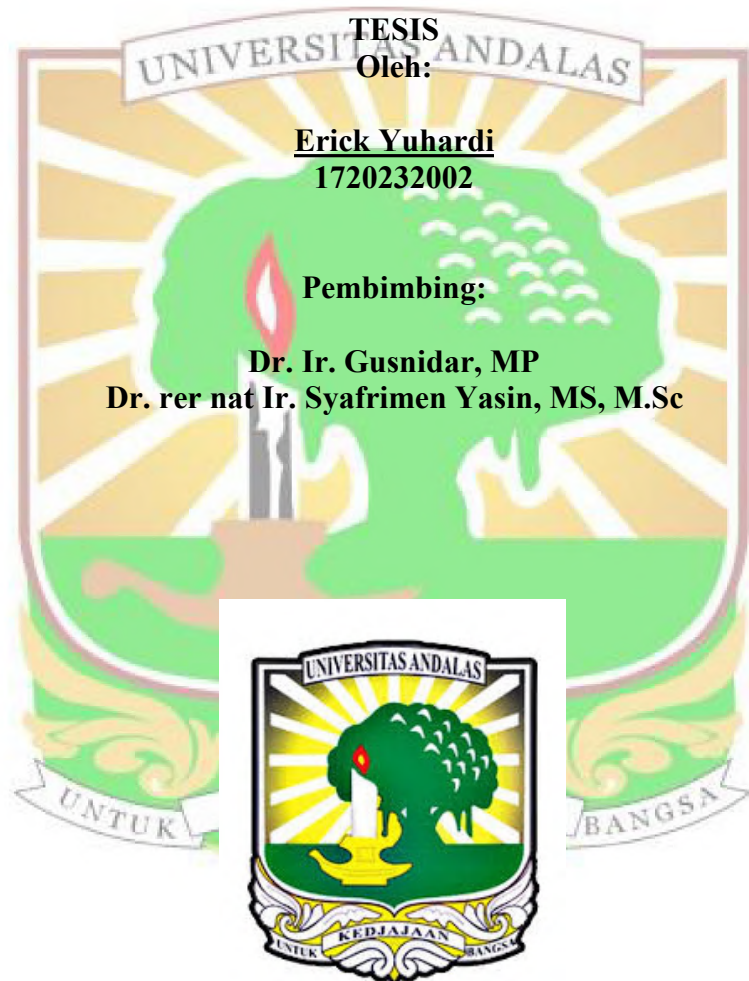


**APLIKASI KOMPOS (JERAMI PADI + TITHONIA) DAN
BIOCHAR SEKAM PADI DALAM MENINGKATKAN
KESUBURAN LAHAN SAWAH DAN PRODUKSI PADI SRI
(*SYSTEM OF RICE INTENSIFICATION*) DI KOTA PADANG**



**PRODI MAGISTER ILMU TANAH
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**APLIKASI KOMPOS (JERAMI PADI + TITHONIA) DAN BIOCHAR
SEKAM PADI DALAM MENINGKATKAN KESUBURAN LAHAN
SAWAH DAN PRODUKSI PADI SRI (*SYSTEM OF RICE
INTENSIFICATION*) DI KOTA PADANG**

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ABSTRAK

Penelitian bertujuan mengkaji pengaruh aplikasi kompos (jerami padi + tithonia) dan biochar sekam padi terhadap sifat kimia tanah sawah dan pengaruhnya terhadap produksi padi sekaligus melihat perubahan gugus fungsional yang terjadi dari jerami padi, tithonia, kompos (jerami padi + tithonia) dan biochar sekam padi. Penelitian dilaksanakan bulan Agustus sampai Desember 2019 di Kecamatan Kuranji, Kota Padang, Sumatera Barat dan Laboratorium Tanah, Universitas Andalas. Penelitian menggunakan rancangan acak kelompok (RAK) yang terdiri dari 6 perlakuan dan 3 ulangan. A (kompos 0% + biochar 0%), B (kompos 100% + biochar 0%), C (kompos 75% + biochar 25%), D (kompos 50% + biochar 50%), E (kompos 25% + biochar 75%), F (kompos 0% + biochar 100%). Hasil penelitian menunjukkan bahwa perlakuan E memiliki peningkatan nilai terbaik, seperti: pH (1,33) dengan Eh (17,34 mV), C-organik (0,78%), N-total (0,49%), P-tersedia (14,75 ppm), KTK (19,83 cmol kg⁻¹), Ca-dd (1,38 cmol kg⁻¹), Mg-dd (0,45 cmol kg⁻¹), Na-dd (0,44 cmol kg⁻¹), K-dd (0,27 cmol kg⁻¹), Si (12,38 ppm), kejenuhan basa (4,63%), tinggi tanaman (108,66 cm), jumlah anakan total (53 batang), jumlah anakan produktif (37,33 batang), berat 1000 biji (23,27g) dengan produksi 8,23 ton/ha. Hasil spektrum FTIR menunjukkan kompos (jerami padi + tithonia) + biochar sekam padi mengalami penurunan transmittan dari jerami padi pada ikatan O-H; N-H (3350,32 cm⁻¹); ikatan -C≡C; -C≡N (2928,06 cm⁻¹); ikatan C=C aromatik atau karboksilat (1626,51 cm⁻¹); dan ikatan C=C-H (1052,72 cm⁻¹).

Kata Kunci : Biochar, FTIR, Kompos, Sifat Kimia Tanah, SRI

APPLICATION OF COMPOST (RICE STRAW + TITHONIA) AND RICE HUSK BIOCHAR IN IMPROVING THE FERTILITY OF SAWAH LAND AND SRI PRODUCTION (*SYSTEM OF RICE INTENSIFICATION*) IN PADANG CITY

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ABSTRACT

This research was aimed to examine of application of compost (rice straw + tithonia) and rice husk biochar on the chemical properties of paddy soil and its effect on rice production as well as to study the functional groups that could occur within rice straw, tithonia, compost (rice straw + tithonia) and rice husk biochar. The research was conducted from August to December 2019 in Kuranji District, Padang City, West Sumatra and the Soil Laboratory, Andalas University. The study used a randomized block design (RAK) consisting of 6 treatments, (A compost 0% + biochar%, B compost 100% + biochar 0%, C compost 75% + biochar 25%, D compost 50% + biochar 50%, E compost 25% + biochar 75 % and F compost 0% + 100% biochar with 3 replications. The research showed that E treatment gave the best value. It increase pH by 1.33 points, Eh by 17.34 mV, organic-C by 0.78%, total-N by 0.49%, available-P by 14.75 ppm, CEC by 19.83 cmol kg⁻¹, Ca-exch by 1.38 cmol kg⁻¹, Mg-exch by 0.45 cmol kg⁻¹, Na-exch by 0.44 cmol kg⁻¹, K-exch by 0.27 cmol kg⁻¹, Si by 12.38 ppm, base saturation by 4.63%, plant height by 108.66 cm, total number of tillers by 53 stems, number of productive tillers by 37.33 stems, weight of 1000 seeds by 23.27g and production by 8.23 ton/ha. The results of FTIR spectrum results showed that compost (rice straw + tithonia) decreased transmittance of rice straw in the O-H bonds; N-H (3350.32 cm⁻¹); -C≡C bond; -C≡N (2928.06 cm⁻¹); aromatic or carboxylate C=C bonds (1626.51 cm⁻¹); and the C=C-H bond (1052.72 cm⁻¹).

Keywords: Biochar, Compost, FTIR, Soil Chemical Properties, SRI