Investigation of Cr(VI) SorptionontoC.limonium:Equilibrium, Kinetic,Thermodynamic studies

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Abstract: The present study was undertaken to evaluate the feasibility of citrus lemonium peel waste for the removal of Cr(VI) ions from aqueous solutions. Batch experiments were performed to study the biosorption of Cr(VI) on c.lemonium peel biosorbent. The maximum biosorption capacity of c.lemonium peel biosorbent for Cr(VI) removal was ca. 22mgg−1. Two simplified kinetic models viz. pseudo-first-order, pseudo-second-order models were tested to describe the biosorption process. Kinetic parameters, rate constants, equilibrium sorption capacities, and related correlation coefficients for kinetic models were determined. It was found that the present system of Cr(VI) biosorption on c.lemonium peel biosorbent could be described more favorably by the pseudo-second-order kinetic model. The biosorption process has been found to be exothermic. The results of the present study suggest that c.lemonium peel waste can be used beneficially in treating industrial effluents containing heavy metal ions.

Keywords :Biosorption,*Cr(VI),*C.limonium, isotherm models, kinetic models, Thermodynamic studies.

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