World Academy of Science, Engineering and Technology
International Journal of Biological and Ecological Engineering
Vol:12, No:02, 2018

Examining the Role of Tree Species in Absorption of Heavy Metals; Case Study: Abidar Forest Park

Authors : Jahede Tekeykhah, Seyed Mohsen Hossini, Gholamali Jalali

Abstract : Industrial and traffic activities cause large amounts of heavy metals enter into the atmosphere and the use of plant species can be effective in assessing and reducing air pollution by metals. This study aimed to investigate the adsorption level of heavy metals in leaves of Fraxinus rotundifolia, Robinia, Platanus orientalis, Platycladus orientalis and Pinus eldarica trees in Abidar forest park. For this purpose, samples leaves of the trees were prepared from the contaminated and control areas in each region in 3 stations with 3 replicates in mid-August and finally 90 samples were sent to the laboratory. Then, the concentrations of heavy metals were measured by graphite furnace. To do this, factorial experiment based on a completely randomized design with two factors of location on two levels (contaminated area and control area) and the factor of species on five levels (Fraxinus rotundifolia, Robinia, Platanus orientalis, Platycladus orientalis and Pinus eldarica) with three replications was used. The analysis of collected data was performed by SPSS software and Duncan's multiple range test was used to compare the means. The results showed that the accumulation of all metals in the leaves of most species in the infected area with a significant difference at 95% level was higher than the control area. In the contaminated area, with a significant difference at 5% level, the highest accumulations of metals were observed as the following: lead, cadmium, zinc and manganese in Platanus orientalis, nickel in Fraxinus rotundifolia and copper in Platycladus orientalis.

Keywords : airborne, tree species, heavy metals, absorption, Abidar Forest Park
Conference Title : ICDF 2018 : International Conference on Dendrology and Forestry
Conference Location : Paris, France
Conference Dates : February 19-20, 2018