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

Judul Jurnal Ilmiah (Artikel) : Quantification of sodium contaminant on steel surfaces using pulse CO2 laser-induced breakdown spectroscopy

Nama/ Jumlah Penulis : 6 Orang

Status Pengusul : Penulis pertama/ ~~Penulis ke~~ / Penulis Korespondensi **

Identitas Jurnal Ilmiah :

- a. Nama Jurnal : Arabian Journal of Chemistry
- b. Nomor ISSN : 1878-5352
- c. Vol, No., Bln Thn : Vol 15, January 2022
- d. Penerbit : King Saud University
- e. DOI artikel (jika ada) : 10.1016/j.arabjc.2021.103474
- f. Alamat web jurnal : <https://www.sciencedirect.com/science/article/pii/S1878535221004895>
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d. Kelengkapan unsur dan kualitas penerbit (30%)	12	12	12
Total = (100%)	39	39,9	39,45
Nilai untuk Pengusul : (60% x 39,45) = 23,67			

Semarang, 5 Maret 2022

Reviewer 1



Prof. Dr. Kusworo Adi, S.Si., M.T.
 NIP. 197203171998021001

Bidang ilmu/Unit kerja : Fakultas Sains dan Matematika/Fisika

Reviewer 2



Dr. Eng. Eko Hidayanto, S.Si., M.Si.
 NIP. 197301031998021001

Bidang ilmu/Unit kerja : Fakultas Sains dan Matematika/Fisika

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b. Ruang lingkup dan kedalaman pembahasan (30%)	12,00			12
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Nilai Pengusul = 60% x 39 = 23,4				

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Kesesuaian dan kelengkapan unsur jurnal yang terdiri dari Introduction, Experimental procedure, Result and Analysis, Conclusion, Acknowledgement, References. Substansi publikasi sesuai dengan bidang ilmu penulis yaitu fisika laser (skor=4,00).
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Makalah sudah sesuai dengan ruang lingkup jurnal (inorganic, physical, organic, analytical and biochemistry). Pada pembahasan sudah melibatkan beberapa refrensi pendukung (3 dari 24 referensi) (skor=12,00)
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 - Kelengkapan unsur dan kualitas terbitan:**
Arabian Journal of Chemistry termasuk dalam kategori Jurnal Internasional Bereputasi dengan editorial board lebih dari empat negara dan kontributor lebih dari 2 negara, ISSN: 1878-5352, terindeks scopus dengan SJR=0,789 (2020)/Q1 (skor=12,00)

Semarang, 4 Maret 2022
Reviewer 1



Prof. Dr. Kusworo Adi, S.Si., M.T.
NIP. 197203171998021001
Unit Kerja : Fisika
Bidang Ilmu: Fisika

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b. Ruang lingkup dan kedalaman pembahasan (30%)	12			12
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	12			11,9
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	12			12
Total = (100%)	40			39,9
Nilai Pengusul = 60% x 39,9 = 23,9				

Catatan Penilaian artikel oleh Reviewer :

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Sangat sesuai dan lengkap mulai dari abstrak, pendahuluan, prosedur eksperimen, hasil dan pembahasan, sampai pada kesimpulan dan daftar pustaka yang digunakan.

2. Ruang lingkup dan kedalaman pembahasan:

Paper ini membahas tentang identifikasi dan kuantifikasi kontaminan natrium pada permukaan baja telah dilakukan menggunakan spektroskopi kerusakan yang diinduksi laser memanfaatkan karakteristik khusus dari laser CO2 atmosferik yang tereksitasi secara transversal.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

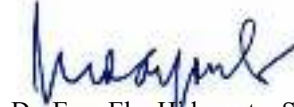
Data-data hasil yang diperoleh dalam penelitian mutakhir dengan didukung metodologi yang tepat.

4. Kelengkapan unsur dan kualitas terbitan:

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Semarang, 05 Maret 2022

Reviewer 2



Dr. Eng. Eko Hidayanto, S.Si., M.Si.

