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Cadmium Separation from Aqueous Solutions by Natural Biosorbents

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Abstract : Removal of metal ions from different wastewaters has become important due to their effects on living beings. Cadmium is one of the heavy metals found in different industrial wastewaters. There are many conventional methods available to remove heavy metals from wastewaters like adsorption, membrane separations, precipitation, electrolytic methods, etc. and all of them have their own advantages and disadvantages. The present work deals with the use of natural biosorbents (chitin and chitosan) to separate cadmium ions from aqueous solutions. The adsorption data were fitted with different isotherms and kinetics models. Amongst different adsorption isotherms used to fit the adsorption data, the Freundlich isotherm showed better fits for both the biosorbents. The kinetics data of adsorption of cadmium showed better fit with pseudo-second order model for both the biosorbents. Chitosan, the derivative from chitin, showed better performance than chitin. The separation results are encouraging.

Keywords : chitin, chitosan, cadmium, isotherm, kinetics
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