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HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : PROCEEDING INTERNASIONAL TERINDEKS C 14

Judul Publikasi Ilmiah (Artikel) : Synthesis of Eugenol-based Selective
 : Membrane for Hemodialysis
 Jumlah Penulis : 2 orang
 Status Pengusul : penulis pertama/utama
 Identitas Jurnal Ilmiah a. Nama Jurnal Ilmiah : IOP Conf Series: Materilas Science
 Engineering 509 (2019) 01206
 b. Nomor ISBN /ISSN : ISBN : 19366612, 19367317
 c. Volume, Nomor, Bulan, Tahun : 509 (2019)
 d. Penerbit : IOP Publishing
 e. DOI artikel (jika ada) : <https://doi.org/10.1088/1757-899X/509/1/012069>
 f. Alamat web jurnal : <https://iopscience.iop.org/journal/1757-899X>
 g. Terindeks : di SCOPUS
 h. Jumlah Halaman : 10 (1-10)

Kategori Publikasi Karya Ilmiah : ☐ Seminar Internasional Bereputasi/terindex scopus **
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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 kemutakhiran data/ informasi dan metodologi (30%)	9			8
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			9
Total = (100 %)	30			29
Nilai Pengusul =	60% x 29			17.4

Catatan Penilaian artikel oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi jurnal:

Artikel 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 hemodialisis dari bahan alam asli Indonesia, karakterisasi dan penggunaannya sebagai kandidat membran hemodialisis. Data-data disajikan secara lengkap dan detail, dengan pembahasan yang jelas dan komprehensif.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Referensi yang dicitasi dalam artikel ini ada 16 dimana ada 13 yang baru. Nilai novelty/kebaruan artikel termasuk cukup baik.

4. Kelengkapan unsur dan kualitas terbitan:

Penerbit adalah IOP Publishing (bereputasi). Nilai similaritas artikel berdasarkan Turnitin hanya 16%, sehingga orisinalitas cukup baik.

Semarang, - 11 - 2019


 Prof. Dr. Muhammad Djaeni, ST, MEng.
 NIP. 197402071995121001
 Unit kerja : Universitas Diponegoro
 Jabatan Fungsional : Guru Besar
 Bidang ilmu: Teknik Kimia

Nilai

Rata-rata Peer Review= 16,65

Nilai PAK Universitas = 16,65

Ttd. Penilai PAK Universitas


 Prof. Dr. Hadiyanto, ST, MSc

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU PEER REVIEW
KARYA ILMIAH : JURNAL ILMIAH C 14

Judul Publikasi : Synthesis of Eugenol-based Selective Membrane for Hemodialysis
 Ilmiah (Artikel)
 Jumlah Penulis : 2 orang
 Status Pengusul : penulis pertama/utama
 Identitas Jurnal a. Nama Jurnal Ilmiah: IOP Conf Series: Materilas Science Engineering 509
 Ilmiah (2019) 01206
 b. Nomor ISBN /ISSN ISBN : 19366612, 19367317
 c. Volume, Nomor, Bulan, Tahun 509 (2019)
 d. Penerbit IOP Publishing
 e. DOI artikel (jika ada) <https://doi.org/10.1088/1757-899X/509/1/012069>
 f. Alamat web jurnal <https://iopscience.iop.org/journal/1757-899X>
 g. Terindeks di SCOPUS
 e. Jumlah Halaman 10 (1-10)

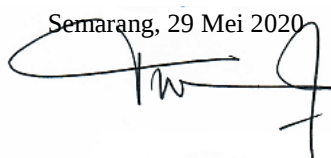
Kategori Publikasi Karya Ilmiah : ☒ Prosiding Internasional Terindeks Scopus dengan SJR>0.15
 Hasil Penilaian *Peer Review*

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

Catatan Penilaian artikel oleh Reviewer :

