

PHYSICAL, CHEMICAL AND MICROBIOLOGICAL PARAMETERS OF IYI OKAI STREAM IN ABIRIBA, OHAFIA LOCAL GOVERNMENT AREA, ABIA STATE, NIGERIA

Eze, Sunday Onyekwere & Chigbu, Godson Chibuzo

Department Chemistry
Abia State University, Uturu
Abia State, NIGERIA

ABSTRACT

In this study, water samples from Iyi-Okai stream in Abiriba, Ohafia Local Government Area of Abia State, Nigeria were collected from six location and analyzed for physical, chemical and microbiological parameters including pH, appearance, total hardness, bicarbonate, carbonate, dissolved oxygen, biological oxygen demand, total suspended solid, turbidity, total dissolved solids, alkalinity, metals, total heterotrophic count, total fungal count, total coliform count, were measured using standard methods .Possible heavy metals contamination of the stream were assessed after Nitric acid digestion by means of Atomic Absorption Spectrophotometer. The results revealed a pH range of 6.01-7.27 for the six sample sites which is within the WHO limit of 6.5 – 9.2 with a mean temperature range of 27.7°C. Other physico-chemical parameters monitored including total suspended solid (<0.001-2.23mg/l), electrical conductivity, (21.28-206.0µs/cm), biochemical oxygen demand (0.05=3.38), chemical oxygen demand (0.10-15.0mg/l), exceeded the recommended level for surface water quality under WHO limit. Parameters such as turbidity, Alkalinity, Phosphate, Temperature were within the WHO standard. Results also revealed there was no heavy metal contamination of the stream. The result of bacteriological analysis including total heterotrophic count, total coliform count and total fungal count revealed a high level of pollution of the river. It was inferred that the stream is polluted and is bacteriologically contaminated and unsafe for human and animal consumption and will need proper treatment before use.

Keywords: Physico-chemical, bacteriological, water analysis, water quality, pollution.