

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : PROSIDING

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

Jumlah Penulis : 4 Orang Penulis ke : 4

Nama Penulis : Arnelli, Vita Nur Wahyuningrum, Fina Fauziah, **Yayuk Astuti***

Identitas Makalah

a. Nama Prosiding : IOP conference series: materials science and engineering

b. Nomor ISSN : 1757-899X

c. Volume, No, Bulan, Tahun : 509, -, Mei, 2019

d. Penerbit : IOP Publishing

e. DOI artikel (jika ada) : doi:10.1088/1757-899X/509/1/012023

f. Alamat web : <https://iopscience.iop.org/article/10.1088/1757-899X/509/1/012023>

g. Indexing : Scopus, google scholar, schimago JR

Kategori Publikasi Makalah : ☒ Prosiding Internasional Terindeks Scopus
 (beri ✓ pada kategori yang tepat) ☐ Prosiding Internasional
☐ Prosiding Nasional

Hasil Penilaian Peer Review :

Komponen Yang Dinilai	Nilai Maksimal Prosiding = 30			Nilai Akhir Yang Diperoleh
	Internasional Terindeks Scopus	Internasional	Nasional	
a. Kelengkapan unsur isi buku (10%)	3			2,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	9			8
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9			9
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			9
Total = (100%)	30			28,5
Kontribusi Pengusul (Penulis Anggota)				(40% x 28,5) / 3 = 3,8

Komentar Peer Review:

- Kelengkapan dan kesesuaian unsur: Lengkap dan sesuai dengan yang dipersyaratkan jurnal internasional. Artikel yang dimuat, dibahas dan disusun secara lengkap
- Ruang lingkup dan kedalaman pembahasan: Ruang lingkup penelitian ini tentang sintesis karbon termodifikasi dari abu sekam sebagai adsorben logam nikel dan krom. Data yang disajikan dibahas dengan relatif detail dan lengkap, disertai referensi pendukung
- Kecukupan dan kemutakhiran data/informasi dan metodologi: Kualitas dan kuantitas pustaka baik, sebagian besar tahun terbit kurang dari 10 th (90%). Metodologi disajikan detail sehingga bisa diulang peneliti lain
- Kelengkapan unsur dan kualitas penerbit: Unsur penerbitan lengkap dan kualitas terbitan baik.
- Indikasi Plagiasi: tidak ada
- Kesesuaian bidang ilmu: sesuai bidang ilmu kimia

Semarang,
 Reviewer 1



Drs. Gunawan, M.Si., Ph.D
 NIP. 196408251991031001

Unit kerja :
 Departemen Kimia FSM Undip
 Jabatan Fungsional:
 Lektor Kepala

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 (beri ✓ pada kategori yang tepat) ☐ Prosiding Internasional
☐ Prosiding Nasional

Hasil Penilaian Peer Review :

Komponen Yang Dinilai	Nilai Maksimal Prosiding = 30			Nilai Akhir Yang Diperoleh
	Internasional Terindeks Scopus	Internasional	Nasional	
a. Kelengkapan unsur isi buku (10%)	3			3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9			9
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9			8
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			9
Total = (100%)	30			29
Kontribusi Pengusul (Penulis Anggota)	$\frac{40\% \times 30 = 4}{3}$			$\frac{40\% \times 29 = 3,87}{3}$

Komentar Peer Review:

- Kelengkapan dan kesesuaian unsur: Unsur artikel telah lengkap dan sesuai template yang terdiri dari pendahuluan, metode, hasil dan pembahasan, kesimpulan serta referensi. Hanya tertera 2 keyword.
- Ruang lingkup dan kedalaman pembahasan: : Ruang lingkup penelitian adalah sintesis karbon aktif. Pembahasan yang dilakukan singkat namun cukup mendalam dan telah dilengkapi data pembandingan.
- Kecukupan dan kemutakhiran data/informasi dan metodologi: Data yang disajikan cukup dan 7 dari 15 referensi merupakan referensi terkini yang terbit dalam 5 tahun terakhir pada saat artikel diterbitkan.
- Kelengkapan unsur dan kualitas penerbit: Penerbit IOP conference berkualitas baik dan telah terindeks scopus.
- Indikasi Plagiasi: Tidak ada
- Kesesuaian bidang ilmu: sesuai bidang ilmu kimia

