

عنوان مقاله:

Interaction of some heavy metal ions with single walled carbon nanotube

محل انتشار:

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خلاصه مقاله:

The interaction between some heavy metal ions such as of Pb(II), Cd(II) and Cu(II) ions from aqueous solution adsorbed by single walled carbon nanotube (SWCNTs) and carboxylate group functionalized single walled carbon nanotube (SWCNT-COOH) surfaces were studied by atomic absorption spectroscopy. The effect of contact time, pH, initial concentration of ion, ionic strength and temperature on the adsorption of ion were investigated. The results indicated that Langmuir model fits adsorption isotherm data better than the Freundlich model. The results also demonstrated that SWCNT-COOH surfaces can more effectively adsorb mentioned ions than a SWCNTs surface. Maximum adsorption capacities (qm) for Pb(II), Cu(II) and Cd(II) ions onto SWCNT-COOH were obtained as ۹۶.۰۲, ۷۷.۰۰ and ۵۵.۸۹ mg/g, respectively and by SWCNTs, as ۳۳.۵۵, ۲۴.۲۹ and ۲۴.۰۷ mg/g, respectively. Thermodynamic parameters values showed that the adsorption of ions on SWCNT-COOH and SWCNTs at ۲۸۳-۳۱۳ K is spontaneous and endothermic.

کلمات کلیدی:

Heavy metal ions, Adsorption, Single walled carbon nanotube, Isotherm models, Thermodynamic functions

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