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Unit Kerja : Fisika

Bidang Ilmu: Fakultas Sains dan Matematika



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Quantification of sodium contaminant on steel surfaces using pulse CO₂ laser-induced breakdown spectroscopy

[Khumaeni A.^a](#) , [Setia Budi W.^a](#), [Hendrik Kurniawan K.^b](#), [Fukumoto K.-I.^c](#), [Kurihara K.^d](#), [Kagawa K.^e](#)
 [Save all to author list](#)^a Department of Physics, Faculty of Science and Mathematics, Diponegoro University, Jl. Prof. H. Soedarto, S.H., Tembalang, Semarang, 50275, Indonesia^b Maju Makmur Mandiri Research Center, Jl. Srengseng Raya 40, Kembangan, Jakarta Barat, Indonesia^c Research Institute of Nuclear Engineering, University of Fukui, 1-2-4, Kanawa, Tsuruga, 914-0055, Fukui, Japan^d Department of Physics, Faculty of Education, University of Fukui, Bunkyo 3-9-1, 910-8507, Fukui, Japan[View additional affiliations](#) ▾ [View PDF](#) [Full text options](#) ▾**Abstract**

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Abstract

Corrosion is one of the main reasons for in-core accidents in liquid sodium-cooled fast reactors, especially accidents due to fuel cladding pipe damage. It is urgently required to investigate what kind of compound is produced as a corrosion product after the interaction between stainless steel and sodium in fast breeder reactors (FBR). In this work, the identification and quantification of sodium

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Abstract

Abstract

We report the first use of iron oxide magnetic nanoparticles (Fe_3O_4 MNPs) as a novel, alternative, simple and reliable agents for colorimetric measurement of radical scavenging activity of the antioxidants. In the presence of H_2O_2 and the peroxidase colorimetric substrate, Fe_3O_4 MNPs catalyzed the oxidation of colorless peroxidase substrate to form colorimetric products via the generation of hydroxyl radicals. After adding antioxidants, the catalytic activity of Fe_3O_4 MNPs was inhibited due to scavenging of hydroxyl radicals by the antioxidants, producing less colorimetric products resulting in the reduction of color intensity. Two model antioxidant standards including gallic acid (GA) and epigallocatechin gallate (EGCG) were successfully evaluated for their hydroxyl radical scavenging activity using the developed assay. The performance of the developed method was validated against traditional antioxidant assays for 9 tea samples. Using the Spearman rank correlation coefficient method, the antioxidant activity of tea samples obtained

Research article [Open access](#)**Quantification of sodium contaminant on steel surfaces using pulse CO_2 laser-induced breakdown spectroscopy**

Ali Khumaeni, Wahyu Setia Budi, Koo Hendrik Kurniawan, Ken-Ichi Fukumoto, ... Kiichiro Kagawa

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Abstract

Abstract

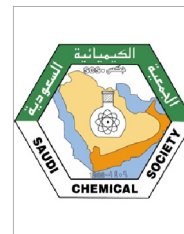
Corrosion is one of the main reasons for in-core accidents in liquid sodium-cooled fast reactors, especially accidents due to fuel cladding pipe damage. It is urgently required to investigate what kind of compound is produced as a corrosion product after the interaction between stainless steel and sodium in fast breeder reactors (FBR). In this work, the identification and quantification of sodium contaminant on steel surfaces has been conducted using laser-induced breakdown spectroscopy utilizing the specific characteristics of a pulse transversely excited atmospheric CO_2 laser. Experimentally, a pulse TEA CO_2 laser (Shibuya, $10.64\text{ }\mu\text{m}$, 200 ns) was directed and bombarded onto the sodium contaminant deposited on the surface of stainless steel. An excellent emission spectrum of sodium from the contaminant was obtained without any disturbance from analytical lines from the steel itself. A quantification of sodium contaminant on the steel surface has been successfully made by a linear calibration curve obtained from steel containing

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ORIGINAL ARTICLE

Copper nanoparticles supported on polyethylene glycol-modified magnetic Fe₃O₄ nanoparticles: Its anti-human gastric cancer investigation



