BIOSORPTION OF CADMIUM (II) FROM AQUEOUS SOLUTION
BY NaCl-TREATED Ceratophyllum demersum

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Abstract

The biosorption characteristics of Cd(II) ions using the NaCl-treated Ceratophyllum demersum were studied. The effect of altering the conditions, such as solution pH, the biosorbent dosage and contact time for the biosorption of Cd(II), and the biosorption/desorption studies, were investigated. Langmuir, Freundlich, Dubinin-Radushkevich and Redlich-Peterson models were applied to describe the biosorption isotherms. Langmuir model fitted the equilibrium data better than the other isotherms (R²=0.9903). The biosorption capacity of NaCl-treated C. demersum biomass for Cd(II) ions was found to be 35.71 mg g⁻¹ at optimum conditions of pH 6, biomass dosage of 4 g L⁻¹ and contact time of 40 min. Evaluation of experimental data in terms of biosorption kinetics showed that the biosorption of Cd(II) on NaCl-treated C. demersum followed pseudo-second order kinetics well. Desorption data revealed that biosorption capacity of biomass did not decrease significantly after three biosorption/desorption cycles.

Key words: biosorption, Ceratophyllum demersum, Cd(II), kinetic, isotherm

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