Ability of four aquatic-ornamental plants in bioremediation of Gohar-Rood, Zarjob, Eynak and Anzali Lagoon (Guilan Province)

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Abstract

One of the major environmental problems in the world is heavy metals pollution, which is used modern technology of phytoremediation to remove heavy metals and create a sustainable environment. Therefore, in order to investigate the phytoremediation potential of some ornamental- aquatic plants in the aquatic environment, a factorial experiment was conducted based on randomized complete block design with two factors and three replications. . In this experiment, 4 plants, including umbrella palm, duckweed, water hyacinth and Canna were studied in 5 contaminated aquatic environments, including Gohar Rood river, Zarjoob river, Eynak lagoon, Anzali lagoon and control (containing cadmium, chromium, lead and zinc metals). Heavy metals, including lead, nickel, cadmium, and zinc were measured by an ICP device. The results showed that the highest rate of adsorption of lead, nickel, cadmium and zinc metals were observed for duckweed stem. Based on the results obtained from the effect of contaminated water on the amount of heavy metal absorption, the highest rate of absorption of cadmium, lead and zinc, as well as the highest protein, pro-line and nitrogen levels were related to control treatment. Generally, based on the results of this study, it can be stated that duckweed is suitable for the most heavy metals phytoremediation.

Keywords: Duckweed, Heavy Metals Pollution, Proline, Phytoremediation.

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