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

Judul Makalah (Artikel)	:	Modification of activated carbon of rice husk using HDTMA-Br (SMAC) surfactant as nitrite ion (NO2-) adsorbent
Jumlah Penulis	:	3Orang Penulis ke : 3
Nama Penulis	:	Arnelli, B Santoso, **Yayuk Astuti**

Identitas Makalah
a. Nama Prosiding	:	Journal Of Phisyes: Conference Series
b.Nomor ISSN	:	1742-6588
c. Volume, No, Bulan, Tahun	:	1943, -, September, 2021
d. Penerbit	:	IOP Publishing
e. DOI artikel (jika ada)	:	doi: 10.1088/1742-6596/1943/1/012159
f. Alamat web	:	https://iopscience.iop.org/article/10.1088/1742-6596/1943/1/012159
g. Indexing	:	Scopus, google scholar, schimago JR

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(beri ✓pada kategori yang tepat)   [ ] *Prosiding*Internasional
                                                      [ ] *Prosiding* Nasional

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Komponen Yang Dinilai	Nilai Maksimal Prosiding = 30			Nilai Akhir Yang Diperoleh
	Internasional Terindeks Scopus	Internasional	Nasional	
a. Kelengkapan unsur isi buku (10%)	3			3,5
b. Ruang lingkup dan kedalaman pembahasan (30%)	9			8
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9			8,5
d. Kelengkapan unsur dan kualitas penerbit (30%)	9			9
Total = (100%)	30			29
Kontribusi Pengusul (Penulis Anggota)	(40% x 30)/2 = 6			(40% x 29)/2 = 5,8

Komentar Peer Review:

a. Kelengkapan dan kesesuaian unsur: Lengkap dan sesuai dengan yang dipersyaratkan jurnal internasional. Artikel yang dimuat, dibahas dan disusun secara lengkap.

b. Ruang lingkup dan kedalaman pembahasan: Ruang lingkup penelitian ini tentang modifikasi karbon aktif dari sekam padi menggunakan surfaktan. Kedalaman pembahasan kurang dan tidak disertai referensi pendukung untuk argument-argumen yang dinyatakan dalam diskusi.

c. Kecukupan dan kemutahiran data/informasi dan metodologi: Referensi yang digunakan berjumlah 19, hanya ada 4 referensi yang terbit dalam jangka waktu 5 tahun sejak artikel diterbitkan. Metodologi disajikan detail sehingga bisa diulang peneliti lain.

d. Kelengkapan unsur dan kualitas penerbit: Kualitas terbitan baik namun

Semarang, 2 Mei 2023
Reviewer 1

Prof. Drs. Gunawan, M.Si., Ph.D
NIP. 196408251991031001

Unit kerja :
Departemen Kimia FSM Undip
Jabatan Fungsional: Guru Besar
Bidang Ilmu: Kimia

ada gambar yang kurang jelas terutama gambar 4. Unsur terbitan bagus. Journal of Physics: Conference Series merupakan proseding internasional terindeks scopus dengan SJR 0.21.

e. Indikasi Plagiasi: Tidak ada

f. Kesesuaian bidang ilmu: Sesuai dengan bidang ilmu penulis

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
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Komponen Yang Dinilai	Nilai Maksimal Prosiding = 30			Nilai Akhir Yang Diperoleh
	Internasional Terindeks Scopus	Internasional	Nasional	
e. Kelengkapan unsur isi buku (10%)	3			3
f. Ruang lingkup dan kedalaman pembahasan (30%)	9			8
g. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9			8,5
h. Kelengkapan unsur dan kualitas penerbit (30%)	9			9
Total = (100%)	30			29,5
Kontribusi Pengusul (Penulis Anggota)	(40%x30)/2 = 6			(40%x29,5)/2 = 5,9

