

Aussie algae fuel green oil hope

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Newly trialled native algae species provide real hope for the development of commercially viable fuels from algae, a University of Queensland scientist has found.

Dr Evan Stephens and the team at UQ's Institute for Molecular Bioscience, in collaboration with Germany's Bielefeld University and Karlsruhe Institute of Technology, have identified fast-growing and hardy microscopic algae that could prove the key to cheaper and more efficient alternative [fuel production](#).

UQ Solar Biofuels Research Centre manager Dr Stephens said Australia could potentially become an oil exporter like the Middle East by devoting just one per cent of land to algae farms.

"Previously the main focus has been looking for oil-rich algae, but usually these are tastier to predators – like microscopic scoops of ice cream," Dr Stephens said.

"The integration of new technologies means we can turn a broad range of algae into bio-crude oil that can be processed in existing [oil refineries](#), so now the success of the industry comes down to rapid growth and low production costs.

"A major new frontier is in the biology and developing new strains – and we've already made significant advances through the identification of high-efficiency strains that have really stable growth, as well as being resistant to predators and temperature fluctuations."

Dr Stephens and the team have identified hundreds of native species of [microscopic algae](#) from freshwater and saltwater environments around Australia.

They and have tested these against thousands of environmental conditions in the laboratory, creating a shortlist of top performers.

The researchers are putting the algae through their paces at a pilot processing plant that opened in Brisbane in April.

The project has garnered international and domestic investment, including from Finland's Neste Oil, global engineering company KBR, Siemens, the Queensland Government and Cement Australia.

Traditionally, algae have been grown for health foods, aquaculture and

waste-water treatment but in recent years, algae oil has become the focus of an emerging [biofuel](#) industry.

Dr Stephens said its production was expensive and viable commercial production had not yet been achieved in Australia or overseas.

"While we know that we can produce algae [oil](#) that is even higher quality than standard petroleum sources, we are working to increase the efficiency of production with the ultimate aim being to compete with fossil fuels dollar for dollar," he said.

He said it was important to get economies of scale right before commercialising algae biofuels.

"There are still important challenges in science and engineering to be overcome to achieve the high efficiency needed to compete with conventional petroleum."

Dr Stephens said the algae biofuel industry held promise for Australia because [algae](#) farming was well suited to the country's climate and land.

Dr Stephens is one of 12 early-career scientists selected from state finals to unveil their research to the public through Fresh Science, a national program sponsored by the Australian Government through the Inspiring Australia initiative.

Provided by University of Queensland

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