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An Investigation of Mechanical Properties in Bamboo and Coir Fiber with Graphene for the Automobile Dash Board Panels.

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Abstract: *The aim of this research is focus on the study of mechanical properties in the natural composites like bamboo and coir fiber with polymer epoxy and graphene is used to enhance the needed properties. The composite material advancement is essential to the growth of the current, dynamic world. In order to reach the needed standard, numerous studies are being conducted in this area. There is a strong tendency for natural fibre reinforced polymer composites (NFPC) to replace composites based of synthetic fibers. The main reason for this is that they have benefits including being lightweight, non-toxic, non-abrasive, easily available, affordable, and biodegradable. Bamboo fiber and coir fiber cut into 2-4mm of length with epoxy resin having random orientations. Bamboo and coir fibers were treated with 6 wt. % NaOH solutions for 12 hrs. After, the NaOH treatment of the fibers, stirred homogeneously with the epoxy polymer resin and hardener. After the complete mixing with the resin it mould in the die which is already made. The curing time has been given as 24 hrs. in the control environment. After the curing period the specimen has been taken out and prepared for the mechanical testing like hardness and tensile. In the same approach with random orientation specimen were prepared with graphene also. At last the mechanical properties are evaluated for coir fiber (3 samples) bamboo fiber (3 samples) without grapheneand coir fiber (3 samples) bamboo fiber (3 samples) with graphene. The outcome of the paperis clearly shown that coir and bamboo fiber with graphene have significant mechanicalproperties.*

Keywords: Bamboo fiber, Coir fiber, Graphene, Tensile test, Hardness test

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