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Adsorption of anionic dyes from an aqueous solution by banana peel and green coconut mesocarp

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ABSTRACT

Banana peel (BP) and green coconut mesocarp (GCM) were evaluated as adsorbents for the removal of the dyes reactive gray BF-2R (RG), reactive turquoise Q-G125 and remazol golden yellow RNL-150% (RGY). Adsorbents were classified as mesoporous materials, with the pHzpc of 5 for BP and 7 for GCM. The initial pH of the best-adsorbing solution of the dyes was 2.0. There was no significant difference between the kinetic models evaluated by the *F* test at a 95% level of confidence, except for the RGY/GCM system. The adsorption process is not merely a function of an intraparticle diffusion step. The Freundlich model was the best fit for RGY/GCM, and no significant difference was evident between the two models evaluated for the other systems by the *F* test. For RG/BP, the models did not fit the experimental data. The adsorbents evaluated may be useful for the treatment of effluents that contain dyes.

Keywords: Adsorption process; Kinetic study; Equilibrium study; Agro-industrial residue; Anionic dyes

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