

Application of the Yeast *Saccharomyces cerevisiae* for the Removal of Heavy Metals from Industrial Wastewater

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The waste of the yeast *Saccharomyces cerevisiae* biomass originated from beer fermentation industry, was used to remove metal ions from four synthetics nickel-containing effluents. Biosorbent was characterized using scanning electron microscopy and Fourier-transform infrared spectroscopy. The effect of pH, nickel concentration, contact time, and temperature on metal biosorption was investigated. Characterisation of biosorption equilibrium was evaluated employing the Langmuir, Freundlich and Temkin models. The kinetics of the biosorption was described using pseudo-first order, pseudo-second order, Elovich model and the intra-particle Weber and Morris diffusion models. According to the thermodynamic parameters the biosorption can be described as a spontaneous process. The effect of pH and sorbent dosage on metal removal from real industrial effluent was investigated. The two-stage sequential scheme of Ni(II) removal from effluent by the addition of different dosage of new sorbent was proposed.