

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

Judul Publikasi Ilmiah (Artikel) : Cholesterol implications on coconut liposomes encapsulation of beta-carotene and vitamin C

Jumlah Penulis : 4 orang

Status Pengusul : penulis pertama/utama

Identitas Jurnal Ilmiah :
 a. Nama Jurnal Ilmiah : IOP Conference Series: Materials Science and Engineering
 b. Nomor ISBN /ISSN : ISSN: 17578981
 c. Volume, Nomor, Bulan, Tahun : Volume 509, Issue 1, 3 May 2019, Article number 012037
 d. Penerbit : IOP Publishing
 e. DOI artikel (jika ada) : <https://doi.org/10.1088/1757-899X/509/1/012037>
 f. Alamat web jurnal : <https://iopscience.iop.org/issue/1757-899X/509/1>
 g. Terindeks di SCOPUS (CiteScore is 0.53), Scimago Journal Rank (H-index 24, SJR 0.19), Google Scholar, dll
 h. Jumlah Halaman : 8 (1-8) halaman

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Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi prosiding (10%)	3	3	3
b. Ruang lingkup dan kedalaman pembahasan (30%)	8	9	8,5
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9	8,1	8,55
d. Kelengkapan unsur dan kualitas penerbit (30%)	9	9,0	9
Total = (100%)	29	29,1	29,05
Nilai Pengusul= (60%)	17,4	17,46	17,43

Reviewer II

Prof. Dr. rat Nuryono, M.S.
NIP. 196407141988111001

Unit kerja : Universitas Gadjah Mada Yogyakarta
 Jabatan Fungsional : Guru Besar
 Bidang ilmu : Kimia

Semarang,
Reviewer I

Prof. Dr. Moh Daeni, ST, M.Eng
NIP 197102071995121001

Unit Kerja : Universitas Diponegoro Semarang
 Jabatan Fungsional : Guru Besar
 Bidang Ilmu : Teknik Kimia

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	(30)			
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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			29
Nilai Pengusul = (60% x 29) = 17.4				17.4

Catatan Penilaian artikel oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi artikel:

Artikel sangat lengkap, dimana analisis tentang pengaruh kolesterol terhadap enkapsulasi beta-karoten dan vitamin C dalam liposom kelapa di disajikan dengan terperinci, disitasi dan dibahas. Topik dan materi sesuai dengan jurnal yang bersangkutan. Tata penulisan tersaji dengan sangat baik.

2. Ruang lingkup dan kedalaman pembahasan:

Artikel ini membahas tentang pengaruh kolesterol terhadap enkapsulasi beta-karoten dan vitamin C dalam liposom kelapa. Analisis terhadap efisiensi enkapsulasi dan koefisien partisi mengungkapkan bahwa bahwa ko-enkapsulasi Vitamin C dan beta-karoten dalam liposom kelapa dipengaruhi oleh kolesterol karena lipofilisitas molekulnya yang unik. Beberapa referensi dicitasi untuk menunjang bahwa hasil yang dicapai cukup memberikan kontribusi bagi pengembangan ilmu.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Referensi yang dicitasi dalam artikel ini ada 23 dimana 19 Baru (dalam 10 tahun terakhir). Nilai novelty/kebaruan artikel sangat baik. Analisa, dan metode disajikan dengan tahapan yang sistematis.

4. Kelengkapan unsur dan kualitas terbitan:

Penerbit adalah IOP Publishing dan terindeks Scopus, SJR 0.19, H-index 24. Nilai similaritas artikel berdasarkan Turnitin hanya 2%, sehingga orisinalitas sangat baik.

