

عنوان مقاله:

Sorption of cobalt (Co (II)) and manganese (Mn(II)) from aqueous solution by row rice bran

محل انتشار:

اولین کنفرانس بین المللی تصفیه فاضلاب و بازیافت آب، فناوری ها و یافته های نو (سال: 1388)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

In the present study, the Row rice bran to remove Co (II) and Mn (II) ions from simulated solutions was investigated. Kinetic results and equilibrium removal isotherms were determined. The influence of different parameter such as pH, temperature, initial metal ion concentration, contact time and ionic strength on the sorption of Co (II) and Mn (II) was also studied. The removal of these two ions both increased with an increase in contact time, initial metal ion concentration, temperature and PH (from 1-5 and 1-6 respectively for Co(II) and Mn(II)) and decreased with an increase in ionic strength. The maximum biosorption efficiency of row rice bran 57% and 53% for Co (II) and Mn (II), respectively. The rate constants related to the adsorption of these heavy metal ions by row rice bran were applied to the Arrhenius equation, and activation energies (E_a) were determined. The adsorption of these ions follows pseudo-second order kinetics and the negative values of the change in free energy indicate the feasibility and spontaneous nature of the process, and the positive heats of the change in enthalpy suggest the endothermic nature of the process. The sorption data were subjected to different sorption isotherms and the results verified that Freundlich isotherm is the best model to be applied.

کلمات کلیدی:

Row Rice Bran, Wastewater, Langmuir, Freundlich, Heavy Metal

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