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Short communication

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Corn stalks char from fast pyrolysis as precursor material for preparation of activated carbon in fluidized bed reactor

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**Abstract:** Corn stalks char from fast pyrolysis was activated by physical and chemical activation process in a fluidized bed reactor. The structure and morphology of the carbons were characterized by N<sub>2</sub> adsorption and SEM. Effects of activation time and activation agents on the structure of activation carbon were investigated. The physically activated carbons with CO<sub>2</sub> have BET specific surface area up to 880m<sup>2</sup>/g, and exhibit microporous structure. The chemically activated carbons with H<sub>3</sub>PO<sub>4</sub> have BET specific surface area up to 600m<sup>2</sup>/g, and exhibit mesoporous structure. The surface morphology shows that physically activated carbons exhibit fibrous like structure in nature with long ridges, resembling parallel lines. Whereas chemically activated carbons have cross-interconnected smooth open pores without the fibrous like structure.

**Keywords:** Activation carbon; bio-char; activating agents; fluidized bed reactor.

## 1. Introduction

Fast pyrolysis of biomass is a rapid thermal decomposition process in the absence of oxygen to produce liquid organic compounds, gas and char. Researches on fast or flash pyrolysis have shown that high yields of primary liquids could be obtained from

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