



EVALUATION OF AIRBORNE HEAVY METAL CONTAMINATION BY PLANTS GROWING UNDER INDUSTRIAL EMISSIONS

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Abstract

To assess the suitability of plant parts in environmental contamination monitoring, leaf, bark and topsoil samples of two plant species (*Thuja orientalis* and *Photinia serrulata*) were collected in an industrial area (Mobarakeh Steel Company, Isfahan, Iran) and compared with samples of the same species collected in an unimpacted (background) site. Concentrations of aluminum, iron, nickel and lead in the samples were determined by ICP-AES. Heavy metals were found at higher concentrations in the samples from the industrial area. For the latter, the concentrations of Al and Fe were higher in the bark than in the leaves. A comparison of the two species indicated that both plants were suitable bioindicators for Fe, but *Thuja orientalis* was significantly better ($p < 0.05$). Total concentrations of Al, Fe and Ni in soils were high, but the calcareous soil, with $pH > 8$, limited their mobility and consequently their transfer factor values were small. High concentrations of Al and especially Fe in the leaves and bark of both species are absorbed from the atmosphere.

Key words: bark, biomonitoring, heavy metal, leaves, transfer factor

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