



ALGOMEGA

OMEGA-3 OILS FROM MARINE MICROALGAE FOR USE IN COSMETICS, NUTRITION AND HEALTH

Marine lipids are today the focus of growing interest in the field of cosmetics, nutrition and health. Fish oils, particularly those derived from oily fish, are naturally rich in long-chain polyunsaturated fatty acids and are renowned for their properties offering protection against neurodegenerative disorders, cardiovascular diseases and cancers. There is a problem, however, with relying on this single, increasingly rare, source. New sources need to be found to ensure the long-term availability of marine lipids and to respond to growing market demand.

Lipids from microalgae now offer a potential alternative source to fish oils. But because of their phototrophic metabolism [the process by which organisms derive energy from light and carbon from CO₂], microalgae are difficult microorganisms to cultivate on an industrial scale, resulting in relatively high costs to produce the biomass. Design and operational issues have arisen in moving from growing a few litres in the laboratory to cultivating several hundred cubic metres at a point when it is essential for the industrial dimension to be developed so that target costs can be met and production can proceed smoothly.

Improvements are needed both in the potentially useful strains and in the production processes. For there to be any hope of transforming this potential into an industrial reality, productivity must be optimised and economic and energy costs, as well as environmental impact, minimised.

In the light of these factors, the ALGOMEGA project will develop a new economic model for microalgae production, incorporating scientific and technological innovations into the production chain, as a way of reducing production costs and increasing the levels of polyunsaturated fatty acids provided. These innovations include eco-designing equipment for photobioreactor production in artificial light

Partners

Companies

Algofarm, Brieç [\[Project Developer\]](#)
Soliance, Pleumeur-Bodou
Yslab, Quimper

Research center

Ifremer, Laboratoire de Physiologie et
Biotechnologie des Algues (PBA), Nantes

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2 148 K€

and under rigorously controlled conditions, developing a regenerating mechanism for recycling the environments used for cultivation, reproducing artificial salt water and assessing and adapting a technology for drying the microalgae. Producing microalgal biomass on a large scale poses real biological, technological and economic challenges.

The project is recognised jointly by the Pôle Mer Bretagne and the Pôle Valorial.