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## Slow Pyrolysis of Oil Palm Empty Fruit Bunches

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### Abstract

*Biomass in the form of empty fruit bunches from oil palm trees (*Elaeis guineensis*) were pyrolysed in a laboratory-scale pyrolyser which was externally heated by a muffle furnace. The effects of pyrolysis temperature and heating rate on the yields and quality of the products were investigated. Pyrolysis runs were performed at terminal temperatures of 450 - 800 °C with heating rates of 5 and 10 °C min<sup>-1</sup>. Product yields were found to be significantly influenced by the pyrolysing conditions. The products were mainly solid char and the condensates separated into a tarry fraction (EFB oil) and an aqueous fraction. Char with 74.8 % fixed carbon and a calorific value of 28.61 MJ kg<sup>-1</sup> was obtained at 550 °C when the heating rate was 5 °C min<sup>-1</sup>. The empirical formula of the EFB oil with a calorific value of 28.92 MJ kg<sup>-1</sup> was established as CH<sub>1.49</sub>O<sub>0.42</sub>N<sub>0.02</sub>.*

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