

**PENENTUAN INDEKS KUALITAS TANAH BERDASARKAN SIFAT
FISIKA TANAH PADA BEBERAPA PENGGUNAAN LAHAN DI
SUB DAS SETAPUNG DAS AIR DINGIN KOTA PADANG**

Oleh :

LARAS HANA AMALIA
1510232011



**PROGRAM STUDI ILMU TANAH
FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG
2022**

**PENENTUAN INDEKS KUALITAS TANAH BERDASARKAN SIFAT
FISIKA TANAH PADA BEBERAPA PENGGUNAAN LAHAN DI
SUB DAS SETAPUNG DAS AIR DINGIN KOTA PADANG**

OLEH

LARAS HANA AMALIA



**PROGRAM STUDI ILMU TANAH
FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG
2022**

PENENTUAN INDEKS KUALITAS TANAH BERDASARKAN SIFAT FISIKA TANAH PADA BEBERAPA PENGGUNAAN LAHAN DI SUB DAS SETAPUNG DAS AIR DINGIN KOTA PADANG

ABSTRAK

Penelitian ini bertujuan untuk mengetahui perbedaan kualitas tanah berdasarkan sifat fisika tanah pada beberapa penggunaan lahan di Sub DAS Setapung, serta mengetahui indikator kualitas tanah yang paling erat hubungannya dengan indeks kualitas tanah di Sub DAS Setapung. Penelitian ini dilakukan pada bulan Oktober 2020 sampai Desember 2021 berlokasi di Kelurahan Lubuk Minturun dan Kelurahan Balai gadang, Kecamatan Koto Tangah, Kota Padang. Penelitian ini dilakukan dengan metode survei dan skoring pada penggunaan lahan hutan, semak belukar, kebun campuran, dan ladang. Analisis sampel tanah dilakukan di Laboratorium Jurusan Tanah, Fakultas Pertanian, Universitas Andalas, dan Laboratorium Balai Penelitian Tanah, Bogor. Parameter yang dianalisis sebagai indikator kualitas tanah yaitu tekstur, C-organik, berat volume, total ruang pori, total air tersedia, permeabilitas, dan indeks stabilitas agregat. Hasil analisis sampel tanah di Laboratorium dilanjutkan dengan analisis *Principal Componen Analysis (PCA)*, menggunakan perangkat lunak IBM SPSS versi 25. Berdasarkan hasil Penelitian, didapatkan hasil kualitas tanah dengan kriteria sedang pada hutan dan semak belukar, serta dengan kriteria rendah pada kebun campuran dan ladang. Indikator kualitas tanah yang paling berpengaruh terhadap indeks kualitas tanah di Sub DAS Setapung adalah bahan organik dan permeabilitas.

Kata kunci: Indeks Kualitas Tanah, Penggunaan Lahan, Sifat Fisika Tanah, Principal Componen Analysis (PCA)

DETERMINATION OF SOIL QUALITY INDEX BASED ON SOIL PHYSICAL PROPERTIES ON SOME TYPES OF LAND USE IN SUB WATERSHED SETAPUNG AIR DINGIN WATERSHED IN PADANG CITY

ABSTRACT

This study was aimed to determine differences in soil quality based on soil physical properties in several types of land use in the Setapung sub-watershed, and to determine the soil quality indicators that most closely related to the soil quality index in the Setapung sub-watershed. This research was conducted from October 2020 to December 2021 located in Lubuk Minturun Village and Balai Gadang Village, Koto Tengah District, Padang City. This research was conducted using a survey and scoring method on the land use of forest, shrubs, mixed gardens, and fields. Soil sample analysis was carried out at the Laboratory of the Department of Soil, Faculty of Agriculture, Andalas University, and the Laboratory of Soil Research Institute, Bogor. Parameters analyzed as indicators of soil quality were texture, organic C, bulk density, total pore space, total available water, permeability, and aggregate stability index. The results of the analysis of soil samples in the laboratory were continued with Principal Component Analysis (PCA), using the IBM SPSS version 25 software. Based on the results of the study, soil quality was obtained with moderate criteria in forests and shrubs, and low criteria in mixed gardens and fields. The soil quality indicators that had the most influence on the soil quality index in the Setapung sub-watershed were organic matter and permeability.

Keywords: Land Use, Principal Component Analysis (PCA), Soil Physical Properties, Soil Quality Index

