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May 06, 2020
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THE COMPARISON OF IRON (Fe) DEGRADATION ON DIAMOND POST MINING SOIL IN CEMPAKA BANJARBARU CITY
SOUTH KALIMANTAN INDONESIA USING COMPOSTING METHOD MADE FROM COW MANURE AND TRADITIONAL MARKET ORGANIC WASTE

Dear Dr. Rizqi Mahyudin,

I am pleased to inform you that your manuscript, entitled: THE COMPARISON OF IRON (Fe) DEGRADATION ON DIAMOND POST MINING SOIL IN CEMPAKA BANJARBARU CITY
SOUTH KALIMANTAN INDONESIA USING COMPOSTING METHOD MADE FROM COW MANURE AND TRADITIONAL MARKET ORGANIC WASTE, might be accepted for publication in our journal, pending some minor changes suggested by reviewers (see below).

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The Comparison of Iron Degradation on Diamond Post Mining Soil Using Compost~~ing Method~~ Made from the Cow Manure and Traditional Market Organic Waste

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Abstract
The purpose of this research ~~is~~ was to improve the diamond post~~–~~ mining soil using a bioremediation composting method based on the cow dung and organic waste from a traditional market. This research ~~is~~ was conducted ~~made~~ for: 1) identifying the conditions for temperature, pH and moisture during the composting process; 2) analyzing the difference of variations ~~of~~ in composition and the best composting durations. ~~This~~ The bioremediation method used ~~is~~ involved ~~composting~~ open windrow composting~~method~~, divided into four composition variations, namely variation A (100% soil); B (75% soil: 25% compost); C (50% soil: 50% compost); D (25% soil: 75% compost). The ~~V~~variations of composting duration are 15 and 30 days. ~~Based~~ On the basis of ~~on~~ the two-way ANOVA test, it can be concluded that there is no significant difference in the decrease in the iron (Fe) value due to the variations in composition and length of time composting bioremediation based on the cow manure. On the basis of ~~Based on~~ the Independent T test, it can be concluded that there is no significant difference in the decrease in Fe value due to the variations in composition and the length of composting bioremediation between the cow-based manure and the market-based organic waste.
Keywords: composting, bioremediation, iron, cow dung, market organic waste.

Introduction
The ~~E~~environmental damage is caused by mining activities. This is because the mining activities such as coal, metal, gold or diamond mining ~~contain~~ produces hazardous and toxic ~~metals~~ waste that contain heavy metals. The content of heavy metals is what makes the environment damaged. In order ~~T~~to minimize the environmental damage, it is necessary to manage the mining waste products to ~~minimize~~ mitigate environmental damage that will ~~occurs~~ occur (Sidabutar, 2013). However, repairing the soil damaged by heavy metal waste requires a long time. Besides, the recovery of soil damage can be accelerated by ~~putting~~ adding ~~the~~ bacteria into the polluted soil, which is also called bioremediation (Sudaryono, 2007).
The ~~D~~diamond mining in Banjarbaru in Cempaka District is a form of community mining. ~~This comumunity~~ Community mining ~~is~~ involves ~~a~~ small-scale ~~of~~ mining operations that are carried out by local communities ~~on a small scale~~. These mining activities affect the chemical, physical, and biological properties of the soil. The ~~P~~physical constraints ~~such as~~ include, e.g. damaged soil structure ~~is damaged~~, while the chemical constraints ~~–~~ a~~such as~~ low pH and high iron (Fe) levels.
~~Based~~ On the basis of~~on~~ the author's preliminary study in February 2019, the diamond mining in the Tiung River village, Cempaka sub-district, ~~there was a~~ contributed to a high ~~heavy metal~~ Fe heavy metal content in the soil, namely 1755.83 mg/kg. If the concentration of Fe in the soil that is 300 ppm it can poison the plants (Tadano and Yoshida, 1978; Yoshida, 1981), so it is not good for the agricultural land. Because Fe is an essential metal that often ~~causes~~ is toxic~~ity~~ to humans in large doses, eventually ~~Fe causes~~ causing death (Hakiki, 2018).
One method of bioremediation is composting, which is a technique of removing the harmful pollutants from the environment. The ~~bioremediation process has the~~ main principle of bioremediation process involves increasing the microbial activity through controlling temperature, pH, and humidity. ~~The technology used to overcome the damage to land affected by pollutants is~~ The bioremediation techniques using compost made from organic waste can be employed to overcome the damage to land affected by pollutants (Mizwar, 2014). The ~~C~~compost addition can thus be considered as a 'super-bioaugmentation' with a complex natural mixture of degrading microorganisms, combined with a 'biostimulation' by nutrient containing readily to hardly degradable organic substrates. It also improves the abiotic soil conditions, thus enhancing the microbial activity in general (Kästner and Miltner, 2016). An ~~O~~organic fertilizer or compost has several advantages compared to an inorganic

