Experimental Investigation of Mechanical Properties of Various Natural Fiber-Reinforced Hybrid Composites.

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Abstract

Natural fiber focuses on reducing product weight and expense while limiting the environment's impact. Composite materials are continuously evolving, as are the industries that support them. Natural fibers have recently sparked greater investigation. These composite materials have a variety of uses. Natural and synthetic fibers work together to provide a stronger substance. Synthetic fibers are often not environmentally friendly and are not recyclable, making them damaging to the environment. In this present research work analysis of different mechanical properties like tensile, flexural strength, and impact on natural fibers (jute, murta, and cotton) as hybrid composite in four combinations (jute-cooton-jute, murta-cotton-murta, jute-murta-jute and murta-jute-murta) are studied. Each combination consists of two natural fibers where one has two layers of woven fiber and another has one layer of woven mat. Epoxy resin as matrix material and hardener with natural fibers as the reinforcement material is used to make the specimens. The hand lay-up technique is used to fabricate the specimens. After testing the specimens, it was found that the jute-cotton-jute fiber hybrid composite has superior tensile property and water absorption properties and the jute-murta-jute fiber hybrid composite has superior flexural and impact properties as compared to the other hybrid composites.

Keywords
Hybrid composite, Jute fiber, Cotton fiber, Murta fiber, Mechanical properties

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