

ABSTRAK

PENGARUH PENAMBAHAN PUPUK ORGANIK DIPERKAYA MIKROBA DAN BIOCHAR PADA BERBAGAI SISTEM PENGOLAHAN LAHAN TERHADAP Ca-dd, Mg-dd, DAN Na-dd TANAH DI PERTANAMAN NANAS

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Penurunan produksi nanas di Lampung Tengah berkaitan erat dengan menurunnya kualitas kimia tanah akibat pengolahan tanah yang terlalu intensif, penggunaan pupuk kimia secara berlebih dan rendahnya kandungan bahan organik. Tujuan dilakukan penelitian ini untuk mengetahui pengaruh aplikasi pengolahan lahan serta aplikasi pupuk organik berupa kompos yang diperkaya mikroba dan biochar terhadap ketersediaan Ca-dd, Mg-dd, dan Na-dd pada pertanaman nanas.

Penelitian di PT Great Giant Pineapple (PT GGP) dan analisis tanah dilakukan di Laboratorium RnD PT GGP. Penelitian ini menggunakan metode rancangan split plot dengan 8 perlakuan dengan 3 ulangan. Perlakuan petak utama adalah T_1 = bajak tanah kedalaman 30 cm+cacah seresah tanaman nanas 1 kali, dan T_2 = bajak tanah kedalaman 40 cm+cacah seresah tanaman nanas 2 kali. Perlakuan anak petak adalah P_1 = Kompos GGP 50 ton ha⁻¹, P_2 = Kompos GGP 40 ton ha⁻¹ + 10 ton ha⁻¹ biochar. P_3 = Kompos premium GGP 50 ton ha⁻¹, P_4 = Kompos premium GGP 50 ton ha⁻¹ + enrich mikrob 40 L ha⁻¹. Hasil penelitian menunjukkan bahwa nilai Ca-dd tanah secara nyata meningkat pada waktu pengamatan 6 BST di perlakuan P_2 sebesar 194,95 ppm. Nilai Mg-dd tanah secara nyata meningkat pada waktu pengamatan 6 BST di perlakuan interaksi T_2P_4 sebesar 89,84 ppm. Nilai Na-dd secara nyata meningkat pada waktu pengamatan 9 BST di perlakuan T_2 sebesar 16,88 ppm. Uji korelasi menunjukkan bahwa K-dd memiliki hubungan positif terhadap Mg-dd pada waktu pengamatan 3 BST, dan pH tanah menunjukkan korelasi yang positif terhadap Ca-dd dan Mg-dd pada semua waktu pengamatan. Sedangkan Na-dd tidak menunjukkan korelasi yang signifikan pada semua variabel pendukung.

Kata Kunci: Ca-dd, Mg-dd, Na-dd, Pengolahan Lahan, Kompos GGP diperkaya Mikroba, Biochar, Tanaman Nanas.

ABSTRACT

THE EFFECT OF ADDITIONAL ORGANIC FERTILIZER ENRICHED WITH MICROBES AND BIOCHAR IN VARIOUS LAND TREATMENT SYSTEMS ON SOIL CONTENT OF Ca-dd, Mg-dd, AND Na-dd IN PINEAPPLE PLANTATION

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The decline in pineapple production in Central Lampung is closely related to the decreasing soil chemical quality due to overly intensive soil management, excessive use of chemical fertilizers, and low organic matter content. This study aims to determine the effect of land management applications and the application of organic fertilizers in the form of compost enriched with microbes and biochar on the availability of exchangeable Ca, Mg, and Na in pineapple planting. The research was conducted at PT Great Giant Pineapple (PT GGP), and soil analysis was done at the PT GGP RnD Laboratory. The study used a split-plot design with 8 treatments and 3 replications. The main plot treatments were T_1 = plowing soil to 30 cm depth + chopping pineapple plant litter once, and T_2 = plowing soil to 40 cm depth + chopping pineapple plant litter twice. Sub-plot treatments were P_1 = GGP compost 50 tons ha^{-1} , P_2 = GGP compost 40 tons ha^{-1} + 10 tons ha^{-1} biochar, P_3 = GGP premium compost 50 tons ha^{-1} , and P_4 = GGP premium compost 50 tons ha^{-1} + microbial enrich 40 L ha^{-1} . The results showed that soil exchangeable Ca significantly increased at the 6 weeks after soil treatment (6 BST) in treatment P_2 by 194.95 ppm. Soil exchangeable Mg significantly increased at 6 BST in the interaction treatment T_2P_4 by 89.84 ppm. Exchangeable Na significantly increased at 9 BST in treatment T_2 by 16.88 ppm. Correlation tests showed that exchangeable K had a positive relationship with Mg at 3 BST, and soil pH had a positive correlation with Ca and Mg at all observation times. Meanwhile, exchangeable Na did not show significant correlation with any supporting variables.

Keywords: Ca-dd, Mg-dd, Na-dd, Land Treatment, Microbe-Enriched GGP Compost, Biochar, Pineapple Plants.