Komentar Peer Review:

a. Kelengkapan dan kesesuaian unsur: Artikel telah sesuai dengan template, terdiri dari pendahuluan, metode, hasil dan pembahasan, kesimpulan serta referensi

b. Ruang lingkup dan kedalaman pembahasan: Ruang lingkup adalah modifikasi permukaan karbon aktif menggunakan surfaktan HDTMA-Br. Keberhasilan modifikasi dikaji dengan analisis produk menggunakan instrument FTIR. Selanjutnya, karbon aktif ditentukan kapasitas adsorpsi untuk mendapatkan data optimum terhadap pengaruh waktu radiasi dan daya yang digunakan dalam proses modifikasi karbon aktif menggunakan microwave serta waktu kontak optimum antara karbon aktif dan surfaktan HDTMABr. Pembahasan cukup mendalam hanya saja seharusnya perlu adanya data BET jika material tersebut akan digunakan sebagai adsorben.

Semarang, 2 Mei 2023
Reviewer 2

Prof. Dr. M. Cholid Djunaidi, S.Si, M.Si
NIP. 197007021996031004

Unit kerja :
Departemen Kimia FSM Undip
Jabatan Fungsional: Guru Besar
Bidang Ilmu: Kimia

c. Kecukupan dan kemutahiran data/informasi dan metodologi: Kualitas dan kuantitas yang baik dengan metodologi disajikan detail.

d. Kelengkapan unsur dan kualitas penerbit: Artikel diterbitkan oleh Journal of Physics: Conference Series yang merupakan proseding internasional terindeks scopus sehingga tidak bisa dipungkiri kualitas penerbit bagus. Unsur terbitan juga lengkap.

e. Indikasi Plagiasi: Tidak ada

f. Kesesuaian bidang ilmu:Sesuai dengan bidang ilmu penulis

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

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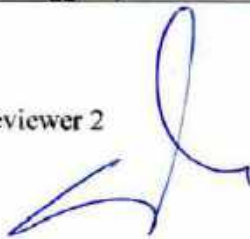 f. Alamat web : https://iopscience.iop.org/article/10.1088/1742-6596/1943/1/012159
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Komponen Yang Dinilai	Nilai Reviewer		Nilai Rata-rata
	Reviewer I	**Reviewer II**	
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b. Ruang lingkup dan kedalaman pembahasan (30%)	8	9	8,5
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	8,5	9	8,75
d. Kelengkapan unsur dan kualitas penerbit (30%)	9	8,5	8,75
Total = (100%)	29	29,5	29,25
Kontribusi Pengusul (Penulis Anggota)			**(40%x29,25)/2 = 5,85**

Reviewer 2

Prof. Dr. M. Cholid Djunaidi, S.Si, M.Si
NIP. 197007021996031004

Unit kerja :
Departemen Kimia FSM Undip

Semarang, 2 Mei 2023
Reviewer 1

Prof. Drs. Gunawan, M.Si., Ph.D
NIP. 196408251991031001

Unit kerja :
Departemen Kimia FSM Undip

Judul Makalah (Artikel)	:	Modification of activated carbon of rice husk using HDTMA-Br (SMAC) surfactant as nitrite ion (NO2-) adsorbent
Jumlah Penulis	:	3Orang Penulis ke : 3
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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Maksimal Prosiding	Nilai Akhir Yang Diperoleh
	Internasional Terindeks Scopus 30	
a. Kelengkapan unsur isi buku (10%)	3	3,25
b. Ruang lingkup dan kedalaman pembahasan (30%)	9	8,5
c. Kecukupan dan kemutahiran data/informasi dan metodologi (30%)	9	8,75
d. Kelengkapan unsur dan kualitas penerbit (30%)	9	8,75
Total = (100%)	30	29,25
Kontribusi Pengusul (Penulis Anggota)		(40%x29,25)/2 = 5,85

Reviewer 2

Prof. Dr. M. Cholid Djunaidi, S.Si, M.Si
NIP. 197007021996031004

Unit kerja :
Departemen Kimia FSM Undip

Semarang, 2 Mei 2023
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Prof. Drs. Gunawan, M.Si., Ph.D
NIP. 196408251991031001

