

PENGARUH GYPSUM DAN PUPUK KANDANG SAPI TERHADAP BEBERAPA SIFAT KIMIA TANAH SALIN

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ABSTRAK

Ekstensifikasi pertanian merambah pada lahan salin akibat peningkatan kebutuhan pangan. Salinitas terjadi ketika tanah mengandung garam terlarut dalam jumlah besar sehingga mengganggu pertumbuhan tanaman. Karena itu diperlukan upaya pengelolaan yang dapat dilakukan dengan menambahkan pembenah tanah berupa gypsum dan pupuk kandang sapi. Penelitian bertujuan untuk mengetahui pengaruh pemberian gypsum dan pupuk kandang sapi terhadap beberapa sifat kimia tanah salin. Penelitian dilaksanakan di Rumah Kaca Kebun Percobaan Wedomartani Sleman, Yogyakarta dan analisis kimia di Laboratorium Balingtan Pati, Jawa Tengah pada bulan Mei sampai Agustus 2019. Penelitian menggunakan Rancangan Acak Lengkap (RAL) Faktorial 2 faktor. Faktor pertama gypsum tiga aras 0 ton/ha, 6 ton/ha dan 12 ton/ha, faktor kedua pupuk kandang sapi tiga aras 0 ton/ha, 20 ton/ha dan 40 ton/ha sehingga diperoleh 9 kombinasi perlakuan. Parameter penelitian meliputi Na^{+dd} , K^{+dd} , Ca^{2+dd} , Mg^{2+dd} , ESP, ECe, pH H_2O dan KPK. Hasil perlakuan dianalisis menggunakan ANOVA (*Analysis of Variance*) dan menguji beda nyata digunakan uji DMRT (*Duncan Multiple Range Test*) 5%. Hasil penelitian menunjukkan pemberian gypsum berpengaruh nyata meningkatkan K^{+dd} , Ca^{2+dd} , Mg^{2+dd} dan menurunkan pH H_2O serta ECe. Pupuk kandang sapi berpengaruh nyata meningkatkan K^{+dd} , Ca^{2+dd} , Mg^{2+dd} dan menurunkan ECe. Pupuk kandang sapi tidak berpengaruh nyata terhadap pH H_2O tanah salin. Interaksi gypsum 12 ton/ha dan pupuk kandang sapi 40 ton/ha menurunkan Na^{+dd} secara nyata dan gypsum 6 ton/ha dengan pupuk kandang sapi 40 ton/ha mampu menurunkan ESP secara nyata serta pemberian pupuk kandang 40 ton/ha tanpa gypsum mampu meningkatkan KPK tanah salin secara nyata.

Kata kunci : tanah salin, gypsum, pupuk kandang sapi, ECe, Na^{+dd} , ESP

THE EFFECT OF GYPSUM AND COW MANURE ON SOME OF THE CHEMICAL PROPERTIES OF SALINE SOILS

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ABSTRACT

Agricultural extensification penetrated into saline land due to increased food needs. Salinity occurs when soils contain large amounts of dissolved salts that interfere with plant growth. Because it is needed management efforts that can be done by adding soil enhancers in the form of gypsum and cow manure. The study aims to determine the effect of gypsum and cow manure on some of the chemical properties of saline soil. The study was conducted at the Wedomartani Experimental Garden Greenhouse in Sleman, Yogyakarta and chemical analysis at the Balingtan Pati Laboratory, Central Java in May to August 2019. The research used a 2-Factorial Complete Randomized Design (CRD). The first factor is three levels of gypsum 0 tons/ha, 6 tons/ha and 12 tons/ha, the second factor is three levels of cow manure 0 tons/ha, 20 tons/ha and 40 tons/ha to obtain 9 treatment combinations. Research parameters include Na^+ dd, K^+ dd, Ca^{2+} dd, Mg^{2+} dd, ESP, ECe, pH H_2O and CEC. The treatment results were analyzed using Analysis of Variance (ANOVA) and testing the real difference used the 5% Duncan Multiple Range Test (DMRT) test. The results showed that gypsum administration significantly increased K^+ dd, Ca^{2+} dd, Mg^{2+} dd and decreased pH H_2O and ECe. Cow manure significantly increases K^+ dd, Ca^{2+} dd, Mg^{2+} dd and decreases ECe. Cow manure has no significant effect on the pH of H_2O in saline soils. The interaction of gypsum 12 tons/ha and cow manure 40 tons/ha decreased Na^+ dd significantly and gypsum 6 tons/ha with cow manure 40 tons/ha was able to reduce ESP significantly and giving manure 40 tons/ha without gypsum could increase CEC significantly in saline soils.

Keywords: saline soil, gypsum, cow manure, ECe, Na^+ dd, ESP