fertilizer. These advantages include complete micro and macro nutrients, even though the amount is small and can improve the soil structure by loosening and increasing the soil availability. Compost is a fertilizer that comes from the weathering process of materials in the form of leaves, straw, reeds, grass, animal waste, organic waste and others. Compost has the advantage of being able to improve the soil physical properties, as well as the chemical and biological ~~properties of soil and soil biological properties~~ones.

Material and Method

This research was conducted ~~in~~ from April to July 2019. The ~~S~~soil sampling ~~is~~ was done in ex-diamond mining land in Cempaka District. Bioremediation with the composting method was conducted at the Education Techno Park (ETP) of the Engineering Faculty Lambung Mangkurat University. Compost fertilizer and soil sample testing are carried out at the Banjarbaru Center for Environmental Health and Disease Control (BBTKLPP) Laboratory.

The materials used in this research were 300 kg of ex-mining land, cow manure compost and half processed organic waste weighing 180 kg each. The used tools ~~needed are~~ included shovels, hoes, analytical scales, gunny sacks, tarps, trash bags, soil survey instruments, soil testers, cameras as research documentation tools, stationery, and other tools that supported this research.

The research design ~~uses~~ used the Complete Random Design with 4 variations of composition and 3 replications. The variations in question ~~are~~ were A (100% soil) as a control, A (75% soil: 25% compost), B (50% soil: 50% compost), C (25% land: 75% compost). Each pile ~~is~~ contained ~~of~~ 40 kg soil and compost ~~mixing~~mixture. The size of each pile ~~is~~ was equal to 30 cm in height and the distance ~~in~~ from each pile ~~is~~ was 30 cm.

The composting process ~~is~~ was carried out for 15 and 30 days. The ~~M~~measurement of temperature, pH and humidity ~~is~~ was ~~done~~ performed every day at 01.00 – 02.00 PM at several points on the pile, that were at three points (top, middle, bottom) using a soil survey instrument and soil tester. The ~~R~~research data ~~are~~ were presented in graphical form to identify the pH, temperature and humidity conditions.

The data obtained from the laboratory analysis ~~is made~~ were prepared in a table form, then a two-way ANOVA test ~~is~~ was ~~continued~~conducted, followed by an LSD test using SPSS 17.1 for ~~windows~~ Windows to see the best variation in composition in the open windrow composting system and identify the best composition variation in composting based on the market organic waste. The results obtained ~~are~~ were derived from the preliminary data on the composting process before and after treatment ~~in~~ over a period of 15 and 30 days.

RESULT AND DISCUSSION

Bioremediation composting conditions

The ~~G~~graphs of the changes in the compost temperature ~~varies~~ are 100% soil treatment, 75% soil: 25% compost, 50% soil: 50% compost, and 25% soil: 75% compost, as can be seen in Figures 1 and 2.

The results of ~~observations of~~ temperature changes observations in the treatment of differences in the composition ~~of~~ shown in Figure 1 indicate that at the beginning of the ~~process~~ of composting bioremediation, the highest temperature ~~is the treatment that is~~ is 35.33 °C. This pile contains a mixture of 25% soil : 75% compost. While the lowest temperature is in 100% soil variation.

