

عنوان مقاله:

Dynamic Study of Fe(II) Removal from Aqueous Phase by Chitosan Adsorbent in a Fixed Bed Column

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

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خلاصه مقاله:

Fe(II) removal from aqueous solution was investigated using chitosan as the adsorbent in a packed bed column. The effects of various operating parameters on breakthrough curve were studied. Steep breakthrough curves were observed at higher flow rates, higher inlet metal concentrations and lower bed heights. The breakthrough curves were analyzed to obtain the column characteristics. Removal efficiency, metal uptake capacity and mass transfer zone were estimated at different column conditions. Maximum uptake capacity of 59.6 mg g⁻¹ at bed height of 12 cm and maximum removal efficiency of 56% at inlet metal concentration of 10 mg l⁻¹ were obtained. Finally, Thomas and Yan models were applied to describe the experimental data. The model constants were also estimated using a nonlinear fit to the experimental breakthrough data. Results demonstrated that although correlation coefficients obtained by Yan model are higher, but the maximum uptake capacities predicted by Thomas model, almost in all conditions, is in a closer agreement with the experimental ones

کلمات کلیدی:

Adsorption, Breakthrough curve, Chitosan, Fe(II), Thomas model, Yan model

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