

ABSTRAK

PENGARUH DOSIS PENAMBAHAN *BIOCHAR* SEKAM PADI PADA TANAH PASIR TERHADAP INFILTRASI DAN KEMAMPUAN TANAH MENAHAN AIR (*WATER HOLDING CAPACITY*)

Oleh

BAGUS HARTAWAN

Penelitian ini bertujuan untuk menganalisis pengaruh dosis penambahan *biochar* sekam padi pada tanah pasir terhadap infiltrasi dan kemampuan tanah menahan air (*water holding capacity*). Penelitian dilaksanakan pada bulan juli sampai Agustus 2024 di *greenhouse* Jurusan Teknik Pertanian, Fakultas Pertanian, Universitas Lampung, yang terdiri dari empat perlakuan, yaitu *biochar* 0%, 10% (A2), 15% (A3), dan 20% (A4), masing-masing diulang sebanyak tiga kali. Parameter yang diamati meliputi kadar air tanah, laju perubahan kadar air, infiltrasi, *water holding capacity*, serta waktu perubahan kadar air. Data dianalisis secara deskriptif kuantitatif dan disajikan dalam bentuk tabel dan grafik. Hasil penelitian menunjukkan bahwa penambahan *biochar* sekam padi berpengaruh menurunkan laju infiltrasi tanah pasir dengan nilai terendah pada perlakuan A4 (20%) sebesar 6,42 mm/jam dibandingkan kontrol A1 (0%) sebesar 7,89 mm/jam. Penambahan *biochar* sekam padi berpengaruh negatif terhadap penurunan kadar air tanah yang menunjukkan peningkatan kemampuan tanah menahan air. Penurunan kadar selama 24 hari A1 sebesar 12,06%, A2 9,87 %, A3 9,18% dan A4 8,28%. Waktu perubahan kadar air dari 14% menjadi 8% paling cepat terjadi pada A1 (96 jam) dan paling lama pada

A4 (456 jam). Dapat disimpulkan bahwa penambahan *biochar* sekam padi mampu meningkatkan kemampuan tanah pasir menahan air dan memperlambat kehilangan kadar air, dengan dosis 20% (A4) merupakan perlakuan yang paling efektif dalam meningkatkan *water holding capacity*.

Kata kunci: *biochar* sekam padi, tanah pasir, infiltrasi, *water holding capacity*

ABSTRACT

THE EFFECT OF RICE HUSK BIOCHAR DOSAGE ON INFILTRATION AND WATER HOLDING CAPACITY OF SANDY SOIL

By

BAGUS HARTAWAN

This study aimed to analyze the effect of different doses of rice husk biochar added to sandy soil on infiltration rate and soil water holding capacity. The research was conducted from July to August 2024 in the greenhouse of the Department of Agricultural Engineering, Faculty of Agriculture, Universitas Lampung, with four treatments: 0% biochar (A1), 10% (A2), 15% (A3), and 20% (A4), each replicated three times. The observed parameters included soil moisture content, rate of moisture change, infiltration rate, water holding capacity, and time required for moisture change. Data were analyzed descriptively using quantitative methods and presented in tables and graphs. The results showed that the addition of rice husk biochar reduced the infiltration rate of sandy soil, with the lowest value observed in treatment A4 (20%) at 6.42 mm/h, compared to the control A1 (0%) at 7.89 mm/h. The addition of biochar also had a negative effect on the rate of soil moisture decline, indicating an improvement in the soil's water holding capacity. The decrease in moisture content over 24 days was 12.06% for A1, 9.87% for A2, 9.18% for A3, and 8.28% for A4. The time required for soil moisture to decrease from 14% to 8% was fastest in A1 (96 hours) and slowest in A4 (456 hours). In conclusion, the addition of rice husk biochar enhances the water holding capacity

of sandy soil and slows down moisture loss, with the 20% dose (A4) being the most effective treatment in improving water retention.

Keywords: rice husk biochar, sandy soil, infiltration, water holding capacity