LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : Proceeding Internasional Terindex

Judul Publikasi Ilmiah (Artikel)		:	Synthesis of polyeugenoxy acetyl thiophene methanolate as a new selective *carrier*
Jumlah Penulis		:	5 (lima) orang
Status Pengusul		:	Penulis Pertama
Identitas Jurnal Ilmiah	a. Nama Jurnal Ilmiah:	:	IOP Conf Ser: mater.Sci. Eng 509 (2019) 012069
	b. Nomor ISBN /ISSN		ISBN : 19366612, 19367317
	c. Volume, Nomor, Bulan, Tahun	:	509 (2019) 012069
	d. Penerbit	:	IOP Publishing
	e. DOI artikel (jika ada)	:	doi:10.1088/1757-899X/509/1/012069 https://iopscience.iop.org/article/10.1088/1757-899X/509/1/012069
	f. Alamat web jurnal	:	http://iopscience.iop.org/
	g. Terindeks	:	di SCOPUS
	e. Jumlah Halaman	:	10(1-10)

Kategori Publikasi Karya Ilmiah : ☐ Seminar Internasional Bereputasi Terindex Scopus**

Hasil Penilaian *Peer Review*

Komponen Yang Dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir yang diperoleh
	Proceeding Internasional Bereputasi	Nasional Terakreditasi	Nasional	
	(30)			
a. Kelengkapan unsur isi jurnal (10%)	3			3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9			9
c. Kecukupan dan kemutahiran data/ informasi dan metodologi (30%)	9			7
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			9
Total = (100 %)	30			28
Nilai Pengusul =	60%x28			16.8

Catatan Penilaian artikel oleh Reviewer :

1. **Kesesuaian dan kelengkapan unsur isi jurnal:**
   Artike sangat lengkap, dimana grafik dan tabel disitasi dan dibahas. Topik dan materi sesuai dengan jurnal yang bersangkutan. Tata penulisan tersaji dengan baik.
2. **Ruang lingkup dan kedalaman pembahasan:**
   Artikel ini membahas tentang sintesis membran cair PIM dari bahan alam asli Indonesia, karakterisasi dan penggunaannya sebagai membran selektif ion logam. Data-data ditampilkan dan dibahas secara jelas dan komprehensif.
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
   Referensi yang dicitasi dalam artikel ini ada 19 dimana ada 7 yang baru. Nilai novelty/kebaruan artikel ini termasuk agak kurang. Seharusnya referensi yang baru dapat mencapai porsi 80%.
4. **Kelengkapan unsur dan kualitas terbitan:**
   Penerbit adalah IOP Publishing (bereputasi), Nilai similaritas artikel berdasarkan Turnitin hanya 17%, sehingga orisinalitas cukup baik.

Semarang, - 11 – 2019

Prof. Dr. Muhammad Djaeni, ST, MEng.
NIP. 197102071995121001
Unit kerja : Universitas Diponegoro
Jabatan Fungsional : Guru Besar
Bidang ilmu: Teknik Kimia

Nilai

Rata-rata Peer Review= 16,26

Nilai PAK Universitas = 16,26

Ttd. Penilai PAK Universitas

Prof. Dr. Hadiyanto, ST, MSc

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH : JURNAL ILMIAH

Judul Publikasi Ilmiah (Artikel)	:	Synthesis of polyeugenoxy acetyl thiophene methanolate as a new selective *carrier*
Penulis Jurnal Ilmiah	:	Muhammad Cholid Djunaidi*, R.A. Lusiana, Pardoyo, D.S. Widodo, T.W. Utami
Identitas Jurnal Ilmiah	a. Nama Jurnal Ilmiah:	IOP Conf Ser: mater.Sci. Eng 509 (2019) 012069
	b. Nomor ISBN /ISSN	ISBN : 19366612, 19367317
	c. Volume, Nomor, Bulan, Tahun	509 (2019) 012069
	d. Penerbit	IOP Publishing
		https://iopscience.iop.org/article/10.1088/1757-899X/509/1/012069
	e. DOI artikel (jika ada)	doi:10.1088/1757-899X/509/1/012069
		https://iopscience.iop.org/article/10.1088/1757-899X/509/1/012069
	f. Alamat web jurnal	http://iopscience.iop.org/
	g. Terindeks di SCOPUS	
	e. Jumlah Halaman	10(1-10)

Kategori Publikasi Jurnal Ilmiah : ☑Prosiding Internasional Terindeks Scopus dengan SJR>0.15 ☐

Hasil Penilaian *Peer Review*

Komponen Yang Dinilai	Nilai Maksimal Prosiding Internasional Terindeks Scopus			Nilai
	Prosiding Internasional Terindeks Scopus dengan SJR>0.15	Prosiding Internasional Terindeks Scopus	Prosiding Internasional Terindeks Scopus	Nilai Akhir yang diperoleh
	(30)			
a. Kelengkapan unsur isi jurnal (10%)	3			2,2
b. Ruang lingkup dan kedalaman pembahasan (30%)	9			8,0
c. Kecukupan dan kemutahiran data/ informasi dan metodologi (30%)	9			7,5
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			8,5
Total = (100 %)	30			26,2
Nilai Pengusul =				

Catatan Penilaian artikel oleh Reviewer :

. 1. **Kesesuaian dan kelengkapan unsur isi jurnal:**	:	Artikel telah ditulis dengan lengkap sesuai template yang terdiri dari latar belakang, metode, hasil dan pembahasan, kesimpulan serta referensi. Informasi yang disajikan pada latar belakang kurang detail
. 2. **Ruang lingkup dan kedalaman pembahasan:**	:	Ruang lingkup adalah sintesis senyawa organik, pembahasan mendalam dan informatif dan diskripsi
3. **Kecukupan dan kemutakhiran data/informasi dan metodologi**	:	Data sangat memadai dan lengkap, referensi yang digunakan kurang terkini, hanya 27% yang diterbitkan dalam 5 taun sebelum artikel terbit pada saat itu
4. **Kelengkapan unsur dan kualitas terbitan:**	:	Kualitas penerbit baik (IOP conference termasuk baik dan sudah terindeks scopus

Semarang, 29 Mei 2020

Bidang ilmu/Unit kerja :Teknik Kimia/ Universitas Diponegoro

Prof. Dr. Widayat, ST, MT
NIP. 19720906 199803 1001

Document details

‹ Back to results | ‹ Previous 2 of 16 Next ›

Export Download Print E-mail Save to PDF Save to list More... ›

View at Publisher

IOP Conference Series: Materials Science and Engineering
Volume 509, Issue 1, 3 May 2019, Article number 012068
13th Joint Conference on Chemistry, JCC 2018; Semarang; Indonesia; 7 September 2018 through 8 September 2018; Code 147746

Synthesis of polyeugenoxy acetyl thiophene methanolate as a new selective carrier (Conference Paper) (Open Access)

Djunaidi, M.C. ✉, Lusiana, R.A., Pardoyo, Widodo, D.S., Utami, T.W.

Save all to author list

Chemistry Department, Faculty of Sciences and Mathematics, Diponegoro University, Semarang, Indonesia

Abstract

View references (19)

Research on the Synthesis of Polyeugenoxy Acetyl Thiophene Methanolate (PEATM) as a new selective Carrier using the Bulk Liquid Membrane (BLM) Method has been done. PEATM was synthesized from eugenol that was polymerized to form polyeugenol, acidified to make polieugenoxy acetate and then etherized with thiophenemethanol. The product obtained was characterized using FTIR and ^{1}H-NMR. PEATM produced in the form of thick brownish-black liquid. The solubility test incorporating organic compounds showed that this compound dissolved in chloroform and benzene but was difficult to dissolve in n-hexane. Molecular weight value of 700 was obtained using Ubbollohde viscometer with about 22 times monomer repetition. PEATM was used as a BLM carrier to separate mixture of Cd^{2+}, Cr^{3+} and Cu^{2+}. The results showed that PEATM was selective towards Cd^{2+}. © 2019 Published under licence by IOP Publishing Ltd.

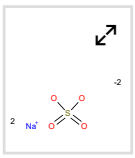
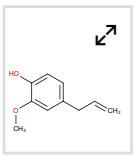
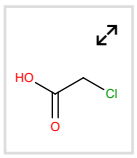
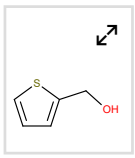
SciVal Topic Prominence

Topic: Liquid membranes | Extraction | Membrane ELM

Prominence percentile: 95.306

Chemistry database information

Substances

Author keywords

Polyeugenoxy Acetyl Thiophene Methanolate | selective carrier

Indexed keywords

Engineering controlled terms: Chlorine compounds | Hexane

Engineering uncontrolled terms: Bulk liquid membrane | N hexane | Polyeugenol | Polyeugenoxy Acetyl Thiophene Methanolate | selective carrier | Solubility test

Metrics

View all metrics ›

PlumX Metrics

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

Set citation alert ›

Set citation feed ›

Related documents

Synthesis of a novel carrier compound thiazoethyl methyl eugenoxyacetate from eugenol and its use in the bulk liquid membrane technique
Djunaidi, M.C. , Wibawa, P.J. , Murti, R.H.
(2018) Indonesian Journal of Chemistry

Synthesis of eugenol-based selective membrane for hemodialysis
Djunaidi, M.C. , Wenten, I.G.
(2019) IOP Conference Series: Materials Science and Engineering

The influence of type of functional groups on the adsorption selectivity of ionic imprinted polymer iron
Djunaidi, M.C. , Lusiana, R.A. , Pardoyo
(2017) Oriental Journal of Chemistry

View all related documents based on references

Find more related documents in Scopus based on:

Authors › Keywords ›

Engineering main heading: Thiophene

ISSN: 17578981
DOI: 10.1088/1757-899X/509/1/012068
Source Type: Conference Proceeding
Document Type: Conference Paper
Original language: English
Publisher: Institute of Physics Publishing

References (19)

View in search results format >

All | Export | Print | E-mail | Save to PDF | Create bibliography

1 Cleij, M.C., Scrimin, P., Tecilla, P., Tonellato, U.
Efficient and Highly Selective Copper(II) Transport across a Bulk Liquid Chloroform Membrane Mediated by Lipophilic Dipeptides
(1997) *Journal of Organic Chemistry*, 62 (16), pp. 5592-5599. Cited 21 times.
http://pubs.acs.org/joc
doi: 10.1021/jo9703257
View at Publisher

2 Djunaidi, M.C., Buchari, B.
Mekanisme Transport Lantanum Melalui Membran Cair Berpendukung (SLM) dengan Senyawa Pengemban campuran Tributyl Phosphate (TBP) dan Di(2-Etyl-Hexyl) Phosporic Acid (D2EHPA)
(2000) *J. Kim. Sains Apl.*, 3, pp. 163-170.