Semarang,
Reviewer 2



Dr.M.Cholid Djunaedi, S.Si, M.Si.
 NIP. 197007021996031004

Unit kerja :
 Departemen Kimia FSM Undip
 Jabatan Fungsional:
 Lektor Kepala

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Kategori Publikasi Makalah : ☒ *Prosiding Internasional Terindeks Scopus*
 (beri ✓ pada kategori yang tepat) ☐ *Prosiding Internasional*
☐ *Prosiding Nasional*

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi buku (10%)	2,5	3	2,75
b. Ruang lingkup dan kedalaman pembahasan (30%)	8	9	8,5
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9	8	8,5
d. Kelengkapan unsur dan kualitas penerbit (30%)	9	9	9
Total = (100%)	28,5	29	28,75

Reviewer 2

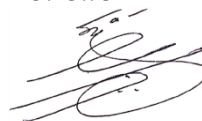


Dr. M. Cholid Djunaedi, S.Si., M.Si.
 NIP. 197007021996031004

Unit kerja :
 Departemen Kimia FSM Undip

Semarang, April 2020

Reviewer 1



Drs. Gunawan, M.Si., Ph.D
 NIP. 196408251991031001

Unit kerja :
 Departemen Kimia FSM Undip

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Kategori Publikasi Makalah : ☒ *Prosiding Internasional Terindeks Scopus*
 (beri ✓ pada kategori yang tepat) ☐ *Prosiding Internasional*
☐ *Prosiding Nasional*

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding	Nilai Akhir Yang Diperoleh
	Internasional Terindeks Scopus 30	
a. Kelengkapan unsur isi buku (10%)	3	2,75
b. Ruang lingkup dan kedalaman pembahasan (30%)	9	8,5
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9	8,5
d. Kelengkapan unsur dan kualitas penerbit (30%)	9	9
Total = (100%)	30	28,75
Kontribusi Pengusul (Penulis Anggota)		$\frac{40\% \times 28,75}{3} = 3,83$

Reviewer 2



Dr. M. Cholid Djunaedi, S.Si., M.Si.
 NIP. 197007021996031004

Unit kerja :
 Departemen Kimia FSM Undip

Semarang, April 2020

Reviewer 1



Drs. Gunawan, M.Si., Ph.D
 NIP. 196408251991031001

Unit kerja :
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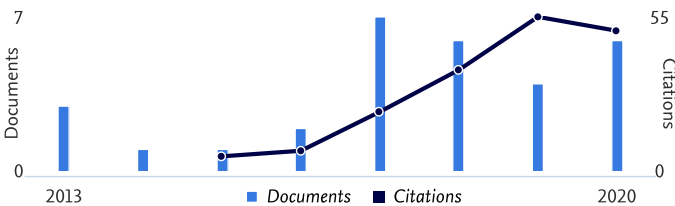
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IOP Conference Series: Materials Science and Engineering, 2020, 833(1), 012061

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IOP Conference Series: Materials Science and Engineering
 Volume 509, Issue 1, 3 May 2019, Article number 012023
 13th Joint Conference on Chemistry, JCC 2018; Semarang; Indonesia; 7 September
 2018 through 8 September 2018; Code 147746

Synthesis of surfactant modified activated carbon (SMAC) from rice husks as Ni(II) and Cr(VI) adsorbent (Conference Paper) [\(Open Access\)](#)

Arnelli, Wahyuningrum, V.N., Fauziah, F., Astuti, Y. ✉ 👤

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

Abstract

[↕ View references \(15\)](#)

