

Physicochemical, Bacteriological and Metal Analysis of Some Surface Waters in Akure, Southwestern Nigeria

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Abstract

This study was investigates the physicochemical, microbial and metal contents of water samples obtained from three different surface waters (Ala river, Onyearugbulem stream and FUTA stream). The samples were collected in the early the early morning during the late rainy season of August 2010. The streams are all located in Akure, the capital city of Ondo State, Nigeria. The physical nature, physico-chemical properties and microbial load of surface water samples were investigated. The heavy metals in water samples were determined using the atomic absorption spectrometry method. Escherichia coli, Klebsiella pneumoniae, Enterobacter aerogenes, Citrobacter freundii, Serratia marcescens, Salmonella typhi, Shigella dysenteriae and Proteus vulgaris were sourced from studied water samples. Most of the physico-chemical parameters of water samples were below the permissible limits of Official Gazette (Water Pollution Control Regulation) (1988) standards for fresh water. The mean count of coliforms/ml in water samples were 12.81×10^3 , 33.51×10^3 and 48.59×10^3 in FUTA stream, Ala river and Onyearugbulem stream respectively. The metal concentration ranged from 0.16 of Cu to 256.00 of Na in Onyearugbulem stream while the metal concentration in FUTA stream ranged from 0.03 of Mn to 7.60 of Ca. The investigations from this study show that the three water surface waters are potential risks to public health if used without efficient treatment.

Keywords: Akure, bacteriological, coliforms, metals, physico-chemical, surface water.

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