

## **ABSTRACT**

The objective of this study was the assessment of reduction of chemical oxygen demand (COD) of wastewater from textile industrial plant by using activated carbon prepared from locally available coal. Activated carbons were prepared by thermal activation at 700 °C and chemical activation with phosphoric acid  $H_3 PO_4$  at 500 °C. The complete study was done in batch mode to investigate the effect of operating parameters. The result of COD concentration reduction with thermally activated carbon (TAC) and chemically activated carbon (CAC) were compared and optimum operating conditions were determined for maximum reduction. Adsorption isotherms were also studied besides the calculation of optimum treatment parameters for maximum reduction of COD concentration from effluent of the textile industrial plant. The maximum percentage reduction of COD concentration under optimum operating conditions using TAC and CAC was 86.9% and 95.9%, respectively. As the residual COD of wastewater with CAC was in NEQS (2000) permissible limit, therefore, it could be a lucrative technique for treatment of industrial wastewater.