Research on the synthesis of surfactant modified activated carbon (SMAC) from rice husk, investigation of the amount of surfactant added, contact time of surfactant on activated carbon, and the optimum condition of Ni(II) and Cr(VI) adsorbed by SMAC has been done. The carbon-making process was carried out by pyrolysis method where the carbon was activated using KOH for its effectivity in forming new pores and enlarging the surface area so that it can be used as an adsorbent. The activated carbons that had adsorbed sodium lauryl sulphate (SLS) surfactants would produce SMAC (Surfactant Modified Activated Carbon) with a more hydrophilic and negatively charged surface. SMAC can be applied as Ni(II) and Cr(VI) metal ion adsorbents. This research aims to determine the optimum KOH concentration for optimum activation process and optimum SLS concentration in the manufacture of SMAC, determining the adsorption efficiency of SLS surfactant by activated carbon in addition to determining the efficiency and the SMAC adsorption capacity of Ni(II) and Cr(VI). The results showed that the optimum concentration of KOH was 50%, the optimum concentration of SLS 60%, contact time was 4 hours and the adsorption efficiency was 99.69%. The adsorption efficiency of Ni(II) and Cr(VI) by SMAC were 95.96% and 99.49%, respectively. © 2019 Published under licence by IOP Publishing Ltd.

SciVal Topic Prominence ⓘ

Topic: Iodine Value | Activated Carbon | Palm Kernels

Prominence percentile: 99.482



Chemistry database information ⓘ

Substances



Author keywords

adsorption

SMAC

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 Al-Latief, D.N. , Arnelli , Astuti, Y.
*(2015) AIP Conference
 Proceedings*

 Activation of carbon from rice
 husk using chemical activating
 agents and physical treatments as
 sodium lauryl sulfate adsorbent

 Arnelli , Mastuti, L.N. , Arini, A.D.
*(2020) AIP Conference
 Proceedings*

 Direct surfactant-impregnated
 activated carbon for adsorption of
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 Puasa, S.W. , Ismail, K.N. , Khairi,
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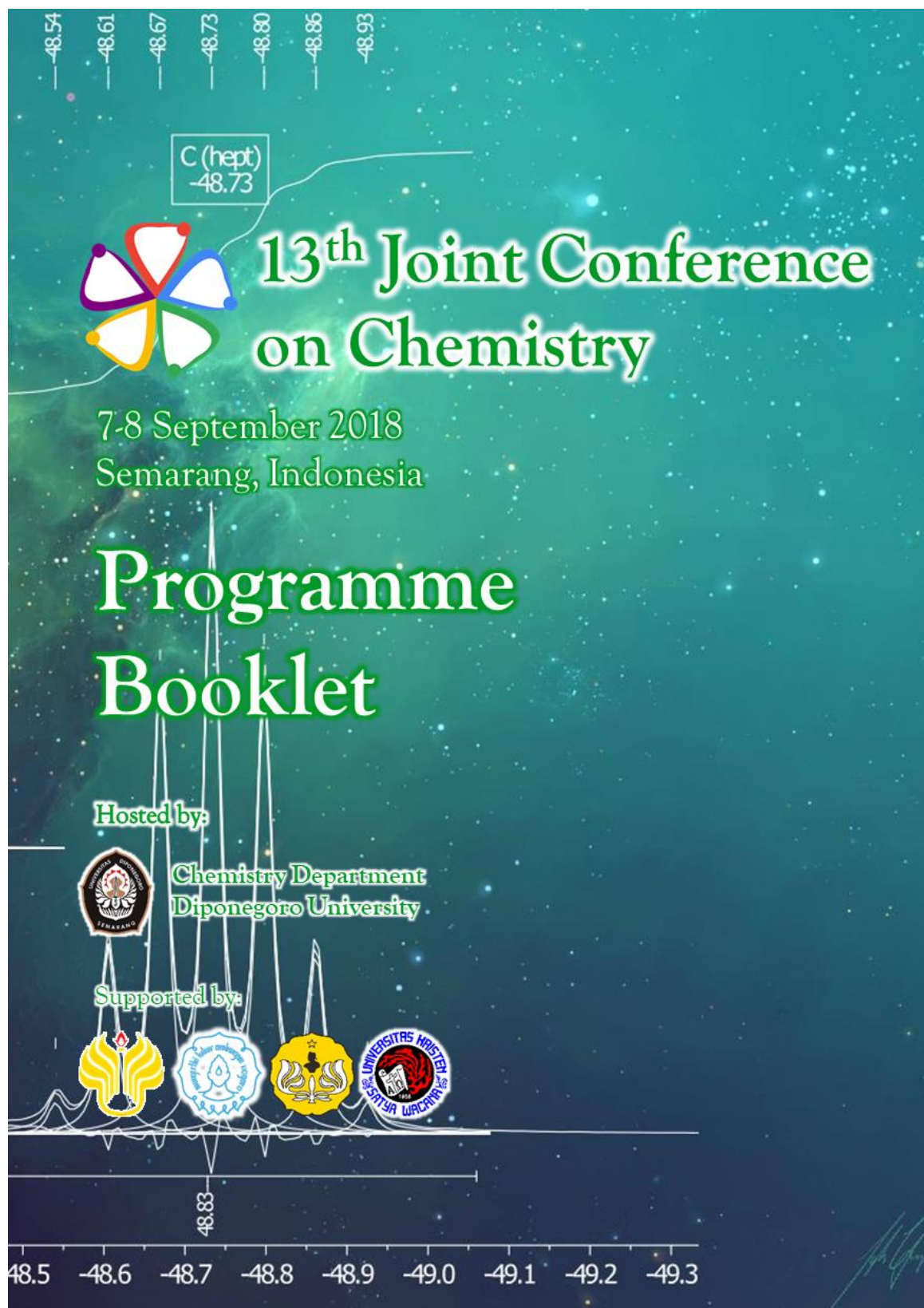
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13th Joint Conference on Chemistry