3 Djunaidi, M.C., Haris, A., Gunawan, G.
Ekstraksi Campuran Logam Berat dan Pemisahan Cr(VI) dari Cr(III) Menggunakan Teknik Membran Cair Berpendukung (SLM)
(2002) *J. Kim. Sains Apl.*, 5, pp. 19-23.

4 Bartsch, R.A., Way, J.D.
Chemical Separations with Liquid Membranes: An Overview
(1996) *ACS Symposium Series*, 642, pp. X-10. Cited 71 times.

5 Sathya, M., Muthuraman, G., Elumalai, S.
Bulk Liquid Membrane Process for the Transport and Kinetics Study of Malachite Green from Textile Wastewater
(2016) *Iranica Journal of Energy and Environment*, 7, pp. 294-303. Cited 4 times.

6 Guenther, E.
(1974) *The Essential Oils: Individual Essential Oils of the Plant Families Rutaceae and Labiatae*, 3. Cited 878 times.
(R.E. Krieger Publishing Company)

7 Djunaidi, M.C., Khabibi, Ulumudin, I.
Separation of Cu^{2+}, Cd^{2+} and Cr^{3+} in a Mixture Solution Using a Novel Carrier Poly(Methyl Thiazoleethyl Eugenoxy Acetate) with BLM (Bulk Liquid Membrane) (Open Access)
(2017) *IOP Conference Series: Materials Science and Engineering*, 172 (1), art. no. 012032. Cited 4 times.
http://www.iop.org/EJ/journal/mse
doi: 10.1088/1757-899X/172/1/012032
View at Publisher

8 Djunaidi, M.C., Wibawa, P.J., Murti, R.H.
Synthesis of a novel carrier compound thiazoethyl methyl eugenoxyacetate from eugenol and its use in the bulk liquid membrane technique (Open Access)

(2018) *Indonesian Journal of Chemistry*, 18 (1), pp. 121-126. Cited 4 times.
http://pdm-mipa.ugm.ac.id/ojs/index.php/ijc/article/download/1320/1336
doi: 10.22146/ijc.25075

View at Publisher

9 Peterson, R.T., Lamb, J.D.
Design of Macrocyclic Carriers for Liquid Membranes

(1996) *ACS Symposium Series*, 642, pp. 129-141. Cited 4 times.

10 Djunaidi, M.C., Jumina, Siswanta, D., Ulbricht, M.
Selective transport of Fe(III) using polyeugenol as functional polymer with ionic imprinted polymer membrane method (Open Access)

(2015) *Asian Journal of Chemistry*, 27 (12), pp. 4553-4562. Cited 13 times.
http://www.asianjournalofchemistry.co.in/Journal/ViewArticle.aspx?ArticleID=27_12_44
doi: 10.14233/ajchem.2015.19228

View at Publisher

11 Nezhadali, A., Moeinpour, F.
Comparative metal ion extraction of Ag(I), Cu(II), Ni(II), Zn(II), Mn(II), Cd(II) and Co(II) cations using dibenzo 18C6 as a carrier (Open Access)

(2013) *Alexandria Engineering Journal*, 52 (1), pp. 123-127. Cited 4 times.
http://www.elsevier.com.proxy.undip.ac.id:2048/wps/find/journaldescription.cws_home/724292/description#description
doi: 10.1016/j.aej.2012.11.006

View at Publisher

12 Kazemi, S.Y., Shamsipur, M.
Selective transport of lead(II) through a bulk liquid membrane using a cooperative carrier composed of benzylaza-12-crown-4 and oleic acid (Open Access)

(2005) *Bulletin of the Korean Chemical Society*, 26 (6), pp. 930-934. Cited 15 times.
http://newjournal.kcsnet.or.kr/
doi: 10.5012/bkcs.2005.26.6.930

View at Publisher

13 Eljaddi, T., Hor, M., Benjjar, A., Riri, M., Mouadli, H., Mountassir, Y., Hlaibi, M.
New supported liquid membrane for studying facilitated transport of U (VI) ions using Tributyl phosphate (TBP) and Tri-n-octylamine (TOA) as carriers from acid medium
(2015) *BAOJ Chem.*, 1, pp. 1-9. Cited 4 times.

14 Djunaidi, M.C., Lusiana, R.A., Wibawa, P.J., Siswanta, D., Jumina, J.
Sintesis Turunan Polieugenol Sebagai Carrier Bagi Recovery Logam Berat Dengan Teknik Membran Cair
(2010) *Reaktor*, 13 (1), pp. 16-23. Cited 5 times.

15 Rosenthal, L.C.
A polymer viscosity experiment with no right answer

(1990) *Journal of Chemical Education*, 67 (1), pp. 78-80. Cited 10 times.

View at Publisher

16 Fessenden, R.J., Fessenden, J.S.
(1994) *Organic Chemistry*. Cited 539 times.
(Brooks/Cole)

17 Hendayana, S., Kadarohman, A., Sumarna, A., Supriatna, A.
Kimia analitik instrumen
(1994) *Edisi*, 1, pp. 157-160.

18 Hardjono, S.
(1991) *Spektroskopi*. Cited 2 times.
(Yogyakarta: Liberty)

19 Hiratani, K., Kasuga, K.
Highly Selective Transport of Heavy Metal Ions by Novel Amide Compounds

(1996) *ACS Symposium Series*, 642, pp. 167-180. Cited 3 times.

View at Publisher

Djunaidi, M.C.; Chemistry Department, Faculty of Sciences and Mathematics, Diponegoro University, Semarang, Indonesia; email:choliddjunaidi@live.undip.ac.id

Source details

IOP Conference Series: Materials Science and Engineering

Scopus coverage years: from 2009 to Present

ISSN: 1757-8981 E-ISSN: 1757-899X

Subject area: Engineering: General Engineering | Materials Science: General Materials Science

View all documents > | Set document alert | Save to source list | Journal Homepage

CiteScore 2018
0.53
Add CiteScore to your site

SJR 2018
0.192

SNIP 2018
0.531

CiteScore | CiteScore rank & trend | CiteScore presets | Scopus content coverage

CiteScore 2018

Calculated using data from 30 April, 2019

$$0.53 = \frac{\text{Citation Count 2018}}{\text{Documents 2015 - 2017*}} = \frac{\text{7,820 Citations}}{\text{14,668 Documents}}$$

*CiteScore includes all available document types

View CiteScore methodology > CiteScore FAQ >

CiteScore rank

Category	Rank	Percentile
Engineering — General Engineering	#171/275	38th
Materials Science — General Materials Science	#305/438	30th

View CiteScore trends >

CiteScoreTracker 2019

Last updated on *09 April, 2020*
Updated monthly

$$0.56 = \frac{\text{Citation Count 2019}}{\text{Documents 2016 - 2018}} = \frac{\text{15,939 Citations to date}}{\text{28,227 Documents to date}}$$

Metrics displaying this icon are compiled according to Snowball Metrics ↗ , a collaboration between industry and academia.

The objectives of this Joint conference are:

1. To provide a forum for researchers, educators, students and industries to exchange ideas, to communicate and discuss research findings and new advances in chemical sciences.
2. To give an opportunity to both academia and practitioners to communicate and discuss on Chemical problems faced in research and the industry sector.
3. To enhance the capacities of innovation from researchers and industries who apply science and technology on their work
4. To contribute a formulation of global strategies in advancing chemical science role as well as developing policy initiatives in community
5. To stimulate future collaborations among researches, educators, industries, and governments who use chemical science and technology.

The conference will be a chemistry related disciplinary event considering all the major areas of chemistry, including inorganic, physical, organic, analytical and biochemistry. This conference also presents topics on chemical education, policies, and many other interesting topics. Interfaces with other sciences and other research areas will be actively encouraged.

Date and Venue

September 07, 2018 – September 08, 2018
Hotel Santika Premiere, Jalan Pandanaran No. 116 – 120, Kota Semarang 50134, Central Java, Indonesia

---

Keynote Speakers

(https://energy.uq.edu.au/profile/156/simon-smart)

Dr. Simon Smart (https://energy.uq.edu.au/profile/156/simon-smart)

The University of Queensland

"Molten Catalysts for Hydrogen Production from Methane and CO2 Free Iron Production"

(http://www.ncl.ac.uk/nanolab/staff/profile/lidijasiller.html#background)

Dr. Lidija Siller (http://www.ncl.ac.uk/nanolab/staff/profile/lidijasiller.html#background)

Reader in Nanoscale Science, Chemical Engineering and Advanced Materials, Newcastle University

"Bioinsipried nanomaterials and processes: finding sustainable solutions for our planet and environment"

(http://home.hiroshima-u.ac.jp/balgis/index.html)

Dr. Ratna Balgis (http://home.hiroshima-u.ac.jp/balgis/index.html)

Hiroshima University

"Carbon-based nanostructured particles for catalyst application"

(http://cisgroup.kaist.ac.kr/people.html)

Prof. Insung S. Choi (http://cisgroup.kaist.ac.kr/people.html)

KAIST – Korea Advanced Institute of Science and Technology

"Cell–Materials Interfaces"

(https://www.scopus.com/authid/detail.uri?authorId=24374637300)

Emiritus Prof. Eiji Osawa (https://www.scopus.com/authid/detail.uri?authorId=24374637300)

Shinshu University, NanoCarbon Research Institute

"Application of 3 nm Diamond Particles"

(https://www.scopus.com/authid/detail.uri?authorId=9844537900)

Dr. Mehrorang Ghaedi (https://www.scopus.com/authid/detail.uri?authorId=9844537900)

Yasouj University, Iran

"Recent Advance of Nanostructure for Preconcentration of Compounds and Adsorption or Photodegredation of Pollutants"

(https://www.scopus.com/authid/detail.uri?authorId=7201673894)

Prof. Rizwan Hasan Khan (https://www.scopus.com/authid/detail.uri?authorId=7201673894)

Aligarh Muslim University, Aligarh, India

"Protein aggregation and its inhibition"

(http://imb.umt.edu.my/?page_id=2127)

Prof. Dr. Fadzilah Adibah Abdul Majid (http://imb.umt.edu.my/?page_id=2127)

