

Determination of Proximate, Mineral, and Heavy Metal Contents of Fish from the Lower River Niger at Agenebode, Edo State, Nigeria

Authors : Agbugui M. O., Inobeme A.

Abstract : Fish constitutes a vital component of human diets due to their rich nutritional compositions. They serve as a remarkable source of proteins, vitamins, and fatty acids, which are indispensable for the effective growth and development of humans. The need to explore the nutritional compositions of various species of fish in different water bodies becomes paramount. Presently, consumer concern is not just on food's nutritional value but also on the safety level. Environmental contamination by heavy metals has become an issue of pressing concern in recent times. Heavy metals, due to their ubiquitous nature, are found in various water bodies as they are released from various anthropogenic activities. This work investigated the proximate compositions, mineral contents, and heavy metals concentrations of four different species of fish (*P. annectens*, *L. niloticus*, *G. niloticus*, and *H. niloticus*) collected from the lower Niger at Agenebode using standard procedures. The highest protein contents were in *Gymnarchus niloticus* (37.32%), while the least was in *Heterotis niloticus* (20.41%). *Protopterus annectens* had the highest carbohydrate content (34.55%), while *Heterotis niloticus* had the least (12.24%). The highest lipid content (14.41%) was in *Gymnarchus niloticus*. The highest concentration of potassium was 21.00 ppm. The concentrations of heavy metals in ppm ranged from 0.01 - 1.4 (Cd), 0.07 - 2.89 (Pb), 0.02 - 16.4 (Hg), 0.88 - 5.1 (Cu) and 1.2 - 8.23 (Zn). The concentrations of Hg, Cd and Pb in some of the samples investigated were higher than the permissible limits based on international standards. There is a pressing need for further study focusing on various species of animals and plants in the area due to the alarming contents of these metals; remedial measures could also be ensured for safety.

Keywords : trace metals, nutritional value, human health, crude protein, lipid content

Conference Title : ICFA 2023 : International Conference on Fisheries and Aquaculture

Conference Location : Sydney, Australia

Conference Dates : August 24-25, 2023