

Abstract

Trace elements constitute less than 1% of the rocks in the crust (Stumm and Morgan, 1991). In the human body, they constitute less than 100 mg/kg (0.01%). These elements are released to the environment naturally by weathering and volcanic activities (Flint and Skinner, 1997). It has been observed that trace elements are greatly absorbed and retained in the body when in liquid diet. This phenomenon also influences the risk to human health, especially of infants and children whose immature digestive system further promote absorption of toxic heavy metals. The study was based on the analysis of domestic borehole water supplies in Huruma estate of Eldoret Municipality for selected trace elements and their implications on human health. The boreholes were systematically selected for sampling points and trace elements, Cr, Cu and Se analyzed using AAS. Statistical analysis for mean, standard deviation and confidence interval limits was done using SPSS. The statistical t-test was used to test for significance differences at ($p = 0.05$). The graphs were drawn using the Microsoft Excel package. The resulting data obtained from analysis were compared with WHO data for drinking water. In the study, the mean values of the following parameters were as follows: Chromium 17.9 $\mu\text{g/L}$, Copper 563 $\mu\text{g/L}$ and Selenium 22.7 $\mu\text{g/L}$. There was a significant difference at 5% level of significance ($p = 0.000$) in all the parameter values among the sampling points in Huruma estate. The above mean values were far below the WHO recommended limits for drinking water. It was concluded that the borehole water from Huruma was fit for drinking and therefore could not cause cancer and cardiovascular diseases. However, borehole water should be used if other water sources (tap water etc.) were not available. All the industries near Huruma estate should carefully analyze and regularly monitor their liquid waste effluents to ensure that no harmful discharges get into the soil.