

ABSTRACT

CROSSLINKED TERPOLYMER SYNTHESIS AND CHARACTERIZATION FOR DYE ADSORPTION

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In this study, it was aimed that produce a new polymeric carrier/sorbent pH-sensitive terpolymer by using acrylamide which is commonly used to produce crosslinked polymer. pH-sensitive terpolymers were prepared by free radical polymerization in aqueous solution using (3-acrylamidopropyl)trimethyl ammonium chloride and sodium acrylate as comonomer, ethyleneglycoldimethacrylate as crosslinker. Structural characterization of prepared chemically crosslinked pH-sensitive terpolymers were tried to determine by using Fourier Transform Infrared Spectroscopy (FT-IR). Scanning Electron Microscopy (SEM) micrographs were taken for determination of surface porosity of hydrogels. Dynamic swelling tests were applied at 25°C pH 3,0; 7,0 and 11,0 for the purpose of investigation of swelling properties of crosslinked terpolymers. According to obtained data, parameters concerning swelling kinetics and diffusion mechanism were calculated. It was determined that crosslinked pH-sensitive terpolymers have high swelling capacity in water. An anionic dye such as calconcarboxylic acid and cationic dye such as nile blue were selected as model molecule to investigate of adsorption properties of terpolymer. It was determined that crosslinked terpolymers adsorbed dye of nile blue and calconcarboxylic acid from aqueous solutions in high level.

Keywords: Terpolymer, acrylamide, (3-acrylamidopropyl)trimethyl ammonium chloride, sodium acrylate, ethyleneglycoldimethacrylate, adsorption, calconcarboxylic acid, nile blue