

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

Judul Karya Ilmiah (Artikel) : Rapid identification of macro nutrients in pharmaceutical medicine using laser-induced plasma spectroscopy

Jumlah Penulis : 4 orang

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

Identitas Jurnal Ilmiah : a. Nama prosiding : Journal of Physics: Conference Series
b. Nomor ISSN : 1742-6588, 1742-6596
c. Tahun terbit, tempat pelaksana : 2018, Semarang Indonesia
d. Penerbit : IOP Publishing
e. Alamat web jurnal : <https://iopscience.iop.org/article/10.1088/1742-6596/1025/1/012007>
f. Terindeks di Scimagojr/Scopus atau di....**

Kategori Publikasi Jurnal Ilmiah (beri ✓ pada kategori yang tepat) : ☒ Prosiding Ilmiah Internasional **
☐ Prosiding Nasional Terakreditasi

Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	Reviewer II	
a. Kelengkapan unsur isi jurnal (10%)	2,6	3	2.8
b. Ruang lingkup dan kedalaman pembahasan (30%)	8,6	8,8	8.7
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	8,5	8,8	8.65
d. Kelengkapan unsur dan kualitas penerbit (30%)	8,3	8,8	8.55
Total = (100%)	28,0	29,4	28.7
Nilai untuk Pengusul : (60% x 28.7) = 17.22			

Semarang, 24 Februari 2021

Reviewer 1



Prof. Dr. Suryono, S.Si., M.Si.

NIP. 197306301998021001

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

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

Judul Karya Ilmiah (Prosiding) : Rapid identification of impurity in the material surface using meshassisted laser-induced plasma technique utilizing pulse CO2 laser

Nama/ Jumlah Penulis : 2 orang

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

Identitas Prosiding :

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Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional ☒	Nasional ☐	
a. Kelengkapan unsur isi prosiding (10%)	3		2,6
b. Ruang lingkup dan kedalaman pembahasan (30%)	9		8,6
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9		8,5
d. Kelengkapan unsur dan kualitas terbitan /prosiding (30%)	9		8,3
Total = (100%)	30		28,0
Nilai Pengusul = 60% x 28,0 = 16,8			

Catatan Penilaian artikel oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi jurnal:

Prosiding telah memiliki kesesuaian antar bagian-bagiannya, memiliki gap riset yang jelas dan lengkap serta memenuhi unsur-unsur penulisan jurnal yang baik.

2. Ruang lingkup dan kedalaman pembahasan:

Prosiding memiliki ruang lingkup jurnal sesuai, pembahasan telah dilakukan secara mendalam dengan hasil yang diperoleh, sebaiknya menggunakan referensi jurnal yang terbaru tidak melebihi lima tahun terakhir.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

Prosiding memiliki kecukupan data yang memadai yang diperoleh dari instrument yang baik, menggunakan metodologi riset yang telah sesuai yang didukung dengan referensi jurnal terbaru.

4. Kelengkapan unsur dan kualitas terbitan:

Prosiding telah memiliki kelengkapan unsur yang baik dan kualitas terbitan yang cukup baik, jurnal yang terindeks scopus, memiliki indeks similaritas yang kecil.

Semarang, 20 April 2021

Reviewer 1



Prof. Dr. Suryono, S.Si., M.Si.

NIP. 197306301998021001

Unit Kerja : Fisika

Bidang Ilmu: Fakultas Sains dan Matematika

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

Judul Karya Ilmiah (Prosiding) : Rapid identification of impurity in the material surface using meshassisted laser-induced plasma technique utilizing pulse CO2 laser

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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding		Nilai Akhir Yang Diperoleh
	Internasional ☒	Nasional ☐	
a. Kelengkapan unsur isi prosiding (10%)	3		3
b. Ruang lingkup dan kedalaman pembahasan (30%)	9		8,8
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	9		8,8
d. Kelengkapan unsur dan kualitas terbitan /prosiding (30%)	9		8,8
Total = (100%)	30		29,4
Nilai Pengusul = 60% x 29,4 = 17,64			

Catatan Penilaian artikel oleh Reviewer :

1. Kesesuaian dan kelengkapan unsur isi jurnal:

Isi jurnal sangat sesuai dan lengkap dari komponen-komponen yang ada abstrak, pendahuluan, prosedur eksperimen, hasil dan pembahasan, lalu kesimpulan dan daftar pustaka yang digunakan.

