



Studies on adsorptive removal of Direct Green 6 using a non-conventional activated carbon and polypyrrole composite

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ABSTRACT

Application of activated carbon (CSAC) and polypyrrole composite (PPC) developed from the precursor, fruit of the gardening plant material *Cordia sebestena* has been investigated for the removal of Direct Green 6 (DG6) from aqueous solution. Batch adsorption experiments were carried out using CSAC and PPC and a comparative study was also made. Effect of parameters, namely initial dye concentration, contact time, pH and temperature was studied. The kinetic studies were analysed with pseudo-first-order and pseudo-second-order models. Experimental isotherm data were also analysed with Langmuir and Freundlich adsorption isotherm models. Thermodynamic parameters were also measured. Experimental results showed that percentage removal of DG6 was higher with PPC than the percentage removal obtained by CSAC. Hence, it is proposed that PPC is superior and efficient adsorbent for the removal of DG6 from aqueous solutions.

Keywords: *Cordia sebestena*; Activated carbon; Polypyrrole composite; Direct Green 6; Batch adsorption study

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