Study on using green plants to remove contaminants from soil through phytoremediation

[1]Alsheikh A. Abdullah .

[1]Dep. of Environmental Technology, Riyadh College of Technology, Riyadh, Kingdome of Saudi Arabia.

Abstract:

Contamination of heavy metals represents one of the most pressing threats to water and soil resources, as well as human health. Phytoremediation can be used to remediate metal-contaminated sites. The aim of this study was to assess the accumulation of heavy eight heavy metals (Cd, Cr, , Cu, Fe, Mn, Ni, Pb, and Zn) in soils and shoots of four different native plant species collected from the industrial area of Riyadh, Saudi Arabia. The plants were *Cyperus laevigatus, Cassia italic, Rhazya stricta, Anabasis setifera*. The results showed that the mean values of concentrations of heavy metals in the soils followed the sequence Cd > Cu > Pb > Ni > Zn > Cr > Mn > Fe, while in plants the trend was Cd > Ni > Cr > Pb > Cu > Zn > Mn > Fe . The four local plant species in the industrial zone grew without apparent toxicity. High concentrations of Fe and Mn were found in plants and soils from which the plant species were taken. The investigated species could accumulate Cd, Cr, Cu, Fe, Mn, Ni, Pb, and Zn,, and this indicated that most native plant species were effective in uptake and transferring more than one element from soil to shoot. Consequently, the results showed that most plant species in the industrial area of Riyadh might be suitable for heavy-metal extraction of Fe and Mn from contaminated soils and to be candidates for phytoremediation.

Keywords: Heavy metal accumulation, Phytoremediation, Polluted Soil, Native plants, Metal accumulators