

## Investigation of Biochar from Banana Peel

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**Abstract :** Growing energy needs and increasing environmental issues are creating awareness for alternative energy which substitutes the non-renewable and polluting fossil fuels. Agricultural wastes are a good feedstock for biochar production through the pyrolysis process. There is potential to generate solid fuel from agricultural wastes, as there are large quantities of agricultural wastes available in Malaysia. This paper outlines the experimental study on the pyrolysis of banana peel. The effects of pyrolysis temperatures on the yield of biochar from the banana peel were investigated. Banana peel was pyrolysed in a horizontal tubular reactor under inert atmosphere by varying the temperatures between 300 and 700 0C. With increasing temperature, the total biochar yield decreased with increased heating value. It was found that the pyrolysis temperature had major effect on the yield of biochar product. It also exerted major influence on the heating value and C,H and O composition. The obtained biochar ranged between 31.9 to 56.7 %wt, at different pyrolysis temperatures. The optimum biochar yield was obtained at 325 0C. Biochar yield obtained at optimum temperature was 47 % wt with a heating value of 25.9 MJ kg<sup>-1</sup>. The study has been performed in order to demonstrate that agricultural wastes like banana peel are also important source of solid fuel.

**Keywords :** agricultural Wastes, banana peel, biochar, pyrolysis

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