عنوان مقاله:

Origin and spatial distribution of metals in agricultural soils

محل انتشار:

فصلنامه جهانی علوم و مدیریت محیط زیست, دوره 2, شماره 2 (سال: 1395)

تعداد صفحات اصل مقاله: 12

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خلاصه مقاله:

Presence of toxic metals in agricultural soils can impose adverse health impact on consumers. The main purpose of this study was to determine spatial distribution of elements Fe, Sb, Mn in agriculture soils and crops of Hamedan Province in Iran. Soil samples (0-20 cm depth) were collected from an area of 2831 km2. Iron, Antimony and Manganese in samples of soil and agricultural crops were extracted and their amount was determined using atomic absorption spectrometer. The spatial distribution map of the studied elements was developed using Kriging method.The main concentration of Fe, Sb and Mn in the soil of the study area is about 3.8%, 2.5 and 403 mg/kg, respectively.According to chemical partitioning studies, the anthropogenic share of Fe, Sb and Mn is about 28.51%, 34.83% and30.35%, respectively. Results of comparison of heavy metals pollution intensity in the agricultural soil with geoaccumulation index and also pollution index, illustrated that iron and manganese are classified in the Non-polluted class and antimony is in the moderately polluted class. Analysis of zoning map of pollution index showed that Fe, Sb and Mn are of geological sources. In fact, these metals are naturally found in soil. However, anthropogenic activities have led to more accumulation of these metals in the soil. The obtained health risk for metals in agricultural crops is indicative of safe value for consumers.

کلمات کلیدی:

Agricultural yields; Health index ratio (HRI); Heavy metals; Soil; Zoning