Semarang, November 2019

Reviewer


 Prof. Dr. Moh. Djazuli, ST, MT, Eng.
 NIP. 197402071995121001
 Unit Kerja : Universitas Diponegoro
 Jabatan Fungsional : Guru Besar
 Bidang Ilmu : Teknik Kimia

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	Internasional Bereputasi Berimpact factor (prosiding)	Nasional Terakreditasi	Nasional	
	(30)			
a. Kelengkapan unsur isi prosiding (10%)	3			3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9			9
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9			8,1
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			9,0
Total = (100 %)	30			29,1
Nilai Pengusul = (60% x 29,1) =17,46				

Catatan Penilaian artikel oleh Reviewer :

- a. **Kelengkapan unsur isi prosiding:**
Prosiding diterbitkan oleh IOP Conf. Series: Materials Science and Engineering 509 (2019) 012037. Artikel memuat komponen lengkap sesuai dengan standar paper ilmiah. Artikel ini membahas tentang pengaruh kolesterol terhadap enkapsulasi beta-karoten dan vitamin C dalam liposom kelapa. Tata penulisan tersaji dengan sangat baik. Tingkat similaritas artikel berdasarkan Turnitin sangat rendah, 2%, sehingga orisinalitas sangat baik.
- b. **Ruang lingkup dan kedalaman pembahasan:**
Pembahasan dalam artikel ini memiliki ruang lingkup yang sesuai dan selaras dengan topik riset, yaitu membahas tentang pengaruh kolesterol terhadap enkapsulasi beta-karoten dan vitamin C dalam liposom kelapa. Pembahasan disajikan secara mendalam dan detail, disertai dengan referensi pendukung.
- c. **Kecukupan dan kemutakhiran data/informasi dan metodologi:**
Data riset yang disajikan mencukupi untuk prosiding dan memiliki nilai kebaruan tinggi. Kemutakhiran dari aspek referensi baik. Referensi yang disitasi sebanyak 23, 19 baru (terbit dalam 10 tahun terakhir). Sayangnya, metode disajikan dengan tahapan tidak lengkap; kuantitas bahan tidak disajikan secara detail.
- d. **Kelengkapan unsur dan kualitas Penerbit:**
Penerbit adalah IOP Publishing (bereputasi) dan terindeks Scopus, SJR 0.19, H-index 24.

Yogyakarta, November 2019

Reviewer

Prof. Dr. rer. nat. Nuryono, M.S.

NIP. 196407141988111001

Bidang Ilmu/Unit Kerja :

Departemen Kimia pada Fakultas MIPA UGM Yogyakarta



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Volume 509, Issue 1, 3 May 2019, Article number 012037
13th Joint Conference on Chemistry, JCC 2018; Semarang; Indonesia; 7 September
2018 through 8 September 2018; Code 147746

Cholesterol implications on coconut liposomes encapsulation of beta-carotene and vitamin C (Conference Paper) (Open Access)

Hudiyanti, D., Aminah, S., Hikmahwati, Y., Siahaan, P.

Save all to author list

Chemistry Department, Diponegoro University, Semarang, Indonesia

Abstract

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The implication of cholesterol on coconut liposomes encapsulation of beta-carotene and vitamin C was investigated through their encapsulation efficiency (EE) and partition coefficient (log P). In sole encapsulation the presence of cholesterol up to 40% showed a decline in beta-carotene's EE while for vitamin C the EE was improved. The presence of cholesterol affects co-encapsulation both vitamin C and beta-carotene. The beta-carotene EE decreases as the cholesterol increases but vitamin C achieves optimum value at 90.05% in 20% cholesterol. The log P value of coconut phospholipids, vitamin C, cholesterol and beta-carotene were 4.8711.2; -1.91; 7.11; and 11.12 respectively. The encapsulation efficiency and partition coefficient reveals that co-encapsulation of Vitamin C and beta-carotene in coconut liposomes is influenced by cholesterol because of their unique molecular lipophilicity. © 2019 Published under licence by IOP Publishing Ltd.

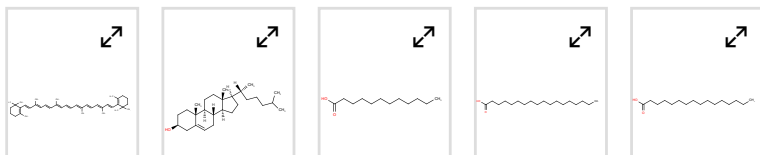
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Physico-chemical stability and
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thickened multilamellar beta-
carotene-loaded liposome
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Carvalho, J.M.P., Toniazzi, T.,
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β-carotene-loaded liposome
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xanthan and guar gums: Physico-
chemical stability and feasibility
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Toniazzi, T., Berbel, I.F., Cho, S.
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Funding details

Funding sponsor	Funding number	Acronym
	2018	

Funding text

This research was supported by the PDUPT Research Scheme of DRPM, The Ministry of Research Technology High Education 2018.

