

Chemical Sciences

Selected peer-reviewed extended papers
abstracts of which were presented at the
4th International Conference on
Chemical Science (ICCS, 2021)

Aggregated Book

Edited by

**Prof. Young Gun Ko, Prof. Yuichi Kamiya,
Prof. Pranut Potiyaraj, Dr. Anna Artati,
Prof. Judeh Zaher, Dr. Bambang Purwono,
Dr. Mardiana Binti Saaid, Dr. Dwi Siswanta, Dr. Roto Roto
and Dr. Muhammad Idham Darussalam Mardjan**



Copyright © 2022 Trans Tech Publications Ltd, Switzerland

All rights reserved. No part of the contents of this publication may be reproduced or transmitted in any form or by any means without the written permission of the publisher.

Trans Tech Publications Ltd
Kapellweg 8
CH-8806 Baech
Switzerland
<https://www.scientific.net>

Volume 3 of
Scientific Books Collection
ISBN 978-3-0364-0021-1

Full text available online at <https://www.scientific.net>

Distributed worldwide by
Trans Tech Publications Ltd
Kapellweg 8
CH-8806 Baech
Switzerland
Phone: +41 (44) 922 10 22
e-mail: sales@scientific.net

Printed with permission by
Curran Associates Inc. (2023)



Additional copies of this
publication are available from:

Web: www.proceedings.com/68391.html

Table of Contents

Preface	v
Committees	vi
Electrogenerated Copper Supported Zinc Oxide for Degradation of 2,4-Dichlorophenol	
N.F. Jaafar, N. Zulkeffli and M.H. Anuar.....	1
Potential Utilization of <i>Brevundimonas diminuta</i> to Reduce Ammonia in Wastewater	
E. Nurisman, M.I. Alkahfi, Y.A. Razikah, R. Rahmatullah, N. Haryani and R. Rosmania	7
Effectiveness Study of Using HAp Milkfish Bone to Synthesize Ag₃PO₄ with Ion-Exchange Method for Methylene Blue Degradation	
M.W. Andriyan, Z. Alfatinnisa, D. Patmala, F.M. Amalia, A. Shinta and A. Subagio.....	14
Contaminants Removal from Wastewater of LFP Batteries Recycling Process Using Adsorption Methods	
S. Nurkhopipah, I. Perdana and A. Prasetya.....	22
Biomass Mediated Green Synthesis of ZnO/TiO₂ Nanocomposite and Enhanced Photocatalytic Activity for the Decolorization of Rhodamine B under Visible Light	
K. Umar and R. Adnan.....	29
Sodium Dodecyl Sulfate Adsorption on Sulfuric Acid-Crosslinked Chitosan/Pectin Polyelectrolyte Complex Film	
S.K. Shanti, N.H. Aprilita and D. Siswanta	36
Polyhydroxyalkanoate Pellets as Novel Immobilization Medium for Phenol Biodegradation by Activated Sludge	
N.H.U.b.M. Aidil, J.Y. Chang, N.N. binti Roslan, K. Sudesh and S.L. Ng	44
Enhancement of Fenton Performance at Near-Neutral pH by Using Ethylene Diamine Tetra Acetic Acid for Anionic Surfactant Removal from a Laundry Wastewater	
E.T. Wahyuni, A. Sabrina and N.H. Aprilita	50
Synthesis of Chalcone Derivatives from Halogenated Vanillin and their Activity Test as Antioxidant	
C. Rijal, W. Haryadi and C. Anwar	56
Removal of Reactive Blue 19 from Aqueous Solution and Batik Wastewater Using Iron Modified Activated Carbon	
N.F.W. Tajudeen, I. Shah, N.U. Saqib, S.S. Imam and R. Adnan.....	63
Incorporation of ZnO Nanoparticle in Starch-Based Edible Coating Matrix for Preservation of Red Globe (<i>Vitis vinifera</i> Linn.)	
L. Mahardiani, L. Fani and E. Susilowati	68
Feasibility Study and Processing Temperature Effect on Recycling of Aluminium-Plastic Package into Solid Fuel	
D.A.S.A. Hamid, C.W. Purnomo and J.S.M. Ahmad	75

