



“Gheorghe Asachi” Technical University of Iasi, Romania



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## BIOSORPTION OF TRIVALENT CHROMIUM FROM AQUEOUS SOLUTIONS BY *Pleurotus ostreatus* BIOMASS

Ingrid Johanna Puentes-Cárdenas<sup>1</sup>, Aura Marina Pedroza-Rodríguez<sup>2</sup>,  
Manuel Navarrete-López<sup>1</sup>, Thelma Lilia Villegas-Garrido<sup>1</sup>, Eliseo Cristiani-Urbina<sup>1\*</sup>

<sup>1</sup>Escuela Nacional de Ciencias Biológicas, Instituto Politécnico Nacional. Prolongación de Carpio y Plan de Ayala s/n. Colonia Santo Tomás. México, DF, 11340, México

<sup>2</sup>Pontificia Universidad Javeriana, Facultad de Ciencias. Carrera 7 No. 40 – 62 Bogotá D.C., 11001000, Colombia

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### Abstract

The biosorption characteristics of Cr(III) ions from aqueous solutions using the fungus *Pleurotus ostreatus* were investigated in terms of kinetics, equilibrium and thermodynamics. Optimum pH for Cr(III) biosorption was 5.5. The biosorption process of Cr(III) followed well pseudo first-order kinetics. Among the two-, three-, and four-parameter isotherm models tested, the Langmuir model exhibited the best fit to experimental data. According to Langmuir isotherm model, the maximum Cr(III) biosorption capacity of *P. ostreatus* is 110.9 mg/g, which is very close to the experimentally determined value (108 mg/g). Thermodynamic parameters (activation energy, and changes in activation enthalpy, activation entropy, and free energy of activation) revealed that the biosorption of Cr(III) onto *P. ostreatus* is an endothermic and non-spontaneous process. Results suggest that *P. ostreatus* is one of the best biosorbents hitherto reported for Cr(III) removal from aqueous solutions and could therefore be used effectively to detoxify wastewaters polluted with Cr(III).

**Key words:** Cr(III) biosorption, isotherm, kinetics, *Pleurotus ostreatus*, thermodynamics

Received: April, 2012; Revised final: September, 2012; Accepted: September, 2012

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\* Author to whom all correspondence should be addressed: e-mail: [ecristia@enb.ipn.mx](mailto:ecristia@enb.ipn.mx); Phone: +52 5557296300 ext. 62454; Fax: +52 5557296000 ext. 46211