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Mechanical and Physical Properties of Banana Fiber (Three Species) Reinforced Epoxy Resin Composite

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The aim of this research was to study mechanical and physical properties of epoxy composites reinforced by the fibers of banana were analyzed. Three different specimens were made by varying the species of Musa ABB CV. Kluai “Namwa”, Musa balbisiana Colla.at and Musa (AAA group) “Kluai Hom thong” at 12% by weight. Specimens were formed by hand-layup process. The tensile strength, tensile modulus, flexural strength, flexural modulus, impact strength, density and water absorption of the composite were investigated and microstructure of the composite material with Scanning Electron Microscopy (SEM). The experimental design was 3X7 factorial in completely randomized design (CRD) with 3 replications.

Experimental results show that the tensile strength, tensile modulus, impact strength, density, water absorption and the analysis of the microstructure found that mechanical properties of the composites increased because internal bond adhesion between fiber and matrix is well formed and tensile strain associated with the ability to absorb and distribute the force evenly across the surface of the composites. Moreover, the void between the fiber and matrix, resulting in the mechanical properties of the composite, is decreased.

Primary authors: PONGSATHORN, CHamp; Mr KAICHAROEN, Apisit; Ms KAEWPILA, Bussaba

Presenter: PONGSATHORN, CHamp

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