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# Air gasification of acacia woodchips in an downdraft gasifier

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## Abstract

Producer gas from biomass gasification can be used to produce chemicals or generate power. The fuel properties of acacia woodchips such as ultimate, proximate, heating values were investigated. Acacia woodchips gasification was investigated by downdraft gasifier at HUST. Main composition of producer gas include hydrogen, carbon monoxide, carbon dioxide was analyzed in gas chromatography with TCD detector. It was found that H<sub>2</sub>, CO, CO<sub>2</sub> composition was about 14-20%, 11-22% and 13-18%, respectively. The producer gas calorific value was about 3,5 - 5,4 MJ m<sup>-3</sup>. The air flow rate was controlled ER from 0,24-0,34 and it influence on both the combustible constituents of producer gas, calorific value and gasification efficiency. The result showed that the calorific value of producer gas was 5.4 MJ m<sup>-3</sup> and gasification efficiency attained 65,8 % with ER equal to 0,34. Acacia woodchips could successfully be used as feedstock for downdraft gasifier.

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