Valorization of macroalgae as a source of added value polar lipids

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Marine macroalgae, or seaweeds, have been used for direct human consumption, as additives in the food industry, and cosmetics. Lipids are one of the main nutrients of macroalgae and represent promising bioactive phytochemicals.

We have characterized, for the first time, the full lipidome of the edible seaweeds *Chondrus crispus* and *Codium tomentosum*, produced through Integrated Multi-Trophic Aquaculture (IMTA). We have also pioneered the detection of lyso-glycolipids in cultivated seaweed (1,2). Considering that glycolipids from algae have shown to be promising anti-inflammatory, antitumor and antimicrobial phytochemicals, and as such, rapidly acquiring importance in this "antibiotic resistance era", the lipidomics of macroalgae unravel and allow to identify glycolipids and other polar lipids as promising added value compounds.

These findings contribute to the valorization of these seaweed species by increasing their economic value and fostering novel nutraceutical, cosmeceutical and biomedical applications. This smart valorization of endogenous marine biological resources is paramount to promote Portuguese Blue Economy and stimulate further research on marine bio-resources.

This work is being developed by a multidisciplinary team from QOPNA and CESAM, in collaboration with the private enterprise ALGAplus, with relevant findings being made available in reference journals on algal research (1,2).

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