7-8 September 2018

Semarang, Indonesia

Preface

On behalf of the Consortium of Chemistry Department in Central Java, Indonesia and the JCC Committee, I would like to thank you for your participation in the 13th Joint Conference on Chemistry which to be held from 7-8th September 2018 in Semarang, Indonesia. The Joint Conference on Chemistry is an annual conference organized by the consortium of Chemistry Department of five universities in Central Java: Diponegoro University (UNDIP), State University of Semarang (UNNES), Sebelas Maret University (UNS), Jenderal Soedirman University (UNSOED) and Satya Wacana Christian University (UKSW). The JCC has been held since 2006.

This conference provides an interactive international forum to provide for sharing and exchange information on the latest research on Chemistry and related sciences, to enhance the capacities for creating innovation system, to contribute in the formulation of global strategies in advancing science role as well as developing policy initiatives in community, to stimulate future collaborations among industries, researchers, governments and other stakeholders who apply science and technology for better live. The speakers and participants of the 13th JCC are up to 250 coming from various countries extending from Indonesia, Malaysia, Philippine, Australia, South Korea, Japan, Iran, Nigeria, UK and India.

We received nearly 200 papers submitted to be included in the proceedings of this conference and after the review and revision process we finally got 158 papers to be published

I would like to thank for the endeavour of committee from Chemistry Department - UNDIP and the consortium member. In addition, the conference committee acknowledges the technical and financial support from Diponegoro University.

