# Mechanical properties of Gigantochloa scortechinii bamboo particle reinforced semirigid polyvinyl chloride composites


## ABSTRACT

This investigation aims to study the mechanical properties of the bamboo particle (BP) (Gigantochloa scortechinii) reinforced with semirigid Polyvinyl Chloride (PVC) composites before and after the steam explosion (SE)-alkali treatment. Mechanical properties, namely, tensile, flexural and impact strengths, were determined using universal tensile and impact testing machines according to ASTM standard. The tensile and flexural strengths of the composites were improved after SE-alkali treatment. Results indicated that the tensile and flexural strengths of the composites increased and reached the optimum values of 17.42 and 11.86 MPa, respectively for SE-alkali treatment BP reinforced semirigid PVC with 40 wt% particle content. The impact strength of SEalkali-treated composites was unimproved due to less dense and rigid particle.



**Keyword:** Alkali treatment; Bamboo particle; Polyvinyl chloride; Steam explosion; Mechanical properties