

Abstract :

The objective of this study is the removal of lead from aqueous solution by electrosorption on carbon prepared from lignocellulosic natural residue "date stones". The electrosorption efficiency was evaluated after the thermal treatment of the raw material at 900 °C. Adsorption of lead from aqueous solution by activated carbon electrodes was investigated through electrosorption experiments by changing potentials from  $\pm 0.05$  to  $\pm 0.5$  V/SCE. The results allow to observe that the application of a negative potential ( $-0,13$  V) increases the adsorption capacity until 17.71 mg/g, while a positive potential ( $+0,13$  V) released lead from the activated carbon up to 17.02 mg/g, showing the reversibility of the sorption process. The effect of pH and cycles number on the electrosorption process was studied. The experimental results concluded that the better adsorption efficiency (97.5%) was obtained when pH is 5. Furthermore, it was confirmed that the recycling process of adsorption/desorption could be conducted for seven adsorption-desorption cycles.