~~Based on~~ Figure 2 shows ~~,~~ that ~~the observation of~~ changes in composting bioremediation temperature made from organic waste ~~overall~~ is overall higher than in the case of the cow manure. The highest temperature found on the 5th day at variation of 50% compost: 50% soil.

~~Based~~ On the basis of ~~on~~ the four dosage variations above, it can be concluded that the bacteria that ~~work~~ participate in the composting process with the open windrow method are mesophilic ~~bacteria~~ because ~~the temperature for mesophilic~~ such bacteria ~~works~~ operate in the temperature range of 10-40 °C. The ~~M~~mesophilic bacteria play a role in reducing the particle size of organic matter so that the surface area increases and accelerates the composting process (Widyawati et al., 2015). The mesophilic condition is more effective because the activity of microorganisms is dominated by bacteria and fungi. The temperature in each treatment does not reach the thermophilic phase (45-60 °C) because the pile of material that is too low will make the material lose heat faster, so that high temperatures cannot be reached (Widarti, 2015).

The results of observations at the time of measurement, the temperature at the top of the pile is higher than the middle and bottom point. ~~While~~ In turn, the lowest temperature ~~that obtained~~ was ~~is~~ obtained on the 25th day in variation of 100% soil, 50% soil: 50% compost, and 75% soil: 25% compost.
The graphs of changes in the pH of compost can be seen in Figures 3 and 4.
~~In f~~Figure 3 shows the results of the analysis on the pH value of composting bioremediation based on the cow manure. It was observed ~~showed~~ that during the composting bioremediation process, there was a fluctuation in the pH value. In the composting process, the pH ~~V~~value needs to be considered because it could affects the microorganism activity in it. The pH value during the composting bioremediation with the values range from 5.1 to 7.00.
In Figure 4, the observation of the changes in pH shows that although on day 0^{th} and day 2^{nd} the pH value is still low, the pH value which becomes relatively stable starts on the 3rd day until the last day, which is the 30th day.
The composting process ~~will~~ cause~~d~~ changes in the organic material and the pH itself. The pH value during the composting period greatly influences the growth of the remodel microorganisms. At the beginning of the composting process on the 1st day to the 2nd day, the pH showed a value ranging from 5.5-5~~,~~; then, there was an increase in pH on the 14th day with a pH value of 7. ~~But~~ However, on the 15th day, the pH decreased again ~~ie~~ to 5.9.
A good reversal during the composting process can maintain the pH value ~~remains in~~ under neutral pH conditions. The composting process causes changes in the organic material and the pH itself. For example, the acid release process ~~will~~ cause~~s~~ a decrease in pH (acidification), while the production of ammonia from nitrogen-containing compounds ~~will~~ increase~~s~~ the pH in the early phases of the composting process.
The ~~G~~graph of the changes in compost humidity can be seen in Figures 5 and 6.
~~In~~ Figure 5 ~~can be seen in~~ shows that in 75% soil: 25%, the compost humidity is 31-60%. In 50% of soil 50%, compost has a humidity of 51-60% including the optimum conditions, whereas in 25% of soil: 75% of compost the humidity reaches 53-80%.
In Figure 6 on 75% soil: 25%, the compost humidity 54.44-65.56%. In 50% of soil: 50% compost has a humidity of 56.00-68.33%, while in 25% of soil: 75% of compost the humidity reaches 63.33-70%.
~~Based~~ On the basis of ~~on~~ the graph above, it is known that on the first day of the composting process, variations in 100% of the soil have a normal moisture content which is around 47%, while in other variations it has a moisture content in the range of 60-70%. ~~But~~ However, on the third day, the water content in the 100% variation of land has decreased below 40%, while other variations have remained stable in the range of 60-70%. Therefore, on the 5th day of reversal, water is added to control 100% of the land. This aims to keep the pile moist and not too dry.
If the compost heap is too moist, the decomposition process will be hampered. This is because the water content will cover the air cavity in the pile. This condition will cause the composting process to take longer. On the other hand, if the humidity is too low, the efficiency of degradation will decrease due to the lack of water to dissolve the organic material that will be degraded by microorganisms as a source of energy (Widarti, 2015).