Universiti Malaysia Terengganu

" Evidence based Herbal Medicines: The Chemistry of Challenges and Hopes"

Invited Speakers

(https://www.scopus.com/authid/detail.uri?authorId=57100033100)

Yayuk Astuti, Ph.D (https://www.scopus.com/authid/detail.uri?authorId=57100033100)

Diponegoro University

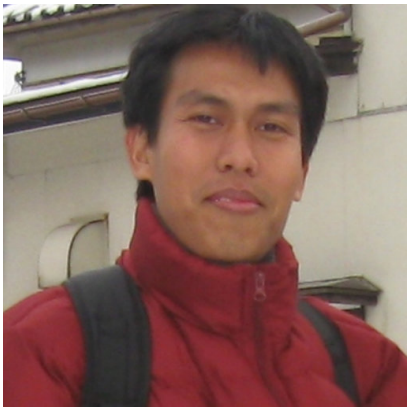
Synthesis bismuth oxide using solution combustion method and its photocatalytic activity for methyl orange degradation

(https://www.scopus.com/authid/detail.uri?authorId=36931094200)

Teguh Endah Saraswati, Ph.D (https://www.scopus.com/authid/detail.uri?authorId=36931094200)

Sebelas Maret University

Plasma surface modification for carbon–based nanomaterial



(https://www.scopus.com/authid/detail.uri?authorId=36519894600)

Uyi Sulaeman, Ph.D (https://www.scopus.com/authid/detail.uri?authorId=36519894600)

Jenderal Soedirman University

Design of silver orthophosphate based photocatalyst for organic pollutant degradation

(https://www.scopus.com/authid/detail.uri?authorId=57004824900&eid=2-s2.0-84949966931)

Cepi Kurniawan, Ph.D (https://www.scopus.com/authid/detail.uri?authorId=57004824900&eid=2-s2.0-84949966931)

Universitas Negeri Semarang

Metalation of Natural Dye for dye-sensitized solar cell photosensitiser

(http://fsm.uksw.edu/dosen/view/detail/51027)

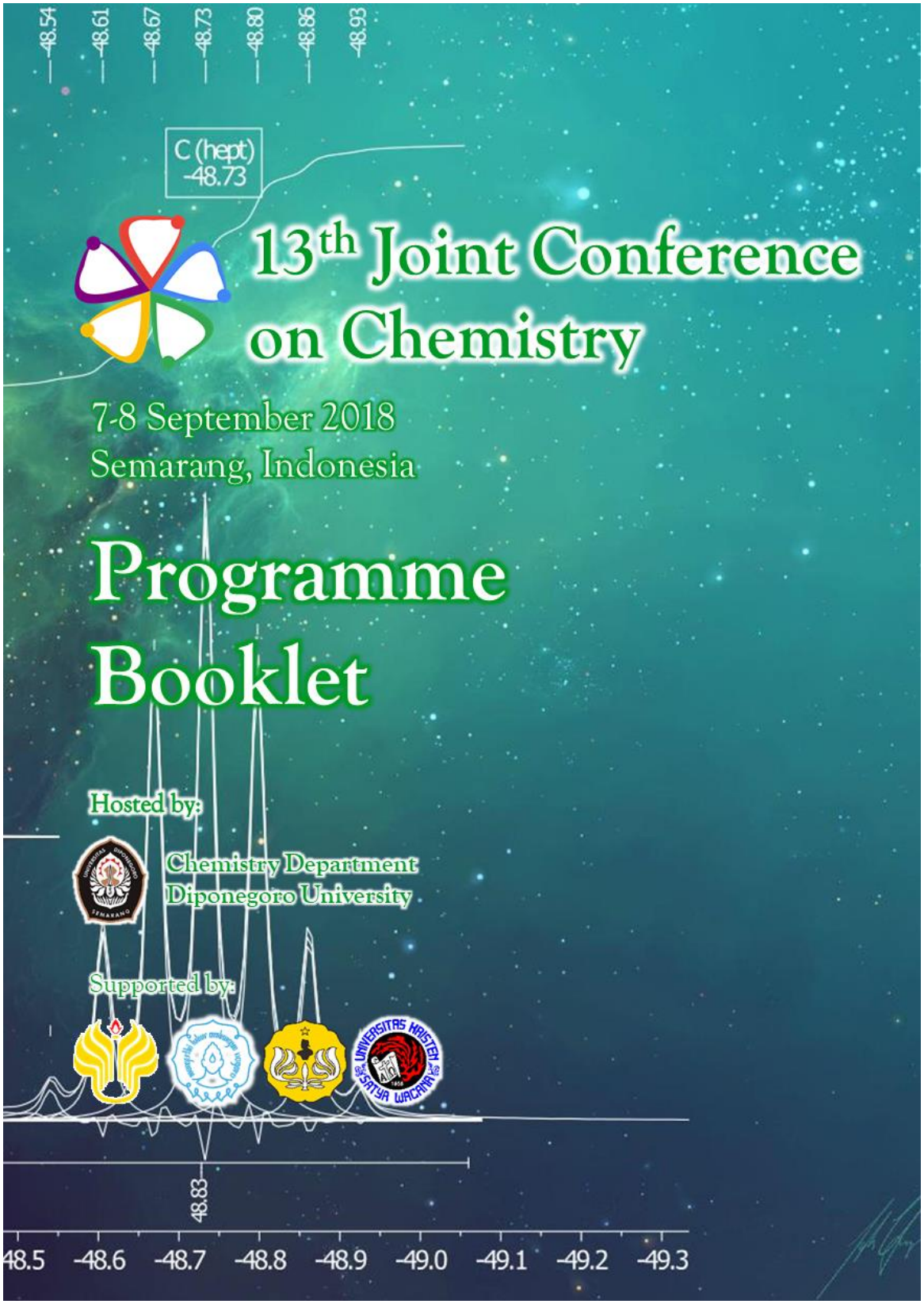
Dr. Lydia Ninan Lestario (http://fsm.uksw.edu/dosen/view/detail/51027)

Satya Wacana Christian University

Anthocyanin and recent development for functional food

Conference Topics

Topic of interest to be covered in the conference includes, but not limited to:



Advisory Board

1. Dr. Lidija Siller (Newcastle University, UK)
2. Dr. Mehrorang Ghaedi (Yasouj University, Iran)
3. Dr. Ratna Balgis (Hiroshima University, Japan)
4. Dr. Simon Kane Smart (The University of Queensland, Australia)
5. Prof. Eiji Osawa (NanoCarbon Research Institute, Japan)
6. Prof. Fadzilah Adibah Abdul Majid (Universiti Malaysia Terengganu, Malaysia)
7. Prof. Insung S. Choi (KAIST - Korea Advanced Institute of Science and Technology, Korea)
8. Prof. Rizwan Hasan Khan (Aligarh Muslim University, Aligarh, India)
9. Dr. Dwi Hudiyanti, M.Sc (Diponegoro University, Semarang, Indonesia)
10. Dr. Ismiyarto (Diponegoro University, Semarang, Indonesia)
11. Dr. Khairul Anam (Diponegoro University, Semarang, Indonesia)

Table of contents

Volume 509
2019

Previous issue Next issue

13th Joint Conference on Chemistry (13th JCC) 7–8 September 2018, Semarang, Indonesia

Accepted papers received: 08 March 2019
Published online: 03 May 2019

View all abstracts

Preface

Papers

OPEN ACCESS 012017

Phytochemicals screening and anti-oxidant activity of hydroethanolic extracts of *Ruellia tuberosa L*

Anna Safitri, Anna Roosdiana, Istoria Rosyada, Cindy Alvionita Evindasari, Zulfatul Muzayyana and Resti Rachmawanti

+ View abstract View article PDF

OPEN ACCESS 012018

Momordica charantia stem extract mediated biogenic synthesis of silver nanoparticles: optical and antimicrobial efficacy

Anuoluwa Abimbola Akinsiku, Kolawole Oluseyi Ajanaku, Abimbola Augustine Adebisi, Abiola Edobor-Osoh, Olanrewaju Aladesuyi, Taiwo Olugbenga Samson and Enock Olugbenga Dare

+ View abstract View article PDF

OPEN ACCESS 012019

Room temperature phytosynthesis of silver nanoparticles using leaf extract of *Momordica charantia*: optical and antimicrobial properties

Anuoluwa Abimbola Akinsiku, Kolawole Oluseyi Ajanaku, Joseph Adeyemi Adekoya, Olugbenga Samson Taiwo, Joan Ayo-Ajayi, Alaba Oladipupo Adeyemi and Enock Olugbenga Dare

+ View abstract View article PDF

OPEN ACCESS 012020

The influence of hydrogen peroxide concentration on catalytic activity of fenton catalyst@bacterial cellulose

Arie Wibowo, Antonio R S A Sihombing, Ade Wahyu Yusariarta Putra Parmita, Untung Triadhi and Husaini Ardy

+ View abstract View article PDF

OPEN ACCESS 012021

The influence of chitosan concentration on morphology and conductivity of lithium aluminium titanate phosphate for solid electrolytes of lithium-ion battery application

Arie Wibowo, Radian Febi Indrawan, Lia Amelia Tresna Wulan Asri, Susanto Sigit Rahardi and Bambang Sunendar Purwasasmita

+ View abstract View article PDF

OPEN ACCESS 012022

Ag_2O nanoparticles fabrication by *Vernonia amygdalina Del*. leaf extract: synthesis, characterization, and its photocatalytic activities

Ariffinisa Lintang Widyaningtyas, Yoki Yulizar and Dewangga Oky Bagus Apriandanu

+ View abstract View article PDF

OPEN ACCESS 012023

Synthesis of surfactant modified activated carbon (SMAC) from rice husks as Ni(II) and Cr(VI) adsorbent

+ View abstract View article PDF

OPEN ACCESS 012031

Nutritional analysis of *spirulina sp* to promote as superfood candidate

Deasy Liestianty, Indah Rodianawati, Rugaiyah Andi Arfah, Asma Assa, Patimah, Sundari and Muliadi

+ View abstract View article PDF

OPEN ACCESS 012032

Anti-leukaemia of fermented product of methanol extract *Hyptis pectinata* (L.) Poit leaf

Desi Sri Rejeki, Agustina L. N. Aminin and Meiny Suzery

+ View abstract View article PDF

OPEN ACCESS 012033

Isolation of phenolic acid in *Acalypha indica* l plants and test total phenol also antioxidant test using DPPH method

