The waste frying oil from your chips could help to create biofuel | Photo source Wine Dharma on Unsplash

WASTE COOKING OIL AND LITHIUM FROM OLD BATTERIES TURNED INTO BIOFUEL

AGRICULTURE & ENERGY

A newly published study suggests it could be possible to transform the grease from your local chippy into green biofuel, using waste from the batteries of an electric car

Spotted: Scientists from the University of Brazil have discovered a way to create biofuel which up-cycles waste from lithium batteries at the same time.

The proposal came through in a new study published last week in the Journal of Renewable and Sustainable Energy. The authors suggested that the process could both improve the practicality of biofuel as a fossil fuel alternative; and offer a sustainable solution to the increasing amount of electronic, lithium waste.

Lithium batteries, while enabling technology like smartphones and electric cars, have a fairly limited shelf-life and begin to degrade after a few years of charging cycles. The result is a lot of lithium waste that can be harmful to the environment if not disposed of properly.

The researchers used discarded vegetable oil from local fast-food restaurants and homes to carry out the experiment. They then carried out a chemical reaction by mixing the oil solution and methanol with a lithium catalyst. The result was a solution of biodiesel and glycerol, with a composition that achieved a 90 per cent yield on average and exhibited characteristics of a standard biofuel.

Gilberto Maia de Brito, the study's first author and an environmental engineering researcher at the Federal University of Espírito Santo in Brazil, said that the results achieved in this work could "make it

possible to expand the use of new types of metallic catalysts to a higher level, such as lithium, applied to the production of biodiesel".

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Takeaway:

Lithium batteries have a finite shelf life, and only around five per cent of lithium-ion batteries are recycled. The authors hope they have demonstrated the feasibility of an approach that can reliably produce large amounts of green power, while also removing Li-ion battery wastes and oily contaminants from the environment. In the future, this could potentially open doors for a partnership between transportation methods that use biofuels, such as cars and bikes or even ships and aeroplanes.