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

Judul Jurnal Ilmiah (Artikel) : Synthesis of Graphite Paste/Molecularly Imprinted Polymer (MIP) Electrodes Based on Poly Eugenol as a Glucose Sensor with Potentiometric Method

Nama/ Jumlah Penulis : **Gunawan/4**

Status Pengusul : penulis ke-3

Identitas Jurnal Ilmiah :

a. Nama Jurnal	: Indonesian journal of chemistry
b. Nomor ISSN	: 14119420
c. Vol, No., Bln Thn	: Volume 21, Issue 4, Pages 816 – 824, April 2021
d. Penerbit	: Departemen Kimia, Universitas Gadjahmada
e. DOI artikel (jika ada)	: 10.22146/ijc.58964
f. Alamat web jurnal	: https://jurnal.ugm.ac.id/ijc
Alamat Artikel	: https://jurnal.ugm.ac.id/ijc/article/view/58964
g. Terindex	: scopus

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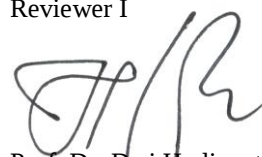
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c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	12			11
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			12
Total = (100%)	40			38
Nilai Pengusul = (40% x 38) / 3 = 5,07				

Catatan Penilaian artikel oleh Reviewer :

- Kesesuaian dan kelengkapan unsur isi artikel:**
 Unsur isi artikel lengkap. Artikel yang membahas tentang sintesis elektroda *Graphite Paste/Molecularly Imprinted Polymer (MIP)* yang berbasis pada *polyeugenol* sebagai sensor glukosa dengan metode *Potentiometric* disajikan dengan terperinci, disitasi dan dibahas. Topik dan materi sesuai dengan jurnal yang bersangkutan. Tata penulisan tersaji dengan sangat baik.
- Ruang lingkup dan kedalaman pembahasan:**
 Artikel ini membahas tentang Sintesis MIP yang dilakukan dengan eugenol sebagai monomer, polyethylene glycol diglycidyl ether (PEGDE) sebagai crosslinking agent, 1 M NaOH sebagai katalis, dan elektroda grafit yang memiliki kemampuan menghantarkan arus. Elektroda grafit termodifikasi MIP ini diharapkan dapat meningkatkan kinerja sensor potensiometri dalam menentukan glukosa, meliputi faktor Nernst, rentang pengukuran, batas deteksi, dan koefisien selektivitas, sehingga elektroda yang terbentuk dapat memberikan keunggulan dalam analisis glukosa. Penelitian menghasilkan *graphite-MIP paste electrodes* dengan target selektivitas yang baik. Data dan pembahasan cukup lengkap sehingga memberikan kontribusi pada pengembangan keilmuan.
- Kecukupan dan kemutakhiran data/informasi dan metodologi:**
 Referensi yang dikutip dalam artikel ini ada 20 dimana 16 Baru (dalam 10 tahun terakhir). Nilai novelty/kebaruan artikel cukup. Analisa dilakukan pada data yang disajikan. Metode disajikan dengan tahapan yang jelas, dan mudah diikuti.
- Kelengkapan unsur dan kualitas terbitan:**
 Penerbit adalah Departemen Kimia, Universitas Gadjah Mada, terindeks scopus dan Scimagojr, dengan nilai SJR 0.27 (2020), Q3. ISSN 14119420. Nilai similaritas artikel berdasarkan Turnitin hanya 7%, sehingga orisinalitas sangat baik.

Semarang,
 Reviewer I



Prof. Dr. Dwi Hudiayanti, M.Sc.
 NIP. 196506221989032001
 Guru Besar Kimia Fakultas Sains
 Dan Matematika Universitas Diponegoro

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Total = (100%)	40			37,5
Nilai Pengusul = 100% x =				

Catatan Penilaian artikel oleh Reviewer:

1. Kesesuaian dan kelengkapan unsur isi jurnal:

Artikel yang dimuat sesuai dengan kepakaran penulis. Isi unsur jurnal lengkap sesuai yang dipersyaratkan oleh jurnal internasional (Indonesian Journal of Chemistry). Dengan similarity 7%.

