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**OPTIMIZATION OF FAST PYROLYSIS CONDITION OF RED
MERANTI SAWDUST ON BIO-OIL YIELD**

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ABSTRACT

Fast pyrolysis of red meranti sawdust was pyrolysed to produce bio-oil. Experiments were carried out in a tabular furnace reactor with several process variables such as temperature, N₂ flow rate and retention time of biomass to identify the optimal operating process for highest yield of bio-oil. Central composite design (CCD) of response surface methodology (RSM) was employed to develop mathematical model and optimize the process parameters. Results showed that the optimal pyrolysis process condition was obtained at the temperature of 468 °C, N₂ flow rate 27 L/min and retention time of 56 min with the maximum yield of bio-oil was 63.1%. Gained bio-oil under this optimal condition was analyzed using GC-MS to identify its compounds. Phenolic compound was dominant compound identified in bio-oil.