

Health risk assessment of some heavy metals in urban community garden soils of Baghdad City, Iraq

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ABSTRACT

The objective of this study is the evaluation of health risk of heavy metals in soils of urban community gardens of Baghdad City in Iraq. The soil samples were collected from 14 community gardens and analyzed for Cd, Cr, Cu, Ni, Pb and Zn. The non-carcinogenic hazard index (HI) and carcinogenic risk index (RI) were utilized to evaluate human health risk of heavy metals. The health hazard evaluation showed that there is no non-carcinogenic hazard in light of the fact that the HI values were beneath the threshold value ($HI < 1$). The HI for children and adults has a descending order of $Cd < Cr < Cu < Ni < Pb < Zn$. The carcinogenic RI values for Cd, Cr and Ni were over the unacceptable threshold value ($RI < 1 \times 10^{-4}$), demonstrating that there is a serious carcinogenic risk for children and adults in the study area. The carcinogenic RI for children and adults has a descending order of $Cr < Cd < Ni$. These findings give environment administrators and leaders data on whether therapeutic activities are required to decrease exposure.

KEYWORDS urban soil; community gardens; health risk; Iraq