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CHROMIUM(VI) REMOVAL FROM AQUEOUS SOLUTIONS BY *Trichoderma viride* FUNGAL BIOMASS

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Abstract

The bioremoval of Cr(VI) through biosorption and bioaccumulation using dead and living biomass of *Trichoderma viride* was investigated in batch mode, since a few studies were found in the literature on this subject. The biosorbent is an indigenous fungal strain of *Trichoderma viride*, isolated from a forest soil in an area from Iasi city, Romania.

Effects of pH, biomass dosage, metal concentration in the initial solutions, contact time and temperature were assessed. It was found that the optimum pH for maximum removal efficiency is acidic for dead biomass and near the neutral value for living microorganisms. The biosorption process of total Cr removal by dead *T. viride* biomass is endothermic. The experimental data modeling and FTIR analysis showed that the mechanism of Cr(VI) removal by *T. viride* is based on a redox reaction. The linearized Langmuir isotherm had the best fitting compared to the other models applied showing that sorption occurs in monolayer at 25 and 40°C. Kinetic data were evaluated by the pseudo-first order and pseudo-second order adsorption kinetic models, together with pseudo-first order and pseudo-second order reduction models.

The new fungal strain of *T. viride* has confirmed high uptakes and removal efficiencies in Chromium(VI) bioremoval.