

## Evaluation Of Water Hyacinth (*Eichhornia crassipes*) As A Potential Raw Material Source For Briquette Production

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### ABSTRACT

In the present study we investigated the fuel properties of bio-briquettes made from a combination of water hyacinth and empty fruit bunch fiber (palm oil mill residue). Water hyacinth (WH) was mixed with empty fruit bunch (EFB) fibers in a ratio of 25, 50, 75, 90, and 100% by weight and cassava starch added as binder. The experimental results showed that the addition of WH had a little effect ( $p < 0.05$ ) on the physical and combustion properties of the briquettes. The proximate analysis showed that the moisture content, ash content and fixed carbon content were increased with the increase in WH amount from 25 to 100%, while the volatile matter content and calorific value decreased. Combustion test showed that the increase in the WH percentage in bio-briquette resulted in the decreased of O<sub>2</sub> and CO level, whereas, that of CO<sub>2</sub> and NO, NO<sub>2</sub> and SO<sub>2</sub> were increased. Therefore, the results conclude that the WH: EFB biomass bio-briquette could be a great potential as an alternative source to conventional coal to minimize the emission of greenhouse gases.

### KEYWORDS

Water hyacinth; Empty fruit bunch; Briquette; Proximate analysis; Combustion

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