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Uticaj anjona na uklanjanje boja iz otpadnih voda tekstilne industrije

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Otpadne vode tekstilne industrije predstavljaju ozbiljan ekološki problem, jer u sebi sadrže različite boje i toksične supstance koje se upotrebljavaju tokom proizvodnje i bojenja tekstila. Stoga, potrebno je da se ispita mogućnost uklanjanja boja iz otpadnih voda tekstilne industrije jednostavnom metodom sorpcije. Kako se u procesu bojenja tekstila koriste različite soli, u ovim otpadnim vodama često su prisutni anjoni i katjoni koji mogu da utiču na sam proces uklanjanja boja.
U ovom radu analiziran je uticaj nekoliko anjona na uklanjanje boja za tekstil pomoću hidrogelova na bazi hitozana. Korišćeni hidrogelovi su kopolimeri hitozana i metakrilne kiseline dobijeni slobodno-radikalskom polimerizacijom, a kao umreživač je upotrebljen *N,N'*-metilenbisakrilamid. Anjonska boja *C.I. Acid Orange 7* i katjonska boja *C.I. Basic Red 1* su korišćene u model vodama, a uklanjanje boja je izvedeno na dve različite temperature (25 i 50 °C). Uticaj anjona je ispitan dodatkom natrijumovih jedinjenja u rastvore boja (NaCl, CH_3COONa, Na_2CO_3, Na_2HPO_4, NaH_2PO_4, $NaNO_3$, NaOH). Utvrđeno je da hidrogelovi izrazito bubre sa povećanjem pH rastvora. Prisustvo različitih jona utiče na kapacitet sorpcije, a najbolji rezultati su dobijeni kada su u rastvoru prisutne soli NaH_2PO_4 i $NaNO_3$.

The effect of anions on the removal of dyes from textile industry wastewater

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Textile industry wastewater represents a serious environmental problem because it contains different dyes and toxic substances used during the production and dyeing of textile. Thus, it is necessary to investigate the removal of dyes from wastewater using a simple method such as sorption. Since different salts are used during the dyeing of textile, anions and cations are present in wastewaters and they can affect the process of dye removal.
In this paper, the influence of several anions on the removal of textile dyes was investigated. Chitosan and methacrylic acid-based hydrogels obtained by free-radical polymerization and cross-linked with *N,N*'-methylenebisacrylamide were used as sorbents. Removal of two textile dyes was investigated (anionic dye *C.I. Acid Orange 7* and cationic dye *C.I. Basic Red 1*) at two different temperatures (25 and 50 ° C). The influence of anions on the removal was evaluated using sodium compounds dissolved in dye solutions (NaCl, CH_3COONa, Na_2CO_3, Na_2HPO_4, NaH_2PO_4, $NaNO_3$, NaOH). It has been found that hydrogel degree of swelling increased significantly with the increase of pH of the dye solution. The presence of different ions affected the sorption capacity of hydrogels and the best results were obtained when NaH_2PO_4 and $NaNO_3$ were present.