LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH: CONFERENCE PAPER
Bukti artikel: C-28

Judul Karya Ilmiah (Artikel)	:	Gold (Au) selective adsorption using polyeugenol based ionic imprinted polymer with ethylene glycol dimethacrylate crosslink
Jumlah Penulis	:	5 Orang Penulis anggota
Nama Penulis	:	M Cholid Djunaidi, **Nor Basid Adiwibawa Prasetya**, Didik Setiyo Widodo, Retno Ariadi Lusiana, Pardoyo
Nama Konferensi	:	The 14th joint conference on chemistry 2019
Identitas Prosiding		
a. Nama Prosiding	:	AIP Conference Proceedings
b. Nomor ISSN	:	0094-243X
c. Volume, No, Tahun	:	Vol. 2237, No. 1, Tahun 2020
d. Penerbit	:	AIP Publishing LLC
e. DOI artikel (jika ada)	:	https://doi.org/10.1063/5.0005546
f. URL Jurnal	:	https://pubs.aip.org/aip/acp/article-abstract/2237/1/020057/1007360/Gold-Au-selective-adsorption-using-polyeugenol?redirectedFrom=fulltext
g. Alamat web jurnal	:	https://pubs.aip.org/aip/acp/issue/2237/1
h. Indexing	:	Google Scholar, Scopus, Scimagojr

Kategori Publikasi Jurnal Ilmiah (beri ✓pada kategori yang tepat) :

- [✓] Prosiding internasional terindeks di Scimagojr dan Scopus
- [ ] Prosiding internasional terindeks di Scopus, IEEE Explorer, SPIE
- [ ] Prosiding internasional
- [ ] Prosiding Nasional

Hasil Penilaian *Peer Review* :

Komponen yang Dinilai	Nilai Maksimal *conference paper* Dipublikasi pada Prosiding Internasional terindeks di Scimagojr dan Scopus (30)	Nilai Akhir Yang Diperoleh
a. Kelengkapan unsur isi jurnal (10%)	3	3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9	8,85
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9	8,8
d. Kelengkapan unsur dan kualitas penerbit (30%)	9	8,85
Total = (100%)	30	29,5

Semarang, 24 Mei 2023

Reviewer 1

Ismiyarto, S.Si., M.Si., Ph.D.
NIP. 196910111997021001
Unit kerja:
Departemen Kimia FSM Undip
Jabatan Fungsional: Lektor Kepala
Bidang Ilmu: Kimia

Reviewer 2

Dr. Ngadiwiyana, S.Si., M.Si
NIP. 196906201999031002
Unit kerja:
Departemen Kimia FSM Undip
Jabatan Fungsional: Lektor Kepala
Bidang Ilmu: Kimia

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- [✓] Prosiding internasional terindeks di Scimagojr dan Scopus
- [ ] Prosiding internasional terindeks di Scopus, IEEE Explorer, SPIE
- [ ] Prosiding internasional
- [ ] Prosiding Nasional

Hasil Penilaian *Peer Review* :

Komponen yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi jurnal (10%)	3	3	3
b. Ruang lingkup dan kedalaman pembahasan (30%)	8,8	8,9	8,85
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	8,8	8,8	8,8
d. Kelengkapan unsur dan kualitas penerbit (30%)	8,9	8,8	8,85
Total = (100%)	29,5	29,5	29,5

Semarang, 24 Mei 2023

Reviewer 1

Ismiyarto, S.Si., M.Si., Ph.D.
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Jabatan Fungsional: Lektor Kepala
Bidang Ilmu: Kimia

Reviewer 2

Dr. Ngadiwiyana, S.Si., M.Si
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- [ ] Prosiding internasional terindeks di Scopus, IEEE Explorer, SPIE
- [ ] Prosiding internasional
- [ ] Prosiding Nasional

Hasil Penilaian *Peer Review* :

Komponen yang Dinilai	Nilai Maksimal conference paper				Nilai Akhir Yang Diperoleh
	Internasional terindeks di Scimagojr dan Scopus (30)	internasional terindeks di Scopus, IEEE Explorer, SPIE (25)	Prosiding internasional (15)	Prosiding Nasional (10)	
a. Kelengkapan unsur isi makalah (10%)	3				3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9				8,8
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9				8,8
d. Kelengkapan unsur dan kualitas penerbit (30%)	9				8,9
Total = (100%)	**30**				29,5
Kontribusi Pengusul (Penulis Anggota)	**40% × 29,5 : 4 = 2,95**				

