

A bicycle riser bar made from jute fibre reinforced polymer composite materials

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Riser bar made of ATJFC. Credit: DOI: 10.1016/j.crgsc.2021.100241

To meet the demand for alternative low-cost, sustainable, light weight and strong materials for two wheelers, Dr. JS Binoj from Sree Vidyanikethan Engineering College India has led a multi-national team to successfully develop a novel riser bar made from jute fiber reinforcing isophthalic polymer composite material.

The team comprised researchers hailing from Sree Buddha College of Engineering (Drs JB Sajin, MS Senthil Saravanan), Hindustan Institute of Technology and Science (R Christu Paul), Sri Ramakrishna Engineering College (Dr. B Brailson Mansingh), St Xavier's Catholic College of Engineering (M Gerald Arul Selvan), Noorul Islam Centre of Higher Education (Dr. RS Rimal Isaac) and Newcastle University (Dr. Kheng Lim Goh).

The novelty of the composite bar involves a new and effective way of tailoring the length of the jute fibers as well as the interfacial bonding interactions between the jute fibers and the isophthalic polymer, which functioned as the matrix phase for the composite material.

Conventionally, riser bar is made from aluminum (which is inexpensive); more advanced ones are made from scandium and carbon fiber reinforced composites (which are expensive). More importantly the environmental impact of these materials could be contentious. On the other hand, the new isophthalic polymer-based [composite material](#) reinforced by [jute](#) fibers revealed [mechanical strength](#), stiffness, extensibility and toughness that are comparable to conventional materials.

Isophthalic polymer is a low-cost, durable material that is used for construction in civil engineering. With the proof-of-concept demonstrated, the team is now looking for investors and new collaborators to support further development to bring the technology

readiness level from 4 to 9.

More information: J.B. Sajin et al, Impact of fiber length on mechanical, morphological and thermal analysis of chemical treated jute fiber polymer composites for sustainable applications, *Current Research in Green and Sustainable Chemistry* (2021). [DOI: 10.1016/j.crgsc.2021.100241](https://doi.org/10.1016/j.crgsc.2021.100241)

Provided by Newcastle University in Singapore

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