

Soil Surface and Leave Plantain (*Platanus Orientalis*) Contamination to Pb and Cd Mapping in Rasht City

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Abstract

Any change in the characteristics of air, soil, water and food that adversely affect the health of the ecosystem, activities of human and other organisms is called contamination. Heavy metal uptake by plants depends on the type and concentration of metal in soil, its bioavailability, and plant species. The use of new sciences such as geostatistics is useful for fast and simple determination of soil and leaf contamination risk. This study studied the amount of soil and leaves of *Platanus orientalis* contamination in order to map the lead (Pb) and cadmium (Cd) concentration in Rasht city using a geostatistic method. To achieve the goal, 126 samples of surface soil (0-30 cm) and 76 leaf samples (*Platanus orientalis*) were collected from city streets. Total concentrations of lead and cadmium in the soils and leaves were determined, and clay, silt and sand particle percentage, organic matters, and soil pH were measured. Average concentrations of elements in terms of mg/kg were as follows: soil's Lead: 86.62, soil's Cadmium: 0.6, leaf's Lead: 8.99. For soil Pb and Cd and leaf Pb, spherical model yielded a better fit in the experimental variogram in GS⁺ program by using trial and error method. According to the spatial structure, Kriging and IDW estimators were used for interpolation. Kriging estimation was mapped using Arc GIS 9.2 software.

Keywords: Geostatistic, Heavy metals, Variogram, Interpolation, Rasht.

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