Komentar Peer Review:

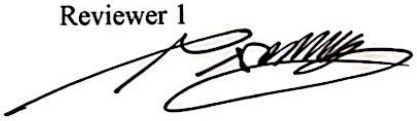
a. **Kelengkapan dan kesesuaian unsur:** Penulisan artikel sudah mengikuti author guideline yang berlaku meliputi Title, Introduction, Experimental, Results and Discussion, Conclusion, Acknowledgement, References. Topik dari penelitian sesuai dengan bidang para penulis. Setiap bagian dalam artikel ditulis dengan alur pembahasan yang mengalir dan memiliki relevansi yang baik.

b. **Ruang lingkup dan kedalaman pembahasan:** Penelitian tentang pemanfaatan imprinted polimer dengan material aktif pembawa berupa polimer turunan eugenol serta pemanfaatannya dalam pemisahan selektif ion logam emas. Proses sintesis polimer dijelaskan secara detail. Proses pemisahan menggunakan membran juga dijelaskan dengan baik. Data hasil uji pemisahan disajikan secara komprehensif. Sebanyak 12 jurnal yang digunakan sebagai referensi menunjukkan bahwa artikel ditulis dengan studi pustaka yang detail

c. **Kecukupan dan kemutahiran data/informasi dan metodologi:** Penyajian data ditampilkan dalam 8 figures dan 2 tabel yang dilengkapi dengan pembahasan mendalam sehingga memudahkan pembaca untuk memahami hasil penelitian. Karakterisasi yang dilakukan cukup banyak dan sesuai kebutuhan, yaitu FTIR, SEM, dan TGA-DTA. Sebanyak 85% artikel sebagai rujukan dengan usia tidak lebih dari sepuluh tahun menunjukkan kemutakhiran pembahasan dan rujukan.

d. **Kelengkapan unsur dan kualitas penerbit**: Artikel ini dipublikasikan pada AIP Conference Proceedings yang diterbitkan oleh AIP Publishing LLC yang terindeks Scopus dan ScimagoJR. Secara keseluruhan tidak ditemukannya kesalahan dalam penulisan menunjukkan bahwa proses editorial dilakukan dengan baik menghasilkan artikel yang berkualitas. Turnitin: 19% mengindikasikan tidak adanya plagiasi dalam paper ini.

Semarang, 23 Mei 2023
Reviewer 1



Ismiyarto, S.Si., M.Si., Ph.D.
NIP. 196910111997021001

Unit kerja :
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Jabatan Fungsional: Lektor Kepala
Bidang ilmu: Kimia

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- [ ] Prosiding internasional
- [ ] Prosiding Nasional

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	Internasional terindeks di Scimagojr dan Scopus (30)	internasional terindeks di Scopus, IEEE Explorer, SPIE (25)	Prosiding internasional (15)	Prosiding Nasional (10)	
a. Kelengkapan unsur isi makalah (10%)	3				3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9				8,9
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9				8,8
d. Kelengkapan unsur dan kualitas penerbit (30%)	9				8,8
Total = (100%)	**30**				29,5
Kontribusi Pengusul (Penulis Anggota)	40% × 29,5 : 4 = 2,95				

Komentar Peer Review:

a. **Kelengkapan dan kesesuaian unsur:** kesesuaian unsur dari artikel ini sudah lengkap dan sesuai dengan kaidah penulisan jurnal yang mencakup Title, Introduction, Methods, Results and Discussion, Conclusion, dan References. Penulis telah mengikuti author guidelines.

b. **Ruang lingkup dan kedalaman pembahasan:** Artikel ini memanfaatkan 12 jurnal sebagai referensi yang mengindikasikan bahwa paper ini memiliki pembahasan yang cukup luas dan mendalam. Sebanyak 8 gambar dipaparkan dengan kedalaman informasi yang cukup baik. Pembahasan paper ini mampu memberikan penjelasan tentang efektivitas pemisahan ion logam Au secara selektif menggunakan metode ionic imprinted polymer membrane.

c. **Kecukupan dan kemutahiran data/informasi dan metodologi:** Metodologi sintesis dan karakterisasi serta uji selektivitas membran telah didesain dengan baik dan data yang diperoleh disajikan cukup baik. Beberapa instrumen seperti FTIR dan SEM serta TGA dipergunakan secukupnya. Referensi pendukung mayoritas terkini dengan usia terbit tidak lebih dari 10 tahun.

d. **Kelengkapan unsur dan kualitas penerbit**: Similarity indeks dari paper ini sebesar 19% dan secara substansi tidak terindikasikan adanya plagiasi dalam paper ini. Kualitas paper ini juga dapat dilihat dari jumlah referensi yang banyak yang digunakan.