Incorporation of Urea Fertilizer and Activated Carbon in Carboxymethyl Cellulose-Based Bioplastics	82
I. Kartini, M. Masuda and B. Ishartono	82
Removal of Iron and Manganese in Acid Mine Drainage Using Natural Zeolite	88
S.R. Widyaningrum, S. Sarto and A. Prasetya.....	88
Stratification Properties of Peninsular-Malaysian Peat	95
K. Mohamed, Y.H. Leong, N.A. Ghazali and M. Saaid	95
Removal of Cd²⁺ from Artificial Waste Using Natural Zeolite: Study on Adsorption Equilibrium	103
E.M. Nainggolan, P. Mulyono and A. Prasetya.....	103
Synthesis and Characterization of Hydrogels Derived from Cellulose of Water Hyacinth (<i>Eichornia crassipes</i>) and Chitosan Using the Freeze-Thaw Method	110
T.R.N. Khalifah, H. Natsir, S. Fauziah and I. Raya.....	110
Chemical Approach for the Synthesis of Nanofibers from Sugar Palm Fiber as a Functional Adsorbent Modified with Cobalt Oxide to Remove Dye Waste	116
L. Mahardiani, P.S. Lesana and S. Saputro.....	116
Biosynthesis of Gold Nanoparticles Using Aqueous Extract of <i>Lannea coromandelica</i> Bark with Stabilizer Polyacrylic Acid (PAA) and Polyvinyl Alcohol (PVA)	127
A.W. Wahab, A. Karim, N. La Nafie, T. Febrianti and N. Azis.....	127
Potential Application of Rhamnolipid-Silica Nanoparticle Complex for Enhanced Oil Recovery Studied with Molecular DynamicsSimulations	134
I.K. Fitri, A.L. Ivansyah and R. Hertadi	134
Effect of Hydrogen Peroxide Concentration to Fluorescence Properties of Carbon Dot from HDPE	142
R. Lestari, I. Kartini and T.D. Wahyuningsih.....	142
Kinetics Study of Free Fatty Acid Esterification from Sludge Palm Oil Using Zeolite Sulfonated Biochar from Molasses Composite Catalyst	150
H. Hasanudin, W.R. Asri, A. Meilani and N. Yuliasari.....	150
Deep Eutectic Solvent Functionalized Graphene Oxide Based Ferrofluid for the Liquid Phase Microextraction of Fluoroquinolones from Water Samples	156
R.E.A. Mohammad, A.A. Elbashir, J. Karim, N. Yahaya, N.Y. Rahim and M. Miskam	156
In Silico Study on Predicting Effects of H243L Mutation in <i>Bacillus subtilis</i> Levansucrase towards Sucrose Binding Affinity	164
J.A. Sudijanto and R. Hertadi	164
Vegetable Oils Based Ionic Liquids for Rare Earth Elements Recovery: A Techno-Economic Analysis	173
K.M. Rizky, A. Mudzakir and A.B.D. Nandiyanto	173
Quality of Tobacco Seed Oil from <i>Voor-Oogst</i> Variety Using Ultrasonic-Assisted Extraction	180
M.F. Nasrudin, Z.A. Mas'ud and M. Khotib	180
Plastic Waste Recycle into Pellet: Economic Analysis and Processing Temperature Effects	188
R.R. Badu, C.W. Purnomo and B. Kamulyan.....	188
Characterization and Rheological Improvement of Boyolali White Bentonite with Soda Ash and Carboxy Methyl Cellulose	196
N. Nuryono, B. Purnomo, A. Istiawan, A.P. Gustianthy, S. Pebriani, D. Indriyani and S.J. Santosa.....	196

