SIFAT FISIK TANAH DAN KAPASITAS INFILTRASI AGROFORESTRY BERBASIS TANAMAN KELENGKENG, DI DESA SELOPAMIORO, KECAMATAN IMOGIRI, KABUPATEN BANTUL, D.I.YOGYAKARTA

INTISARI

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Desa Selopamioro di Kecamatan Imogiri, Bantul, D.I.Yogyakarta, terletak di sepanjang pegunungan selatan Jawa. Saat ini, Desa Selopamioro sedang mengembangkan agro-ekowisata melalui agroforestri berbasis tanaman buah untuk meningkatkan perekonomian dan tetap menjaga lingkungan. Tujuan utama dari penelitian ini adalah untuk mengeksplorasi dan mengevaluasi karakteristik fisik tanah dan kapasitas infiltrasi pada agroforestri berbasis tanaman Kelengkeng di Desa Selopamioro. Luas lahan yang digunakan untuk agroforestri berbasis tanaman Kelengkeng adalah 0,48 Ha dengan jumlah tanaman 52 pohon. Beberapa sifat-sifat tanah yang diteliti dalam penelitian ini, meliputi berat volume (ρ_b), berat jenis (ρ_s), porositas, tekstur, struktur, kadar air, Bahan Organik (BO), dan kandungan kapur dalam tanah. Salah satu model empiris dalam infiltrasi, Model Kostiakov, digunakan untuk menghitung kapasitas infiltrasi. Pengambilan data infiltrasi di lapangan menggunakan *Double-ring infiltrometer*. Pengambilan sampel tanah dan infiltrasi dibagi ke dalam tiga wilayah, yaitu lereng atas, lereng tengah, dan lereng bawah. Masing-masing lereng terdapat tiga titik pengambilan sampel tanah dengan dua kedalaman (0-40 cm and > 40 cm), sedangkan pengambilan data infiltrasi hanya dilakukan disetiap titik lereng. Uji regresi dan korelasi digunakan untuk mengevaluasi sifat-sifat tanah dan kapasitas infiltrasi. Lereng atas, tengah, dan bawah di blok Kelengkeng memiliki derajat kemiringan sebesar 30°, 17°, dan 39°. Pada lereng tengah agroforestri berbasis tanaman Kelengkeng ditanamani dengan padi, lereng bawah ditanami kacang tanah, dan lereng atas tidak ditanami apapun. Hasil identifikasi menunjukkan bahwa tanah di blok Kelengkeng memiliki tektur lempung dengan struktur gumpal membulat, berat volume (ρ_b) 1,26-1,46 gr/cm^3, berat jenis (ρ_s) 2,04-2,10 gr/cm^3, porositas 28-40%, kadar air 36,90-42,00%massa, bahan organik (BO) 1,16-1,78%, dan kandungan kapur 2,69-3,46%. Kapasitas infiltrasi yang dimiliki blok Kelengkeng tergolong sangat cepat, dengan rata-rata 265,10 mm/jam. Korelasi terkuat antara sifat fisik tanah dengan kapasitas infiltrasi, dimiliki oleh tekstur dan kadar air dengan koefisien korelasi sebesar -0,621 dan 0,883.

Kata kunci: Sifat fisik tanah, kapasitas infiltrasi, Kelengkeng, agroforestri berbasis tanaman buah, Desa Selopamioro.

PHYSICAL SOIL PROPERTIES AND INFILTRATION CAPACITY OF KELENGKENG (*Dimocarpus longan*) FRUIT-TREE BASED AGROFORESTRY IN SELOPAMIORO, IMOGIRI, BANTUL, D.I.YOGYAKARTA

ABSTRACT

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Selopamioro village in Imogiri sub district, Bantul-D.I. Yogyakarta is located along southern mountains of Java. Nowadyas, this village is developing agro-ecotourism through fruit-tree based agroforestry for improving household economy while keeping environment of hilly areas. The main objective of this study was to explore and evaluate physical characteristic of soil and infiltration capacity under *Dimocarpus longan* fruit-tree based agroforestry in Selopamioro village. Total area of *Dimocarpus longan* fruit-tree based agroforestry is 0,48 hectare with total 52 trees. The soil characteristics were focused on bulk density (ρ_b), particle density (ρ_s), porosity, textures, structure, soil moisture, content of organic material (COM), and lime content. The empirical models of infiltration, Kostiakov, was adopted to define soil infiltration capacity. The measurement of infiltration rate in the field was carried out by using Double-ring Infiltrometer method. The soil sampling and infiltration measurement were conducted in three different characteristic of slope, i.e., upper, middle, and lower slopes. The soils were taken from three points and two depth (0-40 cm and > 40 cm) per slope category, whereas the infiltration test was conducted solely in each points of slopes. A regression and correlations method were applied to evaluate the soil characteristics and infiltration capacity. The slope of upper, middle, and lower in *Dimocarpus longan* land were 30°, 17°, and 39° respectively. The *Dimocarpus longan* fruit-tree based agroforestry in middle slope was mixed with rainfed rice, the lower was nuts, while the upper slope was dominated by weeds. The soil was characterized as clay, sub angular blocky structure, bulk density (ρ_b) 1,26-1,46 gr/cm^3, particle density (ρ_s) 2,04-2,10 gr/cm^3, porosity 28-40%, soil moisture 36,90-42,00%mass, COM 1,16-1,78%, and lime content 2,69-3,46%. The average of infiltration capacity was 265,10 mm/hours which classified as very fast categories. The strongest relation between physical characteristic of soil and the infiltration capacity was owned by the soil textures. It had correlation coefficient -0,621, while the water content 0,883.

Keywords: Soil characteristic, infiltration capacity, *Dimocarpus longan,* fruit-tree based agroforestry, Selopamioro village