Fe values in composition variations

The effect of post-mining soil bioremediation composting ~~by providing~~ provided by the compost based on the cow manure and organic waste with the value of Fe in post-mining diamond ~~soil while the value of Fe on compost made from half cooked cow manure~~ is 268.83 mg/kg and ~~on compost fertilizer based on market organic waste which is~~ 108.39 mg/kg, respectively. The ~~C~~comparison of the Fe value in the composition of 75% soil: 25% compost, 50% soil: 50% compost, 25% soil: 75% compost made from the cow manure and market organic waste with bioremediation duration of composting day can be seen in Figures 7, 8, 9.
~~In~~ Figure 7 shows that the compost made from the cow manure on first day is higher than the compost made from organic waste with a value of 788.68 mg/kg and 696.86 mg/kg. On the 15^{th} day, the compost made from the cow manure increased by 451.4 mg/kg while organic waste based material decreased by 41.53 mg/kg; ~~while~~ on the 30^{th} day, both materials decreased ~~from day 15~~. On the 30^{th} day, the compost made ~~from~~from the cow manure decreased by 822.31 mg/kg so that the value of Fe became 417.77 mg/kg and that made from organic waste decreased 182.72 mg/kg so that the value of Fe became 472.61 mg/kg.

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~~Based on f~~Figure 8, it shows that the compost made from cow dung on day 0^{th} is lower than the compost made from organic waste with a value of 885.68 mg/kg and 955.31 mg/kg, respectively. On the 15^{th} day, the compost made from the cow manure and that made from organic waste decreased by 39.9 mg/kg and 206.66 mg/kg, respectively while on the 30^{th} day ~~decreased~~ the cow manure based compost decreased by 287.65 mg/kg so that the value of Fe ~~becomes~~ became 528.13 mg/kg and the compost based on organic waste ~~decreases~~ decreased by 335.5 mg/kg so that the value of Fe ~~becomes~~ became 413.15 mg/kg.

~~In~~ Figure 9 shows that bioremediation of the iron (Fe) value ~~of~~ using the compost made from the cow manure on day 1 is lower than using the compost made from organic waste with a value of 825.17 mg/kg and 1329.76 mg/kg, respectively. On the 15th day, using the compost made from the cow manure, the value of iron (Fe) increased by 418.09 mg/kg while the organic waste based material decreased by 691.07 mg/kg; ~~while~~ on the 30^{th} day both materials decreased ~~from day 15~~. On the 30^{th} day the compost made from the cow manure decreased by 800.68 mg/kg so that the value of Fe became 442.58 mg/kg and that made from organic waste decreased 348.59 mg/kg so that the value of Fe became 290.10 mg/kg.

~~Based~~ On the basis of ~~on~~ these 3 compositions, there are ~~ups and downs~~advantages and disadvantages during the bioremediation composting process based on the cow manure and organic market waste. The increase occurred on the 15^{th} day based on the cow manure, but on the 15^{th} day the compost based on cow manure with a composition of 50% soil: 50% compost experienced a decrease while on the 15^{th} day the organic waste based compost ~~on~~ of the third composition decreased. An increase on the 15^{th} day in the compost made from cow manure occurred because the bacteria ~~has~~ experienced a point of saturation, so that the tendency of bacteria to bind heavy metals ~~is~~ was reduced even ~~tends~~ tended to remove the heavy metal that has been absorbed (Khoiroh, 2014). Because there is still a process of reshuffle and release of Fe, ~~so that Fe~~ it moves freely; ~~resulting in~~ thus, the land ~~being~~ is dominated by Fe (Ariyadi, 2018). The Fe decrease occurred on the market organic waste based compost on the 15^{th} day and 30^{th} day while on the cow based waste compost it decreased on the 15^{th} day with 50% soil composition: 50% compost and 30^{th} day all composition. The decrease occurred during the composting bioremediation process due to the presence of the bacteria that are able to adsorb heavy metals in their cell walls (Khoiroh, 2014). The decrease in Fe is due to the activity of microorganisms and the absorption of Fe by organic fertilizers that form chelate bonds. Thu,s ~~so that~~ the presence of the organic material from the compost based on cow manure is able to absorb the Fe value in the soil. The chelate bond binds the other Fe^{3+} ions, the chelation takes the free Fe ions from the soil causing the Fe level in the solution to decrease (Yowono, 2010). The ~~O~~organic fertilizer adsorbs and binds the heavy metals by cation exchange, forming electrostatic bonds, complex bonds (Prasetiyono, 2015).

