HEAVY METALS CONTAMINATION IN ROADSIDE DUST ALONG MAJOR TRAFFIC ROADS IN JOS METROPOLITAN AREA, NIGERIA

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ABSTRACT

Heavy metal concentration in roadside dusts are increasingly becoming of health concern. Five major traffic roadside dust were determined for Cu, Pb, Ni, Zn, Fe, Cd, Mn and Cr contamination. Metal concentration in the dusts indicated Cu concentration ranged from 24.5 – 67.0 mg/kg, Pb 25.0 – 66 mg/kg, Ni 1.23 – 3.88 mg/kg, Zn 35.0 – 123 mg/kg, Fe 48.5 – 125 mg/kg, Cd 1.54 – 2.58 mg/kg, Mn 1.15 – 2.58 mg/kg and Cr 1.13 – 2.79 mg/kg. The accumulation of the heavy metals in the soil dust is greatly influenced by traffic volume and the metals exhibited a significant reduction in roadside dust with increasing distance from the road. Four methods of assessing pollution were used to assess the extent of pollution. All the four methods revealed that site ABW, YGW and GJR are pollution impacted as compared MMW and BRR sites. The result suggest mixed origin of pollution sources including human activities, vehicular emissions and lithogenic occurrences of the metals from road construction currently in some of the sites studied. The findings herein will serve to create awareness of vehicular heavy metal pollution and therefore suggest a regular monitoring to ensure suitable management of the urban environment and reduction of traffic related contamination of soil, plants and water in Jos Nigeria.

Keywords: Roadside Soil Dust; Heavy Metals Contamination; Enrichment Factor; contamination Factor; Pollution Load Index; Geoaccumulation Index; Statistical Analysis.