Influence of Alcohol Addition on Properties of Bio-oil Produced from Fast Pyrolysis of Eucalyptus Bark

in a Free-Fall Reactor

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**Abstract**

Fast pyrolysis of eucalyptus bark was carried out in a free-fall pyrolysis unit at different temperatures ranging from 400 to 550 °C to produce bio-oil, char and gas. The bio-oil produced at optimum temperature was mixed with alcohols with an aim to improve its properties. The results showed that the maximum bio-oil yield of 64.65 wt% on dry biomass basis could be obtained at the pyrolysis temperature of 500 °C. The addition of a small proportion (2.5-10 %) of alcohol into the bio-oil could improve its viscosity, stability and heating value. These effects were further enhanced when increasing the alcohol.

***Keywords:*** Alcohol addition; Bio-oil; Eucalyptus bark; Fast pyrolysis