2. Ruang lingkup dan kedalaman pembahasan:

Ruang lingkup penelitian ini tentang sintesis elektroda polimer terinprinted secara molekul/pasta grafit berbasis polieugenol sebaga sensor glukosa dengan metoda potensiometri. Pembahasannya cukup mendalam dengan menggunakan instrumentasi pengujian yg sangat baik (SEM, FT-IR, potensiostat, spektrofotometer UV-Vis). Serta dari data sekunder dijelaskan proses inprinted secara molekuler. Pembahasannya disertai referensi yang menguatkan data yang diperoleh. Elektroda yang dibuat mampu mendeteksi glukosa dengan konsentrasi 10^{-5} - 10^{-1} M dengan faktor Nerst 20,24 mV/decade dan elektroda tersebut sangat selektif terhadap ion lain.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Data/informasi yang disampaikan cukup baik dan mutakhir dan metodologinya disampaikan secara detil sehingga peneliti lain bisa mengacu penelitian ini. Referensi yang digunakan up to date (25% referensi kurang dari 5 th artikel terbit)

4. Kelengkapan unsur dan kualitas terbitan:

Unsur artikel lengkap, kualitas jurnal baik dan jurnal Q3 bidang kimia (Indonesian Journal of Chemistry terbitan Departemen Kimia UGM) dengan SJR 0,24 (2019).

Semarang, 17 Oktober 2021
 Reviewer 1

Prof. Dr. Dra. Meiny Suzery, M.S.
 NIP. 196005101989032001
 Unit Kerja :FSM Universitas Diponegoro
 Bidang Ilmu: Kimia Organik

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(beri ✓ pada kategori yang tepat)

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a. Kelengkapan unsur isi jurnal (10%)	4	4	4
b. Ruang lingkup dan kedalaman pembahasan (30%)	11	11	11
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	11	11	11
d. Kelengkapan unsur dan kualitas penerbit (30%)	11,5	12	11,75
Total = (100%)	37,5	38	37,75
Nilai untuk Pengusul : $0.4/3 \times 37.75 = 5,03$			

Reviewer 1

Prof. Dr. Dra. Meiny Suzery, M.S.
NIP. 196005101989032001
Unit Kerja :FSM Universitas Diponegoro
Bidang Ilmu: Kimia Organik

Semarang,
Reviewer 2

Prof. Dr. Dwi Hudyanti, M.Sc.
NIP. 196506221989032001
Unit Kerja :FSM Universitas Diponegoro
Bidang Ilmu : Kimia Fisik



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Synthesis of graphite paste/molecularly imprinted polymer (MIP) electrodes based on polyeugenol as a glucose sensor with potentiometric method

Djunaidi M.C.^a , Afriani M.D.R.^a , Gunawan^a , Khasanah M.^b

Save all to author list

^a Department of Chemistry, Faculty of Science and Mathematics, Diponegoro University, Jl. Prof. Soedharto SH, Tembalang, Semarang, 50275, Indonesia^b Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Campus C, Jl. Dr. Ir. H. Soekarno (MERR), Surabaya, 60115, Indonesia[Abstract](#)

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Abstract

Diabetes mellitus is a chronic disease in which the body is unable to metabolize carbohydrates, fats, and proteins. In this study, eugenol was polymerized and then contacted with glucose and crosslinked using polyethylene glycol diglycidyl ether (PEGDE). The resulted PE-Glucose-PEGDE was eluted using ethanol to form MIP-Glucose. It was then characterized by FTIR, SEM, electrodes using the Eutech 510 potentiostat and UV-Vis spectrophotometer. The result of polyeugenol synthesis is a reddish-brown powder with a yield of 99.90% and a molecular weight of 6318.033 g/mol. UV-Vis spectrophotometer analysis showed that the contacted glucose was 2152.505 ppm. SEM results showed differences in the

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Imprinted zeolite modified carbon paste electrode as a selective sensor for blood glucose analysis by potentiometry

Khasanah, M. , Widati, A.A. , Handajani, U.S. (2020) *Indonesian Journal of Chemistry*

Development of electrode carbon paste/molecularly imprinted polymer (MIP) with methacrylic acid as monomer to analyze glucose by potentiometry