Turnitin: similarity 19%

Semarang, 23 Mei 2023
Reviewer 2

Dr. Ngadiwiyana, S.Si., M.Si
NIP. 196906201999031002

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

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Preface: The 14th joint conference on chemistry 2019

Cite as: AIP Conference Proceedings **2237**, 010001 (2020); https://doi.org/10.1063/12.0000415
Published Online: 02 June 2020

Preface: The 14th Joint Conference on Chemistry 2019

Thank you very much for this opportunity to hold the international conference of JCC 14 on 10-11 September 2019, by Chemistry Department, Faculty of Math and Natural Science, Universitas Sebelas Maret. This JCC conference is as annually program of the consortium of five chemistry departments in the region of Middle Java (Universitas Sebelas Maret, Universitas Diponegoro, Universitas Jenderal Sudirman, Universitas Negeri Semarang, Universitas Kristen Satya Wacana) and a guest member from Malaysia (Universitas Malaysia Sabah)

On the behalf of organizing committee of JCC 2019, I appreciate to all participants to meet in this scientific conference on chemistry 2019, 14th JCC. It was my pleasure to facilitate the ideas in development of chemistry and education chemistry within the region of middle Java also worldwide. I expect that our conference gives good impact to the chemist society not only in the region but in the world through the scientific ideas or publications outcoming from this conference. Besides, I hope that our collaboration can be intensively done by joint research between the members of this consortium in the near future.

I would like to thank to Scientific Committee for the publishing articles of the proceeding of the 14th JCC conference in AIP publishing.

Surakarta, 20 December 2019

Dr. rer.nat. Atmanto Heru Wibowo, S.Si., M.Si
Chairman of JCC 2019
https://jcc.uns.ac.id/

The 14th Joint Conference on Chemistry 2019
AIP Conf. Proc. 2237, 010001-1–010001-1; https://doi.org/10.1063/12.0000415
Published by AIP Publishing. 978-0-7354-1996-4/$30.00

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PRELIMINARY

Preface: The 14th joint conference on chemistry 2019

AIP Conference Proceedings 2237, 010001 (2020) doi: https://doi.org/10.1063/12.0000415

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Committees: The 14th Joint Conference on Chemistry 2019

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ARTICLES

Kinetic study of methylene blue photocatalytic decolorization using zinc oxide under UV-LED irradiation

Riki Subagyo; Yuly Kusumawati; Wahyu Bambang Widayatno

AIP Conference Proceedings 2237, 020001 (2020) doi: https://doi.org/10.1063/5.0005263

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Fenton reaction involvement on methyl orange biodegradation by brown-rot fungus *Gloeophyllum trabeum*

Adi Setyo Purnomo; Nur Elis Agustina Andyani; Refdinal Nawfa; Surya Rosa Putra

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Metal phase and electron density of transition metal/HZSM-5

Khoirina Dwi Nugrahaningtyas; Marita Maharani Putri; Teguh Endah Saraswati

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Renewable energy from sediment microbial fuel cell technology from Kendari Bay swamp sediments

Ahmad Zaeni; Prima Endang Susilowati; Alwahab; La Ode Ahmad

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Synthesis and characterization of unsymmetrically branched alkyl chains carbazole-based polymer

Mohd Sani Sarjadi; Shu Er Tan; Xin Lin Wong; Farah Hannan Anuar; Md. Shaheen Sarkar; Md. Lutfor Rahman

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Synthesis of magnetite@SILICA-CTA in a *cetyl trimethyl ammonium bromide* (CTAB) concentration variations for fenol adsorption

Choiril Azmiyawati; F. A. Yamin; A. Darmawan; L. Suyati

AIP Conference Proceedings 2237, 020006 (2020) doi: https://doi.org/10.1063/5.0005717

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Study of Rhodamine B adsorption onto activated carbon from spent coffee grounds

Teguh Wirawan; Soerja Koesnarpadi; Nanang Tri Widodo

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Photodegradation of phenol in batik wastewater with copper (II) oxide under visible light illumination

Tien Setyaningtyas; Kapti Riyani; Cherly Firdharini

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Curing characteristics and mechanical properties of wasted crumb rubber-styrene butadiene rubber binary blends using bio based softener

