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**Influence of process parameters on the surface and chemical properties of activated carbon obtained from biochar by chemical activation**

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**Abstract**

Activated carbons were produced from biochar obtained through pyrolysis of safflower seed press cake by chemical activation with zinc chloride. The influences of process variables such as the activation temperature and the impregnation ratio on textural and chemical-surface properties of the activated carbons were investigated. Also, the adsorptive properties of activated carbons were tested using methylene blue dye as the targeted adsorbate. The experimental data indicated that the adsorption isotherms are well described by the Langmuir equilibrium isotherm equation. The optimum conditions resulted in activated carbon with a monolayer adsorption capacity of 128.21 mg g<sup>-1</sup> and carbon content 76.29%, while the BET surface area and total pore volume corresponded to 801.5 m<sup>2</sup> g<sup>-1</sup> and 0.393 cm<sup>3</sup> g<sup>-1</sup>, respectively. This study demonstrated that high surface area activated carbons can be prepared from the chemical activation of biochar with zinc chloride as activating agents.

**Keywords:** Activated carbon, biochar, chemical activation, zinc chloride, adsorption.<sup>1</sup>

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