2. Ruang lingkup dan kedalaman pembahasan:

Paper ini membahas tentang identifikasi secara cepat pada bahan pengotor di permukaan material menggunakan teknik plasma yang diinduksi laser pulsa CO2.

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:

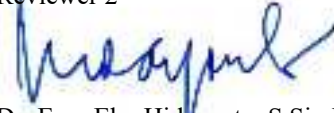
Data-data/informasi serta metodologi yang digunakan mutakhir.

4. Kelengkapan unsur dan kualitas terbitan:

Karya ini diterbitkan dalam prosiding internasional dengan unsur-unsur yang lengkap serta kualitas yang baik.

Semarang, 04 Juli 2021

Reviewer 2



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

NIP. 197301031998021001

Unit Kerja : Fisika

Bidang Ilmu: Fakultas Sains dan Matematika



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FACULTY OF SCIENCE AND MATHEMATICS



CERTIFICATE

Decree of Dean Number : 1440/UN7.5.8/HK/2017

This is to certify that

Ali Khumaeni

as

PRESENTER

In the 7th International Seminar on New Paradigm and Innovation of Natural Science and Its Application (ISNPINSA-7) held on 17 October 2017 at Grand Candi Hotel Semarang Indonesia

with paper entitled as follows:

Rapid identification of elements in pharmaceutical products using laser-induced plasma spectroscopy

DEAN OF FSM UNDIP



Prof. Dr. Widowati, S.Si, M.Si.
NIP. 196902141994032002

7th ISNPINSA COMMITTEE,
CHAIRMAN



Dr. Budi Warsito, S.Si, M.Si.
NIP. 197508241999031003



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Rapid identification of macro nutrients in pharmaceutical medicine using laser-induced plasma spectroscopy

Khumaeni A. ✉, Sugito H., Yoyo Wardaya A., Setia Budi W.

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Department of Physics, Faculty of Science and Mathematics, Diponegoro University, Jl. Prof. Soedharto, SH, Tembalang, Semarang, 50275, Indonesia

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Abstract

Identification of macro nutrients in medicine is really necessary for healthy purpose. In this study, identification of macro elements in pharmaceutical products was carried out by laser-induced plasma spectroscopy (LIPS). A comparative study was made by employing different types of laser, namely an Nd:YAG laser and a pulse TEA CO₂ laser. Experimentally, the laser beam was directed and focused by a convex lens on a mineral supplement tablet. A luminous plasma was induced on the tablet's surface. Sharp and high-intensity emission spectra of macro elements including Ca and Mg were detected both in LIBS using Nd:YAG and pulse CO₂ lasers. However, the intensities of Ca and Mg spectra are much higher for the LIBS using CO₂ laser. Based on the analysis, the plasma temperature plays important role in the spectra. Namely, the plasma induced by a TEA CO₂ laser is much higher than that of Nd:YAG

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Khumaeni, A. , Sugito, H. , Setia Budi, W. (2018) *Journal of Applied Spectroscopy*

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laser; the plasma temperature for the case of TEA CO₂ laser and Nd:YAG laser were 6400 K and 4500 K, respectively. © Published under licence by IOP Publishing Ltd.

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(2012) *Applied Optics*, 51 (7), pp. B121-B129.
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<http://jap.jsap.jp/link?JJAP/51/082403/pdf>
doi: 10.1143/JJAP.51.082403

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✉ Khumaeni, A.; Department of Physics, Faculty of Science and Mathematics, Diponegoro University, Jl. Prof. Soedharto, SH, Tembalang, Semarang, Indonesia; email:khumaeni@fisika.undip.ac.id
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University of Fukui, Japan

Prof. Dr. Norsarahaida Saidina Amin

Universiti Teknologi Malaysia

Mario Rosario Guarracino, PhD.

