

Milla Agustina. 17.03.111.00036. Pengaruh Residu Biochar Sekam Padi Dan Pupuk Kandang Terhadap Sifat Fisik Dan Kimia Tanah Mediteran (Alfisol) Dengan Indikator Tanaman Jagung (*Zea mays* L.). Dibawah bimbingan : **Ir. Slamet Supriyadi, M.Si.**

ABSTRAK

Penelitian ini bertujuan untuk mempelajari pengaruh residu biochar sekam padi dan pupuk kandang sapi terhadap sifat fisik dan kimia tanah dengan indikator tanaman jagung (*Zea mays* L.). Penelitian dilaksanakan dari bulan November 2020 sampai Maret 2021 di Kebun Hortikultura Socah, Kabupaten Bangkalan, Jawa Timur, yang terletak pada ketinggian ± 5 meter dpl. Percobaan dirancang berdasarkan Rancangan Acak Kelompok (RAK) non faktorial, 6 taraf perlakuan, yaitu P0 (kontrol), P1 (10 ton/ha biochar), P2 (7,5 ton/ha biochar dan 2,5 ton/ha pupuk kandang), P3 (5 ton/ha biochar dan 5 ton/ha pupuk kandang), P4 (2,5 ton/ha biochar dan 7 ton/ha pupuk kandang), dan P5 (10 ton/ha pupuk kandang). Hasil penelitian menunjukkan residu biochar sekam padi dan pupuk kandang sapi yang sudah berada dalam tanah selama 1 tahun berpengaruh tidak nyata terhadap sifat fisik tanah (BI, Porositas, dan Kadar Air Kapasitas Lapang (KAKL)), sifat kimia tanah (pH tanah dan DHL) dan pertumbuhan indikator tanaman. Namun residu biochar sekam padi dan pupuk kandang sapi berpengaruh nyata terhadap kandungan C-organik dan KTK Tanah dan cenderung meningkatkan KAKL. Berdasarkan hasil uji korelasi diketahui bahwa nilai KTK tanah memiliki hubungan yang kuat terhadap bobot biomassa tanaman. Sehingga dapat disimpulkan bahwa perlakuan terbaik adalah perlakuan BP3 (residu dari 5 ton/ha biochar sekam padi + 5 ton/ha pupuk kandang sapi) yang memiliki nilai KTK Tanah sebesar 29,08 cmol/kg.

Kata Kunci : Biochar, Pupuk Kandang, Sifat Fisik Tanah, Sifat Kimia Tanah, Jagung.

Milla Agustina. 17.03.111.00036. Effect of Residue of Rice Husk Biochar and Cow Manure on Physical and Chemical Properties of an Alfisols with Indicators of Maize (*Zea mays* L.). Supervised by : **Ir. Slamet Supriyadi, M.Si.**

ABSTRACT

The objective of this study was to investigate the effect of residue of rice husk biochar and cow manure on physical and chemical properties of soil and growth of maize (*Zea mays* L.). The research was carried out at the Socah Horticultural Garden, Bangkalan Regency, East Java, located at 5-meter above sea level, from November 2020 to March 2021. The experiment was arranged on a completed randomized block design (CRBD), consisting of six treatments, namely P0 (control), P1 (10 ton biochar/ha), P2 (7.5 ton biochar/ha and 2.5 ton cow manure/ha), P3 (5 ton biochar/ha and 5 ton cow manure/ha), P4 (2.5 ton biochar/ha and 7.5 ton cow manure/ha), P5 (10 ton manure/ha). The results showed that the residue of rice husk biochar and cow manure that had been in the soil for 1 year had no significant effect on soil physical properties (bulk density, porosity, and water content at field capacity), soil chemical properties (pH and soil electrical conductivity) and plant growth indicators. However, rice husk biochar residue and cow manure had a significant effect on organic C content and soil CEC and tended to increase water content at field capacity. The correlation test showed that soil CEC had a strong relationship with dry matter of maize. The BP3 treatment (residue of 5 tons/ha of rice husk biochar + 5 tons/ha of cow manure) could be the best treatment as it had the highest CEC (29.08 cmol/kg).

Keywords : Biochar, Manure, Soil Properties, Maize.