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## A process to use *Nannochloropsis gaditana* biomass for the production of carotenoid and fatty acid concentrates as source of high-value additives for aquafeeds

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Different procedures previously developed in the research group will be applied for obtaining from the *Nannochloropsis gaditana* biomass the following products: i) the whole lipid fraction (fatty acid and carotenoids), ii) a concