Physicochemical and Bacteriological Analyses of Borehole Water in Kebbi State University of Science & Technology Aliero (Ksusta), Kebbi State, North-Western Nigeria

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ABSTRACT

Physicochemical and bacteriological analyses of borehole water have been reported in some part of Nigeria. One of the important reasons of decline of quality of drinking water may be attributed to the growth of microbes, sub-lethally recognized as pathogenic of humans. The present study reports Physicochemical and bacteriological analyses of borehole water in Kebbi State University of Science & Technology Aliero (KSUSTA) Nigeria. During March and July 2017, water samples were collected from five (5) boreholes at different locations within the university campus; Boys hostel (A), Girls hostel (B), Junior staff quarters(C), Senior staff quarters (D) and Intermediate quarters (E). Some physical tests performed for physical appearance include; temperature, colour, odour, pH, turbidity, and that of chemical tests were; dissolved oxygen, alkalinity and hardness. The bacterial examination was conducted using Indicator organisms; heterotrophic plate counts, total coliform bacteria, faecal coliform bacteria, *E coli*, faecal enterococci, *C. perfringens* and bacteriophages, in three stages; presumptive, confirmatory and complete tests. Conductivity was measured at (us/cm) with ranges from 448-790(us/cm). Sample C (junior staff quarter) has the lowest conductivity of 448Us/cm while sample A (girls hostel) has the highest conductivity of 790(us/cm) .About 77% of the water was near neutral to alkaline. Total dissolved solid ranged from 208-356mg/l. In bacteriological test, about 66% of the total samples were heavily contaminated with coliforms during the test. The physicochemical parameters of the selected public borehole water samples in the study area were within the acceptable limits by W.H.O standards for drinking water except the pH value which was high. The bacteriological analysis results of the 5 borehole water samples were not acceptable since they were all found to yield moderate to heavy growth of bacteria, thereby making them unfit for human consumption. Proper sanitation should be strictly observed and the water should be treated before consumption.

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