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Biosorption of copper by spent yeast immobilized in sodium alginate beads

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Abstract
Spent yeast from the brewing industry was immobilized with sodium alginate and used in a study on biosorption of Cu(II). Kinetic models were developed using pseudo-first and second order equations and tested for the sorption of Cu(II). The results showed that the sorption of Cu(II) onto immobilized spent yeast in sodium alginate beads could be described by a pseudo-second order model, which had high correlation coefficients ($r^2$). The rate constant (k2) and the initial sorption rate (h) were calculated. The values of the rate constants were found to decrease from 0.208 to 0.037 g/mg min with an increase in the initial concentration of Cu(II) from 20 to 80 ppm. The initial sorption rate increased from 0.014 to 0.037 mg/g min as the initial concentration of Cu(II) was varied from 20 to 80 ppm. The observed dependence of the sorption rate on the initial concentration of Cu(II) indicated that the removal of Cu(II) was more rapid when the initial concentration of the solution was high.

Author Keywords
Biosorption; Copper; Sodium alginate; Spent yeast

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