



# Assessment of heavy metals in *Tilapia zilli* from some Nun River Estuaries in the Niger Delta region of Nigeria

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**Introduction:** Fisheries from the wild are a major source of livelihood in the coastal region of Niger Delta especially to the indigenous people of Bayelsa state [43]. Fishes are typically a major source of animal protein [44]. Through human activities surface water gets contaminated and their physical, chemical and microbiological components are altered. The variation majorly depends on the source of the contaminants. The pollutants also affect the bottom sediment and bioaccumulate in the fish species in such water bodies. One of the frequent contaminants of water resources is the heavy metals which fisheries are known to bioaccumulate in their body parts including the liver, kidney, muscle, bone and gills.

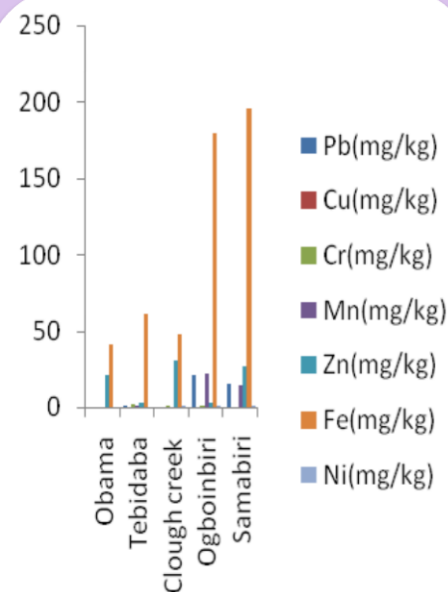
**Aim:** This study assessed heavy metal concentrations in *Tilapia zilli* caught from five different communal estuaries of the Nun River system in Bayelsa state, Nigeria.

**Materials & Methods:** Samples of *Tilapia zilli* caught from five locations by the local fishermen at River nun, Bayelsa state were purchased. The fish samples were washed using sterile water and oven dried at 105°C for 6 hours. Dried samples were blended to powder and dry-ashed in a muffle furnace at 450°C. Nitric and hydrochloric acid digestion followed before heavy metal analysis using Atomic Absorption Spectrometer.

**Results and Discussion:** Heavy metal concentration ranges across the five Nun river estuaries were: Pb (0.380 – 21.555 mg/kg), Cr (0.190 – 1.670 mg/kg), Fe (40.860 – 195.905 mg/kg), Mn (0.290 – 22.67 mg/kg), Zn (2.785 – 30.340 mg/kg), and Ni (0.205 – 1.145 mg/kg), while Cu was found below measurable detection limit of the equipment (<0.001 mg/kg). There was significant difference ( $P < 0.05$ ) across the various study locations. Apart from Cu, all other metals were present at concentrations higher than regulatory recommendations for food fish by USEPA, FAO/WHO, WPCL and Median International Standard (MIS)

**Conclusion:** Apart from copper, studied heavy metals were above allowable levels with respect to regulatory recommendations for fish food. As such, the consumption of *Tilapia zilli* from study area may induce toxicological effect associated with heavy metal bioaccumulation over a prolonged period of time.

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Average distribution of studied heavy metals in *Tilapia zilli* across the five Nun river estuaries.