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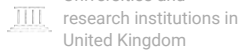
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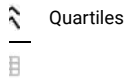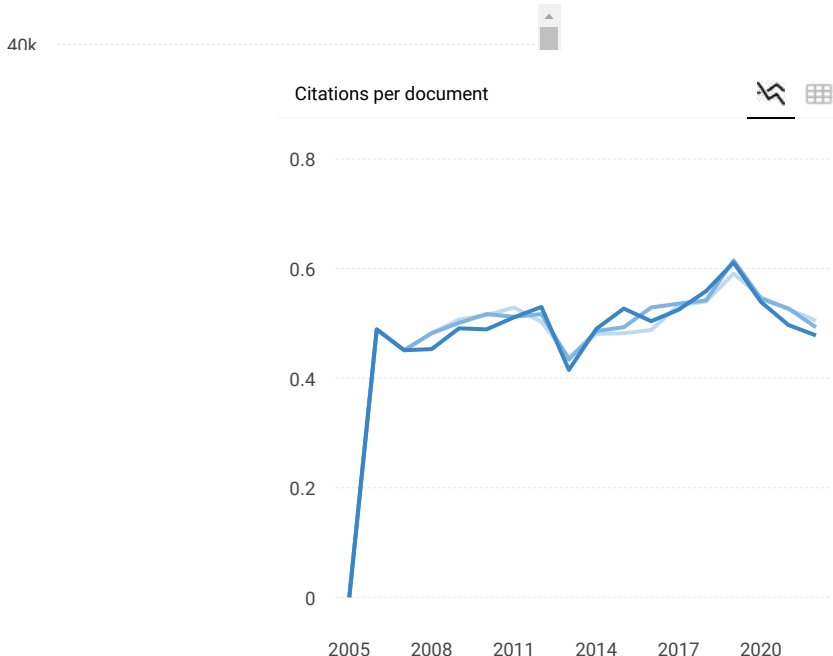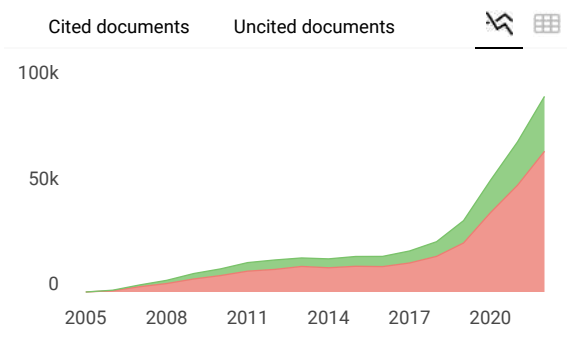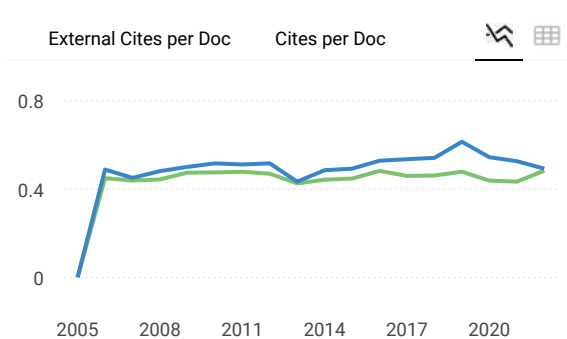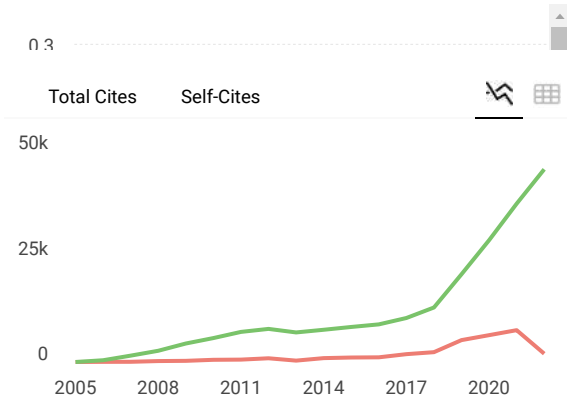
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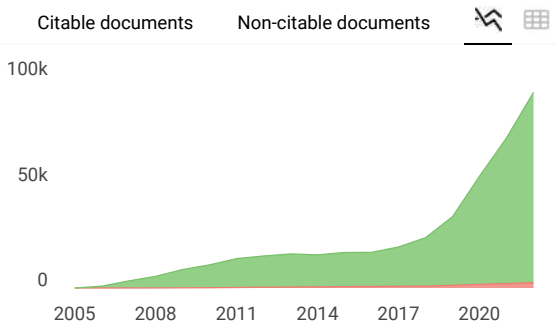
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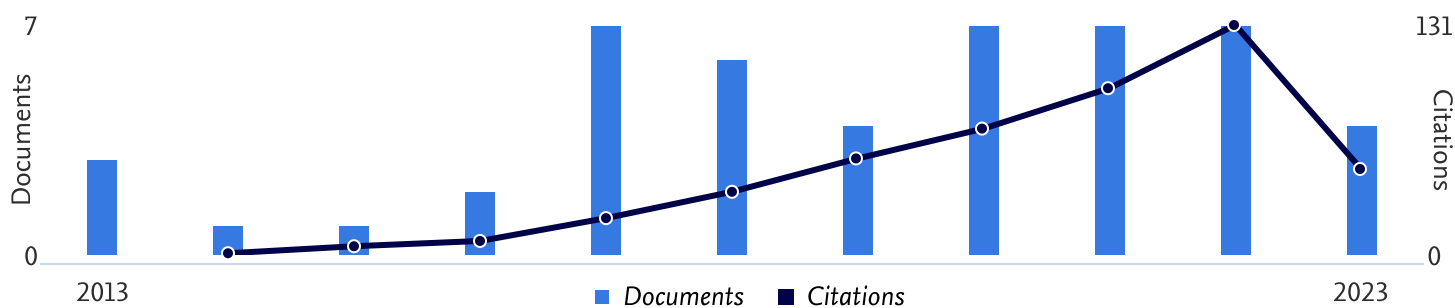| 473	49	12
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Modification of activated carbon of rice husk using HDTMA-Br (SMAC) surfactant as nitrite ion (NO_2^-) adsorbent

