Preparation and characterization of activated carbon derived from rubber wood sawdust (Heavea brasiliensis): Textural and chemical characterization

Abstract

Activated carbons from rubber wood sawdust (RW) were prepared by physical and chemical activation using potassium hydroxide as the dehydrating agent. A two-stage activation process method was used; with semi-carbonization stage at 200°C for 15 minutes as the first stage followed by an activation stage at 500°C for 45 minutes as the second stage. The precursor material with the impregnation agent was exposed straightaway to semi-carbonization and activation temperature unlike the specific temperature progression as reported in the literature. All experiments were conducted in a laboratory scale muffle furnace under static conditions in a self generated atmosphere covering process parameters such as impregnation ratios. We found that by using this method, the RW20% prepared with the impregnation ratio of 20% had the highest Iodine Number and Methylene Blue adsorption capacity which were 72.39 mg/g and 40mg/g respectively.