

**THE PERFORMANCE OF PARTICLEBOARD MADE FROM RICE HUSK AND
COCONUT HUSK BASED ON TYPE DENSITY AND TYPE OF RAW
MATERIAL**

By

JONITY BIN PHILIP

**Thesis Submitted in Partial Fulfillment of the Requirements for the Degree
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Name of candidate : Jonity Bin Philip

Candidate's ID No : 2011772295

Programme : Bachelor of Science (Hons.) Bio-Composite Technology

Faculty : Faculty of Applied Science

Title : The Performance of Particleboard made from Rice Husk
and Coconut Husk based on type Density and type of Raw
Material



Signature of Candidate:

Date: 14/1/2015

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The increase in waste production from agricultural waste has contributed to various environmental problems. In Malaysia, agricultural is the main sector industry especially for rice and coconut production. Coconut husks and rice husks, residues generated during the processing, are available in abundant quantities in many parts of the tropics but are often treated as a waste material. This study investigated the performance of particleboard made from rice husk and coconut husk based on type density (500kg/m^3 , 600kg/m^3 , 700kg/m^3) and type of raw material (rice husks, coconut husk and mixing). Material type gave the effect on board properties. For mechanical (MOR and MOE) and physical properties (TS and WA), there were high significant between material. Material with fiber structure like coconut husk resulted in higher value of MOR, MOE and IB compared to rice husk and mixing. Even so, in TS testing, mixing sample recorded highest value in percentage after coconut husk and rice husk sample. But in WA, coconut husk samples show more resistant to water compared to others. Density also gave great impact on properties of particleboards. The higher density (700kg/m^3) gave more bonding strength in mechanical properties (MOR, MOE and IB) than lower density (500kg/m^3 and 600kg/m^3) and resulted in more resistant towards water. The developed particle board composites can be used for general purpose requirement, such as paneling, ceilings or furniture.

Keywords: coconut husks, rice husks, density, water absorption and thickness swelling

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