

Functional foods from the sea

April 4 2013, by Arran Frood



Credit: R~P~M

Seaweeds are not only tasty, but they are a source of nutrients that could be beneficial for health and wellbeing. And like terrestrial plants, seaweeds also contain significant portions of fibre that reach the colon undigested. But does seaweed fibre have similar positive [effects](#) on bacterial in the human gut? That's the question that the [HYFFI](#) project, funded by the EU, is trying to solve.

Their objective is find out if low-molecular weight polysaccharides (LMWPs) from seaweed fibre had functional effects as prebiotics; not to be confused with probiotics, which are live infusions of bacteria. "The most recent definition for a prebiotic is 'a selectively fermented ingredient that allows specific changes, both in the composition or

activity in the gastrointestinal [microflora](#) that confers benefits," says Sarah Hotchkiss, a seaweed specialist, or phycologist, working for CyberColloids, in Carrigaline, Ireland, one of the commercial partners on the project.

As part of the study, they performed a [laboratory-based trial](#) over 10 LWMPs. These were cultured on human faeces because prebiotics such as fibre ferment in the gut as they interact with the microbial community. Thanks to a technique called [gas chromatography](#), it was possible to measure fermentation products. Scientists found that one of their alginate powder compounds, called CC2238, produced a significant increase in total bacteria populations.

Furthermore, a Gelidium seaweed compound, dubbed CC2253, showed a significant increase in bifidobacterial populations. "One fraction in particular was good at stimulating the growth of bifidobacteria," says gut microbiologist Arjan Narbad of the Institute of Food Research, Norwich, UK , who is not associated with the project. "[Bifidobacteria](#) are probiotics that are added to many foods and have been shown to impart many beneficial effects on the host, including immune stimulation and antipathogenic activities."

However, in vitro screening results cannot be directly interpreted in terms of human health potential because many beneficial effects drop away in human trials. "This is a 'must' in order to prove bioactivity to humans," says biochemist Lars Ove Dragsted of the department of nutrition, exercise and sports at the University of Copenhagen, Denmark. He tells youris.com that the HYFFI project is a good starting point for the identification of potentially bioactive components in foods like seaweeds.

Another part of the project team therefore conducted a human trial with 60 volunteers at the Northern Ireland Centre for Food and Health

(NICHE) at the University of Ulster. Unfortunately, Hotchkiss says, the small number of positive changes they observed in gut microflora was not enough to demonstrate prebiotic activity. "In general, evidence is required for the selective growth of 'good' species of bacteria Bifidobacterium, Lactobacillus and Eubacterium rectale at the expense of other less desirable 'bad' bacteria, in particular, species of Bacteroides and Clostridium," Hotchkiss explains.

However, she adds that just because their study did not demonstrate a [prebiotic](#) effect does not mean that seaweed derived fibres have no potential. She concludes: "There are several projects running worldwide and the academic literature suggests that [seaweed](#) shows potential."

Provided by Youris.com

Citation: Functional foods from the sea (2013, April 4) retrieved 24 May 2024 from <https://phys.org/news/2013-04-functional-foods-sea.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.
