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REDUCING THE IMPACT OF FISH-FARMING

Researchers at Deakin hope to cut the cost of producing omega-3-rich Murray cod by putting them on a diet containing vegetable oils.

Omega-3 long-chain polyunsaturated fatty acids are associated with a number of health benefits and fish oil is one of the major natural sources.

Fish can't actually make their own omega-3: they obtain it from their food.

In fish farms, this means supplementing the diet with fish oil. But this oil comes from wild fisheries and is getting more expensive as catches decline and demand from fish farms rises.

Shyamalie Senadheera, a recipient of an AusAID Australian Leadership Award and a PhD student at Deakin's School of Life and Environmental Sciences, is testing a variety of alternative diets that use vegetable oils instead of fish oils for farmed Murray cod. The goal is to create a fish diet that replaces expensive fish oils with cheaper alternatives.

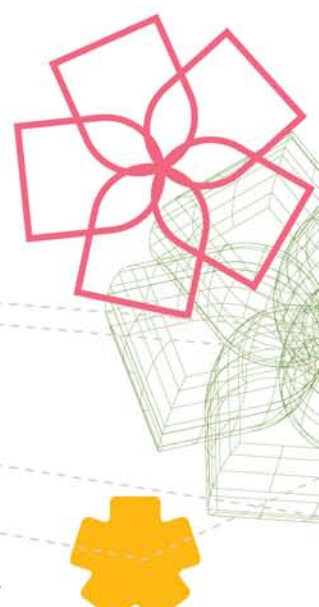
The problem with using vegetable oil is that it is high in short-chain fatty acids, rather than the long-chain omega-3 fatty acids which give health benefits. Previous work by Deakin researchers has shown that Murray cod can convert short-chain fatty acids into the long-chain variety and they have worked out the best levels of short-chain fatty acids to achieve high conversion rates.

Shyamalie's research takes this a step further. There are two types of short-chain fatty acids (omega-3 and omega-6) and fish need both in order to be healthy and to efficiently produce long-chain fatty acids. She is using diets with blends of sunflower and linseed oil to see what ratios work best. She is also testing whether the amount of zinc in the diet has an impact on fatty acid metabolism.

"I hope we will be able to design a cheaper diet that will help the future sustainability of fish farms," says Shyamalie.



Shyamalie Senadheera is testing the protein content of her experimental diets.
Image: Thanongsak Thanuthong



FURTHER INFORMATION:

School of Life and Environmental Sciences
Principal supervisor: Dr Giovanni Turchini
E: giovanni.turchini@deakin.edu.au
www.deakin.edu.au/scitech/les