ISSN: 17578981

Source Type: Conference Proceeding

Original language: English

DOI: 10.1088/1757-899X/509/1/012037

Document Type: Conference Paper

Publisher: Institute of Physics Publishing

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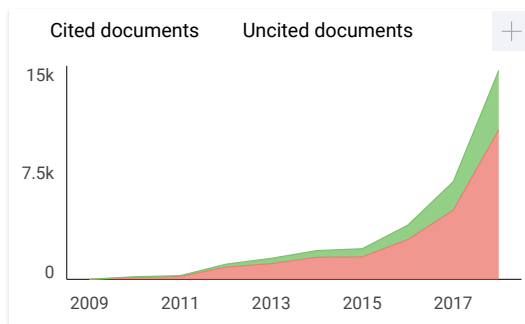
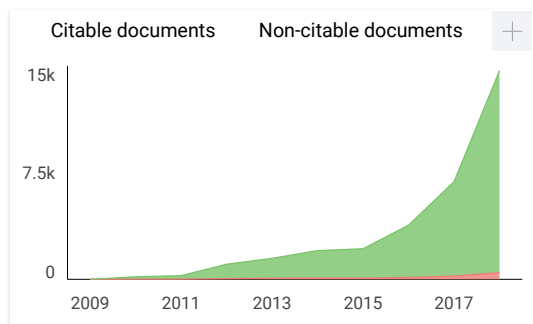
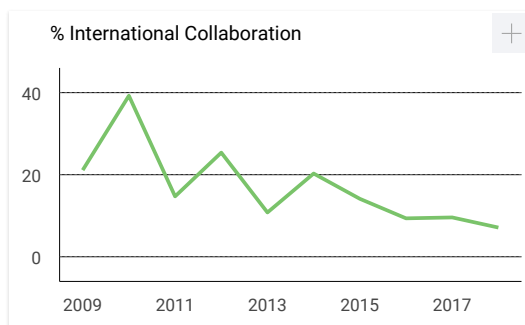