Rahmaniar; Aprillena Tornadez Bondan; Tri Susanto

AIP Conference Proceedings 2237, 020009 (2020) doi: https://doi.org/10.1063/5.0005226

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

Arnelli; Laila N. Mastuti; Aulia D. Arini; Yayuk Astuti

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Imprinted zeolite modified carbon paste electrode as a selective potentiometric sensor for blood glucose

Miratul Khasanah; Alfa Akustia Widati; Usreg Sri Handajani; Masfah Raudlotus Shofiyyah; Sabrina Aulia Rakhma; Herwin Predianto

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Optimization of supersaturated solution from *stevia rebaudiana* water extract lead to crystal nucleation

Yohanes Martono; Yohanes Difto Adiwibowo; November Rianto Aminu

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Determination of glucose content with a concentration within the physiological range by FT-NIR spectroscopy in a trans-reflectance mode

Ferdy S. Rondonuwu; Andreas Setiawan

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Effect of acidic level (pH) of red dragon fruit (*Hylocereus costaricencis*) peels extract on DSSC efficiency

P. Faqih; F. Nurosyid; T. Kusumaningsih

AIP Conference Proceedings 2237, 020014 (2020) doi: https://doi.org/10.1063/5.0005686

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Larvicidal potential of *Lantana camara* as bio larvicidal for *Aedes aegypti* 3 rd instar larvae

November Rianto Aminu; Ribka Dewi Kristiana; Sri Hartini; Hartati Soetjipto

AIP Conference Proceedings 2237, 020015 (2020) doi: https://doi.org/10.1063/5.0005207

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Adsorption of cibacet yellow and cibacet red from aqueous solution onto activated carbon from annatto peels (*Bixa orellana* L.)

C. A. Riyanto; Y. S. Widodo; M. S. Ampri; E. Prabalaras; A. Sudibya; Y. A. Putra; I. G. K. A. Kameswara; F. T. W. Hananto

AIP Conference Proceedings 2237, 020016 (2020) doi: https://doi.org/10.1063/5.0005372

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Effect of working electrode thickness using binahong leaves (*Anredera cordifolia*) dye to the efficiency of dye-sensitized solar cell (DSSC)

B. Y. Muryani; F. Nurosyid; Kusumandari

AIP Conference Proceedings 2237, 020017 (2020) doi: https://doi.org/10.1063/5.0005688

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A novel synthesis of 1,1'-(2,4,6-trihydroxy-1,3-phenylene)bis(ethan-1-one) (DAPG) using $CuSO_4.5H_2O$ as a green catalyst

Carissa Hertiningtyas; Triana Kusumaningsih; Maulidan Firdaus

AIP Conference Proceedings 2237, 020018 (2020) doi: https://doi.org/10.1063/5.0005344

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RGO-$NiCo_2S_4$ composite as a counter electrode for solid-state DSSC system with CuI as an electrolyte

Qonita Awliya Hanif; Sayekti Wahyuningsih; Ari Handono Ramelan

AIP Conference Proceedings 2237, 020019 (2020) doi: https://doi.org/10.1063/5.0009131

Abstract View article PDF

Biodiesel production using palm fatty acid distillate and rice husk silica supported $NiSO_4$ as catalyst

Noor Hindryawati; Nanang Tri Widodo; Moh. Syaiful Arief; Irfan Ashari Hiyahara; Gaanty Pragas Maniam

AIP Conference Proceedings 2237, 020020 (2020) doi: https://doi.org/10.1063/5.0005557

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Esterification of oxidized ricinoleic acid with various alcohols to produce emulsifier and antimicrobial compounds

Atika Nabilah; Sri Handayani; Siswati Setiasih; Dyah Utami Cahyaning Rahayu; Sumi Hudiyono

AIP Conference Proceedings 2237, 020021 (2020) doi: https://doi.org/10.1063/5.0005809

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Nanoparticles Fe_3O_4 modified chitosan and its antibacterial applications

Soerja Koesnarpadi; Winni Astuti; Ika Yekti Lianasari

AIP Conference Proceedings 2237, 020022 (2020) doi: https://doi.org/10.1063/5.0005693

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Synthesis of hydroxylated azomethine compounds and the antioxidant activity

Nova Rifqi Rahmawati; Ngadiwiyana; Nor Basid Adiwibawa Prasetya; Purbowatingrum Ria Sarjono; Yosie Andriani; Desy Fitrya Syamsumir; Ismiyarto

