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

Judul karya ilmiah (artikel) : The Effect of Household Waste Reduction on the Lifespan of Parit Enam Landfill in Pangkalpinang City: Using Dynamic System Modeling

Jumlah Penulis : 2 Penulis

Status Pengusul : Penulis Pendamping (Hadi Fitriansyah, **Maryono Maryono**)

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d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)		7.5		7.3
Total = (100%)		25		24.3
Nilai Pengusul : 40%*24.3=7.7				

Catatan Penilaian artikel oleh Reviewer:

a. Kesesuaian dan kelengkapan unsur artikel:

artikel disusun dengan isi yang terdiri dari abstrak, pendahuluan, metoda, hasil dan pembahasan, serta kesimpulan.

- Abstrak menjelaskan secara umum masalah, tujuan, metoda, hasil dan kesimpulan
- Pendahuluan menjelaskan latar belakang dan masalah disertai dengan rujukan literatur yang memadai.
- metoda memuat kebutuhan data, metoda analisis yang dilengkapi dengan literature yang cukup.
- Hasil pembahasan memuat analisis data, hasil koleksi dan pengumpulan data, serta dibahas dalam runutan literatur yang dijadikan acuan.
- Kesimpulan menjelaskan temuan dan rangkuman studi.

b) Ruang lingkup dan kedalaman pembahasan:

Ruang lingkup bahasan artikel sesuai dengan judul, abstrak menjelaskan secara lengkap tentang masalah, tujuan, metoda, hasil dan kesimpulan. Pembahasan tentang aplikasi model dinamic untuk skenario pengelolaan sampah dijelaskan dengan kelengkapan data, proses dan hasil model yang runut. Pembahasan meliputi unsur data, unsur pemilihan dan penggunaan data berdasarkan pada skenario model dinamic yang di usulkan. Kesimpulan yang ditarik didasarkan pada pembahasan, literature yang dirujuk dan temuan analisis.

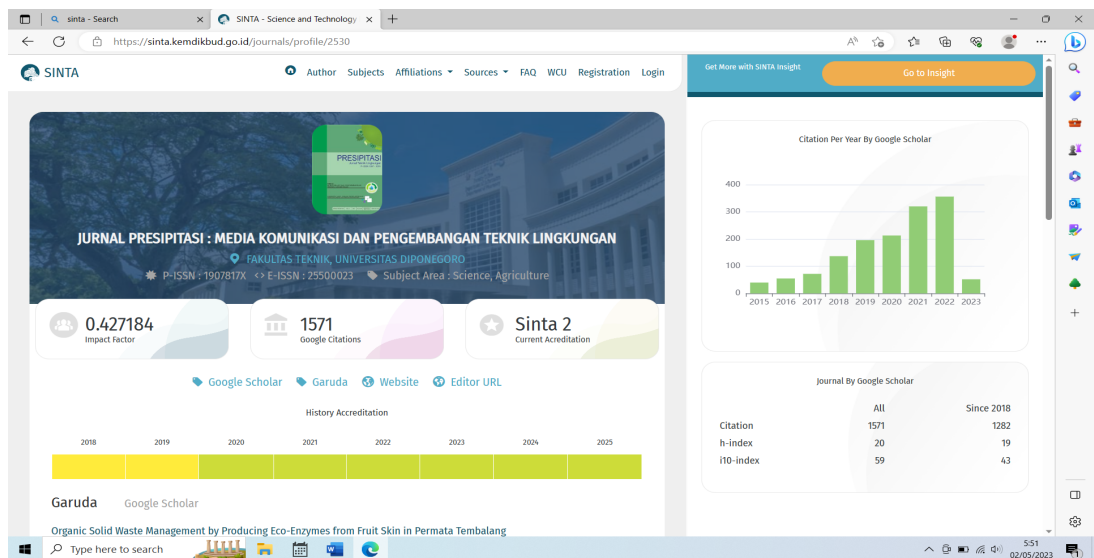
c) Kecukupan dan kemutakhiran data/informasi dan metodologi

- artikel ini menggunakan instrumen utama model dinamic. Data di hasilkan dari interview, data statistik berdasarkan pada skenario model. Skenario model disusun berdasarkan pada asumsi dasar tentang pertumbuhan penduduk, timbulan sampah, tingkat daur ulang dan jumlah sampah yang di kelola di tempat pemrosesan akhir. Asumsi pertumbuhan penduduk menggunakan model dasar pertumbuhan linier demikian

halnya asumsi tingkat daur ulang menggunakan asumsi pertumbuhan linier. Model bersifat pemakaian tools model dinamik. Belum dilengkapi dengan pembahasan yang bersifat kritis dan kritik kekurangan model dan sumbangan perbaikan model belum nampak dalam pembahasan.

