

INTISARI

OPTIMASI KONSENTRASI KITOSAN BERAT MOLEKUL RENDAH UNTUK PEMBUATAN NANOFIBER PVA/KITOSAN SEBAGAI Matriks FOTOKATALIS

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Telah dilakukan optimasi konsentrasi kitosan berat molekul rendah untuk pembuatan nanofiber *poly(vinyl alcohol)* (PVA)/Kitosan sebagai matriks fotokatalis dengan metode elektrospining. PVA (10v/v%) (89.000-98.000) g/cm³ dibuat dengan pelarut aquades sedangkan kitosan berat molekul rendah dibuat dalam pelarut asam asetat (2%). Pengoptimalan nanofiber PVA/kitosan diperoleh dengan variasi konsentrasi larutan PVA/kitosan 10%/10%, 10%/11%, 10%/12%, dan 10%/13%. PVA/kitosan dicampur dengan rasio massa 85/15. Larutan PVA/kitosan diuji dengan konduktivimeter, diperoleh nilai konduktivitas pada rentang (998-1178) μ S/cm. Nilai konduktivitas bertambah seiring dengan penambahan kitosan. Pembuatan nanofiber dilakukan dengan menggunakan elektrospining. Nanofiber PVA/kitosan hasil elektrospining dikarakterisasi menggunakan mikroskop dan *Scanning Electron Microscope* (SEM). Diperoleh nanofiber pada berbagai variasi konsentrasi PVA/kitosan dengan rentang diameter (96-303) nm. Diameter nanofiber bertambah seiring penambahan konsentrasi kitosan. Untuk dapat diaplikasikan dalam pengembangan fotokatalis, dilakukan *crosslink* nanofiber PVA/kitosan dengan *Glutaraldehyde* (GA). Diperoleh diameter nanofiber bertambah setelah dilakukan *crosslink* dengan GA.

Kata kunci : *Poli(vinyl alcohol)*, Kitosan, Berat Molekul, *Crosslink*, Fotokatalis.

ABSTRACT

OPTIMIZATION OF CONCENTRATION OF CHITOSAN LOW MOLECULAR WEIGHT TO FABRICATE PVA/CHITOSAN NANOFIBER AS A PHOTOCATALYST MATRIX

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The optimization of chitosan concentration low molecular weight of the solution has been succeeding acquired to fabricate of nanofiber poly (vinyl alcohol) (PVA)/Chitosan as a photocatalyst matrix by electrospinning method. PVA(10v/v%) (89.000 – 98.000) was made with distilled water solvent and Chitosan low molecular weight was made in an acetic acid solvent (2%). Optimization of PVA/Chitosan nanofiber was obtained by varying the concentration of PVA/Chitosan solution 10% / 10%, 10% / 11%, 10% / 12%, and 10% / 13%. PVA/Chitosan was mixed in 85/15 mass ratio. PVA / Chitosan solution was tested with a conductivity meter, obtained conductivity values in the range (998-1178) $\mu\text{s}/\text{cm}$. Nanofibers were fabricated by electrospinning and characterized by optical microscope and SEM. The diameter of Nanofibers were obtained by range (96-303) nm. To be developed as a photocatalyst application, it was needed crosslinking of PVA / Chitosan nanofiber with Glutaraldehyde (GA). The addition of crosslinking GA made the diameter of nanofibers increasing.

Key word : Poli(vinyl alcohol), Chitosan, Molecular Weight, Crosslink, Photocatalyst.