

ABSTRAK

PENGARUH PENGGUNAAN LAHAN TERHADAP KARBON ORGANIK TANAH DAN SIFAT FISIK TANAH DI KECAMATAN CISAYONG KABUPATEN TASIKMALAYA

Oleh

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Kecamatan Cisayong memiliki jenis penggunaan lahan yang beragam dan beberapa diantaranya digunakan untuk tujuan pertanian. Intensifikasi pertanian menyebabkan lahan mengalami degradasi, ditandai dengan penurunan kesehatan tanah. Karbon organik menjadi salah satu indikator penentu kualitas tanah dan memiliki hubungan dengan sifat fisik tanah. Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan lahan terhadap karbon organik dan sifat fisik tanah, serta hubungan keduanya di Kecamatan Cisayong Kabupaten Tasikmalaya dalam rentang bulan Mei sampai Juli 2025. Penelitian dilakukan dengan pendekatan kuantitatif Rancangan Acak Kelompok (RAK) non-faktorial melalui metode survei pada lahan hutan lindung, sawah, tegalan, semak belukar, dan perkebunan, masing-masing dengan lima titik pengamatan. Data dianalisis menggunakan uji F yang dilanjutkan uji Duncan jika terdapat perbedaan antar penggunaan lahan serta uji korelasi Spearman's rho untuk menganalisis hubungan antara karbon organik dengan sifat fisik tanah. Hasil penelitian menunjukkan adanya perbedaan signifikan pada kandungan karbon organik dengan nilai tertinggi terdapat di hutan lindung (4,122%) dan nilai paling rendah (1,95%) terdapat pada lahan semak belukar. Sementara itu, semua parameter sifat fisik tanah menunjukkan nilai yang seragam secara statistik. Hasil Uji korelasi Spearman's rho hanya signifikan pada hubungan antara karbon organik dengan bobot isi ($r = -0,449$) dan porositas ($r = 0,436$) saja. Korelasi karbon organik dengan bobot isi terjadi saling berlawanan, sedangkan korelasi dengan porositas menunjukkan perubahan nilai keduanya berbanding lurus. Dapat disimpulkan bahwa variasi penggunaan lahan di Kecamatan Cisayong hanya memberikan perbedaan signifikan pada kandungan karbon organik tanah; terjadi pula korelasi yang kuat antara karbon organik dengan bobot isi dan porositas saja.

Kata kunci: karbon organik, penggunaan lahan, regosol, sifat fisik tanah

ABSTRACT

EFFECT OF LAND USE ON SOIL ORGANIC CARBON AND SOIL PHYSICAL PROPERTIES IN CISAYONG DISTRICT TASIKMALAYA REGENCY

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Cisayong District has diverse land uses, some of which are designated for agricultural purposes. Agricultural intensification has led to land degradation and declining soil health. Soil organic carbon is a key indicator of soil quality and is closely related to soil physical properties. This study aimed to determine the effects of land use on soil organic carbon and soil physical properties, as well as to analyze their relationship in Cisayong District Tasikmalaya Regency, from May to July 2025. A quantitative approach was using a non-factorial Randomized Block Design (RBD) with a survey method across five land-use types: protected forest, paddy field, dryland farm, shrubland, and plantation, with five observation points each. Data were analyzed using ANOVA followed by Duncan's multiple range test to assess differences among land uses, and Spearman's rho correlation was applied to evaluate the relationships between soil organic carbon and physical properties. The results of the study showed a significant difference in organic carbon content with protected forests being the land with the highest value (4.122%) and the lowest value (1.95%) found in shrub land. Meanwhile, all soil physical property parameters showed statistically uniform values. The results of the Spearman's rho correlation test were only significant in the relationship between soil organic carbon and bulk density ($r = -0.449$) and soil porosity ($r = 0.436$). The correlation of soil organic carbon with bulk density was inversely related, while the correlation with porosity showed changes in both values were directly proportional. It can be concluded that variations in land use in Cisayong District only provide significant differences in soil organic carbon content; there is also a strong correlation between organic carbon only with bulk density and soil porosity.

Keywords: land use, regosol, soil organic carbon, soil physical properties