Arnelli ✉ ;   Santoso B. ;   Astuti Y.
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[a] Chemistry Department, Faculty of Science and Mathematics, Diponegoro University, Street of Prof. Soedarto S.H., Tembalang, Semarang, 50275, Indonesia

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Abstract

Surfactant modified activated carbon (SMAC) is a product resulting from the modification of activated carbon with surfactants to increase the adsorption ability of activated carbon against ions in water. Carbonization using pyrolysis at 300°C, 350°C, and 400°C. Activation of carbon was carried out in two ways, the first activation using H3PO4 activator, followed by heating at 410°C for 1 hour. Second, activation using H3PO4 followed by radiation with microwaves. The resulting activated carbon was modified with HDTMA-Br to form SMAC, then SMAC was applied for adsorption of nitrite (NO2-) ions. This study aimed to determine the optimum conditions for carbonization temperature, radiation time, radiation power, adsorption time of HDTMA-Br. The adsorption capacity of SMAC on nitrite ions and

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(2022) IOP Conference Series: Earth and Environmental Science

Nitrate removal from contaminated waters using modified rice husk ash by Hexadecyltrimethylammonium bromide surfactant

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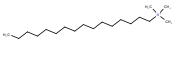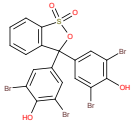Find more related documents in Scopus based on:

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the adsorption process of HDTMA-Br were studied (thermodynamic data). Characterization was carried out using FTIR, SEM, and GSA. The optimum carbonization temperature was 300°C; the optimum activation was 5 minutes and 400 watts, the optimum time for HDTMA-Br adsorption was 4 hours with the adsorption capacity was 7.304 mg/g. SMAC is effective in adsorbing nitrite ions where the adsorption capacity was 0.741 mg/g, and the adsorption efficiency is 98.833%. The adsorption of HDTMA-Br on activated carbon was physical adsorption, SMAC has an N-(CH3)3 group from HDTMA-Br with a SMAC surface area of 24.173 m2/g. © Published under licence by IOP Publishing Ltd.

