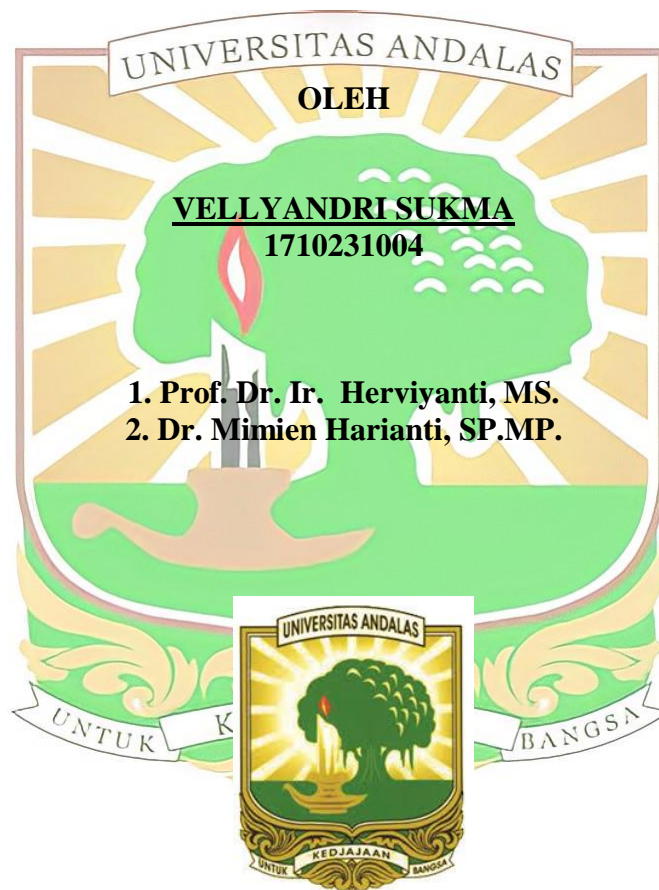


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AMELIORAN DALAM MENGURANGI KADAR MERKURI  
DAN PERTUMBUHAN TANAMAN JAGUNG DI TANAH  
BEKAS TAMBANG EMAS DHARMASRAYA**

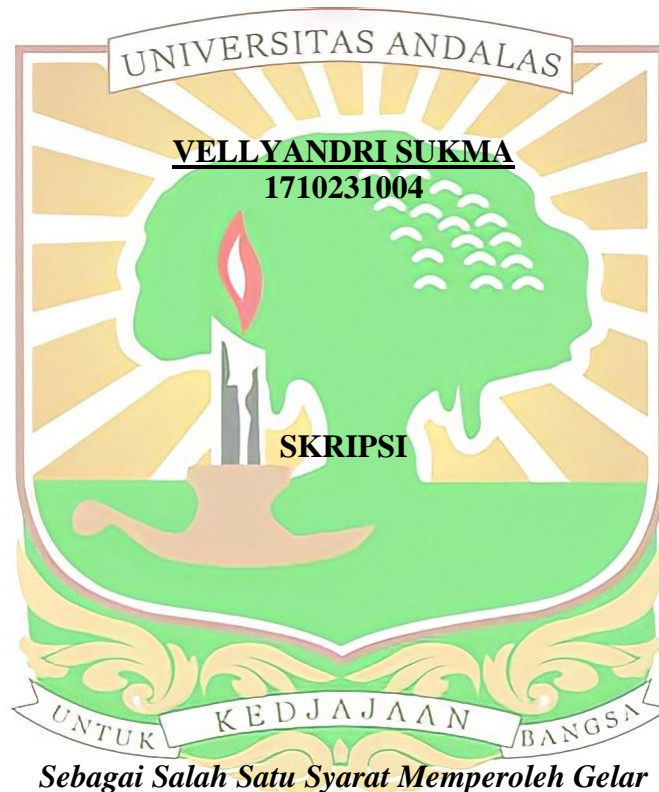
**SKRIPSI**



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**OLEH**



*Sebagai Salah Satu Syarat Memperoleh Gelar  
Sarjana Pertanian*

**PROGRAM STUDI ILMU TANAH  
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# BIOCHAR LIMBAH BUAH KELAPA MUDA SEBAGAI AMELIORAN DALAM MENGURANGI KADAR MERKURI DAN PERTUMBUHAN TANAMAN JAGUNG DI TANAH BEKAS TAMBANG EMAS DHARMASRAYA

