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Characterization of biofuel pellets production from woody biomass blends

In this study biofuel pellet made from Para rubber wood (*Hevea brasiliensis* Muell. Arg.) blended with branches and leaves of She Oak (*Casuarina Equisetifolia*) and Cajuput trees (*Melaleuca Cajuputi*) were characterized. Para rubber wood sawdust was the main raw material as 70% of whole content. The branches and leaves of She Oak and Cajuput were selected for blending materials as the rest ratio for each type of raw materials. The pellet production was produced from a single pellet machine in the laboratory. After that, proximate analysis, heating value, thermogravimetric analysis of pellets was analyzed. Moreover, microstructure of cross section area of pellets was illustrated via SEM picture. This study revealed that the overall quality of rubber sawdust pellet fuel was of medium quality, however it can modify or improved by blending with another materials. The fuel pellet containing the Cajuput branches provided good combustion properties. The SEM picture showed that the pellet made from blending material provided more void fraction than only one material. The suitable raw materials from this study that recommend to adding for improved the quality of biofuel pellet are branches and leaves of the Cajuput tree.

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