

Rothamsted Repository Download

A - Papers appearing in refereed journals

West, A. L., Miles, E.A., Lillycrop K. A., Han, L., Sayanova, O. V., Napier, J. A. and Calder, P. C. 2019. Postprandial incorporation of EPA and DHA from transgenic *Camelina sativa* oil into blood lipids is equivalent to that from fish oil in healthy humans. *British Journal Of Nutrition*. pp. 1-27.

The publisher's version can be accessed at:

- <https://dx.doi.org/10.1017/S0007114519000825>

The output can be accessed at: <https://repository.rothamsted.ac.uk/item/8wqyq>.

© 12 April 2019, Please contact library@rothamsted.ac.uk for copyright queries.

RRES Press Release - Its' oil the same to us 29 April 2019

New human health trial shows plant produced omega-3 fats are just as effective nutritionally as fish oil

Research, led by the University of Southampton's Faculty of Medicine, has shown that key omega-3 fatty acids within GM plant oils are taken up and processed by the body in exactly the same way as when fish oils are eaten.

The findings are great news for Rothamsted, where Prof Johnathan Napier has pioneered the modification of the Camelina plants to produce the enhanced vegetable oil in their seeds.

He said: "It is genuinely exciting to see our research progress to the point where we are carrying out human studies, and even more pleasing to see such positive results.

"This first study in humans is both an important scientific advance and another step on our journey towards making this oil available to the consumer."

Mainly found in fish oil and oily fish, the omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), are key components of cell membranes and important for health and development, but there are no natural plant sources of these omega-3s.

The fats are well known to help protect against heart disease and strokes, but the UK population consumes less than half the recommended amounts of these key nutrients, mainly due to dietary choices that exclude fish, such as vegetarianism.

Additionally, current marine supplies can only meet 15 per cent of global demand, so there is a need for a source of omega-3 oils that is broadly acceptable to consumers, which can be scaled up to meet demands, and is sustainable.

Researchers at the University, led by Professor Graham Burdge, have for the first time tested in people whether the oil from the genetically modified plant is as good as fish oil in providing these fatty acids.

Their findings, which are published in the British Journal of Nutrition, show that when young and middle-aged men and women consumed the same amount of key fatty acids in a single standard meal, either as fish oil or as the oil from the genetically modified plant, there was no difference in their uptake or in the processing of the fats by the body. Moreover, there was no difference between men and women, but older participants appeared to take up they fatty acids more efficiently. Significantly, there were no adverse effects on those who had consumed the modified oil.

Professor Graham Burdge, University of Southampton said: "These findings show that the oil from this transgenic plant is an effective and apparently safe means of providing EPA and DHA in the diet which overcomes the negative effect on EPA and DHA intakes of consuming a diet that excludes animal products.

"Furthermore, subject to further testing and regulatory approval, this would represent a unique opportunity for farmers that could have a positive impact on the nutrition of the global population."

For more information on Rothamsted's work on Camelina, go to the impact story, ["From oceans to fields and back again"](#).

- **Postprandial incorporation of EPA and DHA from transgenic *Camelina sativa* oil into blood lipids is equivalent to that from fish oil in healthy humans**
<https://doi.org/10.1017/S0007114519000825> J A Napier