1. <u>Kesesuaian dan kelengkapan unsur isi jurnal:</u>	:	Artikel lengkap sesuai template, terdiri dari pendahuluan, metodologi, hasil dan pembahasan, kesimpulan, acknowledgement dan referensi. Data disajikan dengan baik
2. <u>Ruang lingkup dan kedalaman pembahasan:</u>	:	Ruang lingkup adalah sintesis membran, Pembahasan mendalam dan pembahasan telah menggunakan pembandingan .
3. <u>Kecukupan dan kemutakhiran data/informasi dan metodologi</u>	:	Data sangat memadai dan sesuai dengan metode penelitian yang dilakukan, referensi yang menggunakan jurnal 5 tahun terakhir sebesar 62,5%(
4. <u>Kelengkapan unsur dan kualitas terbitan:</u>	:	Penerbit IOP conference termasuk baik dan sudah terindeks scopus

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IOP Conference Series: Materials Science and Engineering
Volume 509, Issue 1, 3 May 2019, Article number 012069
13th Joint Conference on Chemistry, JCC 2018; Semarang; Indonesia; 7 September
2018 through 8 September 2018; Code 147746

Synthesis of eugenol-based selective membrane for hemodialysis (Conference Paper) (Open Access)

Djunaidi, M.C.^a ✉, Wenten, I.G.^b 👤

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^aChemistry Department, Faculty of Mathematics and Natural Sciences, Diponegoro University, Indonesia

^bChemical Engineering Department, Faculty of Industrial Technology, Bandung Institute of Technology, Indonesia

Abstract

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Research on the synthesis of eugenol-based imprinted hemodialysis membranes has been undertaken. This study aims to produce eugenol-based urea selective membrane for hemodialysis. Eugenol containing functional groups of N and S tied with urea mixed with Poly Vinyl Acetate (PVA), Poly Ethylene Glycol Diglicidyl Ether (PEGDE) crosslinker and 1 Methyl 2 Pyrrolidone (NMP) solvent was heated at 110° to form hydrogel. The hydrogel was then reconstituted in the NMP and fed into the petridisc to form the membrane. The membrane was released the urea bonded with distilled water to obtain Molecularly Imprinted Membrane (MIM)-urea. The resulting MIM urea was characterized using FTIR, SEM. MIM urea was used to transport urea, creatinine and vitamin B-12. The research variables were thickness of membrane and comparison of transport result with NIM (Non Imprinted Membrane). The results obtained were MIM urea transported urea better than NIM. The result obtained was the thinner the membrane the better the urea transport. Membrane was also capable of transporting creatinine but not of transporting vitamin B-12.
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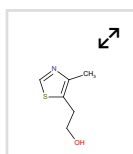
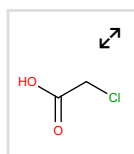
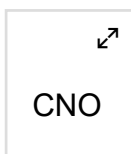
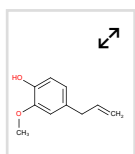
SciVal Topic Prominence ⓘ

Topic: Adsorption | Ions | Ion-imprinted polymer

Prominence percentile: 96.422 ⓘ

Chemistry database information ⓘ

Substances



Author keywords

Eugenol

membrane for hemodialysis

MIM urea

urea

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1-methyl-2-pyrrolidone Distilled water Eugenol Hemodialysis membranes
Imprinted membranes Molecularly imprinted membranes Selective membranes
Vitamin B-12

Engineering main
heading:

Membranes

Funding details

Funding sponsor	Funding number	Acronym
Kementerian Riset, Teknologi dan Pendidikan Tinggi		

Funding text

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DOI: 10.1088/1757-899X/509/1/012069

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Publisher: Institute of Physics Publishing

