

Sintesis hidrogel Kitosan-cangkok-poli (n-vinil kaprolaktam) dan kemampuan Swelling-nya = Synthesis Hydrogel Chitosan-graft-poly (n-vinyl Kaprolaktam) and its swelling behaviour

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Abstrak

Polimer hidrogel mampu melakukan swelling bila menyerap air serta mampu mempertahankan medium cair di dalam jaringannya. Sintesis hidrogel kitosan-cangkok-Poli N-(vinil kaprolaktam) atau kitosan-cangkok-PNVCL dilakukan melalui polimerisasi radikal dengan teknik larutan. Kemampuan swelling hidrogel kitosan-cangkok-PNVCL dilakukan dengan merendam dalam media cair selama 24 jam. Polimer diinisiasi dengan Ammonium persulfat (APS) lalu dicangkok dengan monomer N-Vinil Kaprolaktam (NVCL) dan diikat silang dengan N,N'-Metilen Bisakrilamida (MBA).

Variasi konsentrasi monomer NVCL dan konsentrasi agen pengikat silang MBA serta waktu reaksi mempengaruhi rasio swelling hidrogel. Rasio swelling paling optimum sebesar 52.8% dari berat semula didapat dengan agen pengikat silang MBA 3% dan konsentrasi NVCL 0,8 g. Hidrogel tersebut dikarakterisasi dengan Fourier Transform Infrared Spectroscopy (FTIR), Differential Scanning Calorimetry (DSC) dan Scanning Electron Microscope (SEM).

.....Hydrogel polymer will swell if it absorbs amount of water then it can protected amount of water in his network . Hydrogel chitosan-graft-poly(Vinyl Caprolactam) or chitosan-graft-PNVCL was synthesized by radical polymerization in solution. Swelling behavior of hydrogel was carried in aqueous media for 24 hour. Hydrogel was initiated by ammonium persulfate (APS) then grafted by N-Vinyl caprolactam (NVCL) and cross linked by N'N'-Metilen Bisacrylamide (MBA).

Variation of monomer concentration, cross linker concentration and reaction time will effect swelling ratio hydrogel. The best swelling ratio up to 52.8% was obtained by composition of 3% MBA and 0.8 g NVCL. The products were characterized by Fourier Transform Infrared Spectroscopy (FTIR), Differential Scanning Calorimetry (DSC) and Scanning Electron Microscope (SEM).