The impact of Heavy Metal Accumulations in Fish and Associated Human Health Risk

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Abstract:

Anthropogenic activities are causing environment and aquaculture systems for becoming heavily contaminated with heavy metals that could cause health problems to human. In this study, fish (n = 10-15) water samples (n = 3) have been collected from Topçam Barrage to assess the heavy metal concentrations in the water and some important organs (muscle, liver, kidney, spleen, gonads, and gills) of fish (Pseudoraspora parva) using the ICP-OES (Inductive Coupled Plasma Optic Emission Spectrometer) by standard solutions (As, Cd, Cr, Cu, Zn, Ni, Pb). Bioaccumulation factor and human health risk assessment were calculated to evaluate the health status of both fish and humans.

Results showed that gills, muscle liver, spleen, kidney and ovary in fish, Significant degree of heavy metals was Zn > Cu > Pb > Ni> Cr >Cd. On the other hand, Heavy metal amounts were mostly higher as Cu and Pb. It can be reported that Cu and Pb amounts were found in limits recommended by the Food and Agriculture Organisation (FAO) and World Health Organisation (WHO).

Keywords:

Heavy metal, Bioaccumulation, Water Pollution, Fish, Pseudoraspora parva.