

عنوان مقاله:

Equilibrium study of Thorium (IV) adsorption by chitosan/baker's yeast nanofiber

محل انتشار:

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خلاصه مقاله:

Chitosan/baker's yeast nanofiber was prepared by the electrospinning technique. Then, the ability of the prepared nanofiber for adsorption of thorium (IV) from aqueous solution was investigated. The purpose of this study is separation of thorium (IV) from industrial wastewater but to test the adsorption of single component system is used. The adsorption experiments were carried out to investigate the effect of different adsorption parameters, such as pH and initial concentration in a batch system. Four isotherm models namely Freundlich, Langmuir, Dubinin-Radushkevich and Temkin were applied to describe the equilibrium data of thorium (IV). It is found that the equilibrium data were well described by Langmuir model. The maximum adsorption capacity of thorium (IV) onto nanofiber was 131.9 mg/g. The experimental information achieved at three temperatures were used in estimating the thermodynamic parameters, the negative values of Gibbs free energy of adsorption indicated the spontaneity of the adsorption of thorium (IV) ions on the chitosan/baker's yeast nanofiber and the positive value of showed the endothermic nature of thorium (IV) sorption onto this nanofiber so by increase in temperature, adsorption process is favored

کلمات کلیدی:

Chitosan; Nanofiber; Adsorption; Thorium (IV); Industrial wastewater

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