Impact of brewery effluent on water quality of the Olosun river in Ibadan, Nigeria

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Abstract

There has been significant pollution of the Olosun river in Ibadan with untreated brewery effluent. The nature and extent of pollution resulting from effluent discharged into this river has not been fully investigated. This study investigated the impact of such effluents on the water quality of the Olosun river. Sampling points of river water included two upstream locations up to 100 m from the discharge point, the effluent discharge point and six points downstream. The Olosun river was sampled up to about 690 m downstream. Sampling of river water was carried out on a monthly basis between March 2001 to March 2002 and January 2004 to December 2004. The physico-chemical impact on the water quality downstream was indicated by reduced pH and dissolved oxygen. The levels of chloride, nitrate, ammonia, dissolved solids, turbidity and BOD were significantly high, arising from the inflow of brewery effluent. The brewery effluent significantly contributed to the levels of Ni, Zn, Cr, Co, Cu, Cd and Pb downstream such that they exceeded the freshwater and drinking water criteria. In addition, the overall concentrations of these heavy metals were well above the background concentration obtained at the upstream location. The levels of these indicator parameters responsible for this brewery effluent quality exceeded the effluent guideline for discharge into surface water. Thus, brewery effluent is among the major sources or factors responsible for river water quality deterioration.