عنوان مقاله:

Removal of Heavy Metals from Wastewater Using Tribulus terrestris Herbal Plants Powder

محل انتشار:

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خلاصه مقاله:

The potential of economically cheaper Tribulus terrestris was assessed for iron adsorption from aqueous solutions. The effects of pH, Contact time, sorbent dose, initial metal ion concentration and temperature on the uptake of iron were studied in batch process. Chemical treatment processes are ineffective and produce large quantity of sludge which requires further treatment. A simple and efficient treatment process for the removal of heavy metals is essentially required. Maximum iron removal was observed at pH 6 with adsorbent dosage of 0.6 g. The adsorbent data has been correlated with Langmuir and Freundlich adsorption models. FTIR and SEM before and after adsorption were recorded to explore the number and position of the functional groups available for iron binding onto the studied adsorbent and changes in surface morphology. The maximum percentage of iron removal was achieved at 87%. The results revealed that iron is considerably adsorbed on Tribulus terrestris and it could be economical method for the removal of iron from aqueous solutions. Pseudo second order model explains the iron kinetics more effectively.

کلمات کلیدی:

Iron removal, Tribulus terrestris, Adsorption, Heavy metals, Medicinal