## Abstrak

Lahan bekas tambang emas memiliki produktivitas yang rendah, karena kandungan merkuri (Hg) yang tinggi dan terganggunya sifat fisika, kimia, dan biologi tanah. Oleh karena itu, perlu dilakukan perbaikan tanah sebelum digunakan untuk pertanian, salah satunya dengan menggunakan biochar sebagai pembenah tanah. Tujuan penelitian ini adalah untuk mempelajari pengaruh biochar limbah buah kelapa muda dalam mengurangi Hg dan memperbaiki sifat kimia tanah bekas tambang emas serta pertumbuhan jagung pada tanah tersebut. Penelitian ini terdiri dari 5 perlakuan (A = 0 t ha<sup>-1</sup>; B = 10 t ha<sup>-1</sup>; C = 20 t ha<sup>-1</sup>; D = 30 t ha<sup>-1</sup>; E = 40 t ha<sup>-1</sup>) dan 3 ulangan. Satuan percobaan dialokasikan berdasarkan Rancangan Acak Lengkap (RAL) di rumah kawat. Hasil penelitian menunjukkan bahwa perlakuan perlakuan biochar 40 t ha<sup>-1</sup> LBKM mampu memperbaiki sifat kimia tanah seperti meningkatkan nilai pH tanah sebesar 3.54 unit; P-tersedia sebesar 20.53 ppm; N-total sebesar 0.07%; C-organik sebesar 0.36%; KTK sebesar 2.00 cmol kg<sup>-1</sup>; K sebesar 0.96 cmol kg<sup>-1</sup>; Ca sebesar 0.2 cmol kg<sup>-1</sup>; Mg sebesar 1.46 cmol kg<sup>-1</sup>; dan menurunkan kadar merkuri tanah hingga 1.69 ppm jika dibandingkan dengan kontrol. Aplikasi biochar 40 t ha<sup>-1</sup> juga mampu meningkatkan tinggi tanaman hingga 81.66 cm; berat kering tanaman sebesar 68.65 g; kandungan unsur hara N sebesar 0.033%; P sebesar 0.001%; K sebesar 0.134%; dan menurunkan kadar Hg tanaman (batang, daun, akar) sebesar 1.12 ppm dibandingkan dengan kontrol, dan Hg buah menurun sebesar 0.79 ppm dibandingkan dengan 20 t ha<sup>-1</sup> biochar. Penambahan 40 t ha<sup>-1</sup> biochar limbah buah kelapa muda mampu mengurangi kadar merkuri dalam tanah dan meningkatkan pertumbuhan jagung.

*Kata Kunci: Jagung, Lahan bekas tambang emas, Merkuri, Biochar Limbah Buah Kelapa Muda*

# BIOCHAR OF YOUNG COCONUTS WASTE AS AN AMELIORANT IN REDUCING MERCURY LEVELS AND CORN GROWTH IN EX-GOLD MINED SOIL IN DHARMASRAYA

## Abstract

Ex-gold mined land has low productivity, due to its high mercury (Hg) content and disruption of physical, chemical, and biological properties of the soil. Therefore, it is necessary to ameliorate the soil before using it for agriculture, one of which is by using biochar as a soil ameliorant. The purpose of this research was to study the effect of young coconut waste biochar in reducing Hg and improving the chemical properties of ex-gold mined soil as well as corn growth in the soil. This study consisted of 5 treatments (A = 0 t biochar ha<sup>-1</sup>, B = 10 t biochar ha<sup>-1</sup>, C = 20 t biochar ha<sup>-1</sup>, D = 30 t biochar ha<sup>-1</sup>, E = 40 t biochar ha<sup>-1</sup>) and 3 replicates. The experimental units were allocated based on Completely Randomized Design (CRD) in wire house. The results showed that the treatment of 40 t YCFW biochar ha<sup>-1</sup> was able to improve the chemical properties of the soil such as increasing the pH value by 3.54 units; available-P by 20.53 ppm; total-N by 0.07%; organic-C by 0.36%; CEC by 2.00 cmol kg<sup>-1</sup>; K by 0.96 cmol kg<sup>-1</sup>; Ca by 0.2 cmol kg<sup>-1</sup>; Mg by 1.46 cmol kg<sup>-1</sup>; and decreased soil mercury levels up to 1.69 ppm if compared to the control. The application of 40 t biochar ha<sup>-1</sup> was also able to increase plant height up to 81.66 cm; dry weight of the plant by 68.65 g; N nutrient content by 0.033%; P by 0.001%; K by 0.134%; and minimize Hg levels of plant (stems, leaves, and roots) by 1.12 ppm compared to control, and fruit Hg decreased by 0.79 ppm compared to the 20 t biochar ha<sup>-1</sup>. This addition of 40 t young coconut fruit waste biochar ha<sup>-1</sup> was able to reduce mercury levels in the soil and increase corn growth.



*Keyword: Corn, Ex-gold mined soil, Mercury, Young Coconut Fruit Waste Biochar*