ABSTRAK

PENGARUH APLIKASI BIOCHAR DAN PUPUK NPK TERHADAP SIFAT KIMIA TANAH INCEPTISOL, SERAPAN P DAN KARAKTER AGRONOMI CABAI MERAH (*Capsicum annuum* L.)

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Tanah Inceptisol merupakan tanah muda yang umumnya memiliki pH masam, kandungan karbon organik sedang, serta ketersediaan hara N, P, dan K yang rendah. Penelitian ini bertujuan mengkaji pengaruh aplikasi biochar dan pupuk NPK terhadap sifat kimia tanah Inceptisol, serapan P dan karakter agronomi cabai merah. Penelitian dilaksanakan di Kelurahan Tamanjaya, Kecamatan Tamansari, Kota Tasikmalaya, dari Januari hingga Mei 2025 menggunakan Rancangan Petak Terbagi dengan enam kombinasi perlakuan biochar (0 dan 10 t/ha) dan pupuk NPK (50%, 75%, dan 100% dari dosis 350 kg/ha). Hasil penelitian menunjukkan terjadi interaksi antara perlakuan biochar dan pupuk NPK terhadap pH tanah. Biochar dan pupuk NPK berpengaruh secara mandiri terhadap P-tersedia, sementara P-potensial dan diameter batang hanya dipengaruhi oleh pupuk NPK. Serapan P, panjang buah dan bobot buah per tanaman tidak menunjukkan interaksi maupun pengaruh secara mandiri. Perlakuan terbaik ditunjukkan oleh kombinasi b_1 (biochar 10 t/ha) dan p_3 (pupuk NPK 100%), yang memberikan hasil rata-rata paling baik pada beberapa parameter seperti pH tanah, P-tersedia, P-potensial, dan diameter batang 14 HST.

Kata kunci : Biochar, Inceptisol, Pupuk NPK

ABSTRACT

THE EFFECT OF BIOCHAR AND NPK FERTILIZER APPLICATION ON THE CHEMICAL PROPERTIES OF INCEPTISOL SOIL, PHOSPHORUS UPTAKE, AND AGRONOMIC CHARACTERISTICS OF RED CHILI (*Capsicum annuum* L.)

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Inceptisol soil is a immature soil that generally has an acidic pH, moderate organic carbon content, and low availability of N, P, and K nutrients. This study aims to examine the effects of biochar and NPK fertilizer application rates on the chemical properties of Inceptisol soil, phosphorus uptake, and the agronomic characteristics of red chili. The study was conducted in Tamanjaya Village, Tamansari District, Tasikmalaya City, from January to May 2025 using a Split Plot Design with six combinations of biochar treatments (0 and 10 t/ha) and NPK fertilizer (50%, 75%, and 100% of a dose of 350 kg/ha). The results of the study showed an interaction between biochar and NPK fertilizer treatments on soil pH. Biochar and NPK fertilizer independently affected available phosphorus (P), while potential phosphorus (P) and stem diameter were influenced only by NPK fertilizer. Phosphorus uptake, fruit length, and fruit weight per plant showed neither interaction effects nor individual effects. The best treatment was the combination of b_1 (biochar at 10 t/ha) and p_3 (100% NPK fertilizer), which produced the highest average results for several parameters, including soil pH, available phosphorus, potential phosphorus, and stem diameter at 14 DAT.

Keywords: Biochar, Inceptisol, NPK fertilizer