

Title: Silver adsorption enhancement from aqueous and photographic waste solutions by mercerized coconut fiber

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Abstract: The mercerized coconut fiber (CF-NaOH) was prepared by treating the pristine coconut fiber (CF-Pure) with NaOH solution. The morphology and chemical composition of CF-Pure changed after mercerization process. The maximum Ag(I) adsorption capacity of the CF-Pure and CF-NaOH was 0.502 and 0.612 mmol/g, in which the equilibrium data fitted to the Freundlich and Langmuir isotherm models, respectively. The Ag(I) adsorption rate also increased by using CF-NaOH and the kinetic data of both CF-Pure and CF-NaOH obeyed the pseudo-second order kinetic model. The enhancement of Ag(I) adsorption selectivity from photographic waste solution was also observed for the CF-NaOH.