Dewi Kusrini, Enny Fachriyah and Gian Restu Prinanda

+ View abstract View article PDF

OPEN ACCESS 012034

Influence of TiO_2 addition on the magnetic properties of carbon-based iron oxide nanocomposites synthesized using submerged arc-discharge

Diah Ayu Rivani, Indah Retnosari, Kusumandari and Teguh Endah Saraswati

+ View abstract View article PDF

OPEN ACCESS 012035

Synthesis and catalytic evaluation of hematite (α-Fe_2O_3) magnetic nanoparticles from iron sand for waste cooking oil conversion to produce biodiesel through esterification-transesterification method

Widayat, Dionisius Andhika Putra and Izmi Nursafitri

+ View abstract View article PDF

OPEN ACCESS 012036

A microwave assisted, Fe_3O_4/Camphor-catalysed threecomponent synthesis of 2-amino-*4H*-chromenes and their antibacterial and antioxidant activity

Dwi Febriantini, Antonius Herry Cahyana and Rika Tri Yunarti

+ View abstract View article PDF

OPEN ACCESS 012037

Cholesterol implications on coconut liposomes encapsulation of beta-carotene and vitamin C

Dwi Hudiyanti, Siti Aminah, Yuanita Hikmahwati and Parsaoran Siahaan

+ View abstract View article PDF

OPEN ACCESS 012038

Effect of kalium hydroxide/fly ash ratio and hydrothermal temperature in Zeolite W formation by X-ray diffraction analysis

Eddy Heraldy, Fitria Rahmawati, Nurul Apri Indri and Syaiful Ahmad Nur Cahyo

+ View abstract View article PDF

OPEN ACCESS 012039

Corrosion inhibitory properties of $La_{0.5}Ca_{0.5}MnO_3$-gold nanoparticles in 1 M HCl

Abiola-Edobor Osoh, Benedict Iserom Ita, Kolawole Oluseyi Ajanaku, P. de la Presa, Cyril O. Ehi-Eromosele, Miguel Angel Cobos Fernández and Bamidele Durodola

+ View abstract View article PDF

OPEN ACCESS 012040

Synthesis, morphological, optical properties of functionalized $La_{0.33}Ca_{0.67}MnO_3$ for antibacterial therapy

Abiola Edobor-Osoh, Benedict Iserom Ita, Kolawole Oluseyi Ajanaku, P. de la Presa, Cyril O. Ehi-Eromosele, S J Olorunsola and F E Owolabi

+ View abstract View article PDF

OPEN ACCESS 012041

Catalytic transformation of 1,8-cineole from Cajeput oil to *p*-cymene with modified zeolite beta catalyst

Edy Cahyono, Novita Dwi Rahayuningsih, Muntaufiqoh, Willy Tirza Eden, Jumaeri and Harjono

+ View abstract View article PDF

OPEN ACCESS 012042

Synthesis and characterizations of nZVI-AC composites from coconut shells and its application for the adsorption of Pb(II) and Cr(VI) ions

Eka Sri Yusmartini, Ridwan, Dedi Setiabudidaya, M. Faizal and Marsi

+ View abstract View article PDF

OPEN ACCESS 012043

The influence of sol gel drying temperature to surface aggregate structure of CTAB on magnetite silica as phenol adsorbent

Endang Sawitri, Choiril Azmiyawati and Parsaoran Siahaan

+ View abstract View article PDF

OPEN ACCESS 012044

Screening of proteolytic bacteria from *tauco* Surabaya based on pathogenicity and selectivity of its protease on milky fish (*Chanos chanos*) scales for healthy and halal collagen production

Evi Susanti, Nia Lutfiana, Suharti and Rini Retnosari

+ View abstract View article PDF

OPEN ACCESS 012045

Energy storage system from galvanic cell using electrolyte from a plant as an alternative renewable energy

Gunawan, Didik Setiyo Widodo, Abdul Haris, Linda Suyati, Sudharto P. Hadi, Dwi P. Sasongko, Tri Retnaningsih Suprobowati and Hermawan

+ View abstract View article PDF

OPEN ACCESS 012046

Fatty acid composition and total lipid content of the seed oil of *Leucaena leucocephala* (Lam) de Wit

Hartati Soetjipto, Rizky Cahya Pradana and A. Ign. Kristijanto

+ View abstract View article PDF

OPEN ACCESS 012047

Antifungal activity of curcuma xanthorrhiza and curcuma soloensis extracts and fractions

Hartiwi Diastuti, Ari Asnani and Mochammad Chasani

+ View abstract View article PDF

OPEN ACCESS 012048

Poly (vinyl alcohol)/glutaraldehyde/*Premna oblongifolia* merr extract hydrogel for controlled-release and water absorption application

Hendrawan Hendrawan, Fitri Khoerunnisa, Yaya Sonjaya and Austina Dwi Putri

+ View abstract View article PDF

OPEN ACCESS 012049

Study of physical characteristic of rubberized hot mix asphalt based on various dosage of natural rubber latex and solid rubber

Henry Prastanto, Yusep Firdaus, Santi Puspitasari, Arief Ramadhan and Asron Ferdian Falaah

+ View abstract View article PDF

OPEN ACCESS 012050

Synthesis of halal membrane capsule from water soluble chitosan by adding sodium lauryl ether sulphate

Herlina Krise Tiany, Ita Ulfin, Harmami and Yatim Lailun Ni'mah

+ View abstract View article PDF

OPEN ACCESS 012051

The effect of hydrochloric acid-doped polyaniline to enhance the conductivity

Iman Rahayu, Diana Rakhmawaty Eddy, Atiek Rostika Novianty, Rukiah, Anni Anggreni, Husein Bahti and Sahrul Hidayat

+ View abstract View article PDF

OPEN ACCESS 012052

Virtual screening of natural products as an inhibitor of DNA methyltransferase 1 enzyme for breast cancer disease

Ina Nur Istiqomah, Ahmad Husein Alkaff, Mutiara Saragih, Ade Hanna Natalia and Usman Sumo Friend Tambunan

+ View abstract View article PDF

OPEN ACCESS 012053

Enhancing tensile strength of styrene butadiene rubber using alkanolamide

Indra Surya and H Ismail

+ View abstract View article PDF

OPEN ACCESS 012054

Mechanical properties improvement in silica-filled natural rubber composites using stearyl alcohol

Indra Surya, Mimpin Ginting and Vivi Purwandari

+ View abstract View article PDF

OPEN ACCESS 012055

Synthesis and antibacterial activity test of 3-(3-(4-hydroxy-3-methylphenyl)akriloil) coumarin compounds

Ismiyarto, Fida Hidayatul Rafi'ah, Novianita Rizky, Nor Basid Adiwibawa Prasetya, Purbowatiningrum Ria Sarjono and N gadiwiyana

+ View abstract View article PDF

OPEN ACCESS 012056

Synthesis of polymer hybrid latex polystyrene methylmethacrylate-co-butylacrylate with organo-montmorillonite as filler through miniemulsion polymerization for barrier paper application

Johannes Chanra, Emil Budianto and Bambang Soegijono

+ View abstract View article PDF

OPEN ACCESS 012057

Surface modification of montmorillonite by the use of organic cations via conventional ion exchange method

Johannes Chanra, Emil Budianto and Bambang Soegijono

+ View abstract View article PDF

OPEN ACCESS 012058

Capability of immobilised glucoamylase on mesostructured cellular foam silica to hydrolyse tapioca starch

Joni Agustian and Lilis Hermida

+ View abstract View article PDF

OPEN ACCESS 012059

Mesostructured cellular foam MCF-(9.2T-3D) silica as support for free α-amylase in liquefaction of tapioca starch

Joni Agustian and Lilis Hermida

+ View abstract View article PDF

OPEN ACCESS 012060

Effect of drying treatments on the contents of lutein and zeaxanthin in orange- and yellow-cultivars of marigold flower and its application for lutein ester encapsulation

Jovine Marcella Kurniawan, Melisa Megawati Yusuf, Sherly Salsabila Azmi, Katarina Purnomo Salim, Monika Nur Utami Prihastyanti, Renny Indrawati, Heriyanto, Yuzo Shioi, Leenawaty Limantara and Tatas Hardo Panintingjati Brotosudarmo

+ View abstract View article PDF

OPEN ACCESS 012061

Synthesis and characterization of Cu(II) and Co(II) encapsulated metal complexes in zeolite-Y for the oxidation of phenol and benzene

Kayode Akinlolu, Bamgboye Omolara, Ogunniran Kehinde, Tripathi Shailendra and Manoj Kumar

+ View abstract View article PDF

OPEN ACCESS 012062

Synthesis and characterization of A site doped lanthanum based perovskite catalyst for the oxidation of soot

Kayode Akinlolu, Bangboye Omolara, Ogunniran Kehinde and Tripathi Shailendra

+ View abstract View article PDF

OPEN ACCESS 012063

Sodium alginate film: the effect of crosslinker on physical and mechanical properties

Siti Fadhilah bt Ibrahim, Nur Aisyah Nasuha Mohd Azam and Khairul Anuar Mat Amin

+ View abstract View article PDF

OPEN ACCESS 012064

The effects of Sn infiltration on dry reforming of biogas at solid oxide fuel cell operating conditions over Ni-YSZ catalysts

Lina Troskialina and Robert Steinberger-Wilckens

+ View abstract View article PDF

OPEN ACCESS 012065

Synthesis and characterization of hydrophobic silica prepared by different acid catalysts

Linda Karlina, Choiril Azmiyawati and Adi Darmawan

+ View abstract View article PDF

OPEN ACCESS 012066

Electrosynthesis of $Al(OH)_3$ by Al(s)|KCl(aq)||KCl(s)|C(s) system

Linda Suyati, Intan Dian Fadilah Nur, Didik Setiyo Widodo, Gunawan and W H Rahmanto

+ View abstract View article PDF

OPEN ACCESS 012067

Anthocyanin and recent development as functional food

Lydia Ninan Lestario, Jodelin Muninggar and Susanti Pudjihastuti

+ View abstract View article PDF

OPEN ACCESS 012068

Synthesis of polyeugenoxy acetyl thiophene methanolate as a new selective carrier

Muhammad Cholid Djunaidi, Retno Ariadi Lusiana, Pardoyo, Didik Setiyo Widodo and Titi Wulan Utami

