Equilibrium and kinetic studies for the adsorption of Basic Red 29 from aqueous solutions using activated carbon and conducting polymer composite

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ABSTRACT

The paper deals with the study on application of activated carbon (Cordia sebestena activated carbon (CSAC)) and polypyrrole polymer composite prepared from the precursor fruit of the gardening plant material Cordia sebestena for the removal of cationic dye (basic dye namely Basic Red 29 (BR29)) from aqueous solutions. Adsorption experiments are carried out using batch system in order to do equilibrium adsorption isotherm, kinetics and thermodynamic studies. It is found that chemical modification of plant wastes like sawdust coated with polypyrrole called polypyrrole polymer composite is an efficient adsorbent for the removal of cationic dye BR29 from aqueous solutions when compared to activated carbon (CSAC).

Keywords: Polypyrrole; Cordia sebestena; Adsorption; Basic Red 29; Equilibrium and kinetic studies