Darmokoesoemo, H. , Khasanah, M. , Kustyarini, L. (2017) *Results in Physics*

Silicon carbide nanoparticles electrospun nanofibrous enzymatic glucose sensor

Puttananjegowda, K. , Takshi, A. , Thomas, S. (2021) *Biosensors and Bioelectronics*[View all related documents based on references](#)[Find more related documents in Scopus based on:](#)[Authors >](#) [Keywords >](#)

surface morphology of the material, indicating the formation of cavities in MIP and ESM, while no cavities are found in NIP and ESN. The electrode optimization resulted in the best composition ratio of MIP 1 mol: paraffin: graphite, respectively of 20:35:45. The resulting electrode has a Nernst factor of 20.24 mV/decade with a measurement range of 10^{-5} – 10^{-1} M, a limit of detection value of 8.363×10^{-5} M, and the value of the selectivity coefficient (K_{ij}) of the electrodes in a (10^{-5} – 10^{-1}) M fructose solution was 0.3733; 0.23048; 0.17864; 0.12359; 0.1073. © 2021, Gadjah Mada University. All rights reserved.

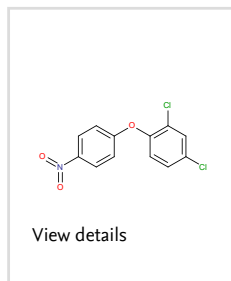
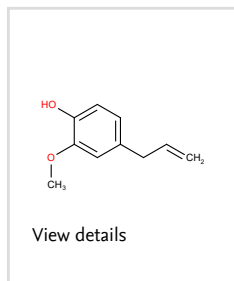
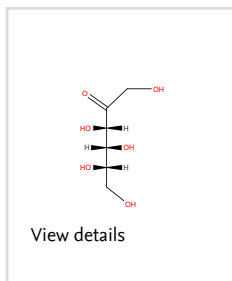
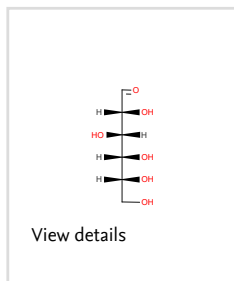
Author keywords

Electrode; Glucose; Imprinted polymer; Poly Eugenol; Potentiometry

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🔗 Djunaidi, M.C.; Department of Chemistry, Faculty of Science and Mathematics, Diponegoro University, Jl. Prof. Soedharto SH, Tembalang, Semarang, Indonesia; email:choliddjunaidi@live.undip.ac.id
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Announcements

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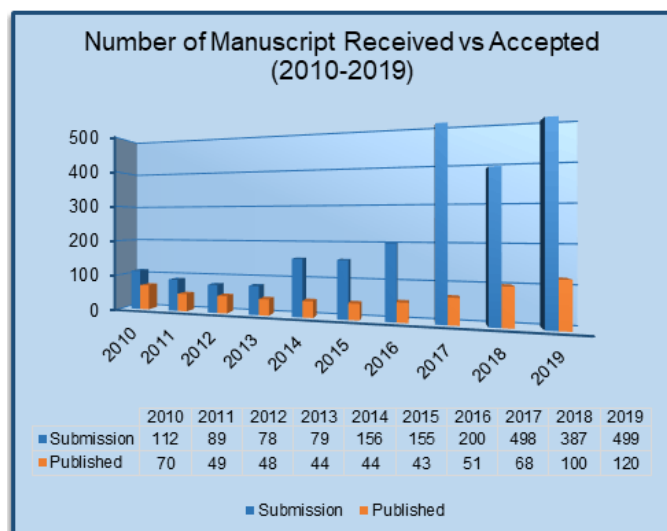


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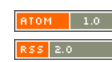
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Ionic Surfactant Enhancement of Clay Properties for Heavy Metals Adsorption: Kinetics and Isotherms

