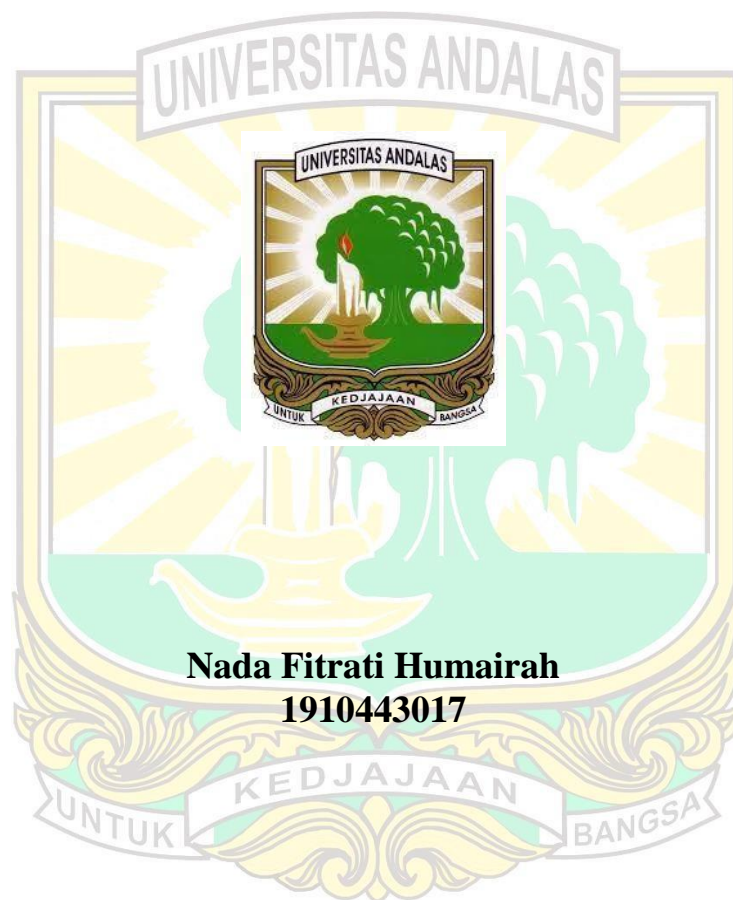


**IDENTIFIKASI PENCEMARAN LOGAM BERAT
PADA SEDIMEN SUNGAI BANDA BAKALI KOTA PADANG
BERDASARKAN NILAI SUSEPTIBILITAS MAGNETIK**

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ABSTRAK

Telah dilakukan penelitian untuk mengidentifikasi pencemaran logam berat pada sedimen Sungai Banda Bakali Kota Padang berdasarkan nilai suseptibilitas magnetik. Sampel sedimen diambil di aliran sungai Banda Bakali Kota Padang pada kawasan hulu, tengah dan hilir sungai yang berada di bagian pinggir kiri, tengah dan pinggir kanan sungai pada 48 titik sampel dengan kedalaman titik 10 cm. Pengukuran suseptibilitas magnetik dilakukan menggunakan *Bartington Magnetic Susceptibility Meter* dengan sensor MS2B dengan dua frekuensi, yaitu 0,47 kHz *low frequency* (LF) dan 4,7 kHz *high frequency* (HF). Hasil pengukuran nilai suseptibilitas magnetik berkisar antara $929,0 \times 10^{-8} \text{ kg}^{-1} \text{ m}^3$ sampai $5284,5 \times 10^{-8} \text{ kg}^{-1} \text{ m}^3$. Berdasarkan nilai suseptibilitas magnetiknya, sampel sedimen termasuk ke dalam kategori tercemar sangat tinggi. Perbandingan nilai χ_{lf} antar bagian sungai menunjukkan pencemaran terkontaminasi di bagian pinggir sungai. Nilai χ_{lf} di kawasan hulu cenderung lebih dibandingkan kawasan tengah dan hilir sungai. Sedimen sungai Banda Bakali dikontrol oleh mineral magnetik bersifat ferimagnetik ilminit. Sebagian sampel menunjukkan nilai χ_{lf} meningkat dan nilai χ_{fd} (%) menurun, dengan nilai χ_{fd} (%) nya di bawah 2,0 % dihasilkan dari pencemaran yang berasal dari aktivitas antropogenik.

Kata Kunci: Mineral Magnetik, Pencemaran, Sedimen Sungai, Suseptibilitas Magnetik

IDENTIFICATION OF HEAVY METAL POLLUTION IN THE SEDIMENTS OF THE BANDA BAKALI RIVER PADANG CITY BASED ON MAGNETIC SUSCEPTIBILITY VALUE

ABSTRACT

A study has been conducted to identify heavy metal pollution in the sediment of the Banda Bakali River in Padang City based on magnetic susceptibility values. Sediment samples were taken from the Banda Bakali River in Padang City in the upstream, middle, and downstream areas of the river, covering the left bank, middle, and right bank at 48 sampling points with a depth of 10 cm. Magnetic susceptibility measurements were conducted using a Bartington Magnetic Susceptibility Meter with an MS2B sensor at two frequencies, 0.47 kHz low frequency (LF) and 4.7 kHz high frequency (HF). The measurement results showed magnetic susceptibility values ranging from $929.0 \times 10^{-8} \text{ kg}^{-1} \text{ m}^3$ to $5284.5 \times 10^{-8} \text{ kg}^{-1} \text{ m}^3$. Based on their magnetic susceptibility values, the sediment samples were categorized as highly contaminated. A comparison of χ_{lf} values across different sections of the river indicated contamination concentrated along the riverbanks. The χ_{lf} values in the upstream area tended to be higher than those in the middle and downstream areas. The sediments of the Banda Bakali River were controlled by ferrimagnetic minerals such as ilmenite. Some samples showed an increase in χ_{lf} values and a decrease in χ_{fd} (%) values, with χ_{fd} (%) below 2.0 %, indicating pollution stemming from anthropogenic activities.

Keywords: Magnetic Minerals, Pollution, River Sediment, Magnetic Susceptibility