This is in accordance with Widyawati's research (2015). ~~b~~Bioremediation is a process of pollutant recovery by utilizing the services of living things such as microbes (bacteria, fungi, yeast) produced in their metabolic processes. As land dwellers, microbial life is always directly affected by the changes that occur in the soil. In ex-mining land, the land changes (physical, chemical, and biological) occur drastically, so that in these ecosystems the microbes must adapt to the new environment, or become extinct. One mechanism of adaptation is to change the expression of genes so that the activity of enzymes and proteins allows them to continue living in the environment. Some microbial mechanisms adapt to the mined land contaminated with metals, including the microbes capable of using metals as an energy source and presenting metal in the form of reducing metals to non-toxic forms. This microbial ability can be used in the process of metal detoxification, i.e. ~~or called~~ bioremediation.

Analysis of Fe value using Two Way ~~Anova~~ ANOVA Test

Based on the best composition and bioremediation process

The results of the analysis of composting bioremediation research based on the cow manure, the smallest Fe value during the composting bioremediation process based on the cow manure is 417.77 mg/kg with a composition variation of 75% Soil: 25% compost with a period of 30 days. ~~Based~~ On the basis of ~~on~~ the two-way ANOVA test, it can be concluded that there is no significant difference in the decrease in the Fe value due to the variations in composition and the length of composting bioremediation based on the cow manure.

~~Based on t~~The results of the composting bioremediation process analysis based on organic waste indicate that the smallest Fe value is 290.10 mg/kg with a variation of the composition of 25% soil:

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75% Compost. The two way ANOVA results to reduce the value of Fe in the mines obtained the best composition and composting time that is 75% compost: 25% of land on the 30th day, with a value of 290.10 Fe and removal amount of Fe decrease of 78.18%. ~~Where t~~The Fe value of 290.10 mg/kg is below the threshold value of agricultural land, according to Yoshida (1978).

Based on independent T test

The ~~E~~effect of bioremediation composting process on the composition variation with length of time. The T test results showed that there is no difference between the value of Fe-based cow manure and organic market waste on the composition of 75% Soil: 25% Compost with time variations (sig 2-tailed 0.212> 0.05), composition 50% Soil: 50% Compost with time variations (sig 2-tailed 0.772> 0.05) and 75% Land: 25% Compost with time variations (sig 2-tailed 0.697> 0.05) all three compositions show that the tested data do not ~~have the~~ exhibit difference between the two ingredients ~~between~~ in the case of the cow manure based and organic market based waste compost in the ~~composting~~ bioremediation process ~~of decreasing~~ Fe ~~value~~.