Adi Darmawan, Ph.D

The Chair of 13th Joint Conference of Chemistry

Chemistry Department, Faculty of Science and Mathematics, Diponegoro University

Committee

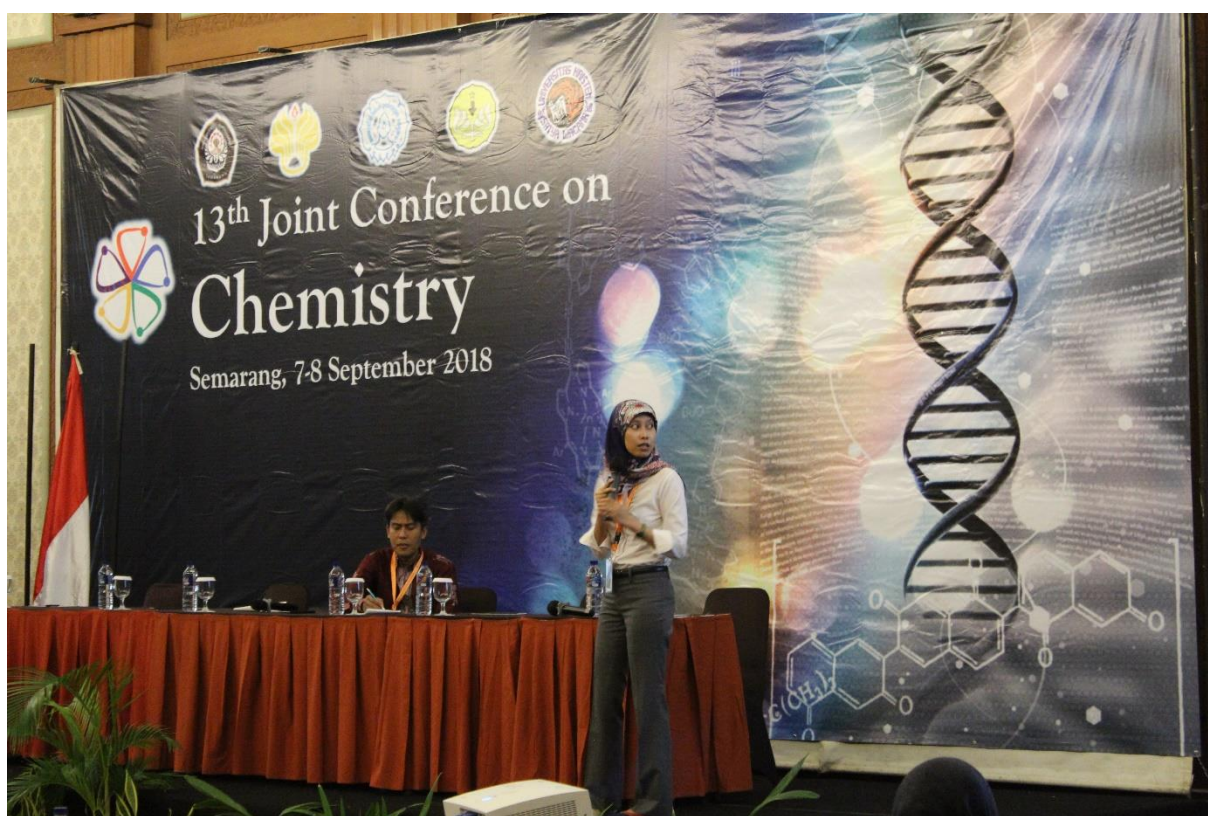
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Nor Basid Adiwibawa Prasetya, Ph.D (Diponegoro University, Semarang, Indonesia)
Scientific : M. Alauhdin, PhD (Universitas Negeri Semarang, Indonesia)
Hartiwi Diastuti, S.Si., M.Si (Universitas Jenderal Soedirman, Indonesia)
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Documentation





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2019

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

Accepted papers received: 08 March 2019

Published online: 03 May 2019

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Preface

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Preparation of Cu(II) ion-imprinted based on carboxymethyl chitosan and application as adsorbent of Cu(II) ion

Abu Masykur, Atmanto Heru Wibowo and Salsabilah

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OPEN ACCESS 012002

Aluminium copper pillared clay membrane: application for dyestuff filtration

Adi Darmawan and Siti Shafalisa

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Ag₂O nanoparticles fabrication by *Vernonia amygdalina Del.* leaf extract: synthesis, characterization, and its photocatalytic activities 012022

Ariffinisa Lintang Widyaningtyas, Yoki Yulizar and Dewangga Oky Bagus Apriandanu

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OPEN ACCESS 012023

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

Arnelli, Vita Nur Wahyuningrum, Fina Fauziah and Yayuk Astuti

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OPEN ACCESS 012024

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

Asmaa Zainal Abidin, Noor Hana Hanif Abu Bakar, Denis Roizard, Anne Jonquieres, Carole Arnal-Herault and Mohamad Abu Bakar

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Analysis of piperine content in cabe jawa extracts (*Piper retrofractum Vahl*) using UV spectrophotometry and HPLC

Bambang Cahyono, Eli Fatihatul Hasanah, Judiono, Meiny Suzery and Widayat

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The effects goat milk yoghurt casein on malondialdehyde (MDA) level of rats (*Rattus norvegicus*) exposed by 2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD)

Chanif Mahdi, Maya Erika Prihastuti Haskito Ajeng and Melinda Puspita Sari

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Degradation of Congo Red in batik wastewater using fenton reagent under visible rays

Tien Setyaningtyas, Kapti Riyani, Santi Nur Handayani and Cherly Firdharini

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OPEN ACCESS 012028

Synthesis of silica gel from glass waste for adsorption of Mg²⁺, Cu²⁺, and Ag⁺ metal ions

