

عنوان مقاله:

Removal of toxic metallic ions Cr(VI), Cu(II), Ni(II), Co(II) and Cd(II) from waste water effluents of tanneries by using Punica granatum (pomgranate) membrane

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خلاصه مقاله:

The biosorption of toxic metal ions from tannery wastewater effluents was studied with the aid of adsorbent prepared by physicochemical treatment of pomegranate's membrane (inner whitish material). The results showed that the physicochemical treated Punica granatum (pomegranate) membranes/ peels absorb higher concentration of metallic ions from tannery wastewater as compared to heat treated Punica granatum membranes/peels. The contact time of wastewater effluent with pomegranate membrane has also been studied. The biosorption of metallic ions are observed to be more effective by increasing contact time of physicochemical modified adsorbent i.e. heterogeneous mixture of $H_3PO_4.ZnCl_2$ modified pomegranate membranes/peels. It has also been observed that maximum adsorption of toxic metallic ions from tannery wastewater can be obtained by using P. granatum membranes/peels treated with heterogeneous mixture of $H_3PO_4.ZnCl_2$ at a temperature of 873K. A comparison of heat treated P. granatum membranes and acid treatment treated P. granatum membranes (with conc. HNO_3) is conducted. The maximum adsorption was observed by a heterogeneous mixture of $H_3PO_4.ZnCl_2$ treated pomegranate membranes/peels. It was also observed that heterogeneous mixture of $H_3PO_4.ZnCl_2$ treated P. granatum membranes/peels, activated at 873K provide best absorption of toxic metallic ions from tannery waste water.

کلمات کلیدی:

Agowaste, Biosorption, Punica granatum adsorbent, Renewable sources, Tannery

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