PERBAIKAN SIFAT KIMIA DAN PERTUMBUHAN TANAMAN TREMBESI (Samanea saman) DENGAN PEMBERIAN KOMPOS KOTORAN SAPI PADA TANAH BEKAS TAMBANG BATU KAPUR PT SEMEN PADANG

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Abstrak

Tanah bekas tambang batu kapur merupakan tanah yang memiliki sifat kimia, fisika, dan biologi yang buruk sehingga tingkat kesuburan sangat rendah. Aktivitas pertambangan seperti pengerukan, peledakan, dan penimbunan tanah dapat menyebabkan kualitas tanah dan ekosistem setempat buruk. Untuk itu perlu adanya penambahan bahan organik berupa kompos kotoran sapi untuk memperbaiki sifat kimia tanah bekas tambang batu kapur dan menunjang keberhasilan kegiatan revegetasi lahan. Tujuan dari penelitian ini adalah untuk mengetahui dosis kompos kotoran sapi yang optimal untuk perbaikan sifat kimia tanah bekas tambang batu kapur dan pertumbuhan tanaman trembesi (Samanea saman). Penelitian ini telah dilaksanakan di rumah kawat Fakultas Pertanian Universitas Andalas dan di Laboratorium Tanah Fakultas Pertanian Universitas Andalas dari bulan April sampai Agustus 2022. Penelitian ini menggunakan metode rancangan acak lengkap dengan 5 perlakuan dan 3 ulangan. Macam perlakuan yang diuji merupakan dosis kompos kotoran sapi (dosis 0,5 kg, 1 kg, 1,5 kg, dan 2 kg). Hasil optimal ditunjukkan oleh perlakuan 1 kg kompos kotoran sapi yaitu pH 7,29, kejenuhan basa 41,25%, kandungan C-organik 0,166%, N-total 0,173%, P-tersedia 60,19 ppm, KTK 24,10 me/100g, Mg-dd 1,409 me/100g, K-dd 0,076 me/100g, dan Na-dd 0,329 me/100g. Sedangkan untuk kandungan Ca-dd mengalami penurunan menjadi 8,101 me/100g. Pertumbuhan dan peningkatan tanaman trembesi juga ditunjukkan oleh perlakuan 1 kg kompos kotoran sapi yaitu meliputi tinggi tanaman 66,77 cm, N-tanaman 2,97%, P-tanaman 0,60%, K-tanaman 0,40%, dan C-total 44,37%.

Kata kunci: Kompos Kotoran Sapi, Lahan Bekas Tambang Batu Kapur, Trembesi

IMPROVEMENT OF SOIL CHEMICAL PROPERTIES AND GROWTH OF TREMBESI (*Samanea saman*) BY APPLICATION OF COW MANURECOMPOSE AT THE SOIL OF THE EX-LIMESTONE MINE, PT SEMEN PADANG

Abstract

The ex-limestone mined land is soil having poor chemical, physical, and biological properties. Mining activities such as dredging, blasting, and land hoarding can lead to poor soil quality and local ecosystems. For agronomic reason, it is necessary to improve the soil fertility, such as by applying organic matter in the form of cow manure compost. The purpose of this research was to determine the optimal dose of cow manure compost for improving the chemical properties of the ex-limestone mined soil and the growth of trembesi (*Samanea saman*). This research was carried out at the wire house and Soil Laboratory, Faculty of Agriculture, Andalas University from April to August 2022. This research consisted of 5 treatments (0 kg, 0.5 kg, 1 kg, 1.5 kg and 2 kg) of cow manure compost with 3 replicates. Parameters analyzed were soil pH, base saturation, soil organic carbon, total-N, P- available, CEC, Mg-exchangeable, K-exchangeable, Na-exchangeable, Ca-exchangeable, crop height, crop-N, crop-P, crop-K and total-C. Optimal results were shown by the treatment of 1 kg cow manure compost application. It improved soil pH into 7.29, base saturation into 41.25%, soil organic carbon into 0.166%, total-N into 0.173%, P-available into 60.19 ppm, CEC into 24.10 $cmol.kg^{-1}$, Mg-exchangeable into 1.409 $cmol.kg^{-1}$, K-exchangeable into 0.076 $cmol.kg^{-1}$, and Na-exchangeable into 0.329 $cmol.kg^{-1}$. Meanwhile, the Ca-exchangeable content decreased into 8.101 $cmol.kg^{-1}$. The best growth of trembesi was also shown by the treatment of 1 kg cow manure compost application. It was indicated by crop height into 66.77 cm, crop-N into 2.97%, crop-P into 0.60%, crop-K into 0.40%, and total-C into 44.37%.

Keywords: *Cow Manure Compost, Ex-Limestone Mined Land, Soil Chemical Properties, Trembesi*