Choiril Azmiyawati, Siti Sahmatun Niami and Adi Darmawan

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012003

Synthesis of chromium pillared clay for adsorption of methylene blue

Adi Darmawan, Khoirul Fuad and Choiril Azmiyawati

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012004

The application of ozonated water to maintain the quality of tuna meat: the effect of contact time, contact temperature and ozone dosage

Eva Fathul Karamah, Adlimatul Putri Ilmiyah and Nadifa Ismaningtyas

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012005

Hydrocracking of palm oil to gasoline on bimetallic Ni-Cu/zirconia pillared bentonite

Ahmad Suseno

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012006

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

Ajanaku Kolawole Oluseyi, Ademosun Olabisi Theresa, Mustapha Abisola, Ajanaku Christiana Oluwatoyin, Olaschinde Grace Iyabo, Adekoya Olaoluwa Funmi and Ajayi Samuel Oluwakayode

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012007

The effect of MgO and Cr₂O₃ on mullite formation from Nigeria sourced kaolin-calcined alumina sintered compacts

Aladesuyi Olanrewaju, Ajanaku Kolawole Oluseyi and Swapan Kumar Das

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012008

Corrosion inhibitive properties of *Epimedium grandiflorum* on mild steel in HCl acidic media

Aladesuyi Olanrewaju, Ajanaku Kolawole Oluseyi, Badejo Victor Ayomide, Ademosun Olabisi Theresa and Ajayi Samuel Oluwakayode

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012009

Catalytic cracking of waste frying oil using Ni-Fe/activated zeolite catalyst as a source of renewable energy

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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

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012063

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

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

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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

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Synthesis and characterization of hydrophobic silica prepared by different acid catalysts

Linda Karlina, Choiril Azmiyawati and Adi Darmawan

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012066

Electrosynthesis of $\text{Al}(\text{OH})_3$ by $\text{Al}(\text{s})|\text{KCl}(\text{aq})||\text{KCl}(\text{s})|\text{C}(\text{s})$ system

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

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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,

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

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

Lina Troskialina¹ and Robert Steinberger-Wilckens²

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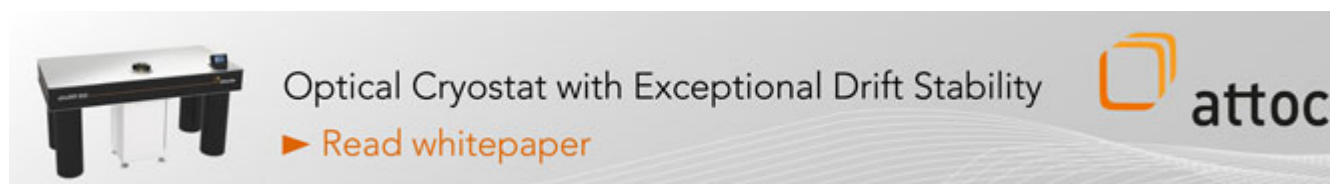
Abstract

This work presents successful infiltration of Ni-YSZ-based catalysts for dry reforming of biogas over a temperature range of 600–800°C. Ni catalysts over YSZ support are commonly used as solid oxide fuel cell (SOFC) anode material to catalyse the fuel, normally hydrogen, in electrochemical oxidation reaction to generate electricity. The objective of this work is to find suitable SOFC anode catalyst materials to enable the SOFCs to operate on biogas as a renewable and low cost fuel. There are challenges when biogas is used as fuel; biogas dry reforming is slow and deleterious carbon deposition

is unavoidable. The slow electrochemical reaction leads to low SOFC performance. While accumulation of carbon deposits may reduce the catalytic activity, decrease the SOFC performance and can lead to a complete failure of the SOFC operation. In this work, tin salt was used as a dopant in careful infiltration of Ni-YSZ catalysts. Characterisations of the catalysts were performed using SEM, XRF and XPS. Dry reforming reactions were carried out in a quartz tube reactor attached to a quadrupole mass spectrometer to monitor the product gases. Various compositions of $\text{CO}_2:\text{CH}_4$ mixtures were used to simulate biogas. It was observed that at small quantities of less than 1 weight % Sn/Ni loadings, dry reforming of biogas produced much higher level of the desired CO and H_2 gas products compared to that obtained over non-infiltrated NiYSZ catalyst. The developed Sn-Ni-YSZ catalysts were able to operate continuously for more than 48 hours without noticeable performance degradation. More work is still in progress; however, this work so far concludes that Sn-doped Ni-YSZ catalysts have improved dry reforming of biogas at SOFC operating temperatures and so promised successful operations of SOFCs using biogas, a renewable fuel source, to produce sustainable electricity with high efficiency.