AIP Conference Proceedings 2237, 020023 (2020) doi: https://doi.org/10.1063/5.0005806

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Synthesis of salicylic acid modified magnetite nanoparticles and its application in wastewater treatment

Thutug Rahardiant Primadi; Fauziatul Fajaroh; Syaiful Bahri; Nazriati; Aman Santoso; Endang Ciptawati; Adrian Nur

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Modification of synthetic carpet using chitosan-titania nanocomposite for anti-bacterial and anti-odor purposes

Mohamad Iman Sulaeman; M. Ibadurrohman; Slamet

AIP Conference Proceedings 2237, 020025 (2020) doi: https://doi.org/10.1063/5.0005257

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Development of nanofluid biodegradable detergent from palm kernel oil and TiO_2

Reysa Anggraini Vestiana Putri; Muhammad Ibadurrohman; Slamet

AIP Conference Proceedings 2237, 020026 (2020) doi: https://doi.org/10.1063/5.0005258

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Preparation of activated carbon from *Calophyllum inophyllum* seed using different activating agents: Comparison study

Nur Izzati Machrita; Kartika A. Madurani; Suprapto; M. Luki Kurniawan; Yulianto Adi Nugroho; Fredy Kurniawan

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Optimization of Suweg starch (*Amorphophallus paeoniifolius* (Dennst.) Nicolson) and lactose as *co-processed excipient* of Ibuprofen-PEG 6000 solid dispersion of effervescent tablet

Dian Eka Ermawati; Bimar Putri Andini; Fea Prihapsara; Yeni Farida; Sholichah Rohmani; Wisnu Kundarto; Estu Retnaningtyas Nugraheni

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The 14th Joint Conference on Chemistry 2019
AIP Conf. Proc. 2237, 010003-1–010003-1; https://doi.org/10.1063/12.0000584
Published by AIP Publishing. 978-0-7354-1996-4/$30.00

Synthesis and characterization of unsymmetrically branched alkyl chains carbazole-based polymer

Cite as: AIP Conference Proceedings **2237**, 020005 (2020); https://doi.org/10.1063/5.0005389
Published Online: 02 June 2020

Mohd Sani Sarjadi, Shu Er Tan, Xin Lin Wong, Farah Hannan Anuar, Md. Shaheen Sarkar, and Md. Lutfor Rahman

Synthesis and Characterization of Unsymmetrically Branched Alkyl Chains Carbazole-Based Polymer

Mohd Sani Sarjadi[1, a)], Shu Er Tan[1], Xin Lin Wong[1], Farah Hannan Anuar[2], Md. Shaheen Sarkar[3], and Md. Lutfor Rahman[1]

[1]*Faculty for Science and Natural Resources, Universiti Malaysia Sabah, 88400 Kota Kinabalu, Sabah, Malaysia.*
[2]*Centre for Advanced Materials and Renewable Resources, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia.*
[3]*Bernal Institute, University of Limerick, Castletroy, Limerick, Ireland.*

[a)]Corresponding author: msani@ums.edu.my, sanisarjadi@gmail.com

Abstract. This work introduces a modified poly[*N* -dodecanyl-2,7-carbazole-*alt*-5,5-(4',7'-di -2-thienyl -(*N*,*N'*-dodecanyl -6, 6'- isoindigo))] (PCDTID) with the unsymmetrically branched N-alkyl chain, which is as poly[*N* -(2-hexyldecyl)-2,7-carbazole -*alt* -5, 5-(4',7'-di -2-thienyl-*N*,*N'* -(2-hexyldecyl) -6,6'- isoindigo)] **(P1)**. The synthesis of **P1** involves Suzuki's coupling reactions. Suitable analysis techniques have been used to study the chemical, physical, thermal, optical and electrochemical properties of **P1**. The analysis results show that **P1** possesses higher HOMO and LUMO energy levels than the previously reported PCDTID, which have been narrowing the electrochemical band gap down to 1.37 eV. However, the **P1** experiences 5% thermal degradation at 393 °C, which is relatively less favourable than the PCDTID. Hence, the replacement of the symmetrically branched alkyl chains of PCDTID with unsymmetrically branched alkyl chains results in both improvement and drawback on the characteristics of the polymer.

