

**COMPARISON BETWEEN NATURAL BIOSORBENT  
AND ACTIVATED CARBON OF *Cucumis melo* PEELS ON  
CONGO RED ADSORPTION**

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## ABSTRACT

### COMPARISON BETWEEN NATURAL BIOSORBENT AND ACTIVATED CARBON OF *Cucumis melo* PEELS ON CONGO RED ADSORPTION

Congo red, an anionic azo dye has a strong color, really toxic and is non-biodegradable making it important for removal from wastewater. Agriculture wastes can serve as adsorbent that can be used for the adsorption of dyes. The objective of this work was to screen two samples between natural biosorbent (NB-CMP) and activated carbon (AC-CMP) of *Cucumis melo* peels on dye uptake. The next objective was to optimize the optimum parameters for *Cucumis melo* peels to adsorb Congo red. The screening results showed that AC-CMP (25.87%) adsorbed better than NB-CMP (22.02%). Optimum parameters on batch dye adsorption process for initial concentration, adsorbent dosage and temperature were 25mg/L, 150mg, and 60°C respectively. Mean value for adsorbent dosage and initial concentration were significantly different with  $p < 0.05$ . Batch adsorption process with all optimum parameters shown the efficiency of decolorization rate up to 89.08% and the adsorption capacity was 6.96 mg/g. Findings of this study suggests that AC-CMP is a potential low cost adsorbent for the Congo red dye removal from wastewater.