

**APLIKASI *BIOCHAR* SEKAM PADI DALAM MEMPERBAIKI SIFAT
KIMIA TANAH BEKAS TAMBANG EMAS UNTUK BUDIDAYA
TANAMAN PADI (*Oryza sativa L.*)**

SKRIPSI

OLEH:



**FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG**

2020

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ABSTRAK

Kegiatan pertambangan emas di Kabupaten Sijunjung menimbulkan dampak pencemaran lingkungan dan penurunan kualitas tanah. Kerusakan lahan utama yang ditimbulkan oleh aktivitas pertambangan emas adalah terjadinya pencemaran tanah oleh Merkuri (Hg). Sehingga perlu dilakukan penambahan amelioran. Penelitian ini bertujuan untuk melihat kemampuan *biochar* sekam padi dalam mengurangi jumlah Hg, memperbaiki sifat kimia tanah dan meningkatkan pertumbuhan tanaman padi (*Oryza sativa L.*) di tanah bekas tambang emas. Penelitian dilaksanakan di Rumah Kawat Fakultas Pertanian Universitas Andalas Padang. Penelitian terdiri dari 4 perlakuan (A = kontrol, B = 20 ton/ha, C = 40 ton/ha, dan D = 60 ton/ha) dan 3 ulangan dengan menggunakan Rancangan Acak Lengkap (RAL). Hasil penelitian menunjukkan bahwa pemberian *biochar* sekam padi mampu mengurangi jumlah Hg pada tanah dan tanaman. Perlakuan D dengan dosis 60 ton/ha mampu mengurangi jumlah Hg pada tanah hingga 1,8 ppm dan kadar Hg pada tanaman hingga 2,45 ppm jika dibandingkan dengan kontrol. Pemberian *biochar* sekam padi dengan dosis 60 ton/ha mampu memperbaiki sifat kimia tanah bekas tambang emas seperti meningkatkan pH tanah 0,94 unit, C-organik 0,96%, N-total 0,17%, P-tersedia 1,52 ppm, KTK 11,09 cmol/kg dan kandungan basa-basa seperti Ca-dd 1,30 cmol/kg, Mg-dd 0,36 cmol/kg, K-dd 0,15 cmol/kg, Na-dd 0,08 cmol/kg dan menurunkan Al-dd 1,85 cmol/kg. Pemberian *biochar* sekam padi juga mampu meningkatkan pertumbuhan tanaman padi (*Oryza sativa L.*). Pertumbuhan optimum didapatkan pada perlakuan C (40 ton/ha) dengan peningkatan tinggi tanaman 18,66 cm, jumlah anakan total 14 batang dan 15 anakan produktif, percepatan umur berbunga yaitu 12 hari, peningkatan angkutan hara N 11,19 g/tanaman, angkutan hara P 0,71 g/tanaman dan angkutan hara K 6,25 g/tanaman.

Kata kunci : tambang emas, biochar, padi

APPLICATION OF RICE HUSK BIOCHAR TO IMPROVE CHEMICAL PROPERTIES OF EX GOLD MINING SOIL FOR RICE (*Oryza sativa L.*) CULTIVATION

ABSTRACT

Gold mining activities in Sijunjung Regency had impact on environmental pollution and soil degradation. The main problem found in the soil was due to Mercury (Hg) concentration. Therefore it is necessary to add ameliorant to the soil if it will be farmed. The aim of this research was to investigate the influence of rice husk biochar in reducing the amount of Hg, improving soil chemical properties, and increasing the growth of rice (*Oryza sativa L.*) crops in ex gold mining soil. This research was conducted at glass house Faculty of Agriculture, Andalas University, Padang. This research consisted of four levels of rice husk biochar (A = control, B = 20 tons/ha, C = 40 tons/ha, and D = 60 tons/ha) with three replications. The treatment units were allocated based on Completely Randomized Design (CRD). The results showed that rice husk biochar was able to decrease the amount of Hg in the soil and in the crops. Application of 60 tons biochar/ha could decrease the amount of Hg by 1.8 ppm in the soil and by 2.45 ppm in the crops compared to controls. Application of rice husk biochar at a dose of 60 tons/ha could improve chemical properties of ex gold mining soil such as an increase in soil pH by 0.94 units, organic-C by 0.96%, total-N by 0.17%, P-available by 1.52 ppm, CEC by 11.09 cmol/kg, exchangeable Ca by 1.30 cmol/kg, exchangeable Mg by 0.36 cmol/kg, exchangeable K by 0.15 cmol/kg, exchangeable Na by 0.08 cmol/kg, and decrease in exchangeable Al by 1.85 cmol/kg. Application of rice husk biochar was also able to increase the growth of rice (*Oryza sativa L.*) crops. Optimum growth was obtained from treatment C (40 tons/ha), it showed that the crop height increased by 18.66 cm, number of total tiller by 14 and productive tiller by 15, acceleration of flowering age by 12 days, increased N content by 11, 19 g/crop, P content by 0.71 g/crop and K content by 6.25 g/crop.

Keywords : gold mining, biochar, rice