

Algal oil to help healthy diets

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Algal oils are a sustainable solution to solve future resource problems, according to Roger Huerlimann, a PhD student at James Cook University in Townsville.

Mr Huerlimann said microalgae, tiny [aquatic organisms](#) related to plants, use light and the greenhouse gas carbon dioxide to produce oils similar to [vegetable oils](#) from plants.

“Two of the major problems in future will be the shortage of food and fuel,” he said.

“Microalgae have the potential to solve these two problems and more. Everyone going grocery shopping sees products claiming to be high in omega-3 fatty acids, which are essential in our diet since they cannot be produced by human or other animals, and need to be supplied through our diet.

“There is also evidence that some of them even reduce the risk for cardiovascular diseases and inflammatory responses, as well as increasing brain function.”

Mr Huerlimann said [plants](#) could produce omega-3 fatty acids only to a certain degree, but historically, the main source for the most useful omega-3 fatty acids were oily fish, which, he said, have become unsustainable due to overfishing.

“However, the original producers of these omega-3 fatty acids are

actually microalgae and they excel at this task,” he said.

“These omega-3 oil-rich microalgae are at the bottom of the food chain and their oils are accumulated within the food web. Furthermore, the algal oils can be turned into biodiesel for cars and heavy machinery, as well as bio-kerosene for airplanes. This would provide the world with a clean, sustainable source of fuels.

“Nature has given microalgae incredibly effective ‘tools’ in the form of enzymes to produce a high variety of valuable oils. My genetic work will make it possible to select specific microalgae which are suitable for the production of either biofuels or omega-3 fatty acids, among other possible applications.”

The research will help in the search for more productive strains of algae, which produce the [oils](#) and [fatty acids](#) that are required for each individual application.

Mr Huerlimann is part of a larger research team at JCU, led by Associate Professor Kirsten Heimann. The team explores cultivation of microalgae for the capture of carbon dioxide, a known [greenhouse gas](#) responsible for global warming.

The microalgal biomass produced will then be used for generating value-adding products. This research is in partnership with MBD Energy, DEEDI Queensland and the Federal Government’s Advanced Manufacturing Cooperative Research Centre.

Provided by James Cook University

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