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Distribution of Heavy Metals in Soil

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ABSTRACT

As a result of anthropogenic activities in different parts of the world, the soils are seen to be contaminated by heavy metals. The acceleration of urbanization has created wealth and opportunity as well as intensified ecological and environmental problems, especially soil pollution. In view of this, accumulation of heavy metals such as Fe, Mn, Zn, Cu, Ni, Cd, Pb and Cr in the surface soils 0-20cm and 20-40cm of Madurai traffic area has been investigated. Total 6 top soil samples with triplicates 0-20cm and 20-40cm were collected from different sites namely S1(Kalavasal), S2(Palaganantham), S3(Periyar), S4(Simmakal), S5(Goripalayam) and S6(Mattuthavani) for a period of July 2012-January 2013 and the heavy metal contents were analyzed by Atomic Absorption Spectroscopy. The mean metal concentration of chromium was found to be maximum in soil at depth 0-20cm and 20-40cm in all the sampling sites. The studies with enrichment factor indicates that lead has been enriched to quite great extent in all sampling sites in soil at depth 0-20cm and 20-40cm followed by chromium. The Normalized Scatter Coefficient value implies faster enrichment of chromium. The Heavy Metal Index study implies that in soil at depth 0-20cm and 20-40cm, all the sampling sites are highly polluted with heavy metals. The roadside soil have significantly high contents of heavy metals and their levels increased with increasing traffic densities and furthermore, they revealed elevated levels in urban areas.

Keywords: Heavy metals, Atomic Absorption Spectroscopy, Enrichment Factor, Normalized Scatter Coefficient, Heavy Metal Index, enriched
