

Dynamic behaviour of woven bio fiber composite

ABSTRACT

The effect of weaving pattern and natural filler addition on the dynamic properties of composite structure was investigated. The reinforcement effect of plain, basket, and twill weave were compared with randomly oriented natural fiber in short form. An experimental modal analysis was used to determine the fundamental natural frequency and modal damping factor of composite structure. The results for a woven reinforced composite were compared with those of a randomly oriented short fiber composite. Reinforcement with woven form enhanced the fundamental natural frequency, while randomly oriented short fiber enhanced the damping factor of composite material. In addition, mechanical properties, such as tensile and flexural behavior, were examined to understand the effect of reinforcement on the composite material. The sisal bio fiber with woven form enhanced the properties of the composite material.

Keyword: Bio fiber; Weaving pattern; Natural frequency; Damping factor