

Comparison Effect of Phytoremediation in Cadmium and Chromium Contaminated Soil in *Spinacia oleracea* and *Lepidium sativum*

S. Jahanbakhshi^{1*}, M. R. Rezaei¹ and M. H. Sayyari-Zahan²

(Received: June 25-2012 ; Accepted : Feb. 11-2013)

Abstract

Phytoremediation is one of the cleanup methods of polluted soil that is possible accumulation of heavy metals in plant tissues, exclusion of these elements from contaminated soil. Therefore, to achievement the objective, this research was done in pot culture using completely randomized design at the University of Birjand in 2011. Two species *Spinacia oleracea* and *Lepidium sativum* were used to remove or reduce the concentration of Cadmium (Cd) and Chromium (Cr). In this study, different levels of Cadmium (CdCl_2) concentrations including 5, 50, 100 mg kg^{-1} and also chromium (CrCl_3) concentrations 50, 100, 150 mg kg^{-1} were used respectively and control as well for each species with three replications. Results indicated that the Cd and Cr concentration in shoot of *Spinacia oleracea* and *Lepidium sativum* significantly affected by their concentration in soil ($p < 0/01$). Results revealed that increasing of Cd and Cr concentrations in soil, showed an increase concentration of both metal in shoot of *Spinacia oleracea*. increasing of Cd concentrations in soil, showed an increase concentration of it in shoot of *Lepidium sativum* but the concentration of Cr was less. Also, comparison of cadmium and chromium concentrations in shoot of *Spinacia oleracea* and *Lepidium sativum* showed that two species showed same behavior of Cd and different behavior Cr concentration. So the analysis of data showed that both of species are appropriate for absorption of Cd and Cr and phytoremediation technology as well. It can be concluded that in high soil Cr concentration for phytoremediation *Lepidium sativum* is not appropriate.

Keywords: Phytoremediation, *Spinacia oleracea*, *Lepidium sativum*, Cadmium, Chromium Contaminated soil.

1. Dept. of Environ., College of Agric., Univ. of Birjand, Birjand, Iran.

3. Dept. of Soil Sci., College of Agric., Univ. of Birjand, Birjand, Iran.

*: Corresponding Author Email: jahanbakhshish@yahoo.com