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PROPERTIES OF OIL PALM EMPTY FRUIT BUNCH FIBERS, COCONUT HUSK AND POLYPROPYLENE COMPOSITE - POTENTIAL FURNITURE MATERIAL

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ABSTRACT

Composite panel was produced from agriculture fibers such as oil palm empty fruit bunch fibers (EFB) and coconut husk mixed with polypropylene (PP). The panel produced was assessed for the mechanical properties (bending, tensile and impact) and physical properties (water absorption and thickness swelling) in accordance with the American Society of Testing and Materials (ASTM) standards. Results from the mechanical properties revealed that composite panel made from coconut husk and PP gave bending strength values of 3278.27 MPa for MOE and 29.14 MPa for MOR. Tensile strength values were 3271.972 MPa for MOE and 18.29 MPa for MOR. Impact strength value for such panel was 11.452 kJ. Meanwhile composite panel from the mixture of oil palm empty fruit bunch fibers and PP gave bending strength values of 2832.80 MPa for MOE and 26.93 MPa for MOR. Tensile strength values were 3108.557 MPa for MOE and 15.73 MPa for MOR. Impact strength value for such panel was 10.629 kJ. On the other hand, assessment on the physical properties indicated that panel from the mixture of coconut husk and PP gave water absorption and thickness swelling values of 1.357 % and 1.185 % respectively and oil palm empty fruit bunch fibers gave water absorption and thickness swelling values of 3.972 % and 3.844 % respectively. Henceforth, from the statistical analysis shows, the coconut husk has a greater potential as an alternative raw material to produce the WPC and also the composite material for furniture industry.

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