

**PEMANFAATAN KOMPOS KOTORAN SAPI UNTUK
MEMPERBAIKI SIFAT KIMIA ULTISOL DAN
MENINGKATKAN PERTUMBUHAN BIBIT
TREMBESI (*Samanea saman*)**

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Abstrak

Ultisol merupakan tanah marginal yang mempunyai tingkat kesuburan yang rendah sehingga diperlukan penambahan bahan organik untuk meningkatkan kesuburan tanahnya. Penelitian ini bertujuan untuk mengetahui takaran kompos kotoran sapi yang optimal terhadap perbaikan sifat kimia Ultisol dan meningkatkan pertumbuhan bibit trembesi (*Samanea saman*). Penelitian ini dilaksanakan di rumah kawat, Laboratorium Kimia dan Kesuburan Tanah Fakultas Pertanian Universitas Andalas pada bulan Juni-November 2022. Penelitian ini menggunakan rancangan acak lengkap (RAL) yaitu 5 perlakuan dan 3 ulangan. Parameter yang diuji adalah pH tanah, Al-dd, N-total, P-tersedia, Ca-dd, Mg-dd, K-dd, Na-dd, C-organik, KTK, kejenuhan basa, tinggi tanaman, kandungan hara N, P dan K. Perlakuan terdiri dari A= kontrol, B= 5% kompos kotoran sapi (0,25 kg/polybag), C= 10% kompos kotoran sapi (0,5 kg/polybag), D= 15% kompos kotoran sapi (0,75 kg/polybag), E= 20% kompos kotoran sapi (1 kg/polybag). Hasil penelitian ini menunjukkan pemberian perlakuan kompos kotoran sapi dengan takaran 15% kompos kotoran sapi (0,75 kg/polybag) merupakan takaran optimal yang mampu meningkatkan sifat kimia Ultisol dengan nilai pH sebesar 6,67 dan menurunkan kandungan Al-dd hingga tidak terukur, P-tersedia sebesar 18,86 ppm, kandungan C-organik sebesar 4,29%, N-total sebesar 0,42%, KTK 23,32 cmol/kg dan kation basa seperti Ca-dd sebesar 9,62 cmol/kg, Mg-dd 1,99 cmol/kg, K-dd 0,46 cmol/kg, Na-dd 0,66 cmol/kg dan kejenuhan basa sebesar 54,62%. Takaran optimal untuk meningkatkan pertumbuhan bibit trembesi terdapat pada perlakuan 15% kompos kotoran sapi (0,75 kg/polybag) dengan tinggi bibit trembesi 46,27 cm, kadar hara N bibit trembesi 4,96%, kadar hara P bibit trembesi 0,42%, dan kadar hara K bibit trembesi 1,48%.

Kata Kunci: Kompos Kotoran Sapi, Trembesi, Ultisol

UTILIZATION OF COW MANURE COMPOST TO IMPROVE THE CHEMICAL PROPERTIES OF ULTISOLS AND TO INCREASE THE GROWTH OF TREMBESI (*Samanea saman*) SEEDLINGS

Abstract

Ultisols is a marginal soil that have low fertility levels, so it is necessary to add organic matter to increase the fertility. The purpose of this research was to determine the effect of cow manure compost in improving the chemical properties of Ultisols and increasing the growth of trembesi (*Samanea saman*) seedlings, as well as to find the best level of cow manure compost to increase chemical properties of Ultisols and the growth of trembesi seedlings in it. This research was conducted at the wire house, as well as at Laboratory of Soil Chemistry and Fertility, Faculty of Argiculture, Andalas University from June to November 2022. This research consisted of 5 treatments (A= control, B= 5% cow manure compost (0.25 kg/polybag), C= 10% cow manure compost (0.5 kg/polybag), D= 15% cow manure compost (0.75 kg/polybag), E= 20% cow manure compost (1 kg/polybag)) with 3 replicates. The parameters analyzed were soil pH, exchangeable aluminium, available P, organic C, total N, CEC, exchangeable Ca, exchangeable Mg, exchangeable K, exchangeable Na, base saturation, crop height, N, P dan K nutrient content. The results showed that application of 15% cow manure compost (0.75 kg/polybag) was the optimal dose to increase chemical properties of Ultisols. It increased soil pH by 6.67, available P by 18.86 ppm, organic C by 4.29%, total N by 0.42%, CEC by 23.32 cmol/kg, and exchangeable Ca by 9.62 cmol/kg, exchangeable Mg by 1.99 cmol/kg, exchangeable K by 0.46 cmol/kg, exchangeable Na by 0.66 cmol/kg, base saturation by 54.62%, and decreased exchangeable aluminium until unmeasurable as well as. The optimal dose to increase the growth of trembesi seedlings was found in the 15% cow manure compost (0.75 kg/polybag). It was indicated by the increase in crop height by 46.27 cm, N nutrient content by 4.96%, P nutrient content by 0.42% and K nutrient content by 1.48%.

Keywords: Cow Manure Compost, Trembesi, Ultisols