+ View abstract View article PDF

OPEN ACCESS 012069

Synthesis of eugenol-based selective membrane for hemodialysis

Muhammad Cholid Djunaidi and I Gede Wenten

+ View abstract View article PDF

OPEN ACCESS 012070

Synthesis of water-soluble chitosan from squid pens waste as raw material for capsule shell: temperature deacetylation and reaction time

Malinda Syifa Yusharani, Stenley, Harmami, Ita Ulfin and Yatim Lailun Ni'mah

+ View abstract View article PDF

OPEN ACCESS 012071

Thermodynamic properties of vitamin C thermal degradation in wedang jeruk

Margareta Novian Cahyanti and November Rianto Aminu

+ View abstract View article PDF

OPEN ACCESS 012072

Effects of acidity on the mesoporous carbon CMK-3 structure during Ibuprofen molecule adsorption

Maria Ulfa, Puput Krismayana and Didik Prasetyoko

+ View abstract View article PDF

OPEN ACCESS 012073

Adsorption of ibuprofen molecule onto mesoporous silica SBA-15 loaded by iron particles using arc discharge treatment

Maria Ulfa, Teguh Endah Saraswati and Bakti Mulyani

+ View abstract View article PDF

OPEN ACCESS 012074

Phytochemical screening of water extract of gayam (*Inocarpus edulis*) Bark and its amylase inhibitor activity assay

Eirene G. Fransina, Matheis F.J.D.P Tanasale, Jolantje Latupeirissa, Dominggus Malle and Regy Tahapary

+ View abstract View article PDF

OPEN ACCESS 012075

Pharmacophore-based virtual screening and molecular docking simulation of terpenoid compounds as the inhibitor of sonic hedgehog protein for colorectal cancer therapy

Mega Maulina Ekawati, Mochammad Arfin Fardiansyah Nasution, Syafrida Siregar, Ilmi Fadhilah Rizki and Usman Sumo Friend Tambunan

+ View abstract View article PDF

OPEN ACCESS 012076

Alkaloids piperine in dichloromethane fraction of red galangal rizhome (*Alpinia purpurata*)

Meiny Suzery, Resti Yuyun Septembe Ria and Bambang Cahyono

+ View abstract View article PDF

OPEN ACCESS 012077

Synthesis of NiO nanoparticles via green route using *Ageratum conyzoides* L. leaf extract and their catalytic activity

Miessya Wardani, Yoki Yulizar, Iman Abdullah and Dewangga Oky Bagus Apriandanu

+ View abstract View article PDF

OPEN ACCESS 012078

Catalyst screening on diimide transfer hydrogenation of natural rubber latex

Mutia Anissa Marsya, Bismo Dwi Putranto, Santi Puspitasari, Adi Cifriadi and Mochamad Chalid

+ View abstract View article PDF

OPEN ACCESS 012079

Microfibrillated cellulose (MFC) isolation based on stalk sweet sorghum through alkalinization-bleaching treatment: effect of soaking temperature

Ismojo, Azmi Novovic, Dimas Reza Lazwardi, Anne Zulfia and Mochamad Chalid

+ View abstract View article PDF

OPEN ACCESS 012080

Effect of alkalinization-bleaching and acid hydrolysis treatment stalk sweet sorghum waste on compatibilities in polypropylene matrix

Evana Yuanita, Anandiza Yoga Pratama, Herald Kurnia, Elvi Kustiyah, Ismojo and Mochamad Chalid

+ View abstract View article PDF

OPEN ACCESS 012081

Discovery of biogenic-based compound as potential heat-shock protein 90 inhibitor through fragment-based drug design

Hersal Hermana Putra, Mutiara Saragih, Mochammad Arfin Nasution Fardiansyah, Ridla Bakri and Usman Sumo Friend Tambunan

+ View abstract View article PDF

OPEN ACCESS 012082

In silico identification of potent inhibitors of heat shock protein 90 (Hsp90) from Indonesian natural product compounds as a novel approach to treat ebola virus disease

Muhammad Chandra Haikal, Mochammad Arfin Fardiansyah Nasution, Linggih Saputro and Usman Sumo Friend Tambunan

+ View abstract View article PDF

OPEN ACCESS 012083

Cationic polymerization of waste palm cooking oil under microwave irradiation

Zainal Alim Mas'ud, Muhamad Farid, Herlambang Surya and Soegijono Bambang

+ View abstract View article PDF

OPEN ACCESS 012084

NH and CN radical emission from corona post discharge region in high density nitrogen plasma

Muhammad Nur, Nelly Bonifaci, Andre Denat and Vlademir M. Atrazhev

+ View abstract View article PDF

OPEN ACCESS 012085

Removal of emission gas CO_x, NO_x and SO_x from automobile using non-thermal plasma

Muhammad Nur, Sumariyah Sumariyah and Ahmad Suseno

+ View abstract View article PDF

OPEN ACCESS 012086

Development of DDBD and plasma jet reactors for production reactive species plasma chemistry

Muhammad Nur, Eko Yuliyanto, Andi Wibowo Kinandana, Maryam Resti Wijaya and Fajar Arianto

+ View abstract View article PDF

OPEN ACCESS 012087

In silico study: the antiglycation potency of aloin on the protein surface of human serum albumin

Mukhammad Asyari, Nurrizka Kurniawati and Agustina LN Aminin

+ View abstract View article PDF

OPEN ACCESS 012088

Preparation of monodisperse polystyrene spheres by physical method

Mukhtar Effendi, Fiqih Silvia Rahmah, Lusi Susanti and Nurul Taufiqu Rochman

+ View abstract View article PDF

OPEN ACCESS 012089

The immune responds of balb/C Mice on antigen recombinant fim-C inclusion bodies *salmonella typhi* protein emulsified with alumina adjuvant

Muktiningsih Nurjayadi, Dwi Ariastuti, Kurnia Agustini, Asri Sulfianti and Wibowo Mangunwardoyo

+ View abstract View article PDF

OPEN ACCESS 012090

Nanoparticle fabrication of calcium oxide (CaO) mediated by the extract of red dragon fruit peels (*Hylocereus Polyrhizus*) and its application as inorganic–anti-microorganism materials

Muliadi Ramli, Ratu Balqis Rossani, Yola Nadia, T. Banta Darmawan, Febriani, Saiful and Yulia Sari Ismail

+ View abstract View article PDF

OPEN ACCESS 012092

The effect of exposure time and water replacement in the application of ozonated water to maintain the quality of tuna

Eva Fathul Karamah, Nadifa Ismaningtyas and Adlimatul Putri Ilmiyah

+ View abstract View article PDF

OPEN ACCESS 012093

Catalytic activity of P_2O_5-natural zeolite on hydration reaction of turpentine into α-terpineol

Nanik Wijayati, N Hidayah, Sri Mursiti and Ella Kusumastuti

+ View abstract View article PDF

OPEN ACCESS 012094

Composites of natural rubber, carbon black, and kaolin sodium bicarbonate content for sponge application

Nasruddin and Tri Susanto

+ View abstract View article PDF

OPEN ACCESS 012095

Optimization of non-autoclaved aerated concrete using phosphogypsum of industrial waste based on the taguchi method

Ndaru Candra Sukmana, Mohammad Izzudin Khifdillah, Avan Sugeng Nurkholil and Ufafa Anggarini

+ View abstract View article PDF

OPEN ACCESS 012096

Optimization of cellular lightweight concrete using silica sand of sandblasting waste based on factorial experimental design

Ndaru Candra Sukmana, Melinda Sari Melati, Mohammad Indra Setyawan, Eriawan Prayoggi and Ufafa Anggarini

+ View abstract View article PDF

OPEN ACCESS 012097

Blend of recycle polypropylene/kenaf fiber/recycle natural rubber/montmorillonite: the effect of natural rubber plasticizer against tensile strength and burning rate properties of smart composites

Neng Sri Suharty, Hanafi Ismail, Kuncoro Diharjo, Desi Suci Handayani, Alfia Uke Tahara and Alifah Nurlita Sari

+ View abstract View article PDF

OPEN ACCESS 012098

One pot reaction to synthesize allyl etherified eugenol from clove oil

N gadiwiyana, Ismiyarto, Gunawan, Purbowatiningrum Ria Sarjono, Nor Basid Adiwibawa Prasetya, Tutuk Djoko Kusworo and Heru Susanto

+ View abstract View article PDF

OPEN ACCESS 012099

Ag/ZnO photocatalyst for photodegradation of methylene blue

Ni Putu Diantariani, Endang Tri Wahyuni, Indriana Kartini and Agus Kuncaka

+ View abstract View article PDF

OPEN ACCESS 012100

Effect of biopolymers composition on release profile of iron(II) fumarate from chitosan-alginate microparticles

Elsa Anisa Krisanti, Ghina Marsya Naziha, Nadina Sabila Amany, Kamarza Mulia and Noer Abyor Handayani

+ View abstract View article PDF

OPEN ACCESS 012101

Synthesis and study of antibacterial activity of polyeugenol

Nor Basid Adiwibawa Prasetya, Ngadiwiyana, Ismiyarto and Purbowatiningrum Ria Sarjono

+ View abstract View article PDF

OPEN ACCESS 012102

Synthesis of copolymer eugenol crosslinked with divinyl benzene and preliminary study on its antibacterial activity

Nor Basid Adiwibawa Prasetya, Ngadiwiyana, Ismiyarto and Purbowatiningrum Ria Sarjono

+ View abstract View article PDF

OPEN ACCESS 012103

Sol-gel synthesis of barium hexaferrite and their catalytic application in methyl ester synthesis

Nur Izzana Sulaiman, Mohamad Abu Bakar, Noor Hana Hanif Abu Bakar and Mohd Hazwan Hussin

+ View abstract View article PDF

OPEN ACCESS 012104

Depolymerisation of liquid epoxidized natural rubber (LENR) using lanthanum hydroxide ($La(OH)_3$)-HNT Catalyst

Nur Najwa Abdul Talib, Noor Hana Hanif Abu Bakar, Mohamad Abu Bakar, A. Iqbal and N.H Yusof

+ View abstract View article PDF

OPEN ACCESS 012105

Green synthesis of Co_3O_4 nanoparticles using *Euphorbia heterophylla* L. leaves extract: characterization and photocatalytic activity

Nur Oktri Mulya Dewi, Yoki Yulizar and Dewangga Oky Bagus Apriandanu

+ View abstract View article PDF

OPEN ACCESS 012106

The amylase production on cassava starchand identification of bacteria by 16S rRNA

