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## Co-pyrolysis of corn cob and waste cooking oil in a fixed bed

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### ABSTRACT

Corn cob (CC) and waste cooking oil (WCO) were co-pyrolysed in a fixed bed. The effects of various temperatures of 500°C, 550°C, 600°C and CC/WCO mass ratios of 1:0, 1:0.1, 1:0.5, 1:1 and 0:1 were investigated, respectively. Results show that co-pyrolysis of CC/WCO produce more liquid and less bio-char than pyrolysis of CC individually. Bio-oil and bio-char yields were found to be largely dependent on temperature and CC/WCO ratios. GC/MS of bio-oil show it consists of different classes and amounts of organic compounds other than that from CC pyrolysis. Temperature of 550°C and CC/WCO ratio of 1:1 seem to be the optimum considering high bio-oil yields (68.6 wt.%) and good bio-oil properties (HHV of 32.78 MJ/kg). In this case, bio-char of 24.96 MJ/kg appears attractive as a

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