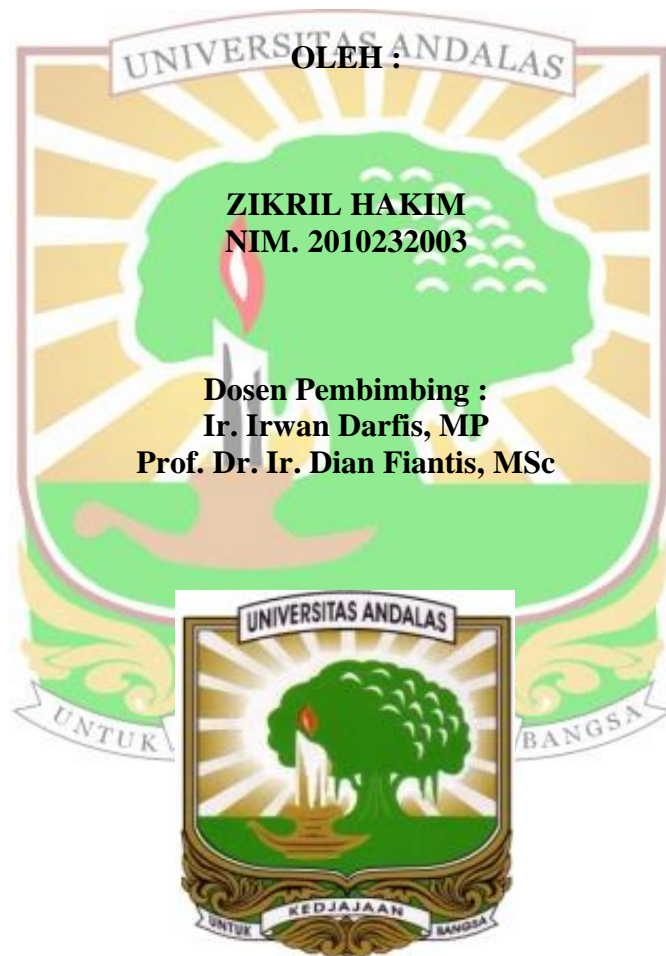


**PEMETAAN SIFAT KIMIA LAPISAN ATAS TANAH SAWAH
BERDASARKAN FISIOGRAFIS VULKANIS SAWAH DI
KABUPATEN SOLOK**

SKRIPSI



**FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG
2024**

PEMETAAN SIFAT KIMIA LAPISAN ATAS TANAH SAWAH BERDASARKAN FISIOGRAFIS VULKANIS SAWAH DI KABUPATEN SOLOK

ABSTRAK

Sawah fisiografi vulkanis dengan luas 17.569,6 ha tersebar di Kabupaten Solok yang terdapat di beberapa kecamatan, diantaranya Kecamatan X Koto Diatas, X Koto Singkarak, IX Koto Sungai Lasi, Kubung, Gunung Talang Bukit Sundi, Lembang Jaya, Pantai Cermin. Penelitian bertujuan untuk memetakan sifat kimia tanah sawah fisiografi vulkanis dan kualitas air sawah dan irigasi. Metode ordinary kriging diterapkan untuk memprediksi sifat kimia tanah sawah dan distribusinya pada wilayah di luar titik sampel. Sebanyak 30 sampel tanah diambil dengan sistem stratified random sampling pada kedalaman 0-20 cm dan 30 sampel air sawah dan irigasi yang diambil pada pintu pertama lahan sawah tersebar di Utara, Selatan dan Barat wilayah penelitian. Parameter yang dianalisis di Laboratorium meliputi; pH (H_2O , KCl, air sawah dan irigasi), EC dan TDS (Elektrometrik), C- Organik (Walkley and Black), N-Total (Kjeldahl), P-Tersedia (Bray I), P-Retensi (Blackmore), K-dd (Pencucian NH_4OAc pH 7 1N), dan Rasio C/N. Hasil penelitian menunjukkan nilai pH tanah (H_2O dan KCl) berkisar antara (5,62-7,08 dan 3,44-5,93), pH air sawah dan irigasi (5,20-6,79 dan 5,39-7,04), EC tanah (86-365 $\mu S/cm$), EC air sawah dan irigasi (56-352 dan 100-677 $\mu S/cm$), TDS tanah (43-182 ppm), TDS air sawah dan irigasi (28-171 dan 50-307 ppm), C-Organik (2,88-5,11 %), N-Total (0,17-0,68 %), P-Tersedia (3,10-25,98 ppm), P-Retensi (91,9-96,4 %), K-dd (0,06-1,27 me/100g), dan Rasio C/N (4,61-21,43 %). Analisis diskriminan linier menunjukkan bahwa terdapat perbedaan nilai dan pengelompokkan wilayah unggulan pada sifat kimia tanah sawah fisiografi vulkanis pada wilayah Barat, Utara dan Selatan.

Kata kunci : Pemetaan Tanah Digital, Lahan Sawah, Sifat Kimia Tanah.



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

ABSTRACT

Paddy fields in volcanic physiographic areas, covering an area of 17,569.6 hectares, are spread across several subdistricts in Solok Regency, including X Koto Diatas, X Koto Singkarak, IX Koto Sungai Lasi, Kubung, Gunung Talang, Bukit Sundi, Lembang Jaya, and Pantai Cermin. This study aims to map the chemical properties of volcanic physiographic paddy soils and the quality of paddy field and irrigation water. The ordinary kriging method was applied to predict soil chemical properties and their distribution in areas beyond the sampling points. A total of 30 soil samples were taken using a stratified random sampling system at a depth of 0-20 cm, and 30 water samples from paddy fields and irrigation channels were collected from the first inlet of the paddy fields, distributed across the North, South, and West of the study area. The parameters analyzed in the laboratory included: pH (H₂O, KCl, paddy field, and irrigation water), EC and TDS (electrometric), organic C (Walkley and Black), total N (Kjeldahl), available P (Bray I), P retention (Blackmore), exchangeable K (NH₄OAc pH 7 1N extraction), and the C/N ratio. The results showed that soil pH (H₂O and KCl) ranged from 5.62 to 7.08 and 3.44 to 5.93, while pH of paddy field and irrigation water ranged from 5.20 to 6.79 and 5.39 to 7.04. Soil EC ranged from 86 to 365 μ S/cm, and EC of paddy field and irrigation water ranged from 56 to 352 and 100 to 677 μ S/cm. Soil TDS ranged from 43 to 182 ppm, and TDS of paddy field and irrigation water ranged from 28 to 171 and 50 to 307 ppm. Organic C ranged from 2.88 to 5.11%, total N from 0.17 to 0.68%, available P from 3.10 to 25.98 ppm, P retention from 91.9 to 96.4%, exchangeable K from 0.06 to 1.27 me/100g, and the C/N ratio from 4.61 to 21.43%. Linear discriminant analysis showed significant differences in soil chemical properties and grouping of priority areas in volcanic physiographic paddy fields between the Western, Northern, and Southern regions.

Keywords: Digital Soil Mapping, Rice Field , Soil Chemical Properties.