregnated SBA-15 with 12- Tungstophosphoric acid and its</u> correlation with catalytic activity in selective esterification of glycerol to monolaurate

P Y Hoo and A Z Abdullah....249

OPEN ACCESS

An overview of oil palm biomass torrefaction: Effects of temperature and residence time

N Yaacob, N A Rahman, S Matali, S S Idris and A B Alias....257

012039

OPEN ACCESS

Synthesis and characterization of metal oxide promoted alumina catalyst for biofuel production

S M Anisuzzaman, D Krishnaiah, A Bono, S Abang, M Sundang, E Suali, F A Lahin and A Shaik Alawodeen.....262

012040

OPEN ACCESS

Polyhydroxyalkanoates production from waste biomass

A K H Nor Aslan, M D Mohd Ali, N A Morad and P Tamunaidu.....269

012041

OPEN ACCESS

Comparative studies on the alcohol types presence in Gracilaria sp. and rice fermentation using Sasad

R Mansa, H Mansuit, C S Sipaut, C F Yee and S M Yasir....275

012042

OPEN ACCESS

Hydrothermal pre-treatment of oil palm empty fruit bunch into fermentable sugars

M D Muhd Ali, P Tamunaidu, A K H Nor Aslan, N A Morad, N Sugiura, M Goto and Z Zhang.....281

012043

OPEN ACCESS

Correlation study of microalgae carbonation in membrane integrated photobioreactor

E Suali, R Sarbatly, S R M Shaleh, F A Lahin and S M Anisuzzaman.....288

OPEN ACCESS

<u>Investigation on the quality of bio-oil produced through fast pyrolysis of biomass-polymer waste mixture</u>

S A Jourabchi, H K Ng, S Gan and Z Y Yap.....301

012045

OPEN ACCESS

Hot compressed water extraction curve for palm oil and beta carotene concentration

M S M Sharizan, M N Azian, Y Yoshiyuki, A A M Kamal and M A Che Yunus.....306

012046

OPEN ACCESS

Metabolomics-based prediction models of yeast strains for screening of metabolites contributing to ethanol stress tolerance

Z Hashim and E Fukusaki.....312

012047

OPEN ACCESS

Simulation of air velocity in a vertical perforated air distributor

T N W Ngu, C M Chu and J A Janaun....324

Environment

012048

OPEN ACCESS

Peroxidase extraction from jicama skin peels for phenol removal

T Chiong, S Y Lau, E H Khor and M K Danquah.....331

012049

OPEN ACCESS

2-[(Hydroxymethyl)amino]ethanol in water as a preservative: Study of formaldehyde released by Taguchi's method

W Wisessirikul, S Loykulnant, S Montha, T Fhulua and P Prapainainar.....339

OPEN ACCESS

Synthesis and characterization of silver-copper core-shell nanoparticles using polyol method for antimicrobial agent

N Hikmah, N F Idrus, J Jai and A Hadi.....345

012051

OPEN ACCESS

Preparation of polyacrylnitrile (PAN)/ Manganese oxide based activated carbon nanofibers (ACNFs) for adsorption of Cadmium (II) from aqueous solution

N Abdullah, N Yusof, J Jaafar, AF Ismail, F E Che Othman, H Hasbullah, W N W Salleh and N Misdan.....352

012052

OPEN ACCESS

Synergistic effect of Cu-doped into CesZrO₂ nanocatalysts

M N A Shah, K N Ismail, J Jai, N Faeqah and A Hadi.....358

012053

OPEN ACCESS

The effect of organic solvent, temperature and mixing time on the production of oil from *Moringa oleifera* seeds

Q Ghazali and N H M Yasin.....365

012054

OPEN ACCESS

Encapsulation of bioactive compound from extracted jasmine flower using β -Cyclodextrin via electrospray

S Rahmam., M N Naim., E Ng., M Nn Mokhtar and N F Abu Bakar.....372

OPEN ACCESS

Ammonia-nitrogen removal from urban drainage using modified fresh empty fruit bunches: A case study in Kota Kinabalu, Sabah

L N S Ricky, Y Shahril, B Nurmin and AY Zahrim.....381

012056

OPEN ACCESS

<u>Design and simulation of heat exchangers using Aspen HYSYS, and Aspen exchanger design and rating for paddy drying application</u>

J Janaun, N H Kamin, K H Wong, H J Tham, V V Kong and M Farajpourlar....387

012057

OPEN ACCESS

Water soluble drug releasing soft contact lens in response to pH of tears

G Kim and H Noh....394

012058

OPEN ACCESS

<u>Use of corn steep liquor as an economical nitrogen source for biosuccinic acid production by Actinobacillus succinogenes</u>

J P Tan, J M Jahim, T Y Wu, S Harun and T Mumtaz.....403

012059

OPEN ACCESS

Measurement techniques for carbon dioxide sorption capacity on various coal samples: critical review

M Abunowara, M A Bustam, S Sufian and U Eldemerdash.....408

012060

OPEN ACCESS

Pollution of PM₁₀ in an underground enclosed loading dock in Malaysia

M S Abualgumboz, N I Mohammed, A Malakahmad, A N Nazif and A T Albattniji.....421

OPEN ACCESS

Effect of temperature on Candida antartica lipase B activity in the kinetic resolution of acebutolol

Mariani Rajin and A H Kamaruddin.....427

012062

OPEN ACCESS

Preliminary studies on the extraction of Glycospanonins in Tongkat Ali extract

S Abirame, K Sivakumar, L S Chua and M R Sarmidi.....433

012063

OPEN ACCESS

Comparison of Moringa Oleifera seeds oil characterization produced chemically and mechanically

N A Eman and K N S Muhamad.....439

012064

OPEN ACCESS

Effect of moisture content and drying method on the amylose content of rice

J Janaun, V V Kong, C G Toyu, N H Kamin, P Wolyna and J S Lee.....446

012065

OPEN ACCESS

A review on intelligent sensory modelling

H J Tham, S Y Tang, K T K Teo and S P Loh.....452

012066

OPEN ACCESS

Sabah snake grass extract pre-processing: Preliminary studies in drying and fermentation

A Solibun and K Sivakumar.....459

012067 OPEN ACCESS

<u>Utilizing steel slag in environmental application - An overview</u>

J W Lim, L H Chew, T S Y Choong, C Tezara and M H Yazdi.....466

012068 OPEN ACCESS

Assessment of biological Hydrogen production processes: A review

G D Najafpour, M H Shahavi and S A Neshat.....473