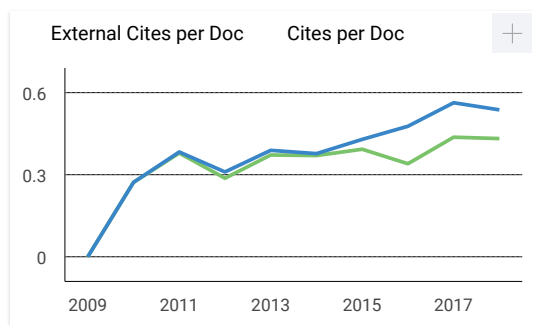
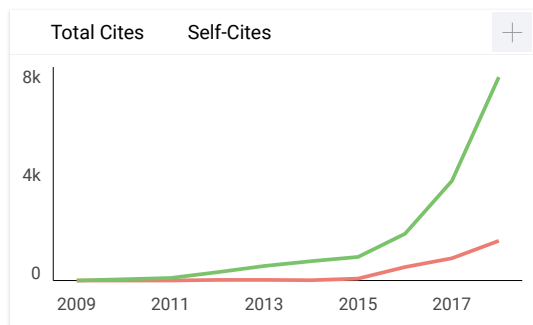
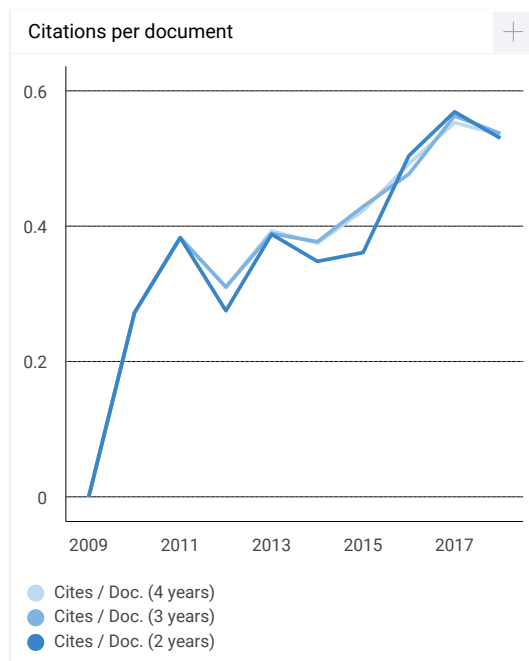
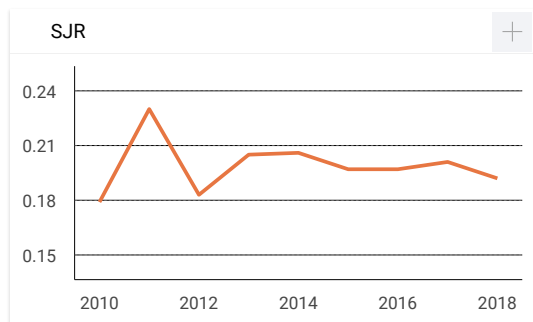
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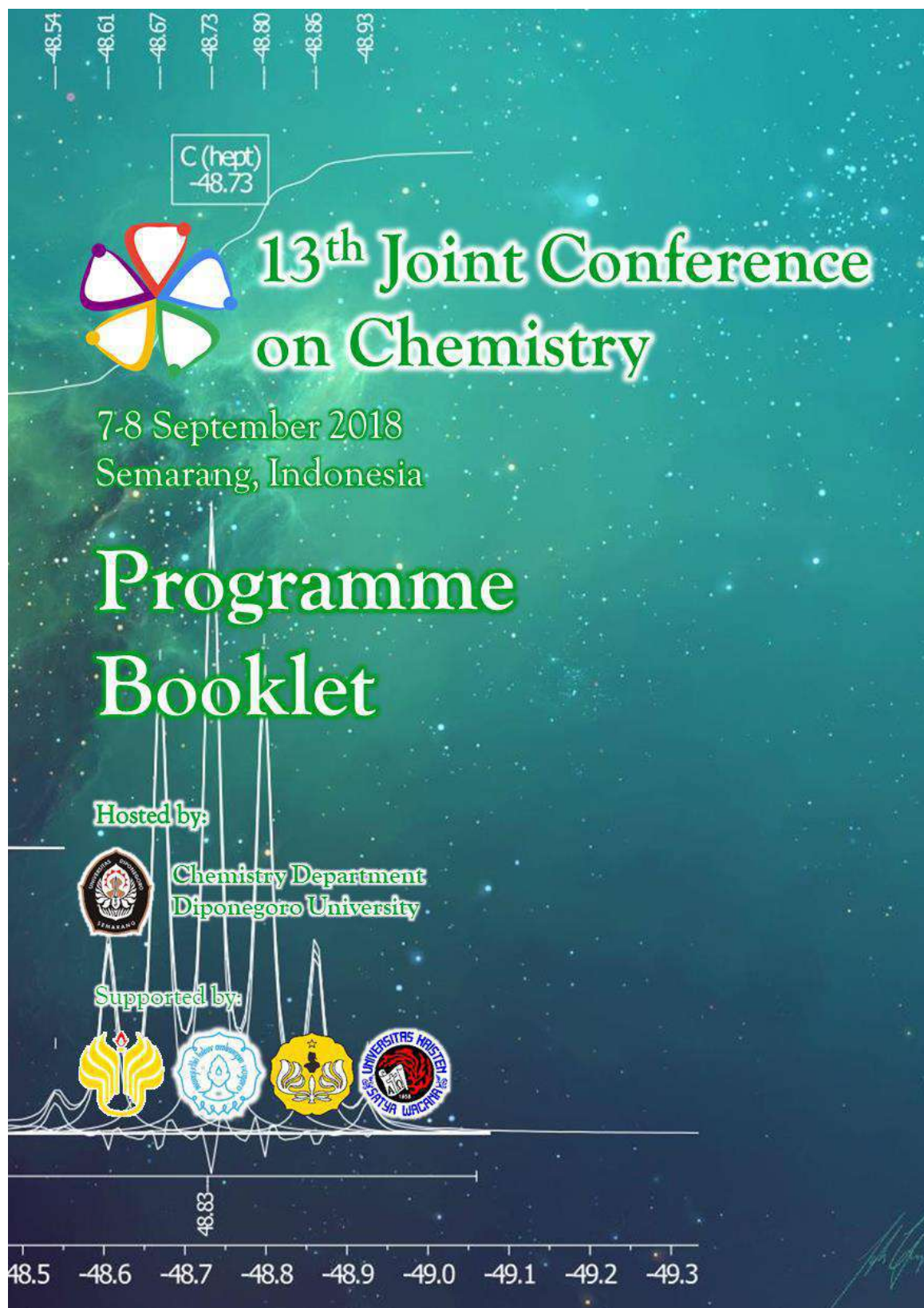
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Nutritive assessment of sorghum-ogi plantain flour weaning food

