

عنوان مقاله:

Comparison between chitosan powder and Chitosan Nanofiber for Removal of Phenol from aqueous solution

محل انتشار:

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خلاصه مقاله:

The powder of chitosan was purchased and nanofibers of Chitosan were successfully synthesized by electrospinning method and used as adsorbents for adsorption of organic toxic pollutant, phenol, in aqueous samples. Electrospinning an accessible method that is simple, cheap and employed to prepare nanocomposites. The nanofibers were also characterized by scanning electron microscopy (SEM), Fourier transform infrared spectroscopy (FTIR) and BET experiments. At the first step parameters of electrospinning such as voltage of solution, flowrate of solution, concentration ratio of composites and distance of needle to collector were optimized by statgrafics software. Then at the second step the effects of different parameters influencing the removal efficiency including the amount of the adsorbent, pH, phenol concentration, the ionic strength and the reusability of the adsorbent were investigated and optimized. The SEM results show that with changing the chitosan from powder to nanofiber condition we can increase the surface area and as result the phenol adsorption. As can be seen in FTIR figures mixture of the two different bands confirms the composite of these two substances. HPLC tests show phenol removal by commercial chitosan was 21% but the nanofibers ccomposite of chitosan have 47% and obviose reason of these result is for larger .surface area of nanofibers

کلمات کلیدی:

Adsorption, Phenol, Chitosan, Electrospinning

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