

The Effect of Additive Acid on the Phytoremediation Efficiency

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Abstract : Metal pollutants, especially heavy metals from anthropogenic sources such as metallurgical industries' waste including mining, smelting, casting or production of nuclear fuel, including mining, concentrate production and uranium processing ends in the environment contamination (water and soil) and risk to human health around the facilities of this type of industrial activity. There are different methods that can be used to remove these contaminants from water and soil. These are very expensive and time-consuming. In this case, the people have been forced to leave the area and the decontamination is not done. For example, in the case of Chernobyl accident, an area of 30 km around the plant was emptied of human life. A very efficient and cost-effective method for decontamination of the soil and the water is phytoremediation. In this method, the plants preferentially native plants which are more adaptive to the regional climate are well used. In this study, three types of plants including Alfalfa, Sunflower and wheat were used to Barium decontamination. Alfalfa and Sunflower were not grown good enough in Saghand mine's soil sample. This can be due to non-native origin of these plants. But, Wheat rise in Saghand Uranium Mine soil sample was satisfactory. In this study, we have investigated the effect of 4 types of acids inclusive nitric acid, oxalic acid, acetic acid and citric acid on the removal efficiency of Barium by Wheat. Our results indicate the increase of Barium absorption in the presence of citric acid in the soil. In this paper, we will present our research and laboratory results.

Keywords : phytoremediation, heavy metal, wheat, soil

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