Investiagion of Phytoremedation Potential Three Aquatic Plants: Water Hyathinc, Azolla, Cyperus and Polluted Aquatic Environment of Goharrod, Zarjob Alternifolius

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Global population overgrowth and excessive, incorrect exploitation of water resources, especially rivers, have undermined the health of these crucial resources and dynamic ecosystems. Two instances are the Zarjoob and Goharrood rivers as two of the most polluted rivers in northern Iran. River pollution has a direct impact on the health of human and other living organisms. Therefore, the cleanup of these rivers increasingly attracts the attentions. One instance of the pollutions is heavy metals that are not decomposable in the environment. In the present study, we used common water hyacinth (Eichhomia crassipes), umbrella palm (Cyperus allernifoliusi) and azolla (Azolla filiculoides) to wipe these metals the polluted environments of the Zarjoob and Goharrood rivers. The experiment was carried out as a factorial study with two factors on the basis of a Randomized Complete Block Design in which the first factor was devoted to common water hyacinth, umbrella palm, and azolla, and the second factor was devoted to tap water and water samples taken the Goharrood and the Zarjoob. The study was composed of nine treatments in three replications. Results for the rate of the removal of heavy metals and their accumulation in the tissues of common water hyacinth, umbrella palm and azolla showed that they had similar performances in removing some metals but different performances in removing other metals so that it can be stated that all three plants were almost equally successful in removing Mn, but the highest Pb removal efficiency was related to azolla (7.042%) and common water hyacinth (39.15%) and the highest Cu removal efficiency was related to common water hyacinth (28.56%) and umbrella palm (93.72%). It was revealed that common water hyacinth had higher efficiency (9.04%)

to remove Cr and azolla was more successful in removing Zn (53.44%) the studied polluted environment, especially the Goharrood. According to the results, these plants especially common water hyacinth can be recommended for the aquatic environments.

Keywords : River pollution, Eichhomia crassipes, Cyperus allernifoliusi, Azolla filiculoides, Goharrood, Zarjoob