CONCLUSION

1. The temperature conditions of the four compositions during the composting process decreased until the 30th day. The pH value in 100% of the soil ~~remains~~ remained stable at neutral values (5.5-7). The humidity in the control of 100% of the soil ~~is~~ was below 40%, low enough for humidity because the optimal value for composting is 50-60%.
2. ~~Based~~ On the basis of on the two-way ANOVA test, it can be concluded that there is no significant difference in the decrease in Fe value due to the variations in the composition and length of time composting bioremediation based on the cow manure. ~~Whereas~~ In turn, the composting bioremediation made from organic market composition ~~and the~~ exhibited best ~~composting~~ results ~~time~~ with ~~is~~ 75% compost: 25% of soil on the 30th day, with a value of Fe ~~namely~~ of 290.10 and removal amount of Fe decrease of 78.18%.
3. ~~Based~~ On the basis of ~~on~~ the Independent T test, it can be concluded that there is no significant difference in the decrease ~~in~~ of the Fe value due to the variations in composition and the length of composting bioremediation between the cow-based manure and market-based organic waste.

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REFERENCES

Hakiki I.A. 2018. Analisis Logam Berat (Pb, Fe, Zn) Pada Tanah Bekas Lahan Tambang Batubara dan Manfaatnya Sebagai *Handout* Kimia Lingkungan Pada Materi Pencemaran Tanah. Skripsi. Fakultas Keguruan Dan Ilmu Pendidikan Universitas Jambi.

Indrayantie R.E. 2011. Post-Mining Impacts on Soil and Water Quality in Palam Village, Cempaka District, Banjarbaru City, South Kalimantan. Journal of tropical forests, 12 (31).

Kästner M., Miltne A. 2016. Application of compost for effective bioremediation of organic contaminants and pollutants in soil. Appl Microbiol Biotechnol, 100: 3433.

Khoiroh Z. 2014. Peran logam berat timbal (Pb) dalam lumpur lapindo menggunakan campuran bakteri (*Pseudomonas pseudomallei* dan *Pseudomonas aeruginosa*). Undergraduate thesis, Universitas Islam Negeri Maulana Malik Ibrahim.

Mizwar A. dan Trihadiningrum Y. 2014. Potensi Bioremediasi Tanah Terkontaminasi *Polycyclic Aromatic Hydrocarbons* dari Batubara dengan *Composting*, Prosiding Seminar Nasional Waste Management II, Institut Teknologi Sepuluh Nopember, Surabaya, hal. 251-264.

Prasetiyono E. 2015. Kemampuan Kompos Dalam Menurunkan Kandungan Logam Berat Timbal (Pb) Pada Media Budidaya Ikan. Jurnal Akuatika Vol VI No.1 (21-29).

Sidabutar J. 2013. Changes in Soil Chemical Characteristics in the Former Mine Reclamation Model of Pt. Antam Ubpe Pongkor. Thesis / Final Project Silviculture Department, Faculty of Forestry. Bogor Agricultural Institute. Bogor.

Sudaryono. 2007. Effect of Kandangan Fertilizer on Cr Absorption in Peanuts. Journal of Environmental Engineering, 8 (1), 48-53.

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Widarti B. N., Wardhini W. K., and Sarwono E. 2015. Effect of C/N Ratio of Raw Materials on Making Compost from Cabbage and Banana Skins. Journal of Process Integration, 5 (2), 75-80.
Widyawati E., I Mansur, C Kusmana, I Anas and Santoso E. 2005. Utilization of the Paper Industry Sludge as an Agent for Soil Reforming in Coal Former Land. Journal of Forest Research and Nature Conservation, 2 (2), 127-134.
Tadano T. and Yoshida S. 1978. Chemical Changes in Submerged Soils and Their Effect on Rice Growth. Pp 399-420. IRRI. Los Banos. Philippines.
Yoshida S. 1981. Fundamentals of Rice Crop Science. IRRI. Los Banos. 269p

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May 18, 2020
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Bioremediation Comparison of Fe on Diamond Post Mining Soil Using Compost Made from Cow Manure and Traditional Market Organic Waste

Dear Dr. Rizqi Mahyudin,

I am pleased to inform you that your manuscript, entitled: Bioremediation Comparison of Fe on Diamond Post Mining Soil Using Compost Made from Cow Manure and Traditional Market Organic Waste, has been accepted for publication in our journal.

Thank you for submitting your work to us.

Kindest regards,
Gabriel Borowski
Editor-in-Chief
Journal of Ecological Engineering