

**KAJIAN KANDUNGAN UNSUR HARA MAKRO (Ca, Mg, S)
PADA RHIZOSFER TANAMAN JAGUNG MANIS
(*Zea mays saccharata* L.) SETELAH PENGAPLIKASIAN
KOMPOS KOTORAN AYAM DI ULTISOL**

SKRIPSI

Oleh:



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ABSTRAK

Ultisol merupakan tanah dengan tingkat kesuburan rendah yang ditandai oleh reaksi tanah masam, kandungan bahan organik rendah, serta rendahnya ketersediaan unsur hara seperti kalsium (Ca), magnesium (Mg), dan sulfur (S). Rhizosfer berperan sebagai faktor yang mendukung pertumbuhan dan perkembangan tanaman dalam penyerapan unsur hara. Upaya perbaikan kesuburan Ultisol dapat dilakukan melalui penambahan pupuk organik berupa kompos kotoran ayam. Penelitian ini bertujuan untuk mengkaji pengaruh aplikasi kompos kotoran ayam terhadap kandungan unsur hara makro Ca, Mg, dan S pada rhizosfer tanaman jagung manis (*Zea mays saccharata* L.), serta pertumbuhan dan hasil tanaman jagung manis di Ultisol. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) dengan empat perlakuan dosis kompos kotoran ayam, yaitu 0, 9, 18, dan 27 ton/ha dengan tiga kelompok. Parameter yang dianalisis adalah pH, C-Organik, N-Total, KTK, Ca-dd, Mg-dd, S-tersedia. Hasil penelitian menunjukkan pemberian 27 ton/ha kompos kotoran ayam merupakan perlakuan terbaik dalam meningkatkan sifat kimia tanah di daerah rhizosfer. Hasil yang diperoleh dari penelitian ini yaitu pH 5,66 unit, C-Organik 1,12%, N-Total 0,41%, KTK 26,91 me/100g, Ca-dd dan Mg-dd 2,04 me/100g dan 1,13 me/100g, serta S-Tersedia 18,98 ppm. Pertumbuhan tanaman jagung manis yang optimal terdapat pada perlakuan 18 ton/ha dengan tinggi tanaman 148,37 cm dan produksi tanaman jagung manis 26,17 ton/ha. Pemberian 18 ton/ha kompos kotoran ayam ideal untuk mendapatkan pertumbuhan dan hasil jagung manis yang optimal pada Ultisol kelurahan kurangi.

Kata Kunci: *Jagung Manis, Kompos Kotoran Ayam, Rhizosfer, Ultisol*

**STUDY OF MACRONUTRIENT CONTENT (Ca, Mg, S)
IN THE RHIZOSPHERE OF SWEET CORN
(*Zea mays saccharata* L.) AFTER THE APPLICATION OF
CHICKEN MANURE COMPOST ON ULTISOL SOIL**

ABSTRACT

Ultisol is a soil with low fertility characterized by acidic soil reaction, low organic matter content, and low availability of nutrients such as calcium (Ca), magnesium (Mg), and sulfur (S). Rhizosphere plays an important role in supporting plant growth and nutrient uptake. Improvement of Ultisol fertility could be achieved through the application of organic fertilizer in the form of chicken manure compost. This study was aimed to evaluate the effect of chicken manure compost application on Ca, Mg, and S contents in the rhizosphere of sweet corn (*Zea mays saccharata* L.), as well as its effect on plant growth and yield on Ultisol. This experiment consisted of four compost application rates (0, 9, 18, and 27 tons/ha), with three blocks. The treatment units were allocated based on Randomized Block Design (RBD). The parameters analyzed were soil pH, organic-C, total nitrogen, cation exchange capacity, exchangeable Ca and Mg, available sulfur. The results showed that the application of 27 T/ha chicken manure compost was the best treatment in improving rhizosphere soil chemical properties. It was indicated by the highest pH (5.66 units), organic-C (1.12%), total nitrogen (0.41%), cation exchange capacity (26.91 me/100 g), exchangeable Ca and Mg (2.04 me/100 g and 1.13 me/100 g), and available sulfur (18.98 ppm). Optimal growth and yield of sweet corn were obtained at the compost rate of 18 T/ha, with the highest plant height (148.37 cm) and yield reaching (26.17 tons/ha). Therefore, the application of 18 T/ha chicken manure compost was considered the most effective rate to obtain optimal growth and yield of sweet corn on Ultisol in Kuranji Subdistrict.

Keywords: *Chicken Manure Compost, Rhizosphere, Sweet Corn, Ultisol*