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Biosorption of Trivalent Chromium from Aqueous Solution by Red Seaweed *Polysiphonia nigrescens*

PDF (Size: 458KB) PP. 832-843 DOI : 10.4236/jwarp.2011.311093

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ABSTRACT

This paper presents the biosorption of chromium onto red seaweed (*Polysiphonia nigrescens*). Batch mode experiments were performed to determine experimental parameters affecting sorption process such as pH, contact time, initial metal ion concentration and biomass dosage. The Cr(III) sorption was dependent on pH and adsorbent dosage. The adsorption kinetic data could be fitted with a pseudo-second-order model and the equilibrium data with a Langmuir model. The maximum sorption capacity was of 16.11 mg/g at pH 4 and 10 g/L of biomass dosage. 0.1 M H₂SO₄ showed good desorption efficiency (>80%). Spectroscopy analysis showed that Cr(III) sorption on seaweed was mainly through the ion-exchange mechanism. This report indicates that *P. nigrescens* is an effective and economical sorbent for removal of Cr(III) from wastewaters.

KEYWORDS

 Seaweed *Polysiphonia nigrescens*, Biosorption, Chromium, Isotherms, Kinetics Parameters

Cite this paper

P. Blanes, C. Cong, A. Cortadi, M. Frascaroli, M. Gattuso, S. García, J. González, M. Harada, C. Matulewicz, Y. Niwa, H. Prado and L. Sala, "Biosorption of Trivalent Chromium from Aqueous Solution by Red Seaweed *Polysiphonia nigrescens*," *Journal of Water Resource and Protection*, Vol. 3 No. 11, 2011, pp. 832-843. doi: 10.4236/jwarp.2011.311093.

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