

HEAVY METALS CONTENT IN URBAN SOILS OF ISFAHAN, CENTRAL IRAN

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Various heavy metals have been reported as dangerous agents to the human health and wildlife when they occur in the environment at high concentrations. The environmental exposure to heavy metals is a well-known risk factor for cancer. Cadmium and lead compounds are classified as human carcinogens by several regulatory agencies. Gastrointestinal cancers (GI Ca) are common malignancies all over the world. Twenty five percent of all cancer-related deaths are attributed to GI Ca. We investigated levels of two different heavy metals (Cd, Pb) in soils of Lenjanat region in Isfahan province, Central Iran where intensive agriculture surrounded by different industries like steel and cement making factories and mining. According to database, many people suffered from gastrointestinal cancers in this region. Two hundred topsoil samples (0–20 cm depth) were collected from agricultural and non-agricultural soils of the region and analyzed for heavy metals. Results showed that the amount of heavy metals decreased with increasing the distance from the factories. The concentration of Pb and Cd was more than 55 and 5 mg kg⁻¹, respectively. The total Cd concentration in most of the samples exceeded the suggested Swiss thresholds (0.8 mg kg⁻¹). It seems that aerosols originated from industries and mining activities are the main sources for heavy metals in agricultural soils of the area. Thus, analyzing heavy metal contents in dust could provide us a better insight to solve the problem.

Keywords: heavy metals, gastrointestinal cancers, soil pollution