**Abstract**

Waste from tea, a beverage globally consumed is a common menace discarded to the environment thereby contributing to environmental pollution. The textile and paper industries have also been major culprits in the pollution of the environment through their indiscriminate discharge of dye solutions. These dyes are carcinogenic, mutagenic, and generally harmful to the entire eco-system; this has posed a major challenge to the general populace. This research has tried to harness potentials of waste from tea by converting it to adsorbent used for adsorption of Cibacron yellow dye (CBY). Chemical activation with potassium hydroxide was used for the conversion of the tea waste to viable activated carbon (WTC). Response surface methodology, a central composite design tool was used to optimize the WTC preparation parameters which were activation temperature, chemical impregnation ratio and activation time with targeted responses of yield and the percentage dye removal. About 21.30 and 95.07 % yield and CBY removal respectively, were obtained at optimum preparation conditions of 760 oC, 1.8 IR and 135 min. Langmuir isothermal was the most fitting model for the adsorption process than Freundlich model. The kinetic studies showed that pseudo-second-order kinetics described the adsorption process better than pseudofirst-order kinetic model. The WTC prepared at optimum conditions had surface area of 830 m2 /g with a total pore size of 0.563 cm3 /g. The activated carbon produced from tea waste was found to be a good adsorbent for removal of CBY from waste waters.