

Nickel and Chromium Distributions in Soil and Plant Influenced by Geogenic Sources

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Abstract : Concentrations of Cr and Ni in 97 plant samples (belonged to eight different plant species) and the associated soil groups were considered in this study. The amounts of Ni in soil groups fluctuated between 26.8 and 36.8 mgkg⁻¹ whereas the related levels of chromium ranged from 67.7 to 94.3mgkg⁻¹. The index of geoaccumulation indicated that 87 percents of the studied soils for chromium and 98.8 percents for nickel are located in uncontaminated zone. The results of Mann-Whitney U-test proved that agricultural practices have not significantly influenced the values of Ni and Cr. In addition, tillage had also little impact on the Ni and Cr transfer in the surface soil. Ni showed higher accumulation and soil-to-plant transfer factor compared with that of chromium in the studied plants. There was a high similarity between the accumulation pattern of Cr and Fe in most of the plant species.

Keywords : bioconcentration factor, chromium, geoaccumulation index, nickel

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