

Physicochemical Assessment of Groundwater as a Source of Domestic Water Use in Some Selected Settlements in Minna, Niger State

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Abstract

Lack of safe drinking water and adequate sanitation measures lead to a number of diseases, such as cholera, dysentery, salmonellosis and typhoid, and every year millions of lives are claimed in developing countries. Some rural and major populations are heavily dependent on small reservoirs, other sources for their water supply, and are concerned about the quality for direct consumption and other uses. Water samples from different areas, i.e., within Minna and Niger State were collected and tested for their chemical and physical parameters. It was discovered that all the water samples had a common room temperature of 29.1 °C. Sample F had the highest electrical conductivity of 560 s/cm and sample A had the lowest value of 80 s/cm. Sample F had a higher value of 280 mg/L of total dissolved solids, while sample A had the lowest of 40 mg/L. The pH of the water for all the samples fluctuated greatly with sample A and F having the lowest values of 6.8, while sample G had the highest value of 7.4 though they all are still within the range. Samples C, E and F were within the maximum permissible limit of 5.0 when turbidity was analyzed. It was also observed that sample H had the highest value of nitrate content (6.2) which was closely followed by sample F, while sample B had the lowest value of 0.3. It was concluded that the water quality for some of the samples was contaminated due to lack of proper treatment thus endangering the lives of the consumers.

Keywords: domestic, drinking, health, household, hygienic, public, water
