

CHARACTERIZATION OF STARCH DERIVATIVES. APPLICATION IN CADMIUM REMOVAL FROM AQUEOUS SOLUTIONS

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In this study, starch was used as adsorbent after chemically modifying techniques viz, oxidizing starch by sodium hypochlorite and acetylation reaction obtained by the Stathe and Salunkhe method (1981). Zeta potentials and adsorption capacity experiments were carried out in solutions containing unmodified starch and the two types of starch derivatives. However it was found that the removal cadmium by unmodified starch may result from complexation including the free rings of the polysaccharide ether groups. Both the modified starch gave higher metal ion adsorption. Thus the acetylation showed cadmium uptake of 91% and the potential values of cadmium adsorption were 87% for sodium hypochlorite oxidized starch and 75% for unmodified starch and it was also shown that the adsorption values decreased with lowering of pH. However, the precise function and behaviour of the biopolymers in wastewater is not completely established because starch metal removal depends of the complex composition of wastewater, of other exopolymers and of intracellular cadmium accumulation onto the living organisms.