MICROALGAE AS FUNCTIONAL INGREDIENTS IN AQUACULTURE FEEDS

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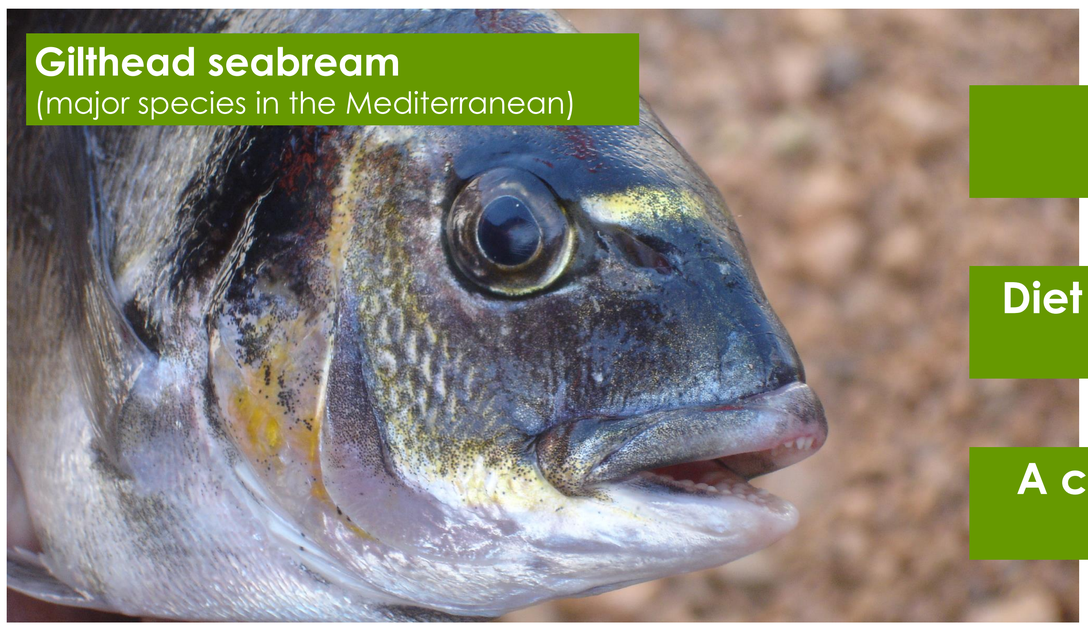
Microalgae are a rich source of protein, omega-3 fatty acids, such as EPA and DHA, vitamins, trace minerals, carotenoids and antioxidants

Microalgae are not yet cost-competitive as a commodity feed ingredient

But can they be used as functional ingredients and convey benefits beyond fulfilling the basic nutritional needs of the fish?

In the framework of the MIRACLES project, several feeding trials were conducted with gilthead seabream and Senegalese sole to demonstrate the functional role of microalgae on the growth performance, non-specific immune response and consumer quality traits



Diet with 1% *P. tricornutum* resulted in a short-term beneficial modulation of several immune-related pathways

Diet with residual biomass of *N. gaditana* and algal oil allowed the successful replacement of 80% fishmeal and 30% fish oil

A consumer panel characterised algae-fed fish as having a more vivid and typical external pigmentation

Diet with 1% of fucoxanthin-rich algae (*P. tricornutum*) improved immune response to stressful events in sole juveniles

Diet with 5% of a broken cells extract of *P. tricornutum* did not affect growth, but significantly enhanced the survival of sole larvae

Microalgae show potential as functional ingredients in aquafeeds, contributing to higher welfare status of fish and enhanced quality traits from a consumer perspective

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Supported by MIRACLES Project
(FP7 - Grant Agreement No. 613588
BR, LRP, SE and BC were supported by FCT (PD/BDE/129262/2017, PD/BDE/114436/2016, IF/00482/2014 and IF/00197/2015, respectively)