<https://doi.org/10.22146/ijc.59480>

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Abstract

The global health problems arising from ingesting toxic metals necessitate the quest for developing efficient materials for their remediation. Surface properties of raw kaolinite clay collected from Ire-Ekiti, South-western Nigeria, were improved by modification using sodium dodecyl sulphate (SDS) for the adsorptive removal of Pb, Cr, Ni and Cu from their respective aqueous solution. The raw and modified clays were characterized by X-ray fluorescence, Fourier transformed infrared spectrometry, Scanning electron microscope coupled with EDX and Particle induced x-ray emission technique. A batch adsorption study was used to examine the performance efficiency of the modified clay. Optimization of adsorption conditions like temperature, particle size, concentration, agitation time and pH was performed. The clay after modification showed improved surface properties such as increased pore diameter and number. Freundlich, Langmuir and Temkin isotherm models were applied to explicate the adsorption processes, while Pseudo-First order, Pseudo-Second order and the Elovich kinetic models were used to predict possible mechanisms driving the adsorption processes. The adsorption processes driven by chemical mechanisms involved series of complex mechanisms that include ion exchange, direct bonding and surface complexation other than precipitation. The percentage removal of the metals by the modified clay soil reached the values of 98.53, 94.50, 73.82, and 80.40 for Pb, Cu, Ni and Cr.

Keywords

kaolinite clay; heavy metals; clay modification; adsorption kinetics; adsorption isotherms

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Synthesis of Fe(II)/Co(II)-Fused Triphenyl Porphyrin Dimer as Candidate for Oxygen Reduction Reaction Catalyst

<https://doi.org/10.22146/ijc.61671>

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Abstract

This paper reports the synthesis of Fe(II)/Co(II) fused triphenyl porphyrin dimers as candidate of hybrid organic metal electrocatalyst. The synthesis was conducted in five-step reactions using the starting materials pyrrole and benzaldehyde. The fuse oxidative reaction was done via free-base form of triphenyl porphyrin to omit metal insertions/removals of intermediate products. This strategy is very beneficial for the synthesis of metal fused triphenyl porphyrin that needs less reactions where phenyliodine(III) bis(trifluoroacetate) (PIFA) was successfully deployed in the oxidative reaction of two free-base triphenyl porphyrins. Here, the comparisons of NMR spectra were presented to see the changes of the starting material to the product. Initial electrochemical tests showed that reduction current of planar structure of Fe/Co fused triphenyl porphyrin dimer was on the potential range at -1.10 V to 0.45 V vs Au. Fe-fused triphenyl porphyrin dimer with 7.58×10^{-4} A (-1.05 V) showed slightly better performance than Co-fused triphenyl porphyrin dimer with 5.67×10^{-4} A (-0.97 V).

Keywords

fused triphenyl porphyrin; metal insertion; oxidative reaction; planar structure

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Preparation and Spectroscopic Studies of Cadmium(II), Zinc(II),Mercury(II) and Vanadium(IV) Chelates Azo Ligand Derived from 4-Methyl-7-hydroxycoumarin

<https://doi.org/10.22146/ijc.63032>

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Abstract

The present paper demonstrates the synthesis and characterization of some transition elements complexes derived from (E)-7-hydroxy-6-((4-methoxyphenyl)diazanyl)-4-methyl-2H-chromen-2-one. The ligand was prepared in the general route of azo dyes by coupling the diazonium salt of 4-methoxyaniline with 4-methyl-7-hydroxycoumarin in sodium hydroxide 10% (w/v) solution. The azo ligand was identified on the basis of elemental analyses, MS, ¹H-NMR and FT-IR spectra. The products of complexes with the new azo dye were isolated by the direct reactions of the metal chlorides of cadmium(II), zinc(II), vanadium(IV) and mercury(II) ions with the alkaline solution of free ligand to afford the colored in the following formulas, complexes[ML₂]2H₂O formula, M=Cd(II) and Zn(II). However the vanadium(IV) complex was square pyramid in [VOL₂]SO₄2H₂O chemical formula. As well as the tetrahedral environment was suggested for mercury(II) complex in formula [HgL₂]. The time and mole ratio factors were studied to obtain the optimized conditions of metal complexes formations and the observed data investigated the deprotonation of the azo-dye at pH to range (7-7.5) with 30 min as time of reaction to get pure metal chelates. The TG-DSC study confirmed the thermal stability of complexes at a wide range of average heating in inert gas of analysis and the results observed from loss weight percent investigated the proposed structures of the prepared metal complexes.

Keywords

azo ligands; metal complexes of coumarin; spectroscopic studies

Full Text:

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