INTRODUCTION

Nowadays, the research community focus on the research and development of polymeric solar cells. This is because polymeric solar cells possess better features, likes, light weight, flexible, low fabrication cost, and environmental friendly than the inorganic-based solar cell [1-6]. First and foremost, one of the organic photovoltaic cells invented by researchers in the early stage of development, comprises a single-component active layer sandwiched between two electrodes. However, this designed configuration possesses some significant limitations result in low power conversion efficiency [7-11].

Solar cell consists of a p-n junction in a semiconductor between a positive layer and a negative layer. The positive layer is p-type, it will contain movable positive charges or holes. The negative layer is n-type, it will contain movable negative electrons [12-14]. Photon is needed to hit and penetrate semiconductor and an electron from the valance band absorb the energy. Absorption of photons in depletion layer cause spatially separation of electron-hole pair formed by photoexcitation [15]. A p-side become charged positively while n-side is charged negatively. Both, photons absorbed within and outside of the depletion layer contribute to this charging. This process of light-induced charge separation is referred as p-n-photo effect or photovoltaic effect [10]. Photo effect also means by energy transfer photon to electrons contained inside material [16-17]. Since the elementary substitution and the extension of the π-conjugation for the monomers in **PCDTID** polymeric system had already been widely reported in the several past research [18-21], this work focusses on the study of the polymeric effect when the symmetrically branched alkyl chain of the widely studied **PCDTID** are replaced with unsymmetrically branched alkyl chain. The synthesis route of **P1** was illustrated out in the **Scheme 1**.

The 14th Joint Conference on Chemistry 2019
AIP Conf. Proc. 2237, 020005-1–020005-12; https://doi.org/10.1063/5.0005389
Published by AIP Publishing. 978-0-7354-1996-4/$30.00

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Cite as: AIP Conference Proceedings **2237**, 020038 (2020); https://doi.org/10.1063/5.0005553
Published Online: 02 June 2020

Atmanto Heru Wibowo, Metin Yuliati, Abu Masykur, Suyitno, Desi Suci Handayani, Dian Maruto Widjonarko, Maulidan Firdaus, Ari Yustisia, and Takuji Ogawa

Synthesis and Spectra Study of Cu (II), Fe (II), Zn (II)- 5,15-Diphenyl Porphyrin

Atmanto Heru Wibowo[1, a)], Metin Yuliati[1], Abu Masykur[1], Suyitno[2], Desi Suci Handayani[1], Dian Maruto Widjonarko[1], Maulidan Firdaus[1], Ari Yustisia[3], Takuji Ogawa[3, b)]

[1]*Chemistry Department, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta, Indonesia.*

[2]*Mechanical Engineering, Universitas Sebelas Maret, Jl. Ir. Sutami 36A, Surakarta, Indonesia*

[3]*Chemistry Department, Graduate School of Science, Osaka University, Machikaneyama-cho 1-1, Toyonaka-city, Osaka, 560-0043, Japan*

[a)]Corresponding author: aheruwibowo@staff.uns.ac.id

[b)]Corresponding author: ogawa@chem.sci.osaka-u.ac.jp

Abstract. Compound 5,15-Diphenyl porphyrin (DPP) has been synthesized and inserted with different kind of metal (Fe, Cu and Zn). Synthesis of DPP has been carried out through three stages reaction using pyrrole and benzaldehyde as starting materials. Identification of synthesized compounds of 5-phenyl dipyrromethane (DPM) and 5, 15-diphenyl porphyrin (DPP) was confirmed with H-NMR. Three different metals were then inserted into the cavity of DPP. Optical spectra of Cu, Fe, Zn-DPP was then investigated and compared with free-base DPP using UV/Vis spectrophotometer. The result showed that the yield reaction of DPM reached about 41.77% and DPP reached about 21.80%. Based on the spectra investigation of metal-DPP, it showed that DPP had different Soret and Q band when each Cu (II), Fe (II), Zn (II) was inserted into DPP. Moreover, Zn-DPP has Q band at to the rightest shifting than Cu-DPP or Fe-DPP which means it has the least excitation energy among them. Therefore, Zn-DPP has the more potential to be utilized for application such as DSSC.

INTRODUCTION

Metals bonded on the porphyrin cavity may change the properties of porphyrin that is valuable for many kinds of applications. As the effects, single molecule of porphyrin with ion of cobalt, zinc and vanadium could be applied as bacteria detector in the antimicrobial device [1]. Porphyrin dimers with zinc ion on the cavity could be used as dye sensitizer solar cell (DSSC) [2]. Tetraphenyl porphyrin is also in capable to be used for fuel cell [3]. Oligomeric and multi array-porphyrin have been reported to be used as photonic cable and energy photodynamic in the light storage [4].