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

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Abstract

Vanadyl complex $[\text{V}^{\text{IV}}\text{O}(\text{hmfc})(\text{terpy})]3.5\text{H}_2\text{O}$ (**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 $[\text{V}^{\text{VO}}(\text{O}_2)(\text{terpy})(\text{H}_2\text{O})]\text{Cl}\cdot\text{H}_2\text{O}$ (**2**) could also be isolated, which is directly formed by molecular oxygen. In addition, a mixed-valence complex $[\text{V}_2\text{O}_3(\text{terpy})_2]\text{Cl}_3\cdot 9\text{H}_2\text{O}$ (**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.

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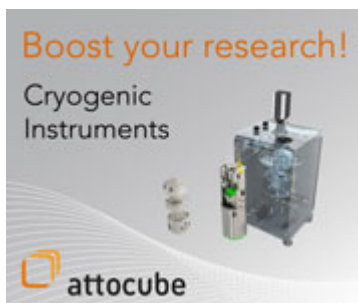


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Nutritive assessment of sorghum-ogi plantain flour weaning food

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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.

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

Yosie Andriani¹, Inten Pangestika¹, Efriyana Oksal¹, Habsah Mohamad¹, Hermansyah Amir², Tengku Sifzizul Tengku Muhammad³ and Mohd Effendi Abd Wahid⁴

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Abstract

Hypercholesterolemia can be a major contributing agent to the development of atherosclerosis. Atherosclerosis can provoke to heart attack, is a primary reason of death worldwide and current drug statins is not without adverse side effects. This warrants for alternative remedial candidates from natural resources. Natural products from plant play an important role in production of new potential drugs to the pharmaceutical market. *Pandanus tectorius* (Pandanaceae) is one of the most popular herbs and locally grows in Malaysia and Indonesia is commonly known as 'pandan laut'. It has been used traditionally to cure certain diseases. The aimed of study is to find out the potency of fruit rich by tangeretin and ethyl trans-cafeate from *P. tectorius* for atherosclerosis prevention through inhibiting of the HMG-CoA reductase activity. Since the cholesterol mechanism occurs in the liver, the cytotoxicity activity of all extracts and compounds were necessary analysed. The sample was extracted successively using hexane, ethyl acetate and methanol. The compounds profiling was done by thin layer chromatography (TLC). The HMG-CoA reductase kit for anti-atherosclerosis assay (pravastatin as a controlled drug) was purchased from Sigma Aldrich. The cytotoxicity activity was observed by MTT assay. The both data were read by ELISA reader at wavelength of 340 nm and 570 nm, respectively. Result revealed that all extracts have proven to inhibit the activity of HMG-CoA reductase with the highest activity was obtained by PMK ((9 times higher than pravastatin). All samples also showed no cytotoxic activity against HepG2 cell line since they have IC₅₀ value more than 30 µg/mL. This Study found that *P. tectorius* fruit rich by tangeretin and ethyl trans-cafeate produces a new candidate for treatment of atherosclerosis.

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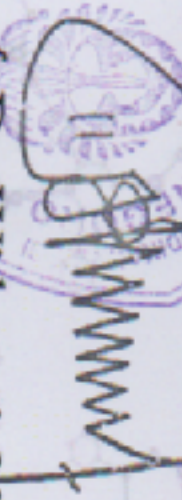
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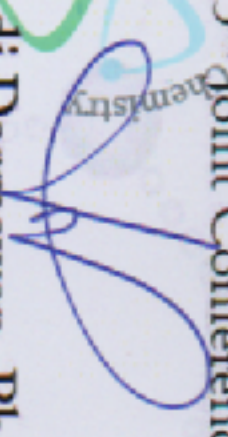
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