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Removal of arsenate (V) by surfactant-modified activated carbon

(2012) *Environmental Engineering and Management Journal*, 11 (8), pp. 1433-1438. Cited 2 times.
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Adsorption of bromate and competition from oxyanions on cationic surfactant-modified granular activated carbon (GAC)

(2012) *Chemical Engineering Journal*, 203, pp. 319-325. Cited 73 times.
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Physiochemical properties of pyrolysis oil derived from fast pyrolysis of wet and dried rice husk in a free fall reactor

(2014) *Applied Mechanics and Materials*, 625, pp. 604-607. Cited 8 times.
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The 10th International Seminar on New Paradigm and Innovation on Natural Science and Its Application (10th ISNPINSA)

"Developing Innovations and Challenges in Science And Technology For Better Living"

September 24-25, 2020

PREFACE

The International Seminar on New Paradigm and Innovation of Natural Sciences and its Application (ISNPINSA) is an annual conference organized by the Faculty of Sciences and Mathematics (FSM), Diponegoro University (UNDIP), Semarang, Central Java, Indonesia. This seminar has been successfully conducted since 2011 and therefore becoming an annual event since then. This annual ISNPINSA has been intensively achieved high level improvement in strengthening the collaboration between scientists either from Indonesia or other countries, stimulating a new research partnership, and contributing to formulating policies to increase the important roles of science for the community.

The 10th ISNPINSA was held on September 24-25, 2020 with the theme of "DEVELOPING INNOVATIONS AND CHALLENGES IN SCIENCE AND TECHNOLOGY FOR BETTER LIVING". Due to the outbreak of COVID-19, the conference process was carried out virtually using licensed Zoom media. The presentations were categorized into two terms, which were plenary presentation and parallel presentation. Keynote speakers were invited to deliver their expertise and research findings at the plenary presentation and each had given 1 hour of speech. While invited speakers together with all parallel presenters delivered their presentation in parallel session with time of speech including Q&A for each of 15 minutes.

The number of participants of the seminar were 313 including 7 keynote speakers, 5 invited speakers, presenters and non-presenters coming from various institutions of various countries consist of researchers, lecturers, postgraduate and undergraduate students from various universities. There were 263 papers presented in this seminar and after the review process, there are 199 articles to be published in the present conference proceeding. All published articles remain the sole responsibility of the author for the content of the paper.

We would like to take this opportunity to extend our appreciation to all keynote speakers and invited speakers for their valuable presentation. We also would like to thank all the authors for submitting and presenting their papers to our conference, the Organizing Committee members and the supporting staff for their hard work, as well as all the Scientific& Editorial Committee and the reviewers for their constructive recommendations and critical comments helped to improve of the submitted papers. All these contributions eventually make the 10th ISNPINSA 2020 a successful and fruitful event.

The 10th ISNPINSA 2020 Organizing Committee hopes you will enjoy reading this JPCS volume.

The Chairman,
Nor Basid Adiwibawa Prasetya, S.Si., M.Sc., Ph.D

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PV/T solar collector performance evaluation: generation of fuzzy rules by using weighted subsethood-based algorithm

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Abstract. A photovoltaic/thermal solar collector operates efficiently if the surrounding conditions are in a favorable state; where the factors or parameters such as solar radiation, ambient temperature, photovoltaic collector temperature and air mass flow rates are taken into consideration to ensure the performance of the collector achieves optimum level. Dependency on surrounding conditions limited the width of analysis that could be done on the factors affecting the performance of the solar collector. This study aims to generate fuzzy rules for solar collector performance evaluation. Experiments on the performance of a single passage air photovoltaic/thermal solar collector have been carried out, and a set of membership functions representing all significant factors has been generated. Then fuzzy rules of forecasting were developed using a weighted subsethood-based algorithm to predict the efficiency of the photovoltaic/thermal solar collector. In this fuzzy time series application, the concept of fuzzy rule-based systems was embedded to generate fuzzy if-then rules. The results showed that the PV/T solar collector performance with changes in parameters could be predicted based on the fuzzy rules that have been generated, and thus further could be used to determine the optimum factors conditions required to achieve optimum collector performance without having to carry out experiments.

