

Arundo Donax (Giant Reed) Phytoremediation Function of Chromium (Cr) Removal

Authors : Sadeg Abdurahman, Claudio Stockle, James Harsh, Marc Beutel, Usama Zaher

Abstract : Pollution of the environment is a phenomenon which has taken a big part of importance of the world governments since the second half of the last century, this takes dangerous environmental, economic and social ranges dimensions especially after industrial advancement in industrialized country and good industrial expansion supported with modern technology and as chromium is known to be used in tannery factories. Chromium is considered a harm element to the environment due to its danger and transference through food, air, and water to the plants, animals and people. In this study the capacity of Arundo donax against chromium pollution was conducted. A. donax plants were grown-up under greenhouse conditions in pots contain nursery soil and feeding by Cr synthetic wastewater (0, 0.1, 1.0 and 2.0 mg L-1) for four weeks. Leaves, roots and stems dry matter production, color degree values, chlorophyll, growth parameters, and morphological characters were measured. The high Cr concentration was in roots was 1.15 mg kg-1 . Similarly, Cr concentration in stem was 0.469 mg kg-1 at 2.0 mg L-1 supplied Cr. In case of leaves, the maximum Cr concentration was 0.345 mg kg-1 at 2.0 g L-1 supplied Cr. The bioaccumulation and translocation factors was calculated. The macrophyte A. donax L. may be considered to be the most promising plant species in remediation of Cr-contaminated soil and wastewater due to its deeper root system as well as has higher efficiency to absorb chromium and other heavy metals as well.

Keywords : Arundo donax, Chromium pollution, heavy metals, phytoremediation, wastewater

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