

**PENGARUH PENGGUNAAN LAHAN TERHADAP SIFAT FISIKA TANAH
DI SUB DAS BATANG ANAI**

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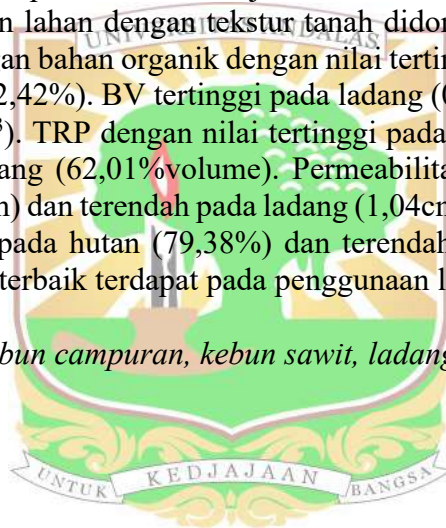
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ABSTRAK

Sifat fisik tanah sangat berhubungan dengan jenis penggunaan lahan (jenis tanaman yang diusahakan) karena tutupan tajuk, serasah dan perakaran yang ditinggalkan akan berbeda. Penelitian ini dilakukan untuk mengkaji pengaruh perbedaan penggunaan lahan terhadap sifat fisika tanah di Sub DAS Batang Anai. Pengambilan sampel tanah di lapangan dilakukan dengan metode purposive sampling berdasarkan pada penggunaan lahan, yaitu ladang, kebun campuran, kebun sawit dan hutan (kontrol) dengan kelerengan 0-8% dari jenis tanah yang sama (Inceptisols). Hasil penelitian menunjukkan bahwa sifat fisika tanah berbeda pada setiap penggunaan lahan dengan tekstur tanah didominasi lempung berpasir dan lempung. Kandungan bahan organik dengan nilai tertinggi pada hutan (9,96%), terendah pada ladang (2,42%). BV tertinggi pada ladang ($0,95 \text{ g/cm}^3$) dan terendah pada hutan ($0,53 \text{ g/cm}^3$). TRP dengan nilai tertinggi pada hutan (77,25% volume) dan terendah pada ladang (62,01% volume). Permeabilitas dengan nilai tertinggi pada hutan (6,31 cm/jam) dan terendah pada ladang (1,04 cm/jam). Stabilitas agregat dengan nilai tertinggi pada hutan (79,38%) dan terendah pada ladang (38,92%). Sifat fisika tanah yang terbaik terdapat pada penggunaan lahan hutan.

Kata Kunci: *hutan, kebun campuran, kebun sawit, ladang, sifat fisika tanah.*



THE EFFECT OF LAND USE ON THE PHYSICAL PROPERTIES OF SOIL IN BATANG ANAI WATERSHED

ABSTRACT

The physical properties of soil are closely related to the type of land use, specifically the kinds of plants that are cultivated, as the canopy cover, litter, and root systems differ accordingly. This research investigated the impact of various land use types on soil physical properties in the Batang Anai Sub-Watershed. Soil sampling was conducted in the field using a purposive sampling method, focusing on different land uses: gardens, mixed plantations, oil palm plantations, and forests (serving as a control), all situated on slopes of 0-8% and categorized under the same soil type (Inceptisols). The research show a significant variations in soil physical properties across the different land uses. Soil texture was primarily characterized as sandy loam and clay. The forest exhibited the highest organic matter content at 9.96%, while the fields had the lowest at 2.42%. Bulk density was highest in the gardens at 0.95 g/cm³ and lowest in the forest at 0.53 g/cm³. Total pore volume was greatest in the forests (77.25% volume) and least in the fields (62.01% volume). Permeability was highest in forests at 6.31 cm/hour, compared to just 1.04 cm/hour in fields. Aggregate stability was notably highest in forests at 79.38%, whereas garden recorded the lowest at 38.92%. Finally, the study concludes that the best soil physical properties are associated with forest land use.

Keywords: *forest, garden fields, mixed plantations, oil palm plantations, soil physical properties.*