1. Introduction

In fulfilling the global demand for energy, solar energy is considered one of the high potential renewable energy which has significant importance and uses since it is environmentally friendly, clean, and reliable. As early as the mid 1970s, the interest of researchers in photovoltaic/thermal (PV/T) solar collector study has started [1]. The focus and development of the study have increased since then. There are many parts of the collector study that have been in the researchers' interest, including the design and the theoretical and experimental studies of the solar collector performances.

The operation of PV/T solar collector with air as a working fluid is much depending on the parameters affecting its efficiency. Factors such as solar radiation, PV temperature, air mass flowrate affect the collector's performance in a significant way. Previously, the velocity of air that is forced into the collector is done manually by the researcher [1]. However, it does not necessarily for the fan to be operated at full speed every time to remove the heat. There must be a balance between the input and

Spintronic terahertz emission from Ni/Pt bilayer grown on MgO

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Abstract. Spintronic THz emission from Ni/Pt bilayer grown on MgO is reported based on the novel THz emitter using metallic structures. The Ni metal was deposited first on a MgO substrate and capped with a thin Pt metal via electron beam deposition. The THz emission data was obtained using a standard terahertz time-domain spectroscopy setup using a Ti: sapphire laser excitation source. Initial measurements were done using 800nm excitation with 7 mW and 185 mW pump powers under upward and downward magnetic field orientations. Polarity reversal of the terahertz signal was observed upon changing the orientation of the magnetic field. Maximum amplitude was found at 0.5 THz with bandwidth up to ~6 THz. A saturation fluence of 85.04 mJ/cm^2 was calculated from the pump fluence-dependence plot of the THz peak-to-peak signal. The results are consistent with the spintronic THz emission due to the inverse spin-Hall effect and provide insights for future development and optimizations.

1. Introduction

Terahertz (THz) radiation, or electromagnetic radiation in general, has been known to be generated when charge carriers accelerate [1]. This has been utilized in THz emission of materials, especially in semiconductors which main mechanisms are by drift-related current and/or diffusion-related current [2,3]. To optimize these mechanisms, different methods have been employed, such as varying dopant concentrations [2], low-temperature growths [4], epitaxial layer designs [5], and quantum structures [6]. Fabrication techniques have also been implemented like the photoconductive antenna (PCA) designs which accelerate excited electrons from one electrode to another in the presence of an electrical bias [7].

Recently, a different THz mechanism was reported by Kampfrath et al., which involves the spin property of the electrons [9]. This opens up spintronics, or spin electronics, in the THz research or possibly vice-versa. The designed emitter source consists of a ferromagnetic, FM, and nonmagnetic, NM, (FM/NM) metal thin film heterostructure. This emitter utilizes the inverse spin-Hall effect (ISHE), a phenomenon that converts the spin current (coming from the FM material) into a transient transverse

Carrying capacity of mangrove tourism in the district of Cilamaya Wetan, Karawang regency, West Java province

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Abstract. The study was conducted in the District of Cilamaya Wetan, Karawang Regency, West Java Province from November to December 2019. The purpose of this study was to analyze the carrying capacity of tourism in mangrove tourism areas. Based on the results in the field, the carrying capacity of tourism is only found in Sukakerta Village with the wide area that can be used as tourism and there is a visit by tourists, precisely in the Tangkolak Maritime Center which is able to accommodate as many as 1.345 person with the time provided in the development of the area by tour manager, that is for 24 hours/day. Tourist activities based on interviews include sitting relaxed, taking photo, walking down the road, enjoying the scenery, and planting mangrove seedlings scattered in Sukakerta Village.

1. Introduction

The coastal ecosystem is a community unit of plants, animals and other organisms that interact between individuals and their environment. This coastal ecosystem has potential natural resources and environmental services, for example, mangrove forests. Mangrove is a type of woody tree that grows in coastal areas between land and sea which only exists in tropical and partly subtropical areas [1] As a typical ecosystem in coastal areas, the mangrove forest ecosystem has many functions and benefits in supporting the sustainability of other ecosystems involved in it. Mangrove forest ecosystems can function physically, ecologically (biophysically) and economically. One of the economic functions of mangroves is as a potential area for recreation (tourism), aquaculture land and conservation areas [7]. The richness and versatility of the mangrove ecosystem attracts people to use it, both from the agencies in regulating its use and also from the community as the driving agent.