Nurhayati

+ View abstract View article PDF

OPEN ACCESS 012108

Probing of interaction mode between linier and cyclic ADTC6 (Ac-CDTPPC-NH_2) with E-cadherin protein using molecular docking approach

Parsaoran Siahaan, Jordy Armand Kaswanda, Rikno Budiyanto, Nur Esti Darmastuti, Dwi Hudiyanti and Vivitri Dewi Prasasty

+ View abstract View article PDF

OPEN ACCESS 012109

Effect of sintering on the mechanical properties of hydroxyapatite from fish bone (*Pangasius Hypophthalmus*)

Poedji Loekitowati Hariani, Muhammad Said and Salni

+ View abstract View article PDF

OPEN ACCESS 012111

Antibacterial activity of hydrolysate protein from Etawa goat milk hydrolysed by crude extract bromelain

Puji Lestari and Suyata

+ View abstract View article PDF

OPEN ACCESS 012112

Antioxidant and antibacterial activities of secondary metabolite endophytic bacteria from papaya leaf (*Carica papaya L.*)

Purbowatiningrum Ria Sarjono, Leni Diah Putri, Chlara Eka Budiarti, Nies Suci Mulyani, Ngadiwiyana, Ismiyarto, Dewi Kusrini and Nor Basid Adiwibawa Prasetya

+ View abstract View article PDF

OPEN ACCESS 012113

Antioxidant activity from limonene encapsulated by chitosan

Purbowatiningrum Ria Sarjono, Ismiyarto, Ngadiwiyana, Nor Basid Adiwibawa Prasetya, RosydhaUlfa, Bonita Ariestiani, Alfana B Kusuma, Nur Esti Darmastuti and Jihadul H F Rohman

+ View abstract View article PDF

OPEN ACCESS 012114

Polyethylene glycol incorporation on doctor blade and screen printing cast solid polymer electrolyte based PVDF HFP– LiBOB

Qolby Sabrina, Ahmad Sohib, Titik Lestariningsih and Bebeh Wahid Nuryadin

+ View abstract View article PDF

OPEN ACCESS 012115

Crab cuticle membrane application for treatment of corneal lamellar laceration in rats: a preliminary study

Raden Angga Kartiwa, Hulya Cut Septiyani, Astriviani Switania Sari Dirgahayu, Susi Heryati, Irawati Irfani, Paramita Pandansari, Basril Abbas, Nur Atik, M Fadhlillah, Toto Subroto and Cepi Kurniawan

+ View abstract View article PDF

OPEN ACCESS 012116

Impacts of rice husk ash filler loading on curing, morphological characteristics and tensile properties of natural rubber/ethylene propylene rubber blends

Rahmaniar and Tri Susanto

+ View abstract View article PDF

OPEN ACCESS 012117

The influence of ozone dosage, exposure time and contact temperature of ozone in controlling food quality (case study: tofu)

Eva Fathul Karamah, Rana Rezeki Najeges and Muhammad Zaki Zahirsyah

+ View abstract View article PDF

OPEN ACCESS 012118

Growth profile of *Aspergillus niger* on red galangal rhizomes as shown by bioactive compound changes

Ratnasari, Bambang Cahyono, Meiny Suzery and Agustina L.N. Aminin

+ View abstract View article PDF

OPEN ACCESS 012119

Preparation of nitrogen and sulphur Co-doped reduced graphene oxide (rGO-NS) using N and S heteroatom of thiourea

Refada Adyansya Rochman, Sayekti Wahyuningsih, Ari Handono Ramelan and Qonita Awliya Hanif

+ View abstract View article PDF

OPEN ACCESS 012120

Development of nanofluid detergent based on methyl ester sulfonates surfactant from waste cooking oil and titanium dioxide nanoparticles

Resi Levi Permadani and Slamet

+ View abstract View article PDF

OPEN ACCESS 012121

The influence of grafted heparin on chitosan/poly (ethylene glycol) blend membrane and it's application for creatinine and urea transport

Retno Ariadi Lusiana, Amalia Putri, Ahmad Suseno, Muhammad Cholid Djunaedi and Gunawan

+ View abstract View article PDF

OPEN ACCESS 012122

Chitosan based modified polymers designed to enhance membrane permeation capability

Retno Ariadi Lusiana, Vivi Dia A. Sangkota, Nurwarrohman Andre Sasongko, Sri Juari Santosa and Mohd Hafiz Dzarfan Othman

+ View abstract View article PDF

OPEN ACCESS 012123

Synthesis and characterization of composite polyethersulfone (PES) membranes with polyethylene glycol (PEG) and heparin-chitosan (Hep-CS)

Retno Ariadi Lusiana, Nangimatun Muslimah, Padila Riyanati, Vivi Dia A Sangkota, Gunawan and Choiril Azmiyawati

+ View abstract View article PDF

OPEN ACCESS 012124

Direct synthesis of mesoporous TiO_2 using PVA as surfactant template and assessment of their photocatalytic activities

Ridhawati Thahir, Herman Bangngalino, Abdul Wahid Wahab, Nursiah La Nafie and Indah Raya

+ View abstract View article PDF

OPEN ACCESS 012125

Development of heterogeneous catalyst from chicken bone and catalytic testing for biodiesel with simultaneous processing

Hantoro Satraidi, Widayat, Hadiyanto, Aji Prasetyaningrum, Jufriyah, Anita Selvia Ningrum and Risma Oktavia Nirmala Dewi

+ View abstract View article PDF

OPEN ACCESS 012126

The character istics (compositions, morphological, and structure) of nanocomposites polyaniline (PANI)/ZnO

Roy Andreas, Aldes Lesbani and Faqihudin Akhmad Yusuf

+ View abstract View article PDF

OPEN ACCESS 012127

Synthesis and swelling characterization of nata-de-coco-andwater-hyacinth-based hydrogel

Asep Handaya Saputra and Ruth

+ View abstract View article PDF

OPEN ACCESS 012128

Selection of stabilizer and coagulant for natural rubber latex colloidal system during diimide catalytic hydrogenation at semi pilot scale reaction

Santi Puspitasari, Asron Ferdian Falaah, Ahmad Nuruddin Zanki Widiyantoro and Muslich

+ View abstract View article PDF

OPEN ACCESS 012129

Which anthocyanin is the best corrosion inhibitor?

Saprizal Hadisaputra, Agus Abhi Purwoko, Saprini Hamdiani and N Nuryono

+ View abstract View article PDF

OPEN ACCESS 012130

Metal-pigment complex derived from natural dye of anthocyanin: a potential candidate for DSSC photosensitizer

Agus Abhi Purwoko, Veni Rori Setiawati and Saprizal Hadisaputra

+ View abstract View article PDF

OPEN ACCESS 012131

The storage time on the characteristic of liquid dishwashing soap from nyamplung seed oil (*Calophyllum inophyllum* L) and its antibacterial activity

Senny Widyaningsih, Mochammad Chasani, Hartiwi Diastuti and Esti Rahmayanti

+ View abstract View article PDF

OPEN ACCESS 012132

Hydrodeoxygenation of furfural-acetone condensation adduct over alumina-zirconia and silica-zirconia supported nickel catalysts

Siti Mariyah Ulfa, Dita Prihartini, Adam Mahfud, Rizqi Munandar and Indah Nur Pramesti

+ View abstract View article PDF

OPEN ACCESS 012133

Transformation reaction of prenylated chalcone of pinostrobin derivative and their antibacterial activity

Soerya Dewi Marliyana, Didin Mujahidin and Yana Maolana Syah

+ View abstract View article PDF

OPEN ACCESS 012134

Effectiveness of natural adsorbents in reducing Cu and Pb content of chemistry laboratory's wastewater treatment

Sri Hartini, Olvi Lakahina and A. Ign. Kristijanto

+ View abstract View article PDF

OPEN ACCESS 012135

Synthesis and characterization of L-Arginine modified silica by sol-gel method prepared rice hull ash

Sri Hastuti, Nuryono and Agus Kuncaka

+ View abstract View article PDF

OPEN ACCESS 012136

Kinetics adsorption of heavy oil spills in rivers on magnetite-(CTAB-montmorillonite) adsorbent

Sri Hilma Siregar, Karna Wijaya, Eko Sri Kunarti, Akhmad Syoufian and Suyanta

+ View abstract View article PDF

OPEN ACCESS 012137

Mahogany seeds oil: isolation and characterizations

Sri Mursiti, Endah Fitriani Rahayu, Yuan Maylia Rosanti and Intan Nurjaya

+ View abstract View article PDF

OPEN ACCESS 012138

Characteristic of ZSM-5 catalyst supported by nickel and molybdenum

Sriatun, Heru Susanto, Widayat and Adi Darmawan

+ View abstract View article PDF

OPEN ACCESS 012139

Saponin from purple eggplant (*Solanum melongena* L.) and their activity as pancreatic lipase inhibitor

Subandi, Lilik Zakiyaturrodliyah and Tatas H P Brotosudarmo

+ View abstract View article PDF

OPEN ACCESS 012140

Synthesis of TiO_2 pillared clay and its application to the decolourization of crystal violet dyes

Suhartana, Atikah Ayu Janitra, Choiril Azmiyawati and Adi Darmawan

+ View abstract View article PDF

OPEN ACCESS 012141

The phenomenon of UV-Vis spectroscopic changing due the binding of CO to the nitric oxide reductase from *Bacillus Azotoformans*

Suharti Suharti

+ View abstract View article PDF

OPEN ACCESS 012142

Photocatalytic degradation of indigo carmine dye using α-Fe_2O_3/bentonite nanocomposite prepared by mechanochemical synthesis

Surya Lubis, Sheilatina and Dina Wardani Sitompul

+ View abstract View article PDF

OPEN ACCESS 012143

Effect of pH $CaCl_2$ solution on graphene oxide encapsulated alginate (GO-AL) for removing methylene blue dyes

Syahna Febrianastuti, Ganjar Fadillah, Elsa Ninda Karlinda Putri, Uly Wulan Apriani and Sayekti Wahyuningsih

+ View abstract View article PDF

OPEN ACCESS 012145

The utilization of *citrus hystrix* and *citrus limon* as an organic demulsifier formulation

Tomi Erfando, Sonya Regina Cahyani and Novia Rita

+ View abstract View article PDF

OPEN ACCESS 012146

Tensile and oil resistance properties of chloroprene added in epoxidized natural rubber, nitrile butadiene rubber, and poly vinyl chloride blends