Instituto di Calcolo e Reti ad Alte Prestazioni-

National Research Council (ICAR-CNR), Italy

Dr. dr. Budi Wiweko, Sp. OG-KFER.

University of Indonesia, Jakarta

Invited Speaker:

Prof. Elmer S. Estacio, PhD.

National Institute of Physics, University of the Philippines, Manila,

Ismiyarto, S.Si., M.Si., PhD.

Diponegoro University, Semarang, Indonesia

Dr. Eng. Adi Wibowo, S.Si., M.Kom.

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012004

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Hendri Widiyandari, Ngurah Ayu Ketut Umiati and Rizki Dwi Herdianti

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S. A. Wulandari, Arifin, Hendri Widiyandari and Agus Subagio

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012006

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Ainie Khuriati, Purwanto Purwanto, Haryono Setiyo Huboyo, Suryono Suryono and Ari Bawono Putro

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Rapid identification of macro nutrients in pharmaceutical medicine using laser-induced plasma spectroscopy

Ali Khumaeni, Heri Sugito, Asep Yoyo Wardaya and Wahyu Setia Budi

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H. Sugito, K. S. Firdausi and N. K. Putri

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012009

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K. Sofjan Firdausi, Heri Sugito and Nidia Kharisma Putri

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Laser-induced breakdown spectroscopy for rapid detection of corrosiveness in concrete

012010



Association of MTHFR polymorphism and periodontitis' severity in Indonesian males

E I Auerkari^{1*}, R Purwandhita¹, K R Kim¹, N Djamal¹, S L C Masulili², D A Suryandari³ and C Talbot⁴

¹ Department of Oral Biology, Faculty of Dentistry, University of Indonesia, Jakarta, Indonesia

² Department of Periodontology, Faculty of Dentistry, University of Indonesia, Jakarta, Indonesia

³ Department of Medical Biology, Faculty of Medicine, University of Indonesia, Jakarta, Indonesia

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Abstract. Periodontitis is an oral disease with a complex etiology and pathogenesis, but with a suspected contribution by genetic factors. This study aimed to assess the association of polymorphism in *MTHFR* (*methylene tetrahydrofolate reductase*, C677T) gene and the severity of periodontitis in Indonesian males. Severity of periodontitis was classified as mild, moderate or severe for 100 consenting, 25 to 60 years old male Indonesians. Using PCR amplification for DNA extracted from blood serum samples, the variation at the SNP polymorphism of the *MTHFR* (C677T) gene was evaluated by using RFLP, cutting by the restriction enzyme *Hinf*I and subjecting the fragments to electrophoresis on agarose gel. Chi-square testing was mainly used for statistical assessment of the results. The CC genotype (wild type) of the tested polymorphism was the most common variant (78%) and TT (mutant) genotype relatively rare (2%), so that C-allele appeared in 88% of the cases and T-allele in 12% of the cases. The results suggest that there is no significant association between *MTHFR* C677T polymorphism and the severity of periodontitis in the tested Indonesian males.

Keywords: periodontitis, MTHFR, polymorphism

1. Introduction

Periodontal disease is one of the most common and widely spread human diseases. Periodontal disease has been associated with chronic systemic disorders [1], such as diabetes mellitus [2], osteoporosis [3], cardiovascular disease [4], and stroke [5]. As a result, men and women aged 25-74 years with periodontitis appear to have an increased risk of death from systemic disease [4]. Almost all adults have suffered from gingivitis, periodontitis, or both [6].

A study of Albander and Rams (2002) suggested that Asian populations have highest prevalence rates of periodontal disease cases in the world [7]. The results of a national survey (SKRT 2004) suggest that 39% of Indonesian population is suffering from dental and oral disease [6].

