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OPTIMIZATION PROCESS OF CADMIUM AND ZINC REMOVAL FROM SOIL BY PHYTOREMEDIATION USING *Brassica napus* AND *Triticales sp.*

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Abstract

In this paper, Cadmium and Zinc removal from soil by phytoremediation was investigated. The experiments were carried out with two types of plants, *Brassica napus* and *Triticales sp.* Response surface modeling and optimization of Cd and Zn removal rate was performed for each type of plant under controlled conditions, i.e. as a function of Cd concentration, Zn concentration and pH. Although the maximum heavy metal uptake (i.e. 2.4 % Cd removal rate and 1.80 % Zn removal rate, respectively) was obtained for *Brassica napus* at low heavy metal concentration (i.e. below alert limits) and pH of about 8.2, *Triticales sp.* appears to be more efficient at higher heavy metal concentration (i.e. above alerts limits) and neutral-slightly alkaline pH. The results of this study indicates that *Brassica napus* is more suitable for phytoremediation of soils light polluted with Cd and Zn, while *Triticales sp.* could be more suitable for phytoremediation of Cd and Zn rich-polluted soil.

Key words: biotechnology, heavy metal, modeling, optimization, phytoremediation

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