Abstract

Surface functionalization of cellulose using ethylenediamine was performed to improve its binding capacity for Cd and Pb. Adsorption kinetics at pH 6.0 and 25°C revealed the Langmuir model to better describe the binding phenomena based on linear regression correlation coefficient (R^2) values of 0.998 and 0.986 with adsorption capacities of 0.0136 and 0.0179 mmol g^{-1} for Cd and Pb, respectively, using raw cellulose and 0.128 and 0.242 mmol g^{-1} with ethylenediamine-modified cellulose. The Freundlich model gave binding capacities of 2.32×10^{-3} and 2.08×10^{-3} mmol g^{-1} for Cd and Pb, with R^2 values of 0.979 and 0.942, respectively.