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🔍 Djunaidi, M.C.; Chemistry Department, Faculty of Mathematics and Natural Sciences, Diponegoro University, Indonesia; email:choliddjunaidi@live.undip.ac.id
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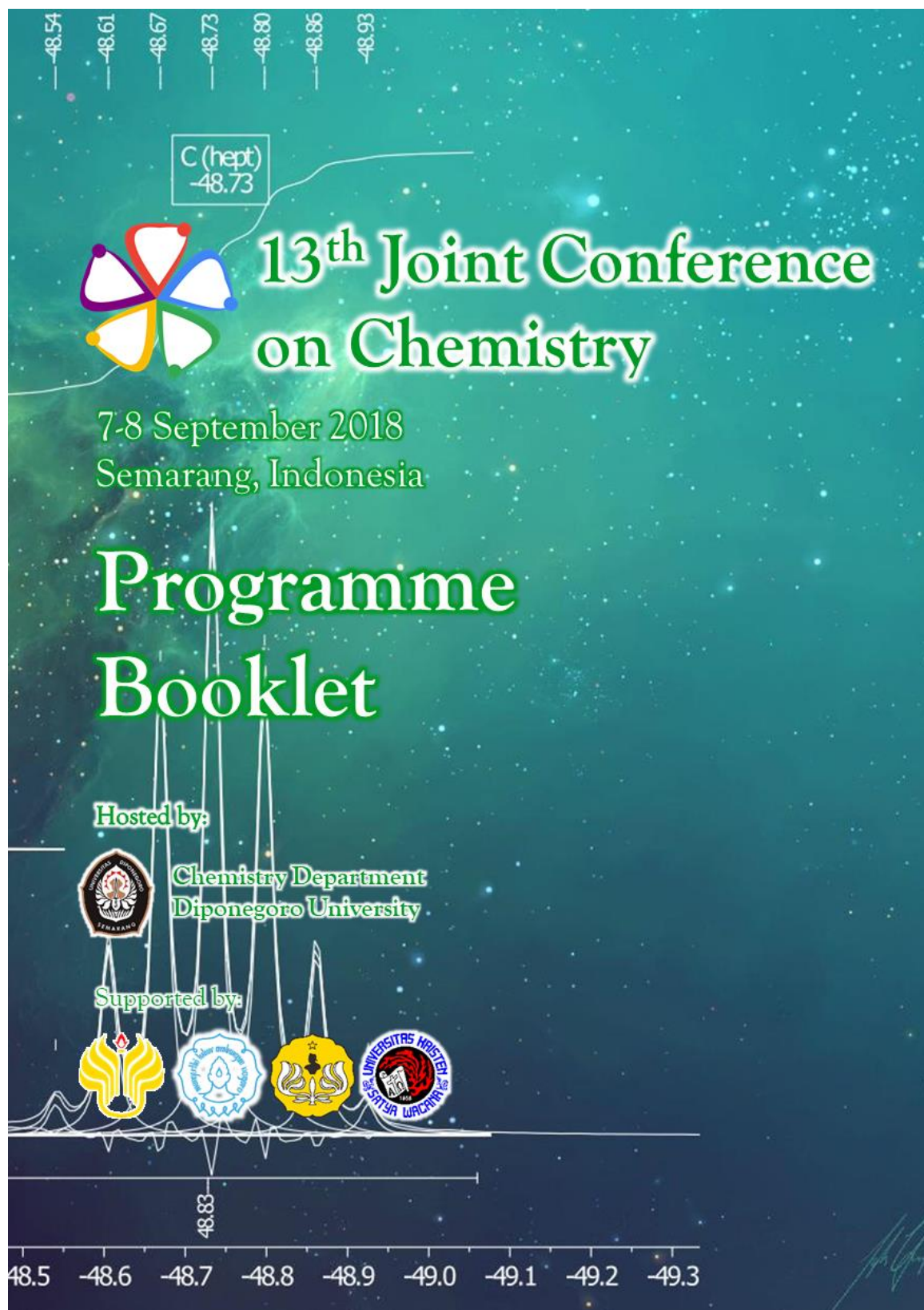
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3. To enhance the capacities of innovation from researchers and industries who apply science and technology on their work
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5. To stimulate future collaborations among researches, educators, industries, and governments who use chemical science and technology.

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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

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

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Aligarh Muslim University, Aligarh, India

"Protein aggregation and its inhibition"



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Anthocyanin and recent development for functional food

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

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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



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

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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.



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

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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 $[V^VO(O_2)(terpy)(H_2O)]Cl \cdot H_2O$ (**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 -butyrolactone [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 $[V^VO(O_2)(terpy)(H_2O)]Cl \cdot H_2O$ (**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



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.

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





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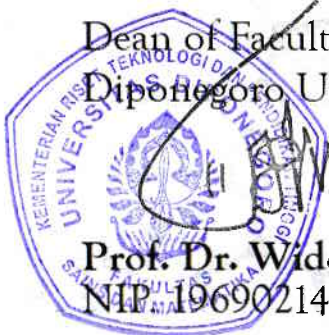
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