



## The Effect of Chemical Treatment on Mechanical and Thermal Properties of Abaca-Glass-Banana Hybrid Fibre Composites

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**Abstract:** In this study, Abaca-Glass-banana composites were fabricated by utilizing Bisphenol-A resin. To enhance fibermatrix bond alkalization (NaOH) and acetylation (KMnO<sub>4</sub>) were performed on the fiber composites. Differential Scanning calorimeter (DSC) and thermo gravimetric examination (TGA) were utilized to explore the thermal stability and weight loss in the fiber composite due to chemical constituent's after treatment. Mechanical properties, for example, flexural quality, flexural modulus, strain at break of untreated and treated fiber composites were examined. On consolidation results it was found that alkalized fiber composites shows better mechanical properties than untreated and acetylated composite. Thermal properties of the fiber composites were likewise improved for the treated fiber. Comparative analysis shows that alkaline-treated fibers exhibited enhanced properties than the untreated fibers and acetalized fibers.

**Keywords:** Chemical Treatment; Abaca fiber; Glass fiber; Banana fiber; Alkalization; Acetylation; Mechanical properties; Thermal Properties; Automatic Tape laying machine.