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Lethal Limits and Respiration in the Cichlid Fishes, Tilapia zillii, Sarotherodon galilaeus, S. melanotheron and Oreochromis niloticus Exposed to Effluent from Chemistry Department Laboratories.

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ABSTRACT

In this study, the lower and upper lethal limits, LC50 and respiration of the freshwater cichlid fishes, Tilapia zillii, Sarotherodon galilaeus, S. melanotheron and Oreochromis niloticus exposed to effluents from Chemistry Department Laboratories were investigated. The mixing of the effluents produced a reduction in pH and dissolved oxygen and a fairly constant temperature and salinity of the media, while the toxicity of the effluents increased. The LC50 values after 24 and 48-h exposure in the effluent media were 0.24% and 0.21% for T. zillii; 0.26% and 0.24% for O. niloticus; 0.25% and 0.23% for S. galilaeus; 0.27% and 0.26% for S. melanotheron, respectively. The effect of chemical effluent on the rate of respiration of the treated cichlids produced lower rates of oxygen consumption in the order of S. galilaeus>O. niloticus>S. melanotheron>T. zilili in the highest concentration of the effluent. The results obtained from this study have shown that the effluents from Chemistry Department Laboratories are not treated as they produced respiratory impairment and physiological dysfunction in the exposed fish. It is suggested that proper treatment of these effluents be carried out before being discharged into the surrounding stream.