MOTORS

What if the tamarind rind can be used to store energy in an electric car?

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Many think that the important thing in electric cars are batteries. It is a key element, true, but many use supercapacitors for certain tasks, such as delivering power quickly when accelerating. And beware, an investigation has announced that a key component of these devices could be manufactured with tamarind peels.

It is not very common in Europe, but the tamarind fruit is consumed in large quantities in Asia and other regions. And their husks (which could be composted), most of the time end up in landfills.

An international team of scientists sought to value these pods and decided to use them as source material for carbon nanofilts, which store electrical charge inside supercapacitors. The project was led by Singapore's Nanyang Technological University, and also involved researchers from India's Alagappa University and Western Norway University of Applied Sciences.

The scientists began by washing the tamarind peels it discarded from the food industry. They were then dried at 100 ° C (212 ° F) for about six hours and ground to a powder that was baked in an oven at 700 to 900 ° C for 150 minutes, without oxygen. After baking, this powder turns into carbon nanofilts (ultra-thin layers of carbon).

Why the tamarind?

Tamarind shells are particularly good for this because they are rich in carbon and have a porous structure (this increases the surface area of the carbon in the nanofilts and allows more electricity to be stored).

As if that were not enough, these tamarind carbon nanosheets showed good electrical conductivity and thermal stability, in addition to the fact that they require less energy to produce them than to make nanosheets with hemp fibers, which must be previously heated for 24 hours before passing them to an oven. And beware, they are also investigating other ways to make the process even more sustainable, in addition to looking for how to scale the technology for the commercial production of these carbon nanofilts with tamarind pods.

Via: Chemosphere

Source: Nanyang Technological University