Tri Susanto

+ View abstract View article PDF

OPEN ACCESS 012147

Synthesis of β-TCP by sol-gel method: variation of Ca/P molar ratio

Tri Windarti, Adi Darmawan and Ana Marliana

+ View abstract View article PDF

OPEN ACCESS 012148

Synthesis of CPC/chitosan and its endurance test in simulated body fluid

Tri Windarti, Kartika Eka and Fitria Kusumawati

+ View abstract View article PDF

OPEN ACCESS 012149

Electrosynthesis of coordination polymers containing magnesium(II) and benzene 1,3,5-tricarboxylate: the influence of solvents and electrolytes toward the dimensionality

Witri Wahyu Lestari, Sakinah Shahab, Tria Hikma Novita, Rizqi Akbar Tedra, Candra Purnawan, Ubed Sonai Fahrudin Arrozi and Dwi Ni'maturrohmah

+ View abstract View article PDF

OPEN ACCESS 012150

Synthesis and characterization of composite gels starch-graftacrylic acid/bentonite (St-g-AA/B) using N'Nmethylenebisacrylamide (MBA)

Trias Ayu Laksanawati, Prida Novarita Trisanti and Sumarno

+ View abstract View article PDF

OPEN ACCESS 012151

Synthesis of silver orthophosphate under dimethyl sulfoxide solvent and their photocatalytic properties

Dyah Ayu Septiarini, Mardiyah Kurniasih, Roy Andreas, Dadan Hermawan and Uyi Sulaeman

+ View abstract View article PDF

OPEN ACCESS 012152

Enhanced hydrogen sorption properties over Mg^{2+} modified solvothermal synthesized HKUST-1 (Mg^{2+}/HKUST-1)

Witri Wahyu Lestari, Dwi Ni'maturrohmah, Riandy Putra, Hadi Suwarno and Ubed Sonai Fahrudin Arrozi

+ View abstract View article PDF

OPEN ACCESS 012153

Synthesis of activated carbon/bismuth oxide composite and its characterization for battery electrode

Yayuk Astuti, Faisal Aprialdi, Arnelli and Ismoyo Haryanto

+ View abstract View article PDF

OPEN ACCESS 012154

Optimization of conventional and ultrasound assisted extraction of inulin from gembili tubers (*Dioscorea esculenta* L.) using response surface methodology (RSM)

Yohanes Martono, Sandra Ayu Apriliyani, Cucun Alep Riyanto, Mutmainah and L Kusmita

+ View abstract View article PDF

OPEN ACCESS 012155

Anti-atherosclerosis potency of *Pandanus tectorius* fruit rich by trangeretin and ethyl trans-caffeate, and their cytotoxicity against HepG2 cell line

Yosie Andriani, Inten Pangestika, Efriyana Oksal, Habsah Mohamad, Hermansyah Amir,

Tengku Sifzizul Tengku Muhammad and Mohd Effendi Abd Wahid

+ View abstract View article PDF

OPEN ACCESS 012156

Engineering of aluminium matrix composite (AMC) reinforcement organoclay based on hotpress method using adaptive neuro-fuzzy inference system (ANFIS)

Yulius Eka Agung Seputra and Bambang Soegijono

+ View abstract View article PDF

OPEN ACCESS 012157

Discovering anticancer compound of ethyl acetate extract from RL1 code endophytic fungi culture derived by *Phyllanthus niruri* Linn leaves through cell cycle modulation in T47d cells

Yuyun Yuniati, Leny Yuliati, Eva Monica and Rollando Rollando

+ View abstract View article PDF

OPEN ACCESS 012158

Structural characterization of vanadium terpyridine complexes for the study of in-situ ligand cyclization reaction

Wan-Ting Jin and Zhao-Hui Zhou

+ View abstract View article PDF

JOURNAL LINKS

Journal home

Information for organizers

Information for authors

Search for published proceedings

Contact us

Reprint services from Curran Associates

13th Joint Conference on Chemistry

Certificate of Presentation

F42

This is to certify that

M. Cholid Djunaidi

has presented a paper entitled

Synthesis of Polyeugenoxy Acetyl Thiophene Methanolate (PEATM) as a New Carrier

at the **13th Joint Conference on Chemistry** held on 7-8 September 2018 in Semarang that organised by Chemistry Department, Diponegoro University

Semarang, 8 September 2018

Dean of Faculty of Sciences and Mathematics
Diponegoro University

Prof. Dr. Widowati, M.Si
NIP. 19690214 1994032002

The Chair of
13th Joint Conference on Chemistry

Adi Darmawan, Ph.D
NIP 19731121 199702 1 001

Certificate no: 5230/UN7.5.8/DL/2018

IOP Conf. Series: Materials Science and Engineering **509** (2019) 012024 doi:10.1088/1757-899X/509/1/012024

Influence of the synthesis parameters on the properties of natural rubber grafted poly-3-hydroxybutyrate

Asmaa Zainal Abidin[1,a], Noor Hana Hanif Abu Bakar[1,b], Denis Roizard[2], Anne Jonquieres[3], Carole Arnal-Herault[3], Mohamad Abu Bakar [1]

[1] Nanoscience Research Laboratory, School of Chemical Sciences, Universiti Sains Malaysia, 11800 Penang, Malaysia
[2] Laboratory of Reactions and Process Engineering, Université de Lorraine, UMR CNRS, LRGP, 7274, 1 rue Grandville, 54000 Nancy, France
[3] Laboratoire de Chimie Physique Macromoléculaire, Université de Lorraine, CNRS, LCPM, ENSIC, 1 rue Grandville, BP 20451, F-54 000 Nancy, France
Email: [a] asmaazainalabidin92@gmail.com, [b] hana_hanif@usm.my

Abstract. Graft copolymers of natural rubber (NR) and poly-3-hydroxybutyrate (PHB) with 60:40 ratio were synthesized in chlorobenzene. Two types of initiators namely azoisobutyronitrile (AIBN) and benzoyl peroxide (BPO) AIBN and BPO were employed to initiate the free radical grafting of the two polymers. The influence of the various types of initiator loadings was also investigated. Estimation of the grafted NR was performed using FTIR. The thermal stability and crystallization behavior of NR-g-PHB was studied using thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC) TGA as well as DSC respectively. The absence of the C=C peak of NR in the FTIR spectra confirmed that PHB grafted on this site after the breakage of the C=C bond. The increase in initiator loading, improved the smoothness of the NR-g-PHB. Moreover, single T_g were observed for NR-g-PHB which indicate that no phase separation occurs and the thermal stability of pristine NR after grafting was improved compared with that of NR alone.

1. Introduction

The realization of the effect of synthetic polymers to environmental problems has gained momentum to the development of materials based on renewable resources. Polymers derived from biomass such as poly(3-hydroxybutyrate) (PHB) have received considerable attention nowadays. Polyhydroxybutyrate (PHB) is a natural occurring polyester produced by the microorganism, known as *Bacillus megaterium* and was discovered by Lemoigne in 1926 [1]. PHB is a semi-crystalline thermoplastic which is biocompostable, biocompatible as well as renewable in nature [2]. Because of these properties, PHB has been applied in applications such as in the biomedical field. PHB not only acts as a vehicle to transport nutrient, drug and bioactive molecule to the tissue or cell, but it also employed in tissue scaffolding for bone and nerve regeneration, cardiovascular as well as cartilage support respectively [3, 4]. Apart from this, PHB is also prominent in water treatment field. Heitmann and coworkers, demonstrated the degradation of methylene blue using PHB as a support to disperse nanostructured niobium oxyhydroxide [5].

While PHB has shown excellent properties, it is actually a very brittle plastic and prone to thermal degradation at temperatures above the melting point [6]. To a certain extent, this limits its application. In an effort to extend its use, various methods have been devised to improve the properties of PHB.

IOP Conf. Series: Materials Science and Engineering **509** (2019) 012019 doi:10.1088/1757-899X/509/1/012019

Room temperature phytosynthesis of silver nanoparticles using leaf extract of *Momordica charantia*: optical and antimicrobial properties

Anuoluwa Abimbola Akinsiku[1,a], Kolawole Oluseyi Ajanaku[1,b], Joseph Adeyemi Adekoya[1,c], Olugbenga Samson Taiwo[2,d], Joan Ayo-Ajayi[1,e], Alaba Oladipupo Adeyemi[3,f], Enock Olugbenga Dare[4,g]

[1] Department of Chemistry, Covenant University, Canaan Land, Nigeria
[2] Department of Biological Sciences, Covenant University, Canaan Land, Nigeria
[3] Department of Biochemistry, Covenant University, Canaan Land, Nigeria
[4] Faculty of Chemistry and Pharmacy, Institute for Organic Chemistry, Regensburg University, Germany
Email: [a] anu.akinsiku@covenantuniversity.edu.ng;
[b] kola.ajanaku@covenantuniversity.edu.ng;
[c] joseph.adekoya@covenantuniversity.edu.ng;
[d] olugbenga.taiwo@covenantuniversity.edu.ng;
[e] joan.ayo-ajayi@covenantuniversity.edu.ng;
[f] alaba.adeyemi@covenantuniversity.edu.ng;
[g] enock-olugbenga.dare@chemie.uni-regensburg.de

Abstract. Nigeria is endowed with rich diversity of medicinal plants whose potential as "green" reducing agents are under-utilized. As the world is advocating for safe environment, plant-mediated synthesis of nanoparticles is considered as an eco-friendly and sustainable synthetic route instead of using toxic chemicals. The method is fast, easy and cheaper compared with other conventional techniques. In this study, phytochemicals present in the leaf extract of indigenous *Momordica charantia* served as reducing, capping/stabilizing agents. The synthesized silver nanoparticles were characterized with Uv-vis spectrophotometer, photoluminescence (PL) and energy-dispersive x-ray spectrometer (EDX). Antimicrobial activities of the synthesized nanosilver were investigated on isolated S*treptococcus pyogenes*, *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa Candida albicans* and *Trichophyton rubrum*. Optical measurement showed surface plasmon resonance with broad absorption peaks (400-450 nm). Significant growth inhibitions were also found at $P < 0.05$ by means of analysis of variance SPSS tool. The leaf influenced nanosilver displayed highest activity on *S. aureus*, *S. pyogenes* and *E. coli* with MIC and MBC value of 12.5 mg/mL. Least activity was detected against *P. aeruginosa* (50 mg/mL MIC and 100 mg/mL MBC). From this work, the biogenic nature and optical properties displayed by the as-prepared nanosilver strongly suggest its applications as candidate for therapeutic drugs, diagnostic and medical imaging.
Keywords: *Momordica charantia*, antimicrobial, optical properties, nanosilver

