



Heavy metals contamination in *Malva Parviflora* L. (Malvaceae) grown in soils near the Irbid-Amman Highway

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Abstract: Most heavy metals accumulate in the top soil and their concentration increases in the soil resulting in an increase in their absorption and accumulation in plants. The ingestion of plants grown in contaminated soils may cause deleterious effects to human health. The accumulation of lead, cadmium, copper, zinc, manganese, and iron in *Malva Parviflora* L. and associated soils collected from a field with increasing distance of 4, 25, 50, 100, 200, 400, and 1000 m from the Irbid-Amman Road in Jordan were investigated. *Malva Parviflora* is used in Jordan and in other countries as a food and as a medicinal plant. The parts of *Malva Parviflora* (leaves, stems, and roots) and soil samples at depths of 0-20 and 60-80 cm were analyzed by atomic absorption spectrometry after chemical treatments using acid digestion procedures. The levels of heavy metals in washed and unwashed parts of *Malva Parviflora* were analyzed and compared statistically. The concentrations of Pb, Cd, Cu, and Zn in the soil and parts of *Malva Parviflora* were compared with the safe limits set by many countries. The results of this study show that the concentrations of Pb, Cd, Cu, and Zn in the soil decreased significantly ($P < 0.05$) with depth and significant differences in the contents of these metals were observed with varying distance from the road. The contents of the total heavy metals studied were found to vary with the different parts (leaves, stems, and roots) of the *Malva Parviflora* L. plant and each part had the largest values within the distance of 4-100 m from the road. This study emphasizes the risk associated with consumption of *Malva parviflora* from the fields located near the busy road and this risk increases with decreasing distance from the road.

Key words: *Malva parviflora* L, heavy metals, soil, medicinal plant, Jordan

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