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

By

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Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science (Hons.) Bio-composite Technology, Faculty of Applied Sciences,
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CANDIDATE'S DECLARATION

I declare that the work in this final year project was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. The final year project report has been submitted to any other academic institution or non-academic institution for any other degree or qualification.

In the even that my final year project is found to violet the condition mention above, I voluntarily waive the right of conferment of my bachelor degree and agree to be subjected to the disciplinary rules and regulation of University Technology MARA.

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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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