

**THE ADSORPTION STUDY ON METHYLENE BLUE REMOVAL  
BY XANTHATE MODIFIED-CHITOSAN MICROBEADS**

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## ABSTRACT

### THE ADSORPTION STUDY ON METHYLENE BLUE REMOVAL BY XANTHATE MODIFIED-CHITOSAN MICROBEADS

The removal of methylene blue from the aqueous solution has been investigated by using Xanthate-modified chitosan microbeads (XMCM-GLA) as an adsorbent. XMCM-GLA was prepared and modified with glutaraldehyde that acted as cross-linking reagent. XMCM-GLA was characterized by using Fourier Transform Infrared spectroscopy (FT-IR),  $\text{pH}_{\text{slurry}}$  and  $\text{pH}$  of zero point of charge ( $\text{pH}_{\text{ZPC}}$ ). The effects of parameters such as adsorbent dosage, initial  $\text{pH}$ , the contact time and initial concentration of dyes were carried out. The experiment was conducted in the standard condition at  $30 \pm 2$  °C and 6 hours to reach equilibrium. The result showed that the maximum removal of methylene blue was found at  $\text{pH}$  of 7. The adsorption capacity of methylene blue also increased with an increased in initial methylene blue concentration and contact time, but decrease with an increase in adsorbent dosage. The experimental data was well described through Langmuir isotherm model with the maximum adsorption capacity of 22.88 mg/g. The kinetic studies followed pseudo-second order model.