

عنوان مقاله:

Contamination of Selective Vegetables of Hamadan With Heavy Metals: Non-carcinogenic Risk Assessment

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خلاصه مقاله:

The current study was undertaken to determine the concentration of lead, cadmium copper, and zinc (Pb, Cd, Cu, and Zn) in three types of collected green leafy vegetables irrigated with contaminated water compared with those irrigated with the fresh water of Hamadan province, Iran using the inductively coupled plasma mass spectroscopy (ICP-MS) technique. Twenty samples of vegetables such as basil, leek, and lettuce irrigated with contaminated water, and twenty samples from five different adjacent areas irrigated with fresh water as control were analyzed to determine heavy metals (HMs). The highest mean concentration of Pb, Cd, Cu, and Zn, regardless of the kind of vegetables irrigated with contaminated water, was ۰.۹۵, ۰.۳۲, ۳.۰۳, and ۱۳.۵۸ mg/kg fresh weight, respectively. Moreover, metals uptake differences by the vegetables were recognized to vegetable differences in tolerance to HMs. The human health risk assessment indicated that non-carcinogenic values of Pb and Cd were higher than the threshold value of ۱, and ingestion was the main exposure pathway of HMs to both children and adults. It suggested that all receptors (especially basil and lettuce) in Hamadan province might have significant and acceptable non-carcinogenic risk because of exposure to Pb and Cd. The significant amount of these HMs in some plants may be due to agricultural uses for the irrigation of the vegetable lands of untreated sanitary and industrial wastewater. The findings revealed that vegetables imply the total health risk on local people, and regular monitoring of HMs is strongly recommended in this region.

کلمات کلیدی:

Heavy metals, Leafy vegetables, Non-carcinogenic risk assessment, Hamadan province