Isolation and Green Methylation of Cardanol from Cashew Nut Shell Liquid	
M. Anwar, N.D. Rahayu and T.D. Wahyuningsih.....	205
Synthesis of Patchouli Esters from Patchouli Oil in the Presence of Homogeneous and Heterogeneous Catalyst	
P. Priatmoko, M.I.D. Mardjan, F. Fadlilah and D.H. Rachmawati.....	213
Synthesis and Characterization Nanosilica from Geothermal Waste by Wet Grinding Method as an Enhanced Oil Recovery (EOR)	
M.W. Andriyan, N.A.K. Umiati, V. Gunawan and A. Subagio	219
Copper-Catalyzed-Multicomponent Reaction towards the Synthesis of γ-Hydroxybutyrolactams	
M.I.D. Mardjan, J.L. Parrain and L. Commeiras	226
Synthesis and Characterization of Chitosan/κ-Carrageenan/Mesoporous Phosphotungstic Acid (mPTA) Electrolyte Membranes for Direct Methanol Fuel Cell (DMFC) Applications	
L. Atmaja, D.R. Rachmawati and E.A. Hartanti.....	232
Effect of Decoking Pretreatment on Catalyst Rejuvenation Using Glycerol and Mono Ethylene Glycol (MEG)	
A.K. Rianto, A. Prasetya and M.M. Azis.....	238
Synthesis of Patchouli Acetate and Propionate from Patchouli Oil through Esterification Reaction Using Homogeneous and Heterogeneous Catalysts	
P. Priatmoko, M.I.D. Mardjan and V. Juniati	244
Synthesis and Characterization of BiOI Films for Photo-Electrochemical Cell via Simple Heating Process of BiI₃	
A.A. Putri, M.M. Rahman, A.A. Abuelwafa, S. Kato, N. Kishi and T. Soga.....	249
Sulfuric Acid-Activated Silica Gel as a Potential Solid Acid Catalyst	
W. Wangsa, R.A. Pratika, T.S. Ningrum and K. Wijaya.....	256
Screening and Toxicity Assay of Bioactive Compounds from Ethyl Acetate Extract of Indonesian Marine Sponge <i>Dysidia</i> sp. from Hoga Island	
M.F. Ramadhan, E. Astuti and R.T. Swasono	263
Synthesis and Characterization of Chitosan/Alginate/Mesoporous Phosphotungstic Acid Electrolyte Membranes for Direct Methanol Fuel Cell Applications	
L. Atmaja, E.A. Hartanti and D.R. Rachmawati.....	270
Physicochemical Studies of Chitosan Blended Sulfonated Poly Ether-Ether Ketone and Graphene Oxide as Filler for Direct Methanol Fuel Cell	
N. Nurakhirawati, A. Priyangga, M. Santoso, L. Atmaja, N. Widiasuti and J. Jaafar.....	276
Preliminary Study of Isolation and Purification Mitragynine from Kratom Leaves	
N. Isnaeni, A. Saefumillah and A.H. Cahyana	285
Proposed Functional Activity of Bioactive Compounds from <i>Spatholobus littoralis</i> Hassk in LC-MS-MS and Silico Studies	
D. Iskandar, N. Widodo, W. Warsito, M. Masruri, R. Rollando, W. Warsidah and Y.P.P. Antang.....	292
Thermodynamic and Adsorption Properties of Flavonoid Rutin from Cassava (<i>Manihot esculenta</i>) Leaves as a Corrosion Inhibitor on the Mild Steel in Sulfuric Acid Solution	
D.R. Gusti, E. Emriadi and M. Efidi.....	298

Synthesis and Antimalarial Activity Assay of C-Arylcalix[4]pyrogallolarenes Using Heme Polymerization Inhibition Activity (HPIA) Method

- D.K. Sari, D.D.N.W. Hidayat, D.R. Fatmawati, S. Triono, Y.S. Kurniawan
and J. Jumina 306

Design, Synthesis, and Biological Evaluation of Novel Trifluoromethoxy Substituted Pyrazolines as Potential Tubulin Assembling Inhibitors

- M. Jumaah, M. Khairuddean and T.D. Wahyuningsih 313

Synthesis and Computational Insights of *p*-Benzoyl-Phenylalanine as Potential Estrogen Receptor Inhibitor

- A. Shtaiwi, R. Adnan and M. Khairuddean 320

Synthesis of *N*-Phenylpyrazoline Derivative from 4-Chlorobenzaldehyde and 4-Chloroacetophenone and its Activity as an Antimalarial Agent

- R.N. Cahyono, S.A. Andari and T.D. Wahyuningsih 327

Open Chain Tetrabenzimidazolium Salts as Ligand Precursors for Silver(I)-*N*-Heterocyclic Carbene Complexes: Synthesis, Crystal Structure and Antibacterial Studies

- U.F.M. Haziz, R.A. Haque, A.A. Amirul and M.R. Razali 333

- Keyword Index** 343

- Author Index** 347