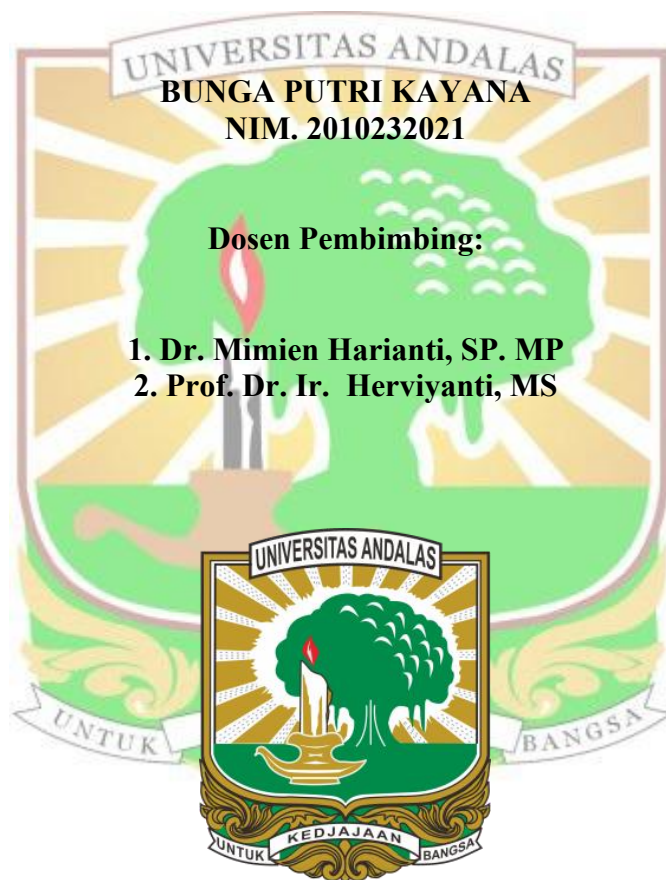


**PENGARUH PUPUK KOMPOS KOTORAN AYAM
TERHADAP AKTIVITAS FOSFATASE TANAH PADA
TANAMAN JAGUNG MANIS (*Zea mays* L. *Saccharata*) DI
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PENGARUH PUPUK KOMPOS KOTORAN AYAM TERHADAP AKTIVITAS FOSFATASE TANAH PADA TANAMAN JAGUNG MANIS (*Zea mays* L. *Saccharata*) DI ULTISOL

ABSTRAK

Ultisol merupakan tanah masam yang memiliki tingkat kesuburan rendah akibat rendahnya kandungan bahan organik serta ketersediaan fosfor yang terbatas. Penelitian ini bertujuan untuk mengkaji pengaruh pemberian kompos kotoran ayam terhadap aktivitas fosfatase tanah, sifat kimia tanah, serta pertumbuhan dan produksi tanaman jagung manis di Ultisol. Penelitian dilakukan menggunakan Rancangan Acak Kelompok (RAK) yang terdiri dari 5 perlakuan dan 3 kelompok. Parameter yang dianalisis meliputi aktivitas fosfatase asam dan basa, pH tanah, C-organik, N-total, P-total, P-tersedia, tinggi tanaman, dan berat basah tongkol. Hasil penelitian menunjukkan bahwa pemberian kompos kotoran ayam mampu meningkatkan aktivitas fosfatase asam tertinggi pada dosis 27 ton/ha sebesar 4,82 $\mu\text{mol pNP/g tanah}$, aktivitas fosfatase basa tertinggi diperoleh pada dosis 18 ton/ha sebesar 2,69 $\mu\text{mol pNP/g tanah}$. Pemberian kompos kotoran ayam juga meningkatkan sifat kimia tanah dengan C-organik 3,53%, N-total 0,35%, P-total 44,39 mg/100 g, dan P-tersedia 9,31 ppm. Pertumbuhan jagung manis menunjukkan tinggi tanaman mencapai 170,96 cm dengan hasil berat basah tongkol berkelobot sebesar 27,17 ton/ha. Berdasarkan hasil penelitian tersebut disarankan pemberian kompos kotoran ayam pada dosis 18 ton/ha untuk memperoleh peningkatan kesuburan tanah serta pertumbuhan dan hasil jagung manis yang optimal pada Ultisol.

Kata kunci: *Kompos Kotoran Ayam, Aktivitas Fosfatase Asam dan Basa, Ultisol Jagung Manis*

THE EFFECT OF CHICKEN MANURE COMPOST ON SOIL PHOSPHATASE ACTIVITY AND SWEET CORN (*Zea mays L. Saccharata*) PERFORMANCE IN ULTISOLS

ABSTRACT

Ultisols are inherently acidic soils, generally with low fertility caused by the limited organic matter content and phosphorus availability. This study evaluated the effects of chicken manure compost on soil phosphatase activity, selected soil chemical properties, and the growth and yield of sweet corn cultivated on Ultisols. The experiment was arranged in a randomized block design (RBD) with five treatments and three replications. The measured variables included acid and alkaline phosphatase activities, soil pH, organic carbon (C), total nitrogen (N), total phosphorus (P), available phosphorus, plant height, and fresh ear yield. The application of chicken manure compost was found to significantly improve the soil phosphatase activity and improve soil chemical properties. The highest acid phosphatase activity ($4.82 \mu\text{mol pNP g}^{-1} \text{ soil}$) was observed at 27 t ha^{-1} , whereas the highest alkaline phosphatase activity ($2.69 \mu\text{mol pNP g}^{-1} \text{ soil}$) occurred at 18 t ha^{-1} compost applied. The soil fertility parameters improved, especially the C was 3.53%, total N was 0.35%, total P was $44.39 \text{ mg } 100 \text{ g}^{-1}$, and available P was 9.31 ppm. The sweet corn growth and yield responded positively, with the plant height was 170.96 cm and fresh ear yield (with husk) was 27.17 t ha^{-1} . In conclusion, application of chicken manure compost at 18 t ha^{-1} was considered optimal for improving soil fertility as well as maximizing sweet corn productivity in Ultisols.

Keywords: *Chicken manure compost, acid and alkaline phosphatase activity, Ultisols, sweet corn*