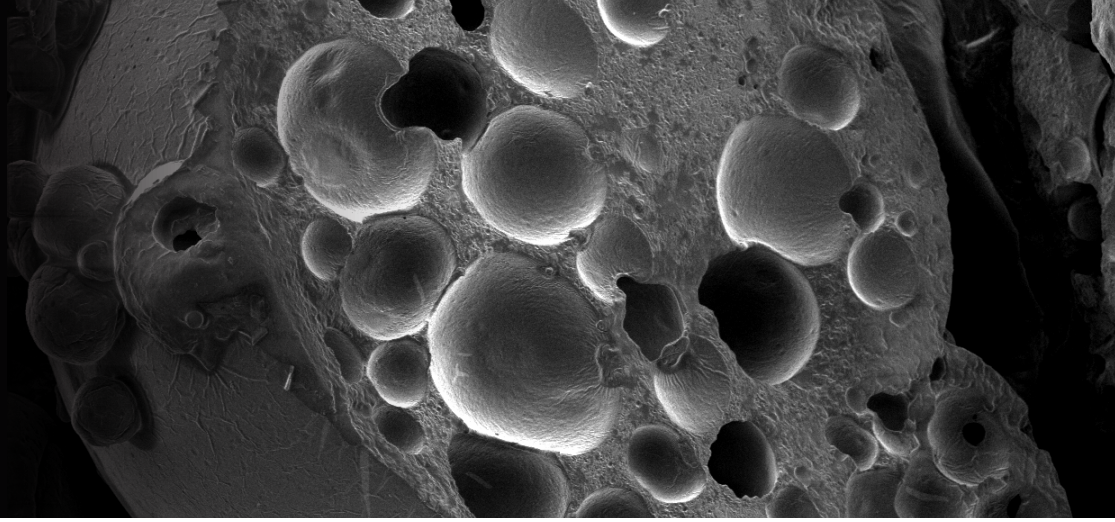

Microencapsulation technology

MicroMAX® journey: a true success story for CSIRO and the food and nutraceutical industry.

In this era of functional foods there is a strong requirement to incorporate healthy components to meet consumer needs. Often, these components are associated with significant processing challenges due to their labile nature.

The CSIRO team has successfully overcome the chemical and industrial scale-up challenges through the invention of the MicroMAX® suite of technologies.

These efforts have resulted in a strong uptake of the technology, growth, and a competitive advantage for the food and nutraceutical ingredient industries.

The challenge

Instability (leading to short shelf life), sensory unacceptability and limited bioavailability present some of the key challenges associated with the formulation and processing of some highly nutritious, efficacious ingredients for functional foods and pharmaceutical applications.

Due to the labile nature of these healthy components, it is hard to ensure that they can be protected during storage, cooking and consumption and delivered to the right part of the body to maximise health benefits.

The response

CSIRO developed the MicroMAX® suite of technologies (1999–19) for the microencapsulation of bioactive nutrients to protect them from degradation.

CSIRO's MicroMAX® 1 (first generation microencapsulation technology) was licenced by Clover Corporation (CLV) to microencapsulate and stabilise docosahexaenoic acid (DHA; a type of omega 3 fat) rich microencapsulated powders and enable their incorporation for dry blending applications. The patented technology has up to two times high oil loading, a superior odour, taste-masking abilities and an extended shelf life, compared to competitive products.

Improving the food and nutraceutical industry.

The impact

CSIRO's MicroMAX® innovation is a game-changer. It provides nutritional options that have the potential to significantly improve the health and wellbeing of the community.

CLV's superior DHA powders are sold to many leading infant formula manufacturers in Australia, New Zealand and globally, and is internationally recognised as the benchmark for quality and stability.

The cost-benefit analysis for CLV (including dead weight loss) suggests a benefit-cost ratio of 3.3 for 2010–27 from demand and sale of DHA powder globally. The net present value has been estimated as approximately $110 million.

Research case study
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