

# Phytoremediation of Contaminated Urban Soils Using Two Ornamental Plants

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The phytoremediation method (the removal of contaminants using plants) is especially relevant in urban areas where soils are polluted with heavy metals and other toxic elements. Some ornamental plants not only serve an aesthetic function, but can also efficiently accumulate pollutants and therefore remediate contaminated soils. This study aimed to evaluate the phytoremediation capacity of *Coleus* sp. and *Petunia* sp. which are widely used in urban landscape design. The plants were planted in the soils containing high concentrations of V, Cr, Mn, Fe, Co, As, Br, Cs, Zr and Th, and after 30 days the content of the elements in the soil, roots and aboveground parts of the plants was determined using neutron activation analysis. The concentrations of Cr, Fe, Co, As, Cs and Th in soils decreased by 11–29%. To assess the ability of plants to accumulate elements from soils and transfer them from roots to shoots, the bioconcentration and translocation factors, respectively, were calculated. It was observed, that both plant species had low values of bioconcentration factors ( $< 1$ ) for all elements except Br, which indicates limited ability of elements' accumulation by these plants. However, the values of translocation factors greater than unity were determined for several elements. *Petunia* sp. was more effective in translocating V, Cr, Br, Cs, Mn, Fe and Zr with the translocation factors ranging from 1.1 to 12. Among the species studied *Petunia* sp. can be considered as the most promising species for phytoextraction of heavy metal-contaminated soils. Phytoremediation potential of *Coleus* sp. and *Petunia* sp. needs to be investigated in a long-term experiment.