Phytoremediate of Cd and Pb by water hyacinth (*Eichhornia crassipes*) in aquatic environment

Shahram Sedaghathoor[1*]
Soheila Abdolalizade[2]
Mehrdad Farrokhi[3]

1. Associate Professor, Department of Horticulture, Faculty of Agriculture, Rasht Branch, Islamic Azad University, Rasht, Iran
2. M.Sc. of Physiology of Ornamental plants, Rasht Branch, Islamic Azad University, Rasht, Iran
3. Associate Professor, Department of Environment Health, Faculty of Health, Guilan Medical University, Rasht, Iran

[*]Corresponding author
Sedaghathoor@iaurasht.ac.ir

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Abstract

This experiment carried out to study the potential of water hyacinth in the removal of heavy metals cadmium and lead. The trial was performed as randomized complete block design with 6 treatments in triplicates in fall 2011 in Rasht city. The treatments were tap water, 2ppm Cadmium chloride, 4ppm Cadmium chloride, 4ppm Lead chloride, 8ppm Lead chloride, Cadmium chloride (2ppm) + Lead chloride (4ppm). Vegetative indexes (leaf size and sponge tissue diameter), leaf number, relative growth, bioconcentarion factor and metals content in plant tissues measured. Inductively Coupled Plasma (ICP) used to measure absorbed elementts. Results showed that water hyacinth grows naturally in high levels of heavy metals, especially cadmium and lead. The growth rate and leaf size of water hyacinth under 2 mgl^{-1} cadmium chloride was about 22% more than plant growth in control conditions (tap water). Lead and cadmium uptake by plants was higher than other treatments under concentrations of 4 ppm and 8 ppm respectively. It seems water hyacinth is a phytoremediation plant and it has removal capability of some dangerous heavy metals. Therefore, it can recommend in contaminated environments.

Keywords: Water hyacinth, Heavy metal, Phytoremediation.