Ajanaku Kolawole Oluseyi^{1,*}, Ademosun Olabisi Theresa¹, Mustapha Abisola¹, Ajanaku Christiana Oluwatoyin¹, Olasehinde Grace Iyabo², Adekoya Olaoluwa Funmi¹, and Ajayi Samuel Oluwakayode¹

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 predispose 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



The effect of MgO and Cr₂O₃ 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 swapanksir@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 Cr₂O₃ 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. Cr₂O₃ 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, Cr₂O₃ doping, mullite

1. Introduction

Mullite ceramics (3Al₂O₃.2SiO₂) 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 3Al₂O₃.SiO₂ (71.83 wt.% Al₂O₃). However, the most relatively abundant form of mullite has about 71-76 wt.% Al₂O₃, 23-24 wt.% SiO₂, and minute amount of TiO₂, Fe₂O₃, 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



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

Anuoluwa Abimbola Akinsiku^{1,*}, Kolawole Oluseyi Ajanaku¹, Abimbola Augustine Adebisi¹, Abiola Edobor-Osoh¹, Olanrewaju Aladesuyi¹, Taiwo Olugbenga Samson², Enock Olugbenga Dare^{3,**}

¹ Department of Chemistry, Covenant University, Canaan Land, Nigeria

² Department of Biological Sciences, Covenant University, Canaan Land, Nigeria

³ Faculty of Chemistry and Pharmacy, Institute for Organic Chemistry, Regensburg University, Germany

Corresponding author: * anu.akinsiku@covenantuniversity.edu.ng;

** enock-olugbenga.dare@chemie.uni-regensburg.de

Abstract. In this study, potential of aqueous stem extract of *Momordica charantia* for phytosynthesis of silver nanoparticles (Ag NPs) was evaluated using reduction method. The locally sourced biodiversity was extracted in water and methanol by cold extraction, after which it was screened for the presence of phytochemicals. Optical measurement was carried out with Uv-visible spectrophotometer, evidence of capping and reduction of Ag⁺ to Ag⁰ by the biomolecules in the plant extract was achieved using Fourier transformed infra-red (FT-IR). Antimicrobial activity of the green synthesized nanoparticles was tested on clinical isolates. Visual evidence of Ag NPs formation was detected by change in reaction solution colour from light brown to deep brown, which resulted in excitation of surface plasmon resonance (SPR) between 400- 450 nm. Growths of microbes used were significantly inhibited ($P < 0.05$) with increasing concentrations of Ag NPs. Moderate activity was displayed by Ag NPs with the same value of MIC and MBC (12.5 mg/mL) on all the organisms considered except *P. aeruginosa* in which low activity was observed. The enhanced SPR displayed by Ag NPs qualifies them as potential materials for therapeutic and diagnostic uses.

