PEMBUATAN NANOFIBER PADUAN KITOSAN-PEKTIN-POLIVINIL ALKOHOL (PVA) DENGAN *ELECTROSPINNING* SEBAGAI ADSORBEN BIRU METILEN

Eka Wihasti Febri Suharyani
13/355383/PPA/04347

INTISARI

Telah dilakukan pembuatan nanofiber paduan kitosan-pektin-PVA dengan metode *electrospinning* untuk adsorpsi-desorpsi biru metilen. Nanofiber yang terbentuk dikarakterisasi dengan mikroskop optik, FTIR, SEM, uji kestabilan dalam medium asam basa dan uji penyerapan air. Uji aktifitas adsorpsi nanofiber terhadap biru metilen meliputi pengaruh waktu, pH, konsentrasi biru metilen, kinetika adsorpsi dan isoterm adsorpsi serta dilakukan uji desorpsi nanofiber pada larutan NaCl.

Hasil penelitian menunjukkan nanofiber berhasil dibuat dengan rata-rata diameter fiber 282 nm. Kondisi optimum adsorpsi diperoleh pada pH 7 dengan konsentrasi optimum 175 mg L^{-1}. Adsorpsi optimum nanofiber 1:1:8 (rasio volume kitosan-pektin-PVA) diperoleh sebesar $1{,}65 \times 10^{-4}$ mol g^{-1} pada menit ke-40 dengan persentase desorpsi sebesar 57,51% dalam larutan NaCl 1 M. Kinetika adsorpsi biru metilen mengikuti orde dua semu dan isoterm adsorpsi biru metilen mengikuti model Langmuir.

Kata kunci: Adsorpsi, biru metilen, *electrospinning*, kitosan, pektin, PVA.

SYNTHESIS OF NANOFIBER COMPOSITE CHITOSAN-PECTIN-POLY VINYL ALCOHOL (PVA) WITH ELECTROSPINNING AS ADSORBENT FOR METHYLENE BLUE

Eka Wihasti Febri Suharyani
13/355383/PPA/04347

ABSTRACT

Nanofibers composite of chitosan-pectin-PVA have been made by using electrospinning method to study adsorption-desorption process of methylene blue. The nanofiber was characterized by using optical microscope, FTIR and SEM. Stability test of nanofiber in acid-base medium and its water adsorption were also tested. The adsorption activities of nanofiber towards methylene blue was studied including the effect of time, pH, concentration of methylene blue. The adsorption kinetics, adsorption isotherm and desorption activities of nanofiber in NaCl solution were also studied.

The result of this research showed that nanofibers have been succesfully made with fibers diameter average of 282 nm. The optimum condition of methylene blue adsorption occurs at pH 7 with concentration of 175 mg L^{-1}. Optimum adsorption of nanofiber 1:1:8 (volume ratios of chitosan: pectin: PVA) is $1{,}65x10^{-4}$ mol g^{-1} at 40 minutes of contact time and the percentage of desorption is 57,52%. Adsorption kinetics has been found to follow the pseudo second order reaction and the adsorption fits Langmuir isotherm.

Keywords: adsorption, blue methylene, chitosan, electrospinning, pectin, PVA.