

عنوان مقاله:

Investigating and Compiling a Map of the Severity of Heavy Metal Pollution in the Soil around the Landfill of Sabzevar Municipal Waste with Different Indicators

محل انتشار:

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خلاصه مقاله:

Introduction: Uncontrolled and improper landfilling of solid waste increases the concentration of heavy metals in the soil. Therefore, this study aimed to investigate soil contamination with heavy metals in the landfill of municipal and hospital waste in Sabzevar city by compiling a map of the severity of heavy metal pollution in the soil. **Materials and Methods:** Concentrations of heavy metals were analyzed by ICP-OES at distances of 10, 100 m from the burial site and at depths of 10 and 30 cm. To quantitatively evaluate the severity of pollution and the environmental effects of heavy metals in the soils around the Sabzevar landfill, enrichment factor (EF), index of geoaccumulation (Igeo), and investigating carcinogenic and noncarcinogenic hazards of heavy metals were used. Then a general map of soil pollution severity was prepared using the limitation scores (LS) and potential ecological risk index (RI) method. **Results:** Mean concentrations of As, Zn, Pb, Cr, and Cu in topsoil were 6.01, 41.4, 6.31, 26.77, and 31.45 mg/kg, respectively, as well as Hg and Cd were 60.79, and 61.60 µg/kg, respectively. However, mean concentrations of As, Zn, Pb, Cr, and Cu in the soil at a depth of 30 cm were 5.75, 38.33, 6.25, 22.68, and 31.04 mg/kg, respectively, as well as Hg and Cd were 66.57, and 59.98 µg/kg, respectively. **Conclusion:** According to the estimates of Igeo and FE indices, only Hg and Cd showed severe contamination. The noncarcinogenic risks of heavy metals were estimated to be less than 1.

کلمات کلیدی:

Environmental Pollution, Metals, Heavy, Landfill, Cancer, Sabzevar City

لینک ثابت مقاله در پایگاه سیویلیکا:

