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Bioaccumulation and Biosorption of Chromium VI by different Fungal Species

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Abstract

Biosorption of the hexavalent chromium ion (Cr (VI)) onto the cell surface of different sized fungal species in aerobic condition was investigated. The assessment of the metal-binding capacity of new biosorbents has been discussed. Batch experiments were conducted with various initial concentrations of chromium ions to obtain the sorption capacity and isotherms. The results obtained at pH 5.5 of chromium solution were 97.39% reduction by *Trichoderma* and 100% reduction by *Agaricus*. It was found that the sorption isotherms of fungi for Chromium (VI) appeared to fit Freundlich and Langmuir's models. The results of FT-IR analysis suggested that the chromium binding sites on the fungal cell surface were most likely carboxyl and amine groups. The fungal surfaces showed efficient biosorption for Chromium in Cr⁺⁶ oxidation state. Biosorption isotherm curves, derived from equilibrium batch sorption experiments, were used in the evaluation of metal uptake by these fungal biosorbents.

Keywords: Biosorption, Trichoderma and Agaricus, Chromium VI, sorption isotherms, FT-IR spectroscopy.
