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Distribution of Heavy metals in Blue crabs (*Callinectes sapidus*) in the Okerenkoko and Kurutie communities

Amaka Michael and Abraham Ekperusi

Nigeria Maritime University, Federal Institution, Environmental Management & Pollution, Nigeria
(mimimichaels2@gmail.com)

The utilization of Blue crabs (*Callinectes sapidus*) as bio indicators for environmental monitoring is crucial in the evaluation of heavy metal contamination in Estuaries. This study investigates the distribution and concentration of heavy metals—lead (Pb), mercury (Hg), arsenic (As), nickel (Ni), cadmium (Cd), and chromium (Cr)—in blue crabs (*Callinectes sapidus*) in the Okerenkoko and Kurutie communities. A total of 20 crab samples, comprising male and female crabs were analyzed to assess the levels of contamination and the potential health risks to humans. The analysis was conducted using Atomic Absorption Spectrometry (AAS). Results show that nickel and cadmium concentrations (0.702mg/kg and 0.373mg/kg) were highly significant in both male and female crabs from both communities while lead and mercury mean concentrations (0.764mg/kg and 0.284mg/kg) were significantly higher in male crabs than in females in Okerenkoko. The health risk assessment revealed that the estimated daily intake (EDI) of these metals exceeded safe consumption limits, particularly for lead and mercury however, the health index quotient reveals that children and adults (5.646 and 2.581) are prone to health risks from consuming crabs in Kurutie community than Okerenkoko community. The findings indicate significant environmental pollution likely stemming from industrial activities, with serious implications for both the local ecosystem and public health.

Keywords: Heavy metals, pollution, contamination, health risk