Effect of Salinity on Phytoaccumulation of Selenium in Duckweed
(Lemna minor)

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Abstract. The purpose of this project was to evaluate duckweed’s potential as a phytoremediator for waters with high TDS and Se. Duckweed was cultured for one week on a modified Hoagland’s solution. Uptake of Se from 10 concentrations between 2 and 350 ppb Se with corresponding TDS values of 30 to 4510 mg L⁻¹ were analyzed. 250 mL magenta boxes were filled with 200 mL of each concentration, to which 2.0 g (fresh weight) of duckweed was added. Each concentration was performed in triplicate with controls of distilled water. Samples were prepared for elemental analysis using acid digestion. The combined effects of TDS and Se concentration had a positive effect on plant growth, resulting in a maximum growth of 227%. Plant sample analysis revealed mg Se g⁻¹ duckweed (dry weight values) of 0.11 µg g⁻¹ to 19.49 µg g⁻¹. Due to its rate of growth and uptake of Se, duckweed shows promise as a phytoremediator for waters with high TDS and Se concentrations.

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