

Natural organic matter removal from water by complexation–ultrafiltration process with poly(diallyl dimethylammonium chloride)

César García, Eduardo Rogel-Hernández, Guillermo Rodríguez, Fernando Wakida, Ernesto Vélez, Heriberto Espinoza-Gómez*

*Facultad de Ciencias Químicas e Ingeniería, Universidad Autónoma de Baja California, Campus Tijuana, Calzada Tecnológico 14418, Tijuana, B.C. México
Tel. +52 (664) 9797500; email: hespinoza@uabc.edu.mx*

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ABSTRACT

The efficiency of humic acids (HA) removal from aqueous solutions by complexation-ultrafiltration (COUF) process, in the presence of the cationic water-soluble polymer, poly(diallyl dimethylammonium chloride) (PDADMAC) of different average Mw were studied; also the effect of mass ratio of HA to polymer, pH of solution on the HA removal were evaluated. The results show that the HA rejection on ultrafiltration PBCC membrane (Millipore) varied from 70 to 99.9% with addition of PDADMAC, depending on average Mw, when a HA/polymer mass ratio was changed from 1:1 to 1:7. The solute rejection to some extent improved with an increase in the concentration of polymeric complexing agents due to a higher completeness of the HA binding. It was found that the HA removal change with pH value of the feed solution, owing to protonation of the quaternary amino groups of this polymer.

Keywords: Ultrafiltration; Complexation; Humic acids; Poly(diallyl dimethylammonium chloride)

* Corresponding author.