

# **PENERAPAN METODE GEOLISTRIK *TIME-LAPSE* UNTUK MENGETAHUI PERUBAHAN NILAI RESISTIVITAS TANAH PADA LAHAN TANAMAN LADA**

## **Abstrak**

Identifikasi perubahan nilai resistivitas lahan tanaman lada telah dilakukan di Jl. Parit Demang, Kota Pontianak, Kalimantan Barat. Penelitian ini dilakukan dengan menggunakan metode geolistrik resistivitas *time-lapse* konfigurasi *Wenner-Schlumberger*. Pengambilan data dilakukan pada 2 lintasan selama 3 bulan. Panjang setiap lintasan adalah 7 m dan jarak elektroda terkecil adalah 0,25 m. Pengambilan data resistivitas dilakukan dengan 2 tahap yaitu sebelum dan sesudah pemberian pupuk. Pupuk yang digunakan adalah kapur dolomit dan pupuk NPK (*Nitrogen, Fosfat, dan Calcium*). Hasil penelitian berupa penampang resistivitas dua dimensi (2D) dari 2 lintasan menunjukkan bahwa terjadi perubahan nilai resistivitas yang disebabkan oleh pupuk. Nilai resistivitas pada lintasan 1 sebelum diberi perlakuan memiliki nilai resistivitas yang sebesar 7,51 - 34,6  $\Omega m$ . Setelah diberikan perlakuan, nilai resistivitas yang terukur bervariasi yakni 0,165 - 0,760  $\Omega m$ , 1,24 - 2,79  $\Omega m$ , dan 7,51 - 34,6  $\Omega m$ . Sedangkan nilai resistivitas pada lintasan 2 sebelum diberi perlakuan memiliki nilai resistivitas sebesar 6,29 - 31,8  $\Omega m$ . Setelah diberikan perlakuan pemberian pupuk, nilai resistivitasnya yakni 0,109 - 0,552  $\Omega m$ , 1,24 - 2,79  $\Omega m$ , dan 6,29 - 31,8  $\Omega m$ . Ketiga variasi nilai resistivitas pada lintasan 1 dan 2 masing-masing diklasifikasikan sebagai pupuk yang terionisasi dengan kandungan air, tanah yang terkontaminasi pupuk, dan tanah yang homogen.

**Kata Kunci:** *Geolistrik Resistivitas, Time-Lapse, Wenner-Schlumberger, Kapur Dolomit, Pupuk NPK*

# **APPLICATION OF THE TIME-LAPSE GEOELECTRICAL METHOD TO DETERMINE CHANGES IN SOIL RESISTIVITY VALUES ON PEPPER PLANTATIONS**

## **Abstract**

*Identification of changes in the resistivity value of pepper plantations has been carried out on Jl. Parit Demang, Pontianak City, West Kalimantan. This research was carried out using the geoelectrical method of resistivity time-lapse Wenner-Schlumberger configuration. Data collection was carried out on 2 tracks for 3 months. The length of each track is 7 m and the smallest electrode distance is 0.25 m. Resistivity data retrieval was carried out in 2 stages, namely before and after fertilizer application. The fertilizers used are dolomite lime and NPK (Nitrogen, Phosphate, and Calcium) fertilizers. The results of the study in the form of a two-dimensional (2D) resistivity cross-section from 2 paths showed that there was a change in the resistivity value caused by fertilizer. The resistivity value in path 1 before being treated has a resistivity value that is 7.51 - 34.6  $\Omega\text{m}$ . After being treated, the measured resistivity values varied from 0.165 - 0.760  $\Omega\text{m}$ , 1.24 - 2.79  $\Omega\text{m}$ , and 7.51 - 34.6  $\Omega\text{m}$ . While the resistivity value on track 2 before being treated has a resistivity value which is 6.29 - 31.8  $\Omega\text{m}$ . After being given fertilizer treatment, the resistivity values were 0.109 - 0.552  $\Omega\text{m}$ , 1.24 - 2.79  $\Omega\text{m}$ , and 6.29 - 31.8  $\Omega\text{m}$ . The three variations of resistivity values in paths 1 and 2 were classified as fertilizer and soil water content, soil contaminated with fertilizer, and homogeneous soil, respectively.*

**Keywords:** *Geoelectrical Resistivity, Time-Lapse, Wenner-Schlumberger, Dolomite Lime, NPK Fertilizer*