1. Introduction

Colloidal science has distinguished nanoparticles (particles within 1-100 nm range) and colloidal particles (particles between 2-200 nm range) [1], as this forms backbone of nanotechnology [2]. Particles in

IOP Conf. Series: Materials Science and Engineering **509** (2019) 012006 doi:10.1088/1757-899X/509/1/012006

Nutritive assessment of sorghum-*ogi* plantain flour weaning food

Ajanaku Kolawole Oluseyi[1,*], Ademosun Olabisi Theresa[1], Mustapha Abisola[1], Ajanaku Christiana Oluwatoyin[1], Olasehinde Grace Iyabo[2], Adekoya Olaoluwa Funmi[1], and Ajayi Samuel Oluwakayode[1]

[1] Chemistry Department, Covenant University, Ota, Ogun State, Nigeria
[2] Biological Sciences Department, Covenant University, Ota, Ogun State, Nigeria
* Corresponding author: kola.ajanaku@covenantuniversity.edu.ng

Abstract. The high rate of malnutrition in children is exclusively attributed to non-affordability of nursing mothers from low-income population to meet the high prices of commercial weaning foods. This has largely affected the dietary status of infant when they reach weaning stage. In this study, utilisation of plantain flour (*Musa spp.*) for enhancing the nutritive value of Sorghum-*Ogi* as common weaning food in southwest Africa was investigated. Same quantity of 100 g/g of Sorghum-*Ogi* was prepared for each of the batches with increasing quantity of plantain flour at 20, 40, 60, 80 and 100% levels of addition to prepare the study samples. Proximate analysis, functional properties, pasting and organoleptic properties, microbial load of the samples were determined using the AOAC official methods for nutritional labelling. Results of proximate analysis showed decreased protein (10.28 – 6.13%), carbohydrate (40.37-7.55%) and ash (1.4-0.3%) contents with increased level of plantain flour addition, while the fat and crude fibre contents increased with increased addition of plantain flour. The functional analysis indicated 28.6% increase in water absorption value at 60% enhancement with decreased value at 100% addition. The microbial load of the blend showed that the food blends are safe for consumption at all level and the organoleptic evaluation by trained panellist preferred 60% acceptance rate of enhancement. In conclusion, the nutritional indices analysed specified the use of plantain flour with Sorghum-*Ogi* as weaning food up to 60% level of inclusion to handle the nutritional deficiency in neonates during weaning stage of development.
Keywords: Weaning diet, Plantain flour *Musa spp.*, malnutrition, organoleptic assessment, infant, proximate evaluation.

1. Introduction

Less nutritious weaning foods, poor weaning nourishments and unhygienic weaning homes pre-dispose neonates to contaminations, diseases, high mortality and malnutrition. Neonates who are adequately breastfed within the first six months are able to sustain adequate growth rate, but after this period, there is need for increase in food intake nutrients to uphold the constant growth hence, the need for nutritive weaning foods. Lack of appropriate nutritive weaning foods lead to malnutrition which has become one of the causes of high mortality rate in infants and this is paramount in the Sub-Sahara part of Africa. Malnutrition is the insufficiency of essential nutrients, which are needed for proper growth and development in diets. Non-availability of certain micronutrients which include iron, zinc and vitamins increases the vulnerability of infants to infections. According to the United Nations Children's Fund [1], children under the age of 5 years accounted for 25 per cent of the 5.4 million deaths in 2017, while neonates accounted for 47 per

IOP Conf. Series: Materials Science and Engineering **509** (2019) 012158 doi:10.1088/1757-899X/509/1/012158

Structural characterization of vanadium terpyridine complexes for the study of in-situ ligand cyclization reaction

Wan-Ting Jin[1], Zhao-Hui Zhou[1,*]

[1] State Key Laboratory of Physical Chemistry of Solid Surfaces; College of Chemistry and Chemical Engineering, Xiamen University, Xiamen 361005 (China)
* Corresponding author: zhzhou@xmu.edu.cn; Tel.: +86 592 2184531; Fax: +86 592 2183047.

Abstract. Vanadyl complex $[V^{IV}O(hmfc)(terpy)]\cdot 3.5H_2O$ (**1**) (hmfc=5-hydroxy-3-methyl-2(5*H*)-furanone-5-carboxylate; terpy=2,2´:6´,2-terpyridine) has been isolated, which the hmfc ligand was formed through in-situ cyclization of lactate. X-ray structural analysis shows that hydroxyfuranone carboxylate chelates to vanadium through hydroxy group and carboxy group. Under the same condition, a peroxo vanadium terpyridine $[V^{V}O(O_2)(terpy)(H_2O)]Cl\cdot H_2O$ (**2**) could also be isolated, which is directly formed by molecular oxygen. In addition, a mixed-valence complex $[V_2O_3(terpy)_2]Cl_3\cdot 9H_2O$ (**3**) was isolated with two dimensional water units. These three complexes were characterized by elemental analysis, IR, UV-Vis, EPR, TGA, bond valence calculations and X-ray structural analyses. The formation of hydroxyfuranone carboxylate ligand may provide a new approach for one-pot synthesis of γ-hydroxy butenolide derivatives.
Keywords: furanone, lactic acid, ligand assisted reaction, terpyridine, vanadium

1. Introduction

2(5*H*)-furanone, also known as γ-butenolide, is present in various natural products [1, 2] and served as chiral building blocks for the synthesis of diverse organic compounds [3]. Many functionally substituted derivatives of 2(5*H*)-furanone possess a wide range of biological activities, which include antibiotic [4], anticancer [5], pesticides [6], and plant growth regulators [7]. Except total synthesis, the most studied strategies for their preparations are cyclization of functional olefin, alkyne, and α-hydroxy ketone, as well as modification of the ring of furan derivatives or γ-butyro lactone [3, 8, 9]. The development of synthetic methods for assembling multi-substituted furanone with unique substituent patterns with simple conditions remains an important synthetic goal.

In another aspect, vanadium-based catalysts have been widely used as homogeneous or heterogeneous catalysts in various oxidation processes, which include oxidation of alkanes and alcohols, epoxidation, oxidative bromination and sulfoxidation [10, 11]. The relevance of vanadate-dependent enzymes in various biological catalytic processes [12] also stimulated research on vanadium based catalysis. Based on the special catalytic property of vanadium, in this report we used terpyridine as assisted ligand for the preparation of 5-hydroxy-3-methyl-2(5*H*)-furanone-5-carboxylate (hmfc) vanadium complex $[VO(hmfc)(terpy)]\cdot 3.5H_2O$ (**1**), where hmfc ligand was formed through in-situ cyclization of lactate. As the reaction system was exposed to air, it can also activate dioxygen to form a peroxo vanadium complex $[V^{V}O(O_2)(terpy)(H_2O)]Cl\cdot H_2O$ (**2**) in a wide pH range. Moreover, a mixed-valence complex $[V_2O_3(terpy)_2]Cl_3\cdot 9H_2O$ (**3**) was isolated under hydrothermal condition. Based on the

IOP Conf. Series: Materials Science and Engineering **509** (2019) 012007 doi:10.1088/1757-899X/509/1/012007

The effect of MgO and Cr_2O_3 on mullite formation from Nigeria sourced kaolin-calcined alumina sintered compacts

Aladesuyi Olanrewaju[1,a], Ajanaku Kolawole Oluseyi[1,b], Swapan Kumar Das[2,c]

[1] Covenant University, Km.10, Idiroko Road, Canaanland, Ota, Ogun State, Nigeria.
[2] Formerly Chief Scientist, CSIR-CGCRI, Kolkata-700032, India & Presently Guest Faculty, Ceramic Engineering, Department of Chemical Technology, 92, A P C Road, Calcutta University, Kolkata-700009, India.
Email: [a] olanrewaju.aladesuyi@covenantuniversity.edu.ng;
[b] kola.ajanaku@covenantuniversity.edu.ng; [c] swapancsir@gmail.com

Abstract. Mullite being one of the most important aluminosilicate materials has a lot of unique properties and industrial applications. Hence the need to produce via cheap and available starting materials is paramount. In this present study, mullite was synthesized from sintering of Nigerian sourced kaolin–alumina (high purity from Almatis) after reacting samples have been mixed in a high speed ball milling machine in the presence of MgO and Cr_2O_3 additives. The samples were uniaxially pressed in a mould to form compact and sintered at temperature of 1400-1600°C. Bulk density, apparent porosity, and modulus of rupture were investigated as a function of sintering temperature and presence of dopant. Microstructural studies using scanning electron microscope (SEM) and X-ray diffraction (XRD) studies were carried out on the kaolin-alumina sintered compacts. Results from the study indicate that mullite was successfully synthesized, as XRD pattern showed the presence of mullite as major phases at 1600°C without any trace of cristobalite (unreacted silica) or quartz. SEM studies showed the presence of needle-shaped mullite. The doped samples showed little improvement in the physico-mechanical properties of the aggregate. However, the degree of mullitisation for the doped samples at 1600°C far exceeds that of the undoped samples. Cr_2O_3 doped has 94.48% mullitisation while MgO has 79.96% mullitisation. The undoped sample has 59.19% degree of mullitisation. MgO doped was better densified.
Key words: Clay, alumina, sintering, MgO doping, Cr_2O_3 doping, mullite

1. Introduction

Mullite ceramics ($3Al_2O_3.2SiO_2$) have recently generated a lot of interest due to its outstanding properties, such as low thermal expansion, low dielectric constant, high melting point, high thermal shock resistance and excellent creep resistance which has useful applications in the refractory industry [1, 2]. The composition of mullite is mostly denoted as $3Al_2O_3{\cdot}SiO_2$ (71.83 wt.% Al_2O_3). However, the most relatively abundant form of mullite has about 71-76 wt.% Al_2O_3, 23-24 wt.% SiO_2, and minute amount of TiO_2, Fe_2O_3, CaO and MgO. The composition of mullites strongly depends on the starting materials and temperature treatment [3]. Several authors have carried out the synthesis of mullite through cost effective means [4, 5]. Materials such as clay, rice husk and other forms of naturally occurring aluminosilicate can be used as starting materials for mullite production. However, mullite synthesized from these sources do experience some limitations such as poor densification, low strength and high presence of impurity substance. Therefore, the choice of a synthetic method which will give a