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- artikel dapat digunakan sebagai prasyarat untuk pengusulan kenaikan jabatan fungsional sesuai ketentuan peraturan yang berlaku.

Semarang, 4 Desember 2021

Reviewer 1

Dr. Anita Ratnasari Rakhmatulloh., ST., MT
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Departemen PWK, FT. UNDIP

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f. Ruang lingkup dan kedalaman pembahasan (30%)		7.5		7.3
g. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)		7.5		7.3
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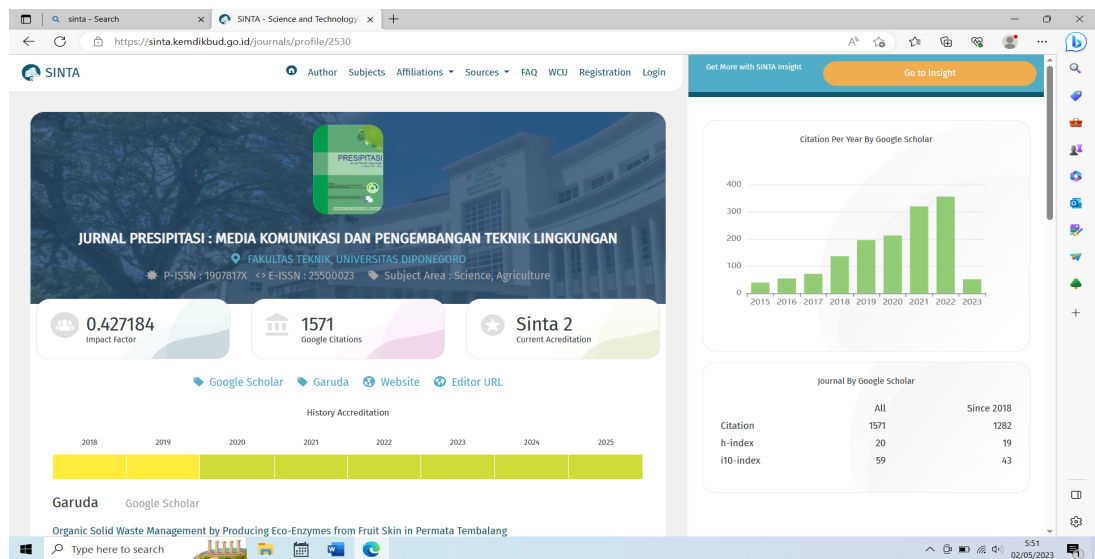
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pemrosesan akhir. Asumsi pertumbuhan penduduk menggunakan model dasar pertumbuhan linier demikian halnya asumsi tingkat daur ulang menggunakan asumsi pertumbuhan linier. Model bersifat pemakaian tools model dinamik. Belum dilengkapi dengan pembahasan yang bersifat kritis dan kritik kekurangan model dan sumbangan perbaikan model belum nampak dalam pembahasan.

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- artikel dapat digunakan sebagai prasyarat untuk pengusulan kenaikan jabatan fungsional sesuai ketentuan peraturan yang berlaku.

Semarang, 6 Desember 2021
Reviewer 2

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NIP. 197603052000122001
Departemen PWK, FT. UNDIP

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Hasil Penilaian *Peer Review* :

Komponen Yang Dinilai	Nilai Reviewer		
	Reviewer I	Reviewer II	Nilai Rata-rata
a. Kelengkapan unsur isi artikel (10%)	2,4	2,4	2,4
b. Ruang lingkup dan kedalaman pembahasan (30%)	7.3	7.3	7.3
c. Kecukupan dan kemutakhiran data/informasi dan metodologi (30%)	7.3	7.3	7.3
d. Kelengkapan unsur dan kualitas terbitan/jurnal (30%)	7.3	7.3	7.3
Total = (100%)	24.3	24.3	24.3
Nilai Pengusul (40%)	7.7	7.7	7.7

Semarang, 6 Desember 2021

Reviewer 1,



Dr. Anita Ratnasari Rakhmatulloh., ST., MT
 NIP.19740720199832001
 Departemen PWK, FT. UNDIP

