

ASSESSING PLANTS FOR PHYTOREMEDIATION OF ARSENIC-CONTAMINATED WATER

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Abstract

Phytoremediation is an innovative technology that uses plants in order to remediate polluted water and soil. A 10 week study in flowerpots was performed in order to determine the arsenic (As) removal potential of *Shoenoplectus americanus* (*Juncos*), *Eleocharis macrostachya* (Spikerush pálida) and *Baccharis salicifolia* (Chilca) and to evaluate their tolerance to increasing doses of As. The experiment used five different treatments with distinct As concentrations (1, 2, 3, 4 and 5 mg/L) and a control (faucet water) to determine the acclimatization capacity of the species to the different concentrations. The number of individuals and their height were determined during the experiment. The values for the factors of translocation, accumulation and enrichment were obtained at the end of the experiment; the maximum values for these factors were, respectively, 1.86, 92.13 and 1.63 for *E. macrostachya*, 1.73, 59.74 and 0.56 for *S. americanus* and 8.96, 27.94 and 6.72 for *B. salicifolia*. The maximum growth value belonged to the *S americanus*. The maximum concentration of As in water tolerated by *E. macrostachya* and *B. salicifolia* was 2 mg/L. *S. americanus* showed the highest As accumulation capacity and the greatest tolerance in all of the tested concentrations. *B. salicifolia* and *E. macrostachya* proved to be translocator plants and *S. americanus* was confirmed to be a stabilizer plant with a high potential for phytostabilization and rhizofiltration techniques.

Key words: Phytoremediation, hydroponic system, traslocation factor, arsenic.