Periodontitis is a disease with unknown exact etiology, but the etiology is believed to be multifactorial. In addition to bacterial pathogens and other environmental factors (poor habits,



Lipid production from tapioca wastewater by culture of *Scenedesmus sp.* with simultaneous BOD, COD and nitrogen removal

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Abstract. The use of microalgae to produce biodiesel or possibly remove nutrients from industrial wastewater has gained important attention during recent years due to their photosynthetic rate and its versatile nature to grow in various wastewater systems. In this study, a microalgae, *Scenedesmus sp.*, was cultured to enhance the lipid production and nutrients removal from tapioca wastewater sample. To assess lipid production, *Scenedesmus sp.* was cultured in different concentration of tapioca wastewater sample (from 0 to 100 %), and nutrient removal including BOD, COD, NH₄, NO₂, NO₃ level by *Scenedesmus sp.* was assessed in 100% of tapioca wastewater culture. After 8 days of culture, it was found out that 50% of tapioca wastewater sample resulted in highest concentration of lipid content than that of the other concentrations. The level of environment indicator as nutrient removal such as BOD, COD, NH₄, NO₂, NO₃ were also decreased up to 74%, 72%, 95%, 91%, and 91%, respectively. The pH condition changed from initial condition acidic (pH: 4) to neutral or basic condition (pH: 7-8) as recommended in wastewater treatment system. This research provided a novel approach and achieved efficient simultaneous lipid production and nutrients removal from tapioca wastewater sample by *Scenedesmus*'s culture system.

Keyword: *Scenedesmus sp.*, tapioca wastewater, lipid production

1. Introduction

The energy crisis is one of the most important problems faced by all people over the world in the 21st century. The highest consumption of fossil fuels has result in greenhouse effect and causes global climate change [1,2]. One of a type of renewable energy is microalgae biomass-based biofuel, which is considered as one of the most potent substitutes for fossil fuel [2]. However, to increase the production of microalgae biomass, several strategies should be developed, such as modification of culture medium and environmental factors. Hence, one of promising strategies is using wastewater sample as



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Ion wind generation and its application to drying of wild Ginger slices (*Curcuma Xanthorrhiza*)

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Abstract. Temulawak or wild ginger is a herbal medicinal derived from Indonesia original. Wild ginger contains include an active compound as curcuminoid and antioxidant oleoresin components having a special quality to take care of health from various diseases. Drying is the important process to produce wild ginger (*Curcuma xanthorrhiza*) simplicia as raw material herbal medicine. In this study, has been dried of wild ginger using ion wind which yielded from corona discharge utilizing pin-multi ring concentric electrodes. Corona discharge was generated by using the fixed DC high voltage of 4,3 kV and drying was done at the distance between the fixed electrodes of 4 mm. Shaped of the five temulawak slices is a circle with a thickness of 2 mm and the diameter of 10 mm - 30 mm with 5 mm diameter interval. The sliced temulawak is placed just below the concentric multi-ring electrode and is 2 mm in distance. The wild ginger slices were dried with time varied 5-65 minutes with time interval 5 minutes. The researched result of drying of wild ginger slices obtained drying rate and shrinkage is inversely proportional to drying time.

Keywords: Ion wind, corona discharge, wild ginger, drying rate, shrinkage.

1. Introduction

An ionic wind or also called an electrohydrodynamics (EHD) flow produced by a corona discharge is a stream coming from an ionized air generated by a strong electric field. The research that supports the existence of ion wind is done by several researchers, among others: research on the existence of ion wind, maximum ion wind flow angle and ionic wind sweep [1] which is the result of analysis of electrohydrodynamic phenomena on the surface of silicone oil using corona discharge positive with pin-plate electrode. And a study of the characteristics of the velocity of an ionic wind yielded from corona discharges using the electrode configuration of a pin-multi ring concentric [2]. The results of the research showed that there was an increase in the velocity of the ionic wind yield from the corona discharge utilizing pin-multi ring concentric electrode rather than using pin-ring electrode.

In this study, ion wind was applied to dry the simplicia of Temulawak or wild ginger (*Curcuma xanthorrhiza*). Temulawak is a medicinal plant derived from Indonesia. Temulawak contains an active compound of curcuminoid and some essential oils components having a special quality to take care of health from various disease. [3]. Curcuminoid having special quality as an antioxidant [4]. The ginger rhizome is used by the medical industry in fresh form and/or in the form of simplicity. Dry storage of simplicity is needed to overcome constraint power supply during harvest season.

