

**PEMETAAN BEBERAPA SIFAT KIMIA TANAH SAWAH
LAPISAN ATAS PADA FISIOGRAFI KARST
DI KABUPATEN SOLOK**

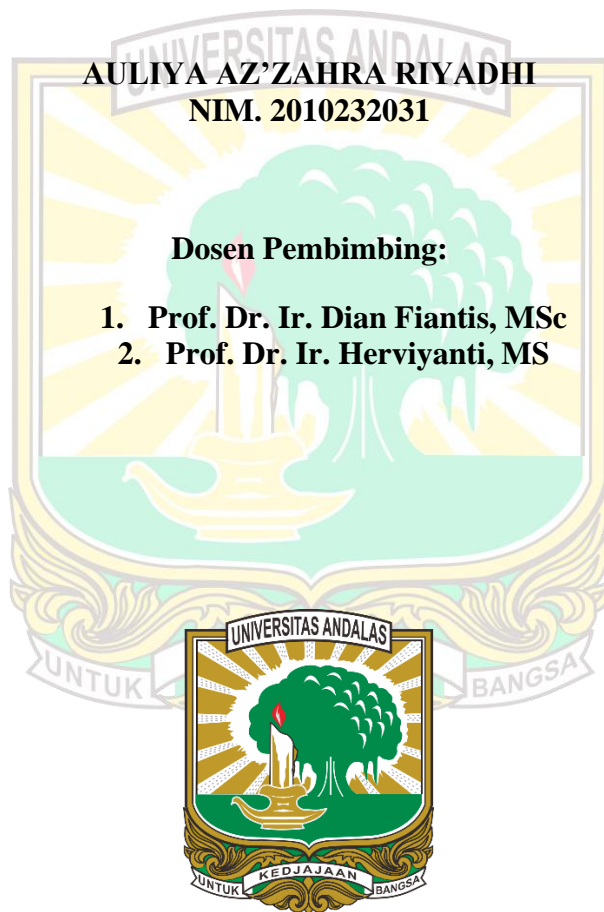
SKRIPSI

Oleh

**AULIYA AZ'ZAHRA RIYADHI
NIM. 2010232031**

Dosen Pembimbing:

- 1. Prof. Dr. Ir. Dian Fiantis, MSc**
- 2. Prof. Dr. Ir. Herviyanti, MS**



**FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG
2025**

PEMETAAN BEBERAPA SIFAT KIMIA TANAH SAWAH LAPISAN ATAS PADA FISIOGRAFI KARST DI KABUPATEN SOLOK

Abstrak

Sawah fisiografi karst dengan luas 268,96 ha tersebar di Kecamatan Pantai Cermin dan X Koto Diatas. Penelitian ini bertujuan untuk memetakan sifat kimia tanah sawah lapisan atas pada fisiografi karst di Kabupaten Solok secara digital. Kabupaten Solok merupakan daerah dengan potensi lahan sawah yang luas dan dikenal sebagai penghasil beras utama di Sumatera Barat. Pemanfaatan lahan karst untuk pertanian masih menghadapi berbagai tantangan, seperti ketebalan tanah yang tipis dan nilai pH yang tinggi. Metode ordinary kriging diterapkan untuk memprediksi sifat kimia tanah sawah dan distribusinya pada wilayah penelitian. Sebanyak 10 sampel tanah diambil dengan sistem stratified random sampling pada kedalaman 0-20 cm dan 10 sampel air sawah dan air irigasi tersebar di Utara dan Selatan wilayah penelitian. Parameter yang dianalisis di Laboratorium meliputi; pH (tanah dan air), EC dan TDS (tanah dan air), C-Organik, N-Total, P-Tersedia, K-dd dan Ca-dd. Hasil penelitian menunjukkan wilayah Selatan memiliki sifat kimia tanah yang lebih tinggi diantaranya nilai pH H₂O (7,63), pH KCl (6,75), EC (642 µmS/cm), TDS (321 ppm), kadar K-dd (2,95 me/100g), dan Ca-dd (6,17 me/100g). Pada wilayah Utara memiliki kadar C-Organik (2,20%), N-Total (0,25%), dan P-Tersedia (17,71 ppm). Data kualitas air irigasi dan air sawah wilayah Selatan memiliki nilai yang lebih tinggi dibandingkan dengan wilayah Utara. Analisis diskriminan linier menunjukkan adanya perbedaan nilai dan pengelompokan wilayah unggulan pada sifat kimia tanah sawah fisiografi karst pada wilayah Utara dan Selatan.

Kata kunci: Fisiografi Karst, Lahan Sawah, Pemetaan Tanah Digital, Sifat Kimia Tanah

MAPPING OF THE CHEMICAL PROPERTIES OF TOPSOIL IN PADDY FIELDS BASED ON THE KARST PHYSIOGRAPHY IN SOLOK REGENCY

Abstract

Paddy fields in karst physiography covering an area of 268,96 hectares are spread across Pantai Cermin and X Koto Diatas Subdistricts. This study aims to digitally map the chemical properties of topsoil in paddy fields located in the karst physiography of Solok Regency. Solok Regency is known as a major rice-producing area in West Sumatera, but the utilization of karst land for agriculture faces various challenges, such as thin soil layers and high pH level. The ordinary kriging method was applied to predict soil chemical properties and their distribution in the research areas. A total of 10 soil samples were taken using a stratified random sampling system at a depth of 0-20 cm, and 10 water samples from paddy fields and irrigation channels distributed across the North and South of the study area. The parameters analyzed in the laboratory included; pH (soil and water), EC and TDS (soil and water), organic C, total N, available P, exchangeable K and exchangeable Ca. The result showed that the Southern region exhibits superior soil chemical properties compared to the northern region. In the Southern area, the value obtained are pH H₂O at 7,63, pH KCl at 6,75, EC at 642 μ mS/cm, TDS at 321 ppm, exchangeable K at 2,95 me/100g, and exchangeable Ca at 6,17 me/100g. In contrast, the Northern region has an organic C at 2,20%, total N at 0,25%, and available P at 17,71 ppm. The water quality data for irrigation and paddy fields indicate that the Southern region has consistently higher values than the Northern region. Linear discriminant analysis showed significant differences in soil chemical properties and grouping of priority areas in karst physiography paddy fields between the Northern and Southern regions.

Keywords: Digital Soil Mapping, Karst Physiography, Rice Fields, Soil Chemical Properties.