PENENTUAN INDEKS KUALITAS TANAH BERDASARKAN SIFAT FISIKA TANAH PADA BERBAGAI PENGGUNAAN LAHAN DI DAS ARAU BAGIAN HULU

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ABSTRAK

Penelitian mengenai penentuan indeks kualitas tanah berdasarkan sifat fisika tanah pada berbagai penggunaan lahan di DAS Arau bagian hulu telah dilakukan pada bulan Juni-Desember 2017 di hulu DAS Arau. Tujuan penelitian ini untuk mengetahui perbedaan kualitas tanah berdasarkan sifat fisika tanah pada berbagai penggunaan lahan di hulu DAS Arau, serta mengetahui indikator kualitas tanah yang paling erat hubungannya dengan indeks kualitas tanah di hulu DAS Arau. Penelitian ini dilakukan dengan metode survei dan skoring pada penggunaan lahan hutan primer, hutan sekunder, taman hutan raya, sawah, ladang, dan pada lahan bekas tambang. Analisis sampel tanah dilakukan di Laboratorium Jurusan Tanah, Fakultas Pertanian, Universitas Andalas, dan Laboratorium Balai Penelitian Tanah, Bogor. Parameter yang dianalisis sebagai indikator yaitu, %C–Organik, permeabilitas, kemantapan agregat, bobot volume, pori air tersedia, dan tekstur tanah. Hasil analisis labortorium dilanjutkan dengan analisis *Principal Componen Analysis (PCA)*, menggunakan perangkat lunak Minitab 17. Berdasarkan hasil penelitian, didapatkan hasil kualitas tanah berdasarkan sifat fisika tanah yang terbaik adalah pada hutan primer, dan kualitas tanah terendah adalah pada lahan bekas tambang. Indikator kualitas tanah yang paling berpengaruh adalah indikator bahan organik dan indeks kemantapan agregat.

Kata kunci: Bahan Organik, Hulu DAS, Indeks Kualitas Tanah, Principal Componen Analysis (PCA)

DETERMINATION OF SOIL QUALITY INDEX BASED ON PHYSICAL SOIL PROPERTIES IN VARIOUS TYPES OF LAND USE IN UPSTREAM ARAU WATERSHED

ABSTRACT

A research on determination of soil quality index based on soil physical properties on various types of land use in upstream Arau watershed was done in June-December 2017. The purpose of this research was to identify the difference of soil quality based on soil physical characteristics in six (6) types of land use in upstream Arau watershed, and to determine the indicator of soil quality which was most closely related to soil quality index in upstream Arau watershed. This research was conducted by using survey and scoring methods on primary forest, secondary forest, Bung Hatta forest park, rice field, dry land agriculture, and on ex-mining land. Soil sample analysis was done at Laboratory of Soil Department, Faculty of Agriculture, Andalas University, and Laboratory of Soil Research Institute, Bogor .Parameters analyzed were %Organic – C, permeability, aggregate stability index, bulk density, available water pore, and soil texture. The results from the laboratory analysis were scored by Principal Component Analysis (PCA), using Minitab 17 software. Based on the data resulted, the best soil quality in terms o the soil physics properties was in primary forest, and the lowest soil quality was in ex-mining land. The most influential soil quality indicators in this research area were organic matter and aggregate stability index.

***Key words**: Organic matter, upstream watershed, Soil Quality Index, Principal Componen Analysis (PCA)*