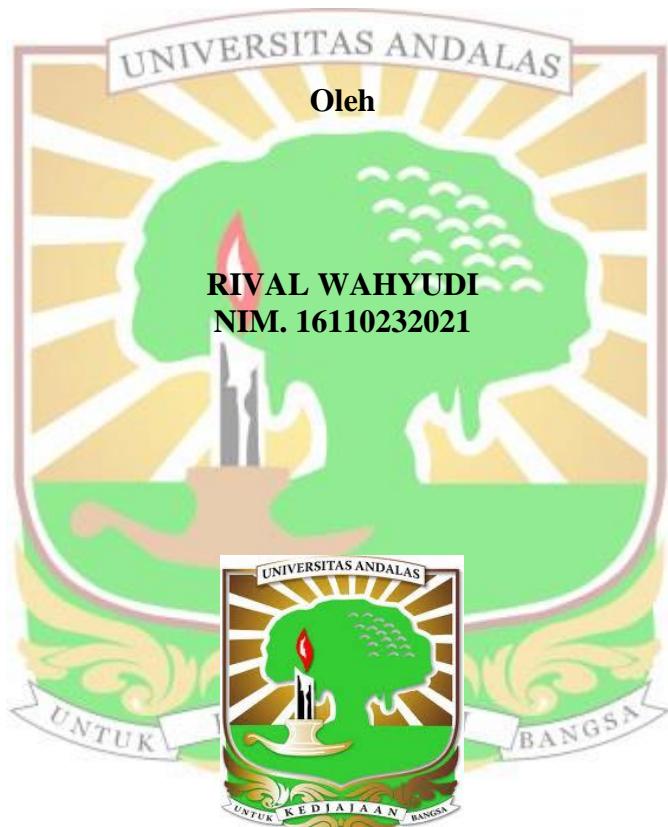


**APLIKASI BIOKANAT DALAM MEMPERBAIKI  
SIFAT KIMIA TANAH BEKAS TAMBANG EMAS  
TERHADAP PERTUMBUHAN DAN PRODUKSI  
TANAMAN PADI (*Oryza sativa L.*)**

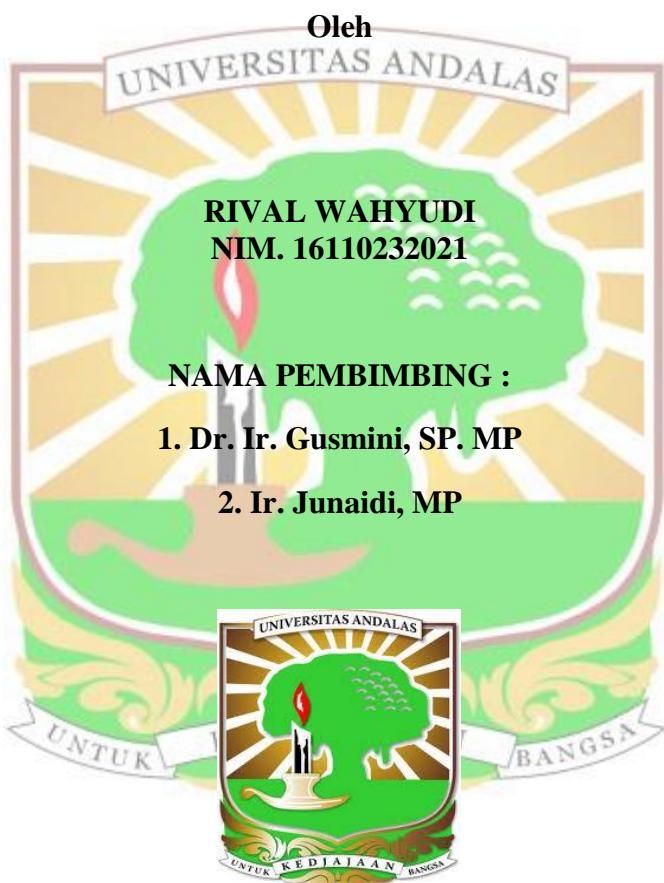
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**FAKULTAS PERTANIAN  
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# **APPLICATION OF BIOKANAT ON IMPROVEMENT OF CHEMICAL PROPERTIES OF EX-GOLD MINE SOILS AS WELL AS GROWTH AND PRODUCTION OF RICE (*Oryza sativa L.*) CROPS**

