

## Jute Based Biocomposites: The Future of Automobiles

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**Abstract :** Nature being bountiful is generous enough to provide rich resources to mankind. These resources can be used as an alternative to synthetics, thereby reducing the chances of environmental pollution. Natural fibre based composites have emerged as a successful trend in recent automobile industry. Natural fibre based composites used in automobile industries not only reduces their fuel consumption but also do not pose any health hazards. In spite of the use of natural fibre based bio composite in automobile industries, its use is only being limited to interior products. However, its major drawbacks which contributed to limited scope in the field of industry are reduced durability and mechanical strength. Thereby, the use of natural fibre based bio composites as headliner in case of automobile industries is also not successfully deployed. Out of all the natural fibres available, jute can widely be used as automobile parts because of its easy availability, comparatively higher specific strength, lower density, low thermal conductivity and most importantly its non polluting and non abrasive nature. Various research outcomes in the field of jute based biocomposites for the use of automobile industries has not successfully being deployed due to certain inherent problem of the fibre. Jute being hydrophilic in nature is not readily adhered to the hydrophobic polyester resin. Therefore introduction of a chemical compatibilizer, in the preparation of jute based composites have been tested to enhance the mechanical and durable properties of the material to a greater extent. This present work therefore focuses on the synthesis of a suitable compatibilizer, acting as a chemical bridge between the polar jute fabric and the non polar resin matrix. This in turn results in imparting better interfacial bonding between the two, thereby inducing higher mechanical strength. These coupling treated fabrics are casted into composites and tested for their mechanical properties. The test reports show a remarkable change in all of its properties. The durability test was performed by soil burial test method.

**Keywords :** jute, automobile industry, biodegradability, chemical compatibilizer

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