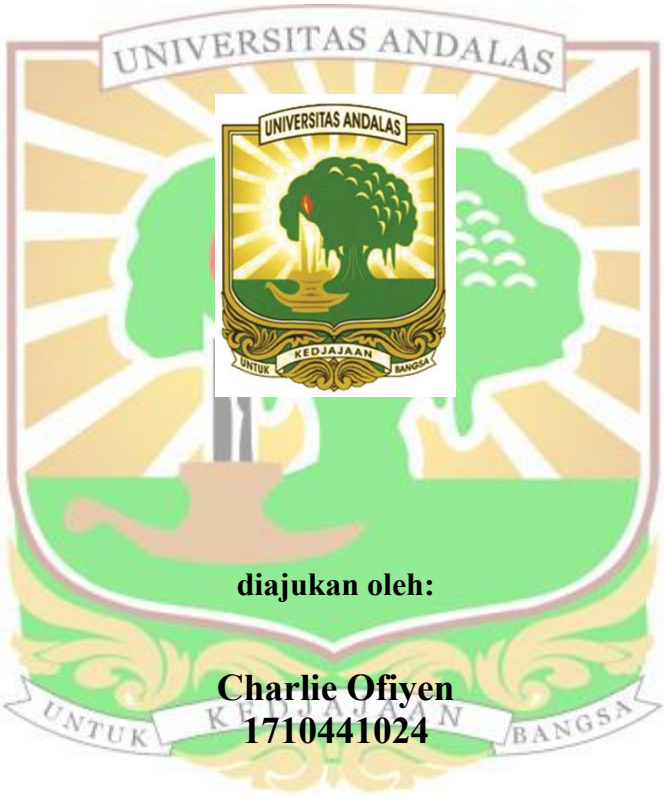
PENENTUAN KUALITAS AIR MUARA SUNGAI BATANG ARAU MELALUI PENGUJIAN *TOTAL SUSPENDED SOLID* (TSS), *TOTAL DISSOLVED SOLID* (TDS), DAN KANDUNGAN LOGAM BERAT

SKRIPSI



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JURUSAN FISIKA
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UNIVERSITAS ANDALAS
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SKRIPSI

Karya tulis sebagai salah satu syarat
untuk memperoleh gelar Sarjana Sains
dari Universitas Andalas

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Pada tanggal 04 Januari 2022

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ABSTRAK

Penelitian ini bertujuan untuk menentukan konsentrasi logam berat, suhu, pH, konduktivitas listrik, total padatan terlarut (TDS), dan total padatan tersuspensi (TSS). Nilai konsentrasi logam berat diukur menggunakan alat *inductively coupled plasma* (ICP), suhu diukur menggunakan termometer, pH diukur menggunakan pH meter, konduktivitas listrik diukur menggunakan konduktiviti meter, TDS dan TSS ditentukan menggunakan metode gravimetri. Dari hasil penelitian diperoleh nilai suhu perairan sebesar 28,52 ℃ . Nilai rata-rata pH sebesar 6,76. Nilai rata-rata konduktivitas listrik sebesar 176,43 µS/cm. Nilai rata-rata TDS sebesar 1040,5 ppm. Berdasarkan PP. No. 82 Tahun 2001 nilai rata-rata TDS di muara Sungai batang Arau telah melebihi standar baku mutu air kelas II yaitu sebesar 1000 mg/l.Nilai rata-rata TSS sebesar 204,9 ppm, nilai rata-rata TSS juga telah melebihi baku mutu PP. No. 82 Tahun 2001 kelas II yaitu sebesar 50 mg/l. Nilai kosentrasi logam berat Cd, Cu, dan Hg di muara Sungai Batang Arau telah melebihi baku mutu yang ditetapkan PP. No. 82 Tahun 2001. Dari hasil penelitian dapat disimpulkan bahwa kualitas air di muara Batang Arau telah terjadi pencemaran.

Kata Kunci: ICP, kandungan logam berat, konduktivitas listrik, TDS, TSS

DETERMINATION OF THE WATER QUALITY OF THE ESTIMATE OF THE BATANG ARAU RIVER THROUGH THE TESTING OF TOTAL SUSPENDED SOLID (TSS), TOTAL DISSOLVED SOLID (TDS), AND HEAVY METAL CONTENT

ABSTRACT

This study aims to determine the concentration of heavy metals, temperature, pH, electrical conductivity, total dissolved solids (TDS), and total suspended solids (TSS). Heavy metal concentration values were measured using an inductively coupled plasma (ICP) device, temperature was measured using a thermometer, pH was measured using a pH meter, electrical conductivity was measured using a conductivity meter, TDS and TSS were determined using the gravimetric method. From the results of the study, the value of the water temperature was 28.52 . The average value of pH is 6.76. The average value of electrical conductivity is 176.43 S/cm. The average value of TDS is 1040.5 ppm. Based on PP. No. 82 of 2001 the average TDS value in the Batang Arau estuary has exceeded the class II water quality standard, which is 1000 mg/l. The average TSS value is 204.9 ppm, the average TSS value has also exceeded the PP quality standard. No. 82 of 2001 class II that is equal to 50 mg/l. The concentration values of Cd, Cu, and Hg heavy metals in the Batang Arau River estuary have exceeded the quality standards set by PP. No. 82 of 2001. From the results of the study it can be concluded that the water quality in the Batang Arau estuary has been polluted.

Keywords: ICP, heavy metal content, electrical conductivity, TDS, TSS