

**MALACHITE GREEN ADSORPTION ONTO PALM KERNEL
SHELL ACTIVATED CARBON**

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ABSTRACT

MALACHITE GREEN ADSORPTION ONTO PALM KERNEL SHELL ACTIVATED CARBON

Palm kernel shells (PKS) were used to prepare activated carbon by using phosphoric acid as activating agent. The PKS were through activation processes at high temperature, 800°C for two hours in muffle furnace. Characterization of the prepared activated carbon, palm kernel shell activated carbon (PKSAC) were studied by using Fourier-Transform Infrared (FTIR), gravimetric analysis, Scanning Electron Microscope (SEM) with Energy Dispersive X-ray (EDX) and single point nitrogen gas adsorption analysis. Based on the results obtained, PKSAC have highest carbon content rather than other element which was 73.73% and the BET surface area was 620.05 m²/g. In this study, the parameter that have been done to optimize malachite green adsorption was mass of adsorbent, contact time, MG concentration, temperature and pH. The optimization of MG adsorption for mass of adsorbent was 0.5 g, four hours for contact time at 100 ppm with temperature, 70°C at pH 10 which was in basic condition. The percentage of MG adsorption and the suitable of adsorption isotherm, Freundlich isotherm also was determined through this study. Hence, the PKSAC maybe have the ability to be an effective activated carbon for removing dye especially MG dye.