

J. Surface Sci. Technol., Vol 23, No. 1-2, pp. 73-80, 2007
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Adsorption Studies on Activated Carbon Derived from Steam Activation of Jute Stick Char

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Abstract The char derived from pyrolysis of jute stick for bio-oil production was activated by physical method using steam. The yield of activated carbon was varied with the variation of activation temperature and steam flow rate. About 50% activation burn-off of char at 750°C with 75 mg/min steam flow rate resulted in high surface area activated carbon. The maximum BET surface area and iodine sorption were found to be 724 m²/g and 573 mg/g respectively. The carbon tetrachloride and benzene adsorption on experimental activated carbon at 30°C were found to be 51.5 and 49.5 wt% respectively, which were 32.0 and 30.5 wt% respectively on commercial activated carbon. These results suggested that the experimental activated carbon was very effective for gas phase and liquid phase adsorption.

Keywords : Activated carbon, jute stick, adsorption, chemical activation, surface characteriza-
tion.
