

Analysis of hexavalent chromium uptake by plants in polluted soils

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Abstract Concentration levels of hexavalent chromium in contaminated soil and in *Zea mays* plant parts were determined and Cr(VI) bioaccumulation and bioconcentration capacity of this plant were discussed. *Zea mays* seeds were sown in 40 mg Cr(VI)/kg dw polluted soil. After harvesting it was observed that hexavalent chromium concentrations in plant organs decreased in the following order: roots > stems > leaves. This means that *Zea mays* roots have the greatest tendency to concentrate Cr(VI), the concentration in these plant parts being 11.7 times greater than in the surrounding soil. The translocation factor (TF), bioaccumulation factor (BAF) and the bioconcentration ratio (BCR) were determined and they confirmed that hexavalent chromium was slowly translocated within the plant from the roots to stems, and very slowly further translocated to leaves. The results of this study indicate that *Zea Mays* is not a good hexavalent chromium phytoextractor from soils with 40 mg Cr(VI)/kg dw content.

Keywords: hexavalent chromium, toxic metals, polluted soils, translocation, bioaccumulation, bioconcentration.
