

Is seaweed the solution to sustainable biofuel?

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Credit: AI-generated image ([disclaimer](#))

Produced from organic matter or waste, biofuels play an important role in reducing greenhouse gas (GHG) emissions and are one of the largest sources of renewable energy in use today. Most of Europe's renewable transport target is currently met with land-based biofuels. However, many of the feedstocks like corn and alfalfa used to produce such

biofuels aren't economically and environmentally sustainable. Compared with fossil fuels, they do provide energy security and reduce air pollution. But the fact remains that they lead to more intensive use of resources, reduced biodiversity and even higher GHG emissions through land use change.

As a result, for a number of years scientists have been looking to the ocean for other alternatives to [fossil fuels](#). One such alternative is macroalgae, more commonly known as [seaweed](#). While scientists have recognized seaweed's potential as a sustainable source for biofuels, scaling up production to industrial levels and maintaining [environmental sustainability](#) at the same time has proven difficult.

With this challenge in mind, scientists working on the EU-funded MacroFuels project have sought to prove that seaweed can be sustainably produced and used as a biofuel source. After years of research, the project team has developed seaweed-based fuel that was recently tested in a real car test engine. Powered by this biofuel, the car reached speeds of up to 80 kph.

"We've looked to see if seaweed fuel works in the same way as ordinary fuel and what its effect is on the motor," said researcher Dr. Jaap van Hal in a news item posted on the "Dutch News" website. "This means that this fuel could be used for private cars in the future but seaweed fuel is also interesting for aviation and shipping."

Why is seaweed so promising?

Seaweed cultivation has a number of advantages. For example, seaweed doesn't need fresh water, arable land or fertilizers to grow. This offers a number of environmental benefits, such as doing away with emissions created from irrigating crops and deforestation and reducing the demand for land resources. Seaweed cultivation could also help to combat the

problem of nutrient pollution, in which excess nutrients from fertilizers used in farming find their way into the sea.

The progress achieved by MacroFuels (Developing the next generation Macro-Algae based biofuels for transportation via advanced biorefinery processes) is laying the foundations for sustainable [biofuel](#) use in the transport sector. The advanced technologies employed in the production of biofuels such as this will also offer new job opportunities along the entire value chain. The project team believes that reaching the EU target of achieving at least 2.5 percent of transport energy from advanced biofuels that corresponds to 5,000 km² of cultivated seaweed area will create about 15,000 jobs.

More information: MacroFuels project website: www.macrofuels.eu/

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