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Author(s): Kaewsarn P

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Abstract: Biosorption of heavy metals can be an effective process for the removal and recovery of heavy metal ions from aqueous solutions. The biomass of marine algae has been reported to have high uptake capacities for a number of heavy metal ions. In this paper, the adsorption properties of a pre-treated biomass of marine algae *Padina* sp. for copper(II) were investigated. Equilibrium isotherms and kinetics were obtained from batch adsorption experiments. The biosorption capacities were solution pH dependent and the maximum capacity obtained was 0.80 mmol/g at a solution pH of about 5. The biosorption kinetics was found to be fast, with 90% of adsorption within 15 min and equilibrium reached at 30 min. The effects of light metal ions on copper(II) uptake were studied and the presence of light metal ions did not affect copper(II) uptake significantly. Fixed-bed breakthrough curves for copper(II) removal were also obtained. This study demonstrated that the pre-treated biomass of *Padina* sp. could be used as an effective biosorbent for the treatment of copper(II) containing wastewater streams. (C) 2002 Published by Elsevier Science Ltd.

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