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## Ecological Risk Indices Analysis on Heavy Metal Contamination in Akinyele Local Government, Oyo State, Nigeria

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### Abstract

Levels of Chromium, Copper, Lead, Manganese and Zinc in soil samples from tropical ecosystems of Akinyele Local Government, Oyo State, Nigeria were determined using sequential extraction. The concentrations of Cr, Cu, Pb, Mn and Zn ranged from 0.23-0.26, 0.44-2.42, 0.56-1.15, 5.01-6.16 and 3.73-10.02 mg/kg respectively. The mean metal levels did not show significant variations among study sites during wet and dry seasons. Contamination Factor CF and Pollution Load index PLI indices were used for the assessment of heavy metal contamination and estimation extent of human made inputs from different activities in the area. From the results, it was observed that sites B, C and D had considerable contamination ( $3 < CF < 6$ ) and deterioration quality ( $PLI > 1$ ). The ecological risk indices (Hazard Quotient and Risk Quotient) were in good agreement with existing pollution indices and followed the ascending sequence  $Zn > Mn > Pb > Cu > Cr$  which indicates moderate hazards. The findings of this study using ecological risk indices has provided information on the exposure of the heavy metals to humans and the environment.

**Keywords:** Pollution load index, Contamination factor, Soil, Metal, Ecological risk

