Sintesis dan karakterisasi Hidrogel Kitosan Poli-N, N Dimetil Akril Amida (Poli NNDMAA) dengan Metode Semi-Interpenetrating Polymer Network (Semi-IPN) = Synthesis and characterization of Chitosan Hydrogel Poly - N, N Dimethyl acryl Amide (Poly NNDMAA) with semi method Interpenetrating Polymer Network (Semi-IPN)

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Abstrak

Metode semi interpentrating polymer network (semi-IPN) merupakan metode yang digunakan untuk mensintesis hidrogel kitosan-poliNNDMAA. Pada metode ini, jaringan kitosan akan terikat silang dengan agen ikat silang lalu berinteraksi dengan jaringan polimer NNDMAA secara linear. Hasil sintesis memperlihatkan bahwa variasi penambahan monomer NNDMAA, agen ikat silang dan waktu reaksi akan menurunkan daya swelling dan meningkatkan derajat ikat silang. Rasio swelling dan derajat ikat silang optimum hidrogel kitosan poli NNDMAA semi-IPN terikat silang formaldehida didapatkan sebesar 545,64% dan 75,02% pada penambahan 25% berat NNDMAA dan waktu optimum pada 2 jam. Hidrogel kitosan poli NNDMAA semi-IPN terikat silang formaldehida memilki derajat ikat silang yang lebih besar jika dibandingkan terikat silang glutaraldehida maupun asetaldehida. Karakterisasi dilakukan dengan spektrofotometer Fourier Transform Infra Red (FTIR), Differential Scanning Calotimetry(DSC) dan Scanning Electron Microscope (SEM).

<hr>Method semi interpentrating polymer network (semi-IPN) is a method used to synthesize the chitosan hydrogel-poliNNDMAA. In this method, chitosan will crosslinked with a crosslink agent then interacts with the polymer network NNDMAA linearly. Synthesis results show that the variation of the addition of monomer NNDMAA, crosslink agents and reaction time will reduce swelling and increase the degree of crosslink. Swelling ratio and the degree of crosslink optimum chitosan hydrogel poly NNDMAA crosslinked semi-IPN formaldehyde obtained by 545.64% and 75.02% on addition of 25% by weight NNDMAA and optimum time at 2 hours. Chitosan hydrogel poly NNDMAA crosslinked semi-IPN formaldehyde have the degree of cross belt larger than glutaraldehyde cross-linked or acetaldehyde. Characterization is done by spectrophotometer Fourier Transform Infra Red (FTIR), Differential Scanning Calotimetry (DSC) and Scanning Electron Microscope (SEM).