One of the mangrove forest ecosystems which is used as a recreation area (tourism) is in the Cilamaya Wetan District, Karawang Regency, West Java, Indonesia. Since the inauguration of the Tangkolak Maritime Center (TMC) in Sukakerta Village on 26 December 2018, there have been activities of tourist visits that have increased by ± 100%. Based on this, it is necessary to study the carrying capacity of tourism. [2] states that carrying capacity is intended to determine ecological disturbances from the use of an area. According to Hammit & Cole (1987) in [3], the ecological disturbance in question is an undesirable condition in the scope of outdoor recreation. In the context of tourism, [8] explains that carrying capacity is the ability of an area to receive tourists as expressed in the number of tourists per unit area per unit time. [5] more specifically define the carrying capacity in the context of tourism as the maximum amount of tourists in the use of a location without any changes to the physical environment and the quality of visiting activities that tourists get. The carrying capacity of tourism according to the concept developed by [10], namely AAC (Area Supporting Capacity), which considers the area or length

Physicochemical characterization of kappa-iota carrageenan gel with papain enzyme

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Abstract. Carrageenan is a group of galactose polysaccharides extracted from seaweed and has the ability to form a thermo-reversible gel or a viscous solution when added to the salt solution widely utilized as gelling, thickener and stabilizers in various industries such as food, pharmaceuticals, cosmetics , printing, and textiles. Only two types of carrageenan can be used in the manufacture of hydrogels which are kappa and iota. Kappa-carrageenan is produced from the tropical seaweed *Kappaphycus alvarezii* and *Eucheuma denticulatum* is the main species producing iota-carrageenan. The aim of this research is to know the composition of kappa-carrageenan and iota-carrageenan mixture as gel base to produce the optimum physical properties and to know the physical properties of optimum formula with the addition of papain enzyme for 4 weeks storage. The determination of the optimum formula of mixed carrageenan kappa and iota gel with Simplex Lattice Design method. The physical properties of the optimum formula with the addition of papain enzyme during 4 weeks storage are viscosity, pH, dispersion, and sineresis of optimum formula were statistically verified using Anova Univariate method of experimental design of two factorial with 95% confidence level. The results showed that the optimal formula of mixed carrageenan kappa and iota respectively concentrations of 0.3%, 1% and the use of 0.8% papain enzyme.

1. Introduction

Indonesia is one of the largest *Eucheuma* seaweed producing countries in the world. Based on statistical data from the *Food and Agriculture Organization* in 2014, Indonesia produces *Eucheuma* seaweed amounting to 81.4% of the total production of *Eucheuma* seaweed in the world. However, 64% of the total seaweed production in Indonesia is only exported and little use is made of the processed seaweed product.

Carrageenan is a group of galactose polysaccharides extracted from seaweed. Most of the carrageenan contains sodium, magnesium, and calcium which can be bound to the sulfate ester groups of galactose and copolymer 3,6-anhydrogalactose. Complex carrageenan is water soluble, linear chain and galactant sulfate. This compound consists of a number of galactose and 3,6-anhydrogalactose units that are bonded with sulfate groups or with α 1,3-D-galactose and ß 1,4-3,6-anhydrogalactose bonds. Based on the sulfate substituent in each monomer, carrageenan can be divided into several types, namely kappa, iota, lamda, mu, nu and x-carrageenan (1). However, only two types of carrageenan that can be used in the manufacture of hydrogels, namely kappa and iota (2).

Naturally, iota and kappa types are formed enzymatically from their precursors by sulfohydrolase. While commercially, this type is produced using alkaline treatment or extraction with

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This certificate is presented to

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Synthesis of sulfonated poly-(eugenol divinylbenzene) nanosilver composite and its application as antibacterial compound of cotton fabric

Semarang, September 25th, 2020

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