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Influence of Temperature on Equilibrium, Kinetic and Thermodynamic Parameters of Biosorption of Cr(VI) onto Fish Scales as Suitable Biosorbent

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ABSTRACT
In this work the potential of fish scales as a suitable biosorbent for removal of Cr(VI) ions from aqueous solutions was investigated at various temperatures. The influence of temperature on equilibrium, kinetics as well as thermodynamic parameters was investigated. Various isotherm models such as Langmuir, Freundlich, R - P, D - R, Temkin and Halsey were used for the mathematical description of the biosorption of Cr(VI) ions onto fish scales. It was observed that Freundlich model exhibited the best fit to experimental data. Amongst the various kinetic models tested, the pseudo-first-order kinetic model represented the best correlation for the biosorption of Cr(VI) onto fish scales at various temperatures. In addition, various thermodynamic parameters such as ?Go, ?Ho and ?So were also determined. The biosorption of Cr(VI) was found to be a spontaneous and endothermic process.

KEYWORDS
Biosorption; Chromium; Kinetics; Low-Cost Biosorbent; Wastewater Treatment

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