



MINERALS ASSESSMENT IN WATER, SEDIMENT, AND FISH TISSUES OBTAINED FROM EARTHEN POND OF EKITI STATE UNIVERSITY, NIGERIA

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ABSTRACT

This study assesses the mineral levels in water, sediment, and fishes from Ekiti State University pond, Nigeria; and investigates the metal levels in locally made and imported feeds. Four fish samples (tilapia I and II; catfish I and II) from the pond were dissected to obtain livers, gills, and tissues. The water, sediments, feeds, and fish parts were analyzed using a Flame Photometer (Corning 400) and an Atomic Absorption Spectrophotometer (Buck Scientific 210). The levels of Na, K, Ca, Fe, Cu, Zn, and Mn in the pond water are 10.00, 8.89, 3.02, 6.67, 0.03, 0.25, and 0.18 mg/L, respectively. The concentrations of Na, K, Ca, Fe, Cu, Zn, and Mn in the sediment are 2.52, 4.21, 2.72, 29.78, 0.11, 0.95, and 0.42 mg/kg, respectively. The levels of metals in the feed samples (locally made and imported) range as follows: Na (47.56 – 76.06); K (181.06 – 190.05); Ca (95.43 – 244.53); Fe (2.38 – 4.16); Cu (0.17 each); Zn (1.03 – 1.31); Mn (0.59 – 0.83 mg/kg). The concentrations of metals in the liver, gill, and tissue range as follows: Na (4.90 – 54.56); K (5.02 – 69.07); Ca (21.42 – 522.57); Fe (0.72 – 9.54); Cu (0.06 – 0.44); Zn (0.24 – 1.17); Mn (0.02 – 0.52 mg/kg). However, Cd, Pb, Cr, Ni, and Co were not detected in all the samples. The results showed that the mineral levels in the fishes are within the permissible limits of the World Health Organization (WHO) and Standard Organization of Nigeria (SON).