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Removal of Cu²⁺ ions from aqueous solutions by combined methods

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This paper aims to investigate the removal of copper ions from aqueous solutions using combined methods; the adsorption of Cu²⁺ ions onto natural clay as a low-cost adsorbent and reverse osmosis method. During experimentation batch technique is applied and equilibrium adsorption parameters, [Q_m=95.24(mg/g) and b=0.0032(L/mg), K_f= 1.91(mg/g) and n=1.21(L/mg)], were found using the Langmuir and Freundlich isotherms. The results fit better

with the Freundlich isotherm. Regarding the adsorption kinetics, pseudo first order and pseudo-second-order models are examined and it is found that the adsorption of copper ions onto natural clay nature obeys pseudo-second order. Heterogeneous asymmetric reverse osmosis membranes made from a blend of cellulose acetate, powdered coal and powdered bentonite prepared from the composition of casting solvent have been studied in the relatively low pressure 17.63x10⁵Pa. The analysis and conclusions reached in this work show that heterogeneous asymmetric reverse osmosis membranes have better properties compared to asymmetric cellulose acetate membranes.

Biography

Makfire Sadiku-Hasani is an Assistant Professor in the Department of Chemistry at the University of Prishtina. From 1997 to 2013 she worked as a teaching assistant. She was promoted to Assistant Professor in 2013. She received her B.S. and M.S. from the University of Prishtina. She received her Ph.D. in the field of Superficial Phenomena from the University of Tirana in 2012. Recently her research has focused on the practical use of clay for the adsorption of various contaminants from different mediums and the use of clay as an addition to the formation of heterogeneous reverse osmosis membranes.

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