Keywords: *Momordica charantia*, optical, antimicrobial, phytochemicals, silver nanoparticles

1. Introduction

Manipulation of particles structure and size on atomic scale (approximately 1-100 nm) is highly relevant in many fields, as the properties by atoms/molecules on nanoscale differ physically and chemically from their equivalent bulk. These new properties by nanostructured materials are of great advantages in various sectors like health, biomedical, drug delivery, chemical industries, optics, mechanics, energy science, photo-electrochemical, non-linear optical devices, food packaging industries, corrosion amongst others [1-5]. Also, bio-science uses vibrational spectroscopic for analysis or early diagnosis of diseases [6-9].

Optically active nanomaterials due to presence of surface plasmon resonance either by electromagnetic mechanism (vibrational spectroscopy techniques) or chemical mechanism (charge transfer that takes place between adsorbed molecules and nanostructured surfaces) can be applied to improve vibrational spectroscopic signals and amplifiers as a result of their pure enhancing surface. Silver, copper and gold nanoparticles are often used in electromagnetic mechanism due to the possession



Corrosion inhibitory properties of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ -gold nanoparticles in 1 M HCl

Abiola Edobor-Osoh^{1,3,a,*}, Benedict Iserom Ita^{2,b}, Kolawole Oluseyi Ajanaku^{1,c}, P. de la Presa^{3,d}, Cyril O. Ehi-Eromosele^{1,e}, Miguel Angel Cobos Fernández^{3,f}, Bamidele Durodola^{1,g}

¹ Department of Chemistry, Covenant University, Ota, Ogun State, Nigeria.

² Department of Pure and Applied Chemistry, University of Calabar, Cross River State, Nigeria

³ Applied Magnetism Institute, UCM-ADIF-CSIC, 28230, Las Rozas, Spain.

* Author: ^{a,*} abiola.edobor@covenantuniversity.edu.ng; ^b iserom2001@yahoo.com;

^c kola.ajanaku@covenantuniversity.edu.ng; ^d pm.presa@pdi.ucm.es;

^e cyril.ehi-eromosele@covenantuniversity.edu.ng; ^f micobos@ucm.es;

^g bamidele.durodola@covenantuniversity.edu.ng

Abstract. The morphological, magnetic, transport and corrosion inhibitory property of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ -AuNPs prepared by sol gel method was determined. The structural property determined by XRD indicated that the unusual broadening of the Bragg's reflection despite the elevated sintering temperature was as a result of the inhibition of the grain growth by the gold nanoparticles (Au-NPs). The morphological property of the sample as determined by SEM and TEM show heterogeneously sized and shaped nanoparticles of an average particle size of 40 nm. The magnetic measurements of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ -AuNPs showed that the sample undergoes a paramagnetic – ferromagnetic phase transition with $T_C = 250\text{K}$ and $T_B = 150\text{K}$. Two metal-insulator transitions were observed at T_1 and T_2 . The resistivity of the sample was observed to reduce as temperature increased to 300 K. The gravimetric method was used to determine the corrosion inhibitory properties with 1.0 M HCl using different concentration of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ -AuNPs. The anti-corrosion study was carried out for 21 days and was observed to reduce as concentration of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ -AuNPs increased, but corrosion rate increased as the exposure time increased. The inhibitory property of the sample increased as the concentration of the sample increased. The reaction best fitted the Langmuir isotherm, indicating a monolayer of $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$ -AuNPs inhibiting the corrosion of the mild steel.

1. Introduction

Corrosion occurs when a material (metal) oxidizes back to its stable state; the change in its chemical state is due to the interaction of the material (metal) with its environment [1]. Corrosion has posed a great threat to the economic value of various countries [2]. In 2014, China lost a total amount of 921.22 billion RMB to corrosion alone [3]. Mild steel is one of the commonly used alloys in the industries due to its malleability and reduced purchasing cost. The failure of engineered mild steel in the industries has become a major contributing factor to the total rate of loss due to corrosion of metal in the world. The use of mild steel in various industries cannot be overemphasized as mild steel takes over 50% of all the metals employed in manufacturing the equipment utilized in processing industries [4]. The cost of maintenance of instruments such as reactors, mixing bowls etc. has become very unbearable for many





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Semarang that organised by Chemistry Department, Diponegoro University

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Diponegoro University

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



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Adi Darmawan, Ph.D
NIP 19731121 199702 1 001