عنوان مقاله:

Preparation of Nanochitosan as an Effective Sorbent for the Removal of Copper Ions from Aqueous Solutions

محل انتشار:

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Heavy metal ions in industrial effluents are considered as major source of pollution. In batch experiments, the effects of various parameters such as pH, contact time, initial concentration, andtemperature on the adsorption of Cu (II) by nanochitosan (NCS) was investigated. Nanochitosan wasprepared based on ionic gelation and characterized by means of Fourier Transform Infrared Spectroscopy(FTIR) and Scanning Electron Microscopy (SEM) analysis. Maximum uptake of Cu (II) was recordedat pH=6. Accordingly, based on the experimental data for the amount of 100 mg/l of copper ions,maximum adsorption capacity by chitosan nanoparticles was 26.88 mg/g at 25°C. Equilibrium data for Cu (II) were fitted well by Langmuir adsorption model with maximum adsorption capacity of 33.33 mg/g at 25°C. The obtained data showed that the adsorption process kinetically proceeded according topseudo second-order model. It was concluded that NCS had great potential to remove Cu (II) ions from the aqueous solutions at various concentrations of metal ions.

کلمات کلیدی:

Nanoparticles,Nanochitosan,Biopolymer,Adsorption,Metal Ion,Adsorption Model

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