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By: Tudor Vieru, Science Editor



A picture showing a coconut - contents, hard shell, and husk
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Scientists Make Car Parts from Coconut Husks

Their fibers can be used for various applications

Coconuts are known worldwide for their specific taste, the aroma they have, and the milk and oil that can be extracted from them, for various applications. But now, researchers at Baylor University (BU) in Texas have found a way to use even the husk of the fruit - the wrapping that covers the hard shell inside - to create structures fit to be used by the automotive industry, for creating truck liners, floorboards and other car components, which are currently built from synthetic materials.

The husk of the coconuts has no economic values for farmers who grow them, and this potentially valuable resource is being wasted and turned into garbage that poses a health risk for people living around it. The fibers in the husks can easily retain 10 times their volume in water, thus making them a perfect habitat for mosquitoes bearing various diseases, such as malaria. This is all the more dangerous when considering the fact that coconuts only grow in the equatorial regions of the globe, where insects are a part of everyone's daily life.

Walter Bradley, a BU engineering professor, says that the farmers attending to coconut palm tree plantations only make about \$500 a year from the fruits they harvest, and that their revenues could be substantially increased if husks were to be used in industrial-scale processes, as is the case with the automotive industry. "We are trying to turn trash into cash to help poor coconut farmers," says Bradley.

"The coconut that you see in the grocery store has a real hard shell that comes in a larger volume that's twice as big - the husk, that is very fibrous. The fiber has very good strength, stiffness and ductility, and potentially can be used for all kinds of things," he adds.

Using a process called compression-molding, meaning that a mixture of husk fibers and polypropylene fibers is hot-pressed at large temperatures, Bradley and his team managed to obtain materials that are even stiffer than the synthetic ones currently in use, yet twice as light. If the live testings prove successful, then we could expect this innovation to be implemented in wide-scale automobile production at least in the United States.