



## **Preparation and application of bio waste based activated carbon on river wastewater treatment**

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**Abstract :** The production of activated carbon (AC) from bio wastes is one of the most environment-friendly solutions by transforming negative-valued wastes to valuable materials. The present work relates to efforts made towards developing a high surface area, activated carbon from rice husk (RH) and sugarcane baggase (SB) by chemical activation process with potassium hydroxide as the activating agent and to ensure the treatment quality of prepared activation carbon on river effluent waste water. The process parameters are characterized and optimized based on the product yield and iodine number (IN) and concentration of activating agent. The adsorption capacity (AC) was found to increase with increasing of initial concentrations activating agents. The quality of activated carbon produced was determined using iodine number test. The higher value of iodine number will increase the adsorption capacity of the activated carbon, hence, the quality of the activated carbon. Activated carbon exhibited high tendency for the reduction of impurities present in effluent waste water. The activated carbon prepared from rice husk and sugarcane baggase in this study had maximum iodine of 639.5 and 670.4 mg/g respectively, with KOH as the activating agent. Their adsorption capacities were comparable to the adsorption capacity of a commercial activated carbon regarding to the reduction in volatile fatty acid, total nitrogen, total phosphorous, cadmium and manganese of the river effluent water.

**Keywords:** Activated carbon, Chemical activation, Iodine number, Wastewater treatment, Adsorption.

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