Zhisheng Liu^{a,1}, Kai Wang^{a,1}, Tingting Wang^a, Ye Wang^a, Yunjie Ge^{b,*}

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KEYWORDS

PEG;
Cu nanoparticles;
Nonmagnetic;
Human gastric cancer;
Antioxidant

Abstract In that work, we have described the synthesis of novel Cu NPs decorated polyethylene glycol (PEG₂₀₀₀) coated magnetic nanoparticles (Fe₃O₄/PEG₂₀₀₀/Cu NPs) in an eco-friendly pathway applying *Green Tea* extract as reducing/stabilizing agent. The morphological and physicochemical features of the prepared nanocomposite were determined using several advanced techniques like ICP-OES, FE-SEM, EDX, atomic mapping, TEM, VSM, and XRD studies. In the antioxidant test, the IC₅₀ of Fe₃O₄/PEG₂₀₀₀/Cu nanocomposite and BHT against DPPH free radicals were 198 and 85 µg/mL, respectively. In the cellular and molecular part of the recent study, the treated cells with Fe₃O₄/PEG₂₀₀₀/Cu nanocomposite were assessed by MTT assay for 48 h about the cytotoxicity and anti-human gastric cancer properties on normal (HUVEC) and gastric cancer cell lines i.e. NCI-N87 and MKN45. The IC₅₀ of Fe₃O₄/PEG₂₀₀₀/Cu nanocomposite were 316 and 131 µg/mL against NCI-N87 and MKN45 cell lines, respectively. The viability of malignant gastric cell line reduced dose-dependently in the presence of Fe₃O₄/PEG₂₀₀₀/Cu nanocomposite. It seems that the anti-human gastric cancer effect of recent nanoparticles is due to their antioxidant effects.

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1. Introduction

One of the simplest nanostructures that is widely used in industry today is metallic nanoparticles. Metallic nanoparticles can bind non-destructively to single-stranded DNA, which are important in medical diagnostics. Nanoparticles also can pass through the vessel and position the target organ in the body, which is used in biomedicine, imaging and therapy (Arunachalam et al., 2003; You et al., 2012; Mao et al.,

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E-mail address: qdgej@sina.com (Y. Ge).

¹ These authors are contributed equally to the article.

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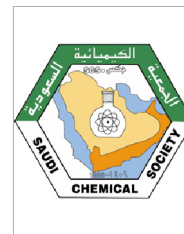


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ORIGINAL ARTICLE

Evaluation of the efficiency of divalent cobalt and copper chelates based on isatin derivatives and thiosemicarbazide ligands as inhibitors for the corrosion of Sabc iron in acidic medium



Hoda A. El-Ghamry^{a,b,*}, Ahmed Fawzy^{b,c,*}, Thoraya A. Farghaly^{d,*},
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Received 16 September 2021; accepted 24 October 2021

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KEYWORDS

Isatin;
Sabc iron;
Inhibition;
Corrosion;
Adsorption

Abstract Divalent cobalt and copper chelates of the two ligands 1-(1-ethoxycarbonylmethyl-2-oxoindolin-3-ylidene) thiosemicarbazide (**EOIT**) and 1-(1-benzyl-2-oxoindolin-3-ylidene) thiosemicarbazide (**BOIT**) are the target compounds of the current study. Identification of the structures and geometries of these compounds have been performed using the possible physicochemical and analytical instruments. Elemental analysis, molar conductance and thermal analysis assured the composition of the four chelates to be $[\text{Co}(\text{BOIT})\text{Cl}] \cdot 1.5\text{H}_2\text{O}$ (**BOIT-Co**), $[\text{Cu}(\text{BOIT})\text{Cl}]$ (**BOIT-Cu**), $[\text{Co}(\text{EOIT})\text{Cl}_2(\text{H}_2\text{O})] \cdot 5\text{H}_2\text{O}$ (**EOIT-Co**) and $[\text{Cu}(\text{EOIT})\text{Cl}] \cdot \text{Cl}$ (**EOIT-Cu**) which was further confirmed by the measurement of mass spectra. The architecture arrangement of the ligand atoms around Co and Cu centers has been determined depending on the UV-Vis spectral measurements and calculation of μ_{eff} values. This proved that the copper compounds were square planer whereas the cobalt complexes were tetrahedral or octahedral arrangements. These compounds were examined as corrosion inhibitors for Sabc iron in 1.0 M HCl solution using potentiodynamic polarization, electrochemical impedance spectroscopy, mass-loss and scanning electron microscopy techniques. The acquired outcomes disclosed that the examined compounds were found to have

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