

Experimental Investigation of Pineapple Leaf Fiber as Biomass Fuel for Renewable Energy Resource

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Abstract:

Depletion of fossil fuel reserves along with major environmental impacts needs the government and authorities to emphasis on renewable energy resources. Biomass from plantation waste is among the significant resource for renewable energy. Hence, this research was carried out with the primary objective is to evaluate the potential of pineapple leaf fiber (PALF) as an alternative for current biomass resources which are oil palm empty fruit bunch (OPEFB) and rice husk (RH). The PALF was obtained from pineapple leaf waste by using hand scrapping technique. Then the characterization process was conducted on the PALF used in the present study to investigate its cellulose contents. Five samples were tested for calorimetric value by using the calorimetric thermometer and bomb cylinder. The calorimetric value test shows that the PALF has a calorimetric average value of 16.93 MJ/Kg. Therefore, the finding reveals that the PALF has high potential as an alternative for current biomass resources for renewable energy application. The utilization of PALF with higher cellulose content compared with the present study expected capable of providing higher calorimetric value result in the future.

Keywords: Biomass; Natural Fiber; Pineapple Leaf Fiber; Calorific Value

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