

ABSTRAK

A RUMBA SETYO RESMI, 2025, ANALISIS KADAR LOGAM BERAT TIMBAL (Pb) DAN KADMIUM (Cd) PADA AIR SUMUR DI DAWUNG TENGAH KOTA SURAKARTA SECARA SPEKTROFOTOMETRI SERAPAN ATOM (SSA). KARYA TULIS ILMIAH, PROGRAM STUDI D-III ANALIS FARMASI DAN MAKANAN FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, Dibimbing oleh Dr. Drs. Supriyadi, M. Si

Kualitas air sumur di Dawung tengah, Kota Surakarta, rentan terhadap kontaminasi logam berat seperti Timbal (Pb) dan Kadmium (Cd), yang berpotensi menimbulkan risiko kesehatan serius jika dikonsumsi jangka panjang. Penelitian ini bertujuan untuk membandingkan kadar Pb dan Cd pada air sumur di wilayah Serengan dengan baku mutu kesehatan air yang ditetapkan oleh Peraturan Menteri Kesehatan RI No. 492 Tahun 2010.

Pengambilan sampel dilakukan secara *purposive sampling* dari 3 titik. Sampel dipreparasi dengan penambahan HNO₃ gunanya untuk menjaga stabilitas logam. Pengujian kadar Pb dan Cd dilakukan menggunakan Spektrofotometri Serapan Atom (AAS).

Hasil pengukuran akan dibandingkan dengan batas maksimum yang ditetapkan oleh Peraturan Menteri Kesehatan RI No. 492 Tahun 2010 (0,01 mg/L untuk Pb dan 0,003 mg/L untuk Cd). Analisis data dilakukan secara deskriptif kuantitatif dan didapat kadar sampel logam (Pb) dalam sampel A (jarak 12 metr) -0,000000008962 mg/L ; kadar sampel B (jarak 5 meter) -0,000000013456 mg/L ; kadar sampel C (jarak 2 meter) 0,00000002025 mg/L, dan pada kadar logam kadmium (Cd) dalam sampel A (jarak 12 meter) 0,000007464 mg/L ; kadar sampel B (jarak 5 meter) 0,000007460mg/L ; kadar sampel C (jarak 2 meter) 0,000007467 mg/L dimana kadar tersebut masih memenuhi persyaratan batas yang ditetapkan

Kata Kunci: Air Sumur, Logam Berat, Timbal (Pb), Kadmium (Cd), Spektrofotometri Serapan Atom (AAS), Surakarta.

ABSTRACT

A RUMBA SETYO RESMI, 2025, ANALYSIS OF HEAVY METAL LEVELS OF LEAD (Pb) AND CADMIUM (Cd) IN WELL WATER IN DAWUNG TENGAH, SURAKARTA CITY BY ATOMIC ABSORPTION SPECTROPHOTOMETRY (AAS). SCIENTIFIC PAPER, D-III PHARMACEUTICAL AND FOOD ANALYST STUDY PROGRAM, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SUPERVISED BY Dr. Drs. Supriyadi, M. Si

The well water quality in Dawung Tengah, Surakarta City, is susceptible to heavy metal contamination such as Lead (Pb) and Cadmium (Cd), which potentially pose serious health risks if consumed long-term. This study aims to compare the levels of Pb and Cd in well water in the Serengan area with the drinking water quality standards set by the Regulation of the Minister of Health of the Republic of Indonesia No. 492 of 2010.

Sample collection was carried out by purposive sampling from 3 points. Samples were prepared by adding HNO₃ to maintain metal stability. The levels of Pb and Cd were tested using Atomic Absorption Spectrophotometry (AAS).

The measurement results will be compared with the maximum limits set by the Regulation of the Minister of Health of the Republic of Indonesia No. 492 of 2010 (0.01 mg/L for Pb and 0.003 mg/L for Cd). Data analysis was performed descriptively quantitatively, and the heavy metal (Pb) levels in sample A (12 meters distance) were - 0.000000008962 mg/L; in sample B (5 meters distance) - 0.000000013456 mg/L; in sample C (2 meters distance) 0.00000002025 mg/L. For cadmium (Cd) heavy metal levels, sample A (12 meters distance) was 0.000007464 mg/L; sample B (5 meters distance) was 0.000007460 mg/L; sample C (2 meters distance) was 0.000007467 mg/L, where these levels still meet the established limit requirements.

Keywords: Well Water, Heavy Metals, Lead (Pb), Cadmium (Cd), Atomic Absorption Spectrophotometry (AAS), Surakarta