

## INTISARI

### **PENGARUH VARIASI KONSENTRASI AGEN AKTIVASI KOH PADA AMPAS KOPI ROBUSTA UNTUK ADSORPSI METILEN BIRU**

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Pembuatan karbon aktif dengan beberapa variasi konsentrasi agen aktivasi KOH telah berhasil difabrikasi dan telah diuji kemampuan adsorpsinya pada metilen biru. Ampas kopi diaktivasi menggunakan agen aktivasi KOH dengan beberapa variasi konsentrasi, yaitu 10%, 15%, 20%, 25%, dan 30%. Masing-masing variasi dianalisis menggunakan *Scanning Electron Microscope* (SEM), *Fourier Transform Infrared* (FTIR), dan *Ultraviolet-Visible spectrophotometer* (UV-Vis). Hasil morfologi pada sampel menunjukkan terbentuknya pori yang banyak dan persebarannya yang baik. Hasil FTIR menunjukkan ketersediaan gugus fungsi yang berperan dalam proses adsorpsi. Hasil pengukuran adsorpsi metilen biru menggunakan UV-Vis diperoleh hasil bahwa variasi konsentrasi 25% merupakan variasi paling efektif untuk adsorpsi metilen biru dengan persentase adsorpsi mencapai sebesar 85%. Pada uji *reusable*, karbon aktif menunjukkan secara efektif pada penggunaan pertama. Selain itu, karbon aktif juga secara efektif dapat digunakan untuk adsorpsi metilen biru dalam kondisi basa.

**Kata kunci :** Adsorpsi, aktivasi, ampas kopi, karbon aktif, metilen biru

## ABSTRACT

***EFFECT OF VARYING CONCENTRATION OF KOH ACTIVATION  
AGENT ON ROBUSTA COFFE GROUNDS FOR METHYLENE BLUE  
ADSORPTION***

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The manufacture of activated carbon with several variations in the concentration of KOH activation agent has been successfully fabricated and has been tested for its adsorption ability on methylene blue. Coffee grounds were activated using KOH activation agent with several concentration variations, namely 10%, 15%, 20%, 25%, and 30%. Each variation was analyzed using Scanning Electron Microscope (SEM), Fourier Transform Infrared (FTIR), and Ultraviolet-Visible spectrophotometer (UV-Vis). Morphological results on the sample showed the formation of many pores and their good distribution. FTIR results show the availability of functional groups that play a role in the adsorption process. The results of methylene blue adsorption measurements using UV-Vis showed that the 25% concentration variation was the most effective variation for methylene blue adsorption with a percentage of adsorption reaching 85%. In the reusable test, activated carbon showed effectively in the first use. In addition, activated carbon can also be effectively used for methylene blue adsorption under alkaline conditions.

**Keywords :** Adsorption, activation, coffee grounds, activated carbon, methylene blue.