Phytoremediation of heavy metals from the polluted soils

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Phytoremediation is considered to be a “Green Revolution” in the field of innovative clean up technologies. It describes the treatment of environmental problems through the use of plants that mitigate the same without the need to excavate the contaminated material and dispose it elsewhere. Some plants proved to be popular organism for bio-monitoring to determine and identify the sources of heavy metal soil pollution and their detoxification by phytoextraction techniques. In the present work, soil and plant (luxuriously growing as hyper accumulator) samples were collected from the polluted sites to find out the extent of heavy metal accumulation in them. Soil and plant samples were digested using green analytical technique for metal analysis and analyzed for the heavy metal content using Atomic Absorption Spectrophotometry (AAS). We found Saccharum, Brassica juncea, Tamarix and Ricinus as efficient accumulators of heavy metals from the soil. The general trend of heavy metal accumulation pattern in soil samples from all the sites was found out to be in order of: Pb>Cu>Ni>Cr>Cd. For greenhouse experiment Brassica juncea and DU nursery soil was selected. Results of AAS of digested samples of both plants and soils of greenhouse experiments showed that heavy metal content declined in pot soil after plants have been grown and harvested. Therefore, it was concluded that Brassica is a good accumulator and proved to be a remedy for controlling heavy metal soil pollution. Most important in phytoremediation is to use wild plants as accumulators in the greenhouse experiment as it minimizes the chances of bio-magnification of heavy metals in food chain. Further, its use in mixed cropping in the field of food crops reduces the risk of health hazards due to heavy metal toxicity.

Biography
Rekha Kathal has completed her PhD from Delhi University in 1990. She is currently working as Associate Professor in Department of Botany, Daulat Ram College, University of Delhi, India. She has organized various workshops in the College under Star College Project sponsored by Department of Biotechnology, Government of India.

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