## **Abstract**

Gold mining activities such as in Sijunjung Regency cause land degradation and decrease soil physical, chemical, and biological fertility. This is not only due to the mining process but also due to mercury (Hg) in the tailing. One effort to reclame the soil is by using ameliorants such as biokanat (biochar + manure+ clay). This study was aimed to study the effect of biokanat application on the soil chemical properties of ex gold mines as well as on the growth and production of rice (*Oryza sativa L.*) crops. Research was conducted at the wire house and soil chemical laboratory, Faculty of Agriculture, Andalas University, Padang. This experiment consisted of 6 treatments (0, 5, 10, 15, 20, and 25 tons biokanat/ha) with three replicates (18 experimental units). The units were allocated based on Completely Randomized Design (CRD). The parameter analyzed were soil pH, organic-C, total-N, P-available, Cation Exchange Capacity (CEC), Ca-exch, Mg-exch, K-exch, Al-exch, and soil Hg. The results showed that application 25 T/ha biokanat could increase soil pH by 2.47 units, organic-C by 0.16%, total-N by 0.12%, P-available by 3.42 ppm, CEC by 6.27 cmol /kg, Ca-exchangeable by 8.67 cmol/kg, Mg-exchangeable by 73 cmol/kg, K-exchangeable by 0.40 cmol/kg and could reduce Al-exchangeable by 16.56 cmol/kg, and soil Hg by 1.91 ppm. The optimum growth and production of rice plants was found at application of 25 tons/ha biokanat. It was indicated by the highest plant height (94cm), total number of saplings (35 stems), number of productive saplings (27 stems), N uptake (2.18%), P uptake (0.37%), K uptake (0.99%), weight of 1000 seeds (28.86 gr), rice production (4.15 tons/ha) and the lowest plant Hg (0.69 ppm).

*Keywords : Biokanat, ex-Gold Mining Land, Mercury (Hg), Rice (*Oryza sativa L.*), Nutrients*

# **APLIKASI BIOKANAT DALAM MEMPERBAIKI SIFAT KIMIA TANAH BEKAS TAMBANG EMAS TERHADAP PERTUMBUHAN DAN PRODUKSI TANAMAN PADI (*Oryza sativa L.*)**

## **Abstrak**

Aktivitas tambang emas di Kabupaten Sijunjung dapat menyebabkan terjadinya degradasi lahan dan penurunan kesuburan secara fisika, kimia, dan biologi tanah. Degradasi yang terjadi disebabkan *tailing* hasil penambangan emas mengandung merkuri (Hg). Upaya reklamasi dapat dilakukan dengan penggunaan amelioran berupa biokanat (*biochar*, pupuk kandang, liat) pada tanah pasca tambang. Tujuan penelitian ini untuk melihat dan mempelajari pengaruh pemberian biokanat pada tanah bekas tambang emas terhadap pertumbuhan dan produksi tanaman padi (*Oryza sativa L.*). Penelitian telah dilakukan di Rumah Kawat dan Laboratorium Kimia Tanah Fakultas Pertanian, Universitas Andalas, Padang. Penelitian ini merupakan percobaan Rancangan Acak Lengkap (RAL) dengan 6 dosis perlakuan biokanat yaitu 0 ton/ha (kontrol), 5 ton/ha, 10 ton/ha, 15 ton/ha, 20 ton/ha, dan 25 ton/ha dengan 3 ulangan (18 satuan percobaan). Parameter yang dianalisis adalah pH tanah, C-organik, N-total, P-tersedia, KTK, Ca-dd, Mg-dd, K-dd, Al-dd, dan Hg tanah. Hasil penelitian menunjukkan bahwa pemberian biokanat dengan dosis 25 ton/ha dapat meningkatkan pH 2,47 unit, C-organik 0,16%, N-total 0,12%, P-tersedia 3,42 ppm, KTK 6,27 cmol/kg, Ca-dd 8,67 cmol/kg, Mg-dd 0,73 cmol/kg, K-dd 0,40 cmol/kg serta dapat menurunkan Al-dd 16,56 cmol/kg dan Hg tanah 1,91 ppm. Pertumbuhan dan produksi optimum tanaman padi terdapat pada dosis 25 ton/ha dengan peningkatan tinggi tanaman sebesar 94 cm, jumlah anakan total 35 batang, jumlah anakan produktif 27 batang, Angkutan hara N 2,18%, Angkutan hara P 0,37%, Angkutan hara K 0,99%, bobot 1000 biji 28,86 gr, Produksi Padi 4,15 ton/ha dan menurunkan Hg tanaman 0,69 ppm.

*Kata Kunci : Biokanat, Lahan Bekas Tambang Emas, Merkuri (Hg), Padi (*Oryza sativa L.*), Unsur Hara*