Reviewer 2,



Dr. Ing Wakhidah Kurniawati, ST., MT
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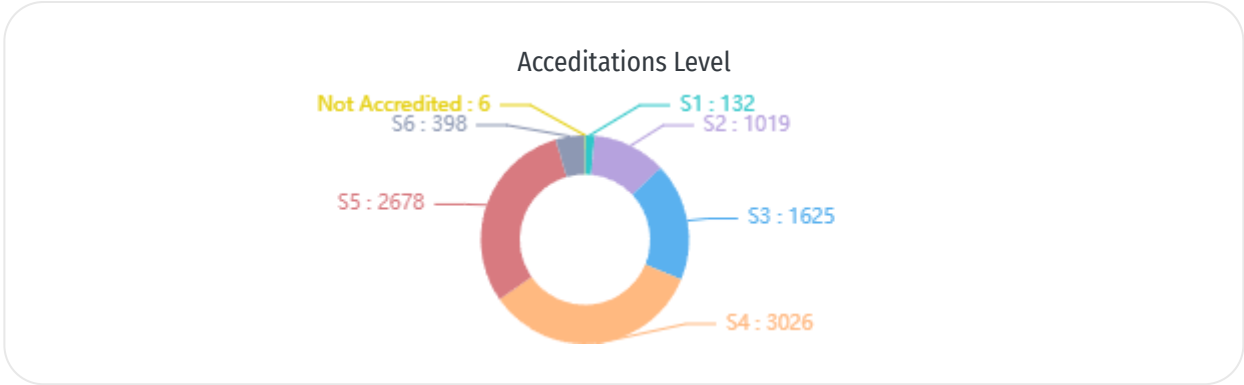
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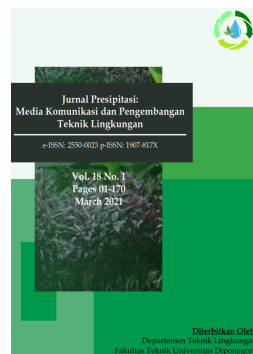
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Research article

Decontamination of Mercury from Mined Soil using Magnetite Functionalized Quaternary Ammonium Silica (Fe₃O₄/SAK)

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Abstract

Artisanal small-scale gold mining (ASCGM) has caused mercury contamination. However, efforts to decontaminate mercury from the ex-mining soils are still rare. This study aims to synthesize quaternary ammonium silica functionalized magnetite (Fe₃O₄/SAK) as a low price, highly available, and quickly separated adsorbent for mercury decontamination from ex-mining soils samples. The synthesis of Fe₃O₄/SAK and the mercury decontamination process was carried out by the co-precipitation and batch type reactor procedure, respectively. The Fourier Transform-Infra Red (FT-IR) characterization of synthesized Fe₃O₄/SAK informed the appearance of siloxane, silanol, methyl, methylene, and Fe-O functional groups. Crystal analysis by X-Ray Diffraction (XRD) showed that the typical peaks of SiO₂ and Fe₃O₄ were emerged at 2θ 22.8° and 35.52°, respectively. Morphological studies and elemental analysis using Scanning Electron Microscopy-Energy Dispersive X-Ray (SEM-EDX) indicated the successful functionalization Fe₃O₄ by SAK in the transformation of surface morphology and composition of the main elements, namely C, O, Si, and Fe. The results of characterization using Surface Area Analyzer (SAA) showed that the surface area and pore diameters were 224.98 m²/g and 36.149-38.70 Å, respectively. The optimum results for adsorbing Hg₂²⁺ metal ions were obtained at pH 4.0, and the adsorbent mass was 0.1 g. The Fe₃O₄/SAK has been proven to be an easily separable adsorbent after the mercury decontamination process in ex-mining soil samples with an adsorption efficiency of 43.36% (0.722 mg/g).

Keywords: mercury decontamination, former mining soil, magnetite functionalized quaternary ammonium silica.

1. Introduction

Mining is one of the mainstay industries for earning foreign exchange in the context of sustainable development. Mining activities are part of all phases of activities, including general investigation, exploration, feasibility studies, mining construction, processing and refining, transportation, and sale of minerals and coal (Winarno *et al.*, 2020). Gold is a mineral that is widely mined because it has a high and stable price. A large number of gold deposits in various parts of Indonesia opens up opportunities for people to carry out gold mining. The impact of mining activities can be positive in areas for mining entrepreneurs. However, gold mining activities also negatively impact if the local

Research article

Improvement of Soil Chemical Properties using Corn Cob Biochar (BTJ)

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Abstract

Corn waste is a solid waste that is still limited in use. One of the efforts that can be made to increase the use-value of maize waste is to convert it into biochar. Corn cobs are a component of corn that can be processed into biochar and can improve soil quality. This study aims to analyze the ability of corn waste biochar (in terms of chemical content and gas emissions) in improving soil quality. Primary data were collected by measuring C element using gravimetric method, N element using kjeldahl method, P element using oslen method, K ($\text{NH}_4\text{O AC pH } 7$), pH using potentiometric, and CO_2 emissions from biochar. Biochar is made by burning corn cobs at 500°C without oxygen for 2 hours. Chemical content measurement of corn cob biochar, known as biochar tongkol jagung (BTJ) and soil, was carried out for eight weeks. The chemical elements of the mixture of biochar and soil at week 8 include C-Organic (0.7%), Total N (0.1%), P_2O_5 (10.6 ppm), K_2O (0.28 me), pH (6.19), and CO_2 emissions (6.64 mg CO_2 /day).

