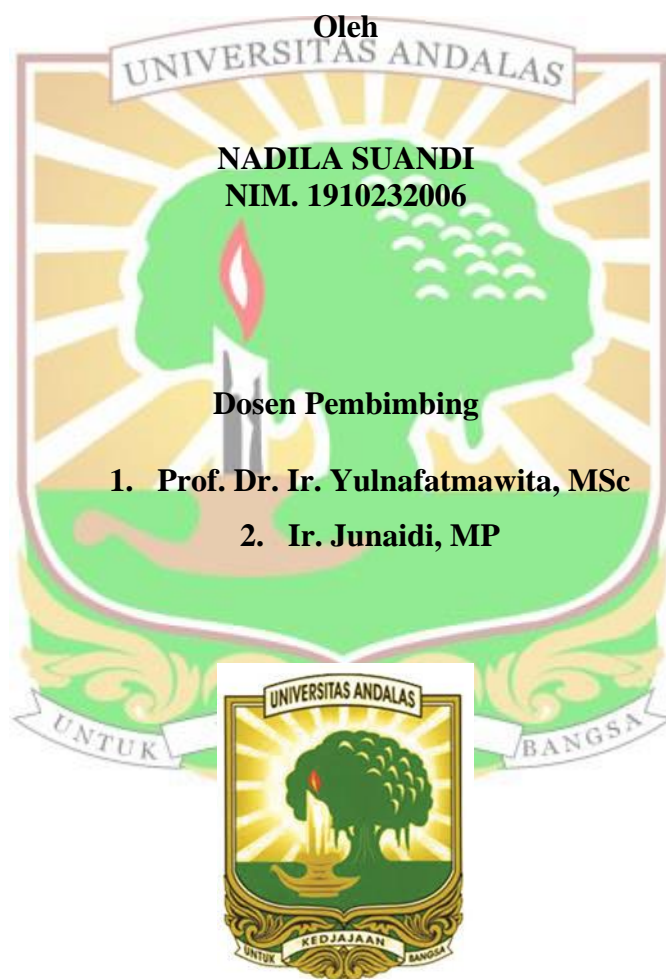


**PENGARUH APLIKASI BIOCHAR SEKAM PADI DAN
PUPUK KANDANG SAPI TERHADAP PORI AIR TERSEDIA
INCEPTISOL SERTA HASIL TANAMAN KACANG TANAH
(*Arachis hypogea* L.)**

SKRIPSI



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PENGARUH APLIKASI BIOCHAR SEKAM PADI DAN PUPUK KANDANG SAPI TERHADAP PORI AIR TERSEDIA INCEPTISOL SERTA HASIL TANAMAN KACANG TANAH (*Arachis hypogea* L.)

Abstrak

Air merupakan salah satu kebutuhan utama tanaman untuk pertumbuhannya, namun jumlah dan ketersediaannya bervariasi di dalam tanah. Beberapa tanah memiliki kandungan dan ketersediaan air yang rendah, seperti Inceptisols yang ditemukan di Aie Dingin, Kabupaten Solok. Penelitian ini bertujuan untuk mengetahui pengaruh biochar sekam padi dan pupuk kandang sapi terhadap pori air tersedia Inceptisol dan produksi kacang tanah (*Arachis hypogea* L.). Penelitian ini dilaksanakan di rumah kawat dan analisis tanah di Laboratorium Tanah Fakultas Pertanian Universitas Andalas Padang pada bulan Desember 2022 sampai Mei 2023. Perlakuan yang diberikan adalah kombinasi antara biochar dan pupuk kandang yang terdiri dari 8 kombinasi (tanpa biochar dan pupuk kandang, 8,9 t/ha biochar, 17,8 t/ha biochar, 26,7 t/ha biochar, 13,35 t/ha pupuk kandang, 8,9 t/ha biochar + 13,35 t/ha pupuk kandang, 17,8 t/ha biochar + 13,35 t/ha pupuk kandang, 26,7 t/ha biochar + pupuk kandang 13,35 t/ha) dengan 3 ulangan. Unit percobaan dialokasikan di rumah kawat berdasarkan Rancangan Acak Lengkap (RAL). Parameter yang dianalisis yaitu bahan organik tanah, BV, TRP, permeabilitas, stabilitas agregat, retensi air pada pF 2,54 dan 4,2, pori air tersedia, serta produksi tanaman. Berdasarkan analisis data, hasil terbaik ditunjukkan oleh aplikasi biochar sekam padi 26,7 t/ha + pupuk kandang sapi 13,35 t/ha. Hal ini ditunjukkan dengan nilai tertinggi untuk pori air tersedia tanaman (16,20%), kandungan bahan organik (5,14%), permeabilitas (25,30 cm/jam), stabilitas agregat (86,91%), TRP (74,4%), dan BV terendah (0,65g/cm³). Namun hasil kacang tanah yang paling efektif ditemukan pada biochar sekam padi 17,8 t/ha + pupuk kandang sapi 13,35 t/ha. Ini ditunjukkan oleh tinggi tanaman (41,67 cm) dan berat kering polong (25,13 g) yang menyamai hasil dari aplikasi 26,7 t/ha biochar+13,35 t/ha pupuk kandang.

Kata kunci : *Kacang tanah, Biochar sekam padi, Pupuk kandang sapi, Inceptisol*

EFFECT OF RICE HUSKS BIOCHAR AND COW MANURE ON PLANT AVAILABLE WATER PORES OF INCEPTISOL AND THE YIELD OF PEANUT (*Arachis hypogea* L.)

Abstract

Water is considered as one of the main factors needed by plants for the growth, however, the stock and the availability vary among soils. Some soils have low the content and the availability of the water, such as Inceptisols found in Aie Dingin, Solok Regency. This study was aimed to determine the effect rice husk biochar and cow manure on the plant available water pores of Inceptisol and the production of peanut (*Arachis hypogea* L.). This research was carried out in wire house and soil analyses at Soil Laboratory Faculty of Agriculture Universitas Andalas Padang from December 2022 to May 2023. The treatments were the combination between biochar and manure consisting of 8 combinations (without biochar and manure, 8,9 t/ha biochar, 17,8 t/ha biochar, 26,7 t/ha biochar, 13,35 t/ha manure, 8,9 t/ha biochar + 13,35 t/ha manure, 17,8 t/ha biochar + 13,35 t/ha manure, 26,7 t/ha biochar + 13,35 t/ha manure) with 3 replicates. The experimental units were allocated in wire-house based on Completely Randomized Design (CRD). The parameters analyzed were soil organic matter, BD, TSP, permeability, aggregate stability, water retention at pF 2.54 and 4.2, plant available water powers, as well as crop production. Based on the data analyzed, the best results were shown by application of 26,7 t/ha rice husk biochar + 13,35 t/ha cow manure. It was indicated by the highest plant available water pore (16.20%), organic matter content (5.14%), permeability (25.30 cm/h), aggregate stability (86.91%), TSP (74.4%), and the lowest BD (0.65 g/cm³) of the soil. However, the most effective peanut production was found at 17,8 t/ha rice husk biochar + 13,35 t/ha cow manure application. It performed equal production (plant height = 41.67 cm and pod dry weight = 25.13 g) to that from application of 26,7 t/ha rice husk biochar + 13,35 t/ha cow manure.

Keywords : Peanuts, rice husk biochar, cow manure, plant available water pore, Inceptisol.