Sintesis dan Karakterisasi Hidrogel Kitosan-Cangkok- Poli(N-Vinil pirrolidon) : Pengaruh Komposisi Monomer NVP, Pengikat Silang, dan Waktu Polimerisasi = Synthesis and Characterization of Hydrogel Chitosan- graft-Poly(N-Vinyl Pirrolidone) : Effect of NVP Monomer Composition, Crosslinker, and Polymerization Time

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Abstrak

Hidrogel kitosan-cangkok-poli(N-vinil pirrolidon) telah disintesis melalui teknik polimerisasi radikal bebas. Dalam penelitian ini, monomer N-vinil pirrolidon (NVP) dicangkokkan pada kitosan menggunakan inisiator ammonium persulfat (APS) dan agen pengikat silang N,N'-metilen bisakrilamida (MBA) dalam sistem larutan. Untuk membuktikan bahwa monomer itu telah tercangkok, dilakukan karakterisasi dengan Fourier Transform Infrared Spectroscopy (FTIR), Differential Scanning Calorimetry (DSC), dan Scanning Electron Microscope (SEM) untuk mengetahui bentuk morfologi hidrogel. Pengaruh komposisi monomer NVP, agen pengikat silang, dan waktu polimerisasi terhadap kemampuan swelling telah diamati. Swelling optimum diperoleh sebesar 54,6% pada waktu polimerisasi 3 jam dengan komposisi monomer NVP 0,8 mL dan konsentrasi pengikat silang 2%.

.....Hydrogels of chitosan-graft-poly(N-vinylpyrrolidone) had been synthesized via free radical polymerization technique. In this research, monomer N-vinylpyrrolidone (NVP) was grafted onto chitosan by using APS as initiator and N,N '-methylene bisacrylamide (MBA) as crosslinking agent in the solution system. In order to prove that the monomers were grafted, FTIR spectroscopy, DSC analysis were used, and Scanning Electron Microscope (SEM) to determine the morphology of hydrogels. The influence monomer compositions, concentration of crosslinking agent, and polymerization time on the ability of swelling was observed. The optimum swelling was obtained at 54,6% in the polymerization time of 3 hours with 0.8 mL NVP monomer composition and concentration of crosslinking of 2%.