Keywords : biochar; soil; C-organic; chemical contents

1. Introduction

Dryland is one of the critical lands that needs continuous improvement efforts. The preliminary research results on the pH and C-Organic characteristics of dry land in the Sidoarjo area show that the pH is relatively low in the range 5.5-6.1 and for the C-Organic content of 1.02-1.04%. One of the soil improvement efforts that can be done is by adding biomass. Biomass is usually used in compost or biogas. However, it will be more effective for dryland / agricultural land if the biomass is processed into biochar. Biochar is an organic material that has stable properties and can be used as a soil repairer. The use of biochar in agriculture is more effective because it can increase nutrient retention for plants compared to other organic matter and its long persistence in the soil. Biochar, which has high persistence ability, can reduce global warming (Nisa, 2010). Therefore, biomass use into biochar can be an alternative to reduce the rate of carbon emissions that can be released into the atmosphere.

One of the biomass that can be used as biochar is corn cobs. Corn cobs are one of the wastes that come from the processing of corn fruit. Maize production in Indonesia reached 19,612,435 tonnes (BPS, 2015). The large potential of waste generated can result in pollution if not treated properly. So far, corn cobs waste is usually used as animal feed and crafts.

Meanwhile, according to Iskandar (2017), corncob waste, if appropriately used, can also be a soil repairer (Iskandar, 2017). According to Jaili and Purwono in 2016, improving dry soil with a pH (5.7) and C-organic (3%) on agricultural land can be done by adding biochar. The agricultural sector is one of the sectors of plant cultivation that contributes to producing Greenhouse Gas (GHG) 14% on a global scale

Research article

Maximum Consumption Limits of Fish Catches Tainted by Lead (Pb) in 3 Fish Auction Markets (FAM) in Cilacap, Indonesia

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Abstract

Heavy metals produced by the industrial sector in Cilacap will contaminate the waters and impact the organisms in them, which will affect the condition of humans as consumers. The purpose of the importance of this research activity is to compare the type of fish and the value of heavy metal Pb with the quality standards of the Ministry of Environment No.51 of 2004, BPOM Regulation 2009 and SNI 7387 of 2009, as well as knowing the maximum consumption limit of consumption fish catches to control the pattern eat fish indicated heavy metals. The method used is a comparative description with survey techniques in 3 locations where fish auctions (FAM) and Pb level analysis using the AAS method. The types of fish with the highest level of consumption in Cilacap are kembung, tuna and tongkol. The Pb level of kembung, tuna and tongkol passes the threshold > 0.4 ppm from SNI 7387-2009 and BPOM 2009, namely 0.7 ppm, 2.9 ppm, and 2.3 ppm, respectively so it is essential to have a consumption limit per week through Tolerable Maximum Intake (MTI) with categories for adults and children for the consumption of each type of fish consumption. Research shows that the maximum consumption limit for adults in kembung, tuna and tongkol is 16.9 kg, 2.8 kg, and 9.2 kg, respectively. Meanwhile, the maximum limit of consumption of kembung, tuna and tongkol for children is 6.4 kg, 1 kg, and 2.9 kg, respectively.

Keywords: Lead (Pb), maximum consumption limit, MTI

1. Introduction

Cilacap Regency has high potential in the capture fisheries sector because it is located on the southern coast of Java Island, where there is the most extensive fishing base (Widyaningrum, 2013). Fish Auction Place (FAM) is one of the main functions in fishery activities and is one factor that drives and improves fishermen's business and welfare (Setiarso, 2010). Apart from that, Cilacap also has an ideal ocean port because of its strategic geographical location on the sea's edge. It faces the Indian Ocean on Turtle Bay and is bordered by Nusakambangan Island, extending west-east. The seaport located in Cilacap waters functions as an export-import port, shipping lanes or ship traffic on the southern coast of Java Island and there are piers owned by an Indonesian oil and gas company, namely Pertamina Oil Management Unit IV, which causes activities at Cilacap Port to continue to increase, such as traffic. Cross tanker ships carrying various types of oil (Widhayanti, 2015).

Industrial potential with national scale activities also dominates the Cilacap area, such as Pertamina company, which has an oil refinery with a production capacity of up to 400,000 barrels per day which supplies 30 percent of the national oil demand and a PLTU that is connected to the Java-Bali electricity system (Pemkab Cilacap, 2020). Another industry in Cilacap, namely SBI company, asphalt processing, lubricating plants, LPJ filling and others. Industrial, domestic and other activities will harm