



KUMPULAN ABSTRAK BIDANG KIMIA



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KINETIKA ADSORPSI KRISTAL VIOLET DAN METILEN BIRU PADA HIBRIDA ALGA *Spirulina* sp.-SILIKA

ADSORPTION KINETICS OF CRYSTAL VIOLET AND METHYLENE BLUE ON ALGAE *Spirulina* sp.-SILIKA HYBRID

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Abstrak

Pada penelitian ini telah dipelajari kinetika adsorpsi kristal violet (CV) dan metilen biru (MB) dalam larutan pada hibrida alga-silika yang berasal biomassa alga *Spirulina* sp. dengan silika sebagai matriks (HASS). Hibridisasi biomassa alga *Spirulina* sp. dengan silika dilakukan melalui proses sol-gel menggunakan prekursor tetraetil orthosilikat (TEOS). Adsorben HASS dikarakterisasi menggunakan spektrofotometer infra merah (IR) dan *Scanning Electron Microscopy-energy-dispersive-X ray* (SEM-EDX). Kajian adsorpsi zat pewarna CV dan MB terhadap adsorben HASS dipelajari melalui eksperimen adsorpsi dengan metoda batch. Adsorpsi zat pewarna CV dan MB optimum pada pH dan waktu kontak 60 menit. Model kinetika zat pewarna CV dan MB pada adsorben HASS cenderung mengikuti model kinetika pseudo orde dua dengan konstanta laju (k_2) masing-masing sebesar 0,204 and 0,302 ($\text{g mg}^{-1} \cdot \text{min}^{-1}$).

Kata kunci: hibrida alga-silika, alga Spirulina sp., metilen biru, kristal violet, adsorpsi.

Abstract

In this study, it was studied the crystal violet (CV) and methylene blue (MB) adsorption kinetics in solution in algal-silica hybrids derived from biomass of *Spirulina* sp. algae with silica as a matrix (HASS). Hybridization of *Spirulina* sp. algae biomass with silica was carried out through a sol-gel process using tetraethyl orthosilicate (TEOS) precursors. The HASS adsorbent was characterized using an Infrared (IR) Spectrophotometer and Scanning Electron Microscopy-Energy-Dispersive-X ray (SEM-EDX). The study of CV and MB dye adsorption on HASS adsorbents was studied through an adsorption experiment using the batch method. Optimal adsorption of CV and MB dyes at pH of 10 and contact time of 60 minutes. The CV and MB dye kinetics models on the HASS adsorbent tend to follow the second-order-pseudo kinetic model with a rate constant (k_2) of 0.204 and 0.302 ($\text{g mg}^{-1} \cdot \text{min}^{-1}$).

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