

Evaluation of phytoremediation ability of tree species in soils contaminated with heavy metals in Eynak Wetland in Rasht

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Abstract

Phytoremediation is a kind of natural and sustainable technique, easy, low-cost, eco-friendly, environmentally friendly and applicable in wide areas, in which resistant plants are used to purify soils contaminated with organic and mineral compounds. This research was carried out with the aim of evaluating the phytoremediation ability of tree species such as Locust tree (*Robinia pseudoacacia* L.), Elm tree (*Ulmus carpinifolia* var *umbraculifera* Rehd.), Tree of Heaven (*Ailanthus altissima*) and Judas tree (*Cercis siliquastrum*) in soils contaminated with lead and cadmium heavy metals in Eynak Wetland in Rasht. For this aim in polluted sites and controlled site, Considering the main wind direction, one Transect is selected and sampling from leaves and surface roots was done with statistical method in completely randomized plot design with three replicates. Then lead and Cadmium content density in each samples was determined by Atomic absorption instrument model Perkin-Elmer 3030. Results indicated that the concentration of lead and cadmium in polluted sites tree more than the control sites. Also Locust tree, Tree of Heaven and Judas tree species have the highest translocation factor of Lead (0.59 ppm, 0.56 ppm, 0.19 ppm) and Cadmium (0.56 ppm, 0.38 ppm, 0.19ppm) respectively. According to this issue and appropriate adaptation conditions, these species can be widely used in Phytoremediation projects of soils contaminated with lead and cadmium under the same conditions.

Keywords: Phytoremediation, Heavy Metals, Soil Pollution, Tree Species, Eynak Wetland.