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Heavy Metal Contaminations in Urban Soil within Baghdad City, Iraq

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Author(s)

Abdul Hameed M. J. Al Obaidy, Athmar A. M. Al Mashhadi

ABSTRACT

Soil samples were collected from three land use types within Baghdad urban areas. The samples analyzed for Cd, Cr, Cu, Fe, Mn, Ni, Pb and Zn indicated higher concentration of Cd, Cr, Cu, Fe, Ni, Pb and Zn in the industrial area, while higher concentration of Mn was observed in the residential areas. However, the concentration of Cd, Ni and Pb was higher than the calculated worldwide mean of unpolluted soil. For both roadside and open areas soils, industrial area exhibited high values of Cd, Ni and Pb. The highest Single Element Pollution Index (SEPI) for Cd, Ni and Pb in the industrial soils seems therefore to be that this type of soil is the most polluted in the city of Baghdad. The calculated Combined Pollution Index (CPI) for Cd, Ni and Pb ranged from 0.98 to 2.15 with a mean of 1.28 for the entire urban soil samples, with the highest values in the industrial area which suggest multi-element contamination and in some cases are recommended for treatment. Furthermore, significant to extremely high values of enrichment factors were recorded confirming an important role of anthropogenic pollution.

KEYWORDS

Urban Soils; Heavy Metal; Pollution Index; Enrichment Factor, Soil Pollution

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