It has been well known that spectra of electronic absorption of compound such as porphyrin is specific from ground to excited state (S0→S2) namely Soret and or B band (380-500 nm) depending on the β or meso substitution and (S0→S1) namely Q band (500-750 nm) [5]. Relative intensity of Q band is due to the kind and position of substituent on the macrocyclic chain. Related to the characteristic of the UV/Vis spectra, porphyrin is able to be classified as etio, rhodo, oxo-rhodo and phyllo [6]. If intensity of Q band IV> III> II> I, porphyrin is classified as with etio-type porphyrin spectrum. In this spectrum type, six or more β positions are bounded without π electrons substituents, such as alkyl. Substituent with π electrons substituents such as carbonyl and vinyl causes the change of Q band III> IV> II> I, namely rhodo-type porphyrin spectrum. Oxo-rhodo porphyrin is with Q band III> II> IV> I, and phyllo type is with IV> II> III> I pattern [7].

In this study, some ion metals of Cu, Fe and Zn were inserted into the DPP. The influence of three kinds of metals in the porphyrin cavity towards the UV/Vis spectra of porphyrin will be investigated. Based on the literature searching,

The 14th Joint Conference on Chemistry 2019
AIP Conf. Proc. 2237, 020038-1–020038-4; https://doi.org/10.1063/5.0005553
Published by AIP Publishing. 978-0-7354-1996-4/$30.00

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SUBJECT AREA AND CATEGORY

Physics and Astronomy
Physics and Astronomy (miscellaneous)

PUBLISHER

American Institute of Physics

H-INDEX

80

PUBLICATION TYPE

Conferences and Proceedings

ISSN

0094243X, 15517616

COVERAGE

1973-1978, 1983-1984, 1993, 2000-2001, 2003-2022

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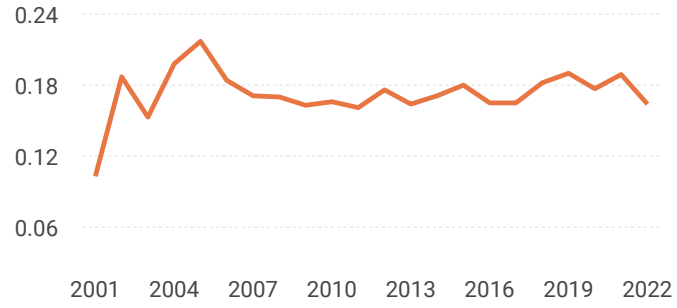

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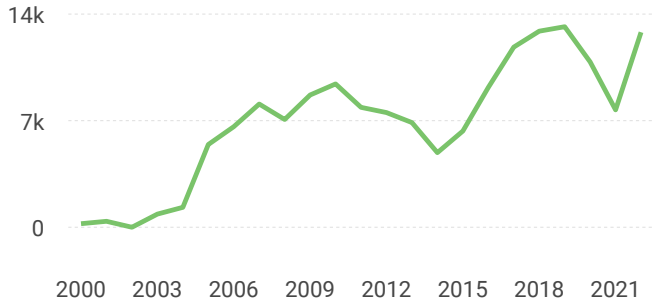

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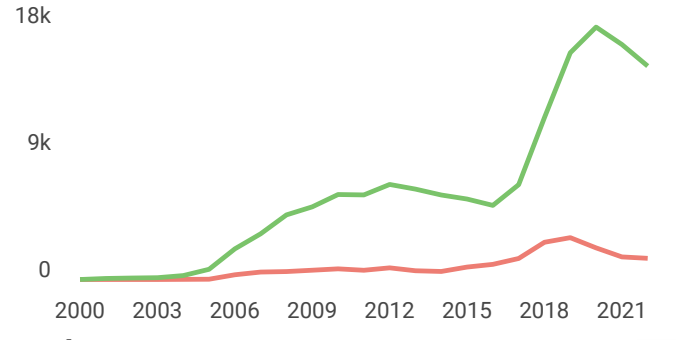

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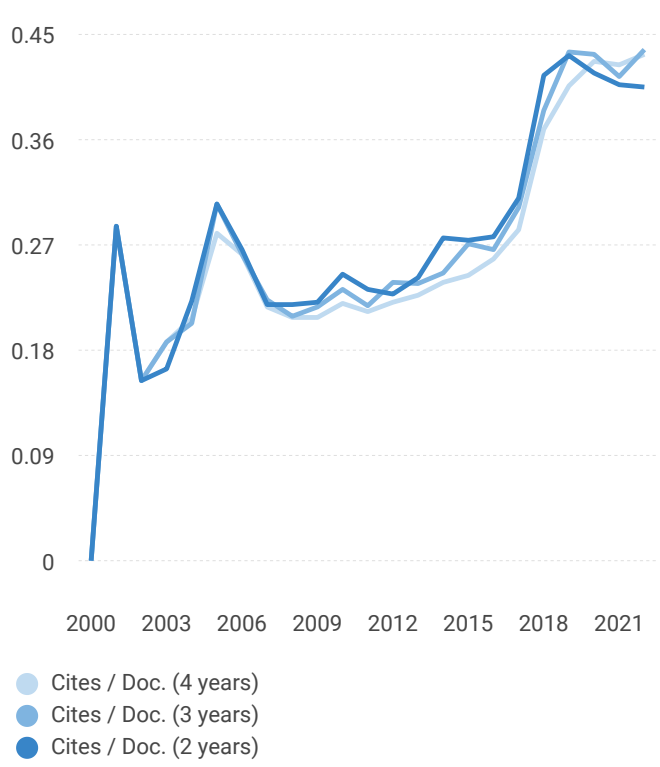

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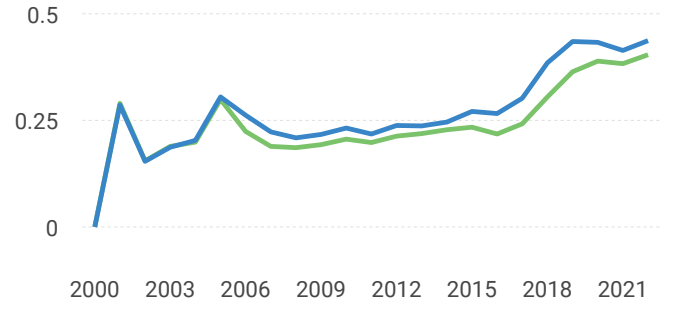

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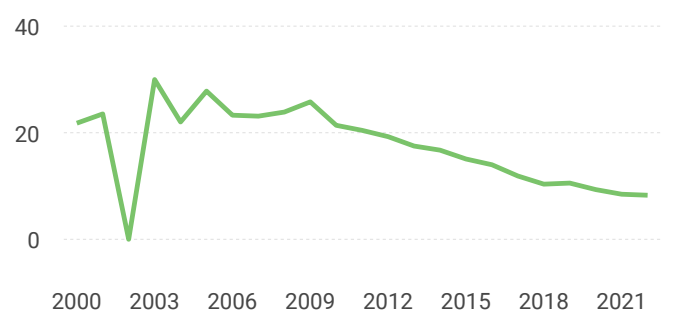

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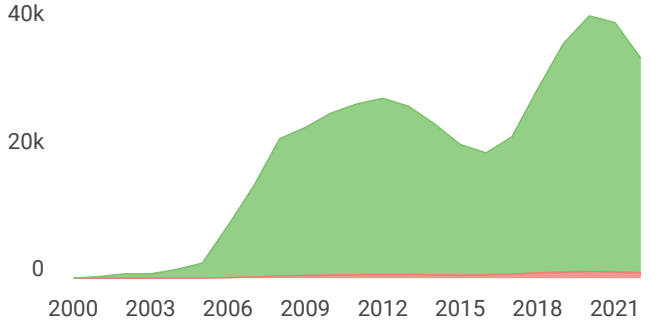

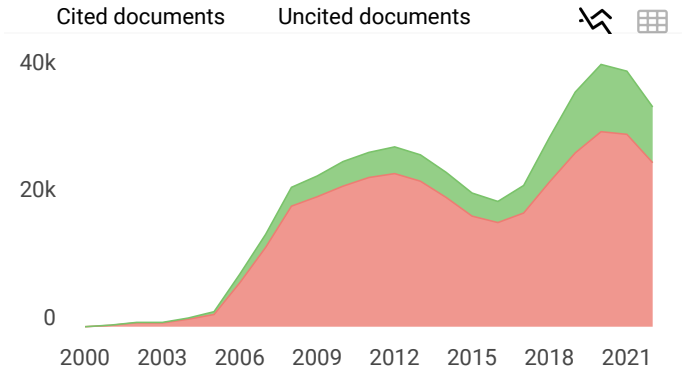

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