

**EFFECT OF FAST PYROLYSIS OPERATION CONDITION ON
BIO-OIL PRODUCTION OF RED MERANTI SAWDUST**

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ABSTRACT

Fast pyrolysis of red meranti sawdust was carried out in a bench-scale tabular furnace reactor for bio-oil production. In this work, the effect of pyrolysis temperature, N₂ gas flow rate, retention time and feed particle size were studied. Results showed that the bio-oil achieved maximum yield about 63.2 wt. % at the temperature of 450 °C, N₂ flow rate of 25 L/min and retention time for feed particle size of 0.3 mm was 60 min. From analysis, it can be concluded that the temperature was the most influential parameter upon bio-oil yield, followed by N₂ sweeping gas flow rate into the reactor and retention time of biomass in furnace. Feed particles size was insignificantly effect bio-oil yield.

Keywords: Fast Pyrolysis, Operating Parameter, Red Meranti, Bio-oil