DETERMINATION OF SELECTED HEAVY METALS IN LEAF VEGETABLES FROM AGRICULTURAL SOIL

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ABSTRACT

DETERMINATION OF SELECTED HEAVY METAL IN LEAF VEGETABLES FROM AGRICULTURAL SOIL

The aim of this study was to determine the concentration of heavy metals in leafy vegetables from agricultural soils and also to access the accumulation and translocation of selected heavy metals in leaf vegetables. The selected leaf vegetables are pak choi (*Brassica chinensis L.*), caisim (*Brassica rapa var. pekinensis*) and amaranth (*Amaranthus gangeticus*). The selected heavy metals studied are As (arsenic), Cd (cadmium) and Pb (lead). The samples were analyzed by using Graphite Furnace Atomic Absorption Spectroscopy (GF-AAS). The concentrations of heavy metals in leaves part of leafy vegetable samples ranged from 0.196 to 0.431 mg kg^{-1} As; 1.551 to 3.140 mg kg^{-1} Cd and 0.032 to 0.050 mg kg^{-1} Pb. The concentrations of heavy metals in roots part of leafy vegetable samples ranged from 0.941 to 1.669 mg kg^{-1} As; 0.437 to 1.527 mg kg^{-1} Cd and 0.322 to 1.810 mg kg^{-1} Pb. The trend concentration of metals was as follow: in leaves, Cd > As > Pb and in roots, Pb > As > Cd. The bio-concentration factors (BCF) of heavy metals from soil to vegetables were estimated, and the results showed that Cd have the highest BCF value than the other metals. The translocation factor (TF) calculated showed TF < 1 for As and Pb, while for Cd TF > 1.It is recommended that a wide range of heavy metals and more sampling sites should be studied.