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## SORPTIVE REMOVAL OF CADMIUM(II) IONS FROM AQUEOUS SOLUTION BY MUSTARD BIOMASS

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### Abstract

In this study, the sorptive removal of Cd(II) ions from aqueous solution onto mustard biomass was investigated. The sorption process was studied as a function of initial solution pH, biomass dosage, initial metal ion concentration and contact time, at room temperature ( $25 \pm 0.5$  °C), in batch system. About 5.0 g/L of mustard biomass was found to be enough to remove 80 % of 46.11 mg/L Cd(II) from 25 mL aqueous solution in 30 min of contact time, at initial solution pH of 5.5, considered to be optimum. The sorption kinetics data could be described by the pseudo-second order kinetic model, while the equilibrium data were well fitted using the Langmuir isotherm model. A maximum sorption capacity of 33.56 mg Cd(II)/g was obtained. In order to increase the sorption capacity of mustard biomass for Cd(II) ions, a simple chemical treatment was used. After alkaline treatment enhance of sorption capacity with 55 % for Cd(II) ions was obtained. The results of this study indicate that the mustard biomass has potential to become an effective and economical sorbent for the removal of Cd(II) ions from industrial waste effluents.

*Key words:* alkaline treatment, Cd(II) ions, mustard biomass, sorptive removal

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