ABSTRACT

Afifa Rizka Pratama, Analysis of Iron (Fe) Content in Dug Well Water in Keben, Sidoarjo. using An Atomic Absorption Spectrophotometry. Supervised by Hanandayu Widwiastuti, S.Si., M.Si.

Dug wells is one of the primary sources of drinking water. However, to ensure its safety and quality, regular testing is necessary. Safe drinking water must meet standards for clarity, be free from bacteria, and not contain harmful chemical contaminants. In several areas, cloudy water conditions are often found in well water. For instance, the well water in Keben, Sidoarjo exhibits slightly cloudy color, sedimentation, and a faint odor suspected to contain heavy metal Fe (III). These heavy metals can form sediment, alter the color and smell of water, and if consumed in high concentrations over the long term, can pose health risks. This study was conducted to analyze the Fe (III) levels in well water in Keben, Sidoarjo using Atomic Absorption Spectrophotometry. The method involved wet sample digestion with concentrated HNO_3 and absorbance measurement at a wavelength of 248.3 nm. The research findings indicate that the average Fe (III) levels in sample A were 1,91 mg/L, sample B were 1,94 mg/L, sample C were 0,55 mg/L, and sample D were 3,74 mg/L. These results show that all samples exceed the maximum permissible limit for drinking water, which is <0,2 mg/L according to the Ministry of Health Regulation No. 2 of 2023 on drinking water quality standards.

Keywords: *Fe (III), Dug Wells, Atomic Absorption Spectrophotometry*