

# VARIATIONS IN HEAVY METALS ACCUMULATION LEVELS IN VARIOUS PLANT SPECIES FOR PHYTOREMEDIATION IN ACID SOIL

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## **Abstract**

In past years, soil contamination with heavy metals has become a global concern across the world. In recent years more attention has been given to investigate phytoremediation as a promising strategy for heavy metals removal from polluted soil. At the same time, phytoremediation is also seen as a beneficial way to deal with the problem of constantly increasing volumes of sewage sludge. However, safe application of sewage sludge to a soil is a complex environmental issue. This study aimed to clarify the potential of local plants to accumulate heavy metals under different sewage sludge pollution and provide scientific guidance for the phytoremediation efficiency improvement.

The results reported that herbaceous coarse-stem plants showed high metal accumulation capabilities, which rises with increasing dose of sewage sludge. *Artemisia dubia* was found highly effective in the accumulation of Cd and Cu while the other plants were expressed by high accumulation capabilities for the Zn, Cr, Ni and Pb. Perennial grasses were the most highly Zn absorbing plant species among others. In comparison with perennial grasses, herbaceous coarse-stem plants hold an advantage for phytoremediation due to more efficient heavy metals uptake combined by high biomass accumulation; thus, they may act as key-species in a phytoremediation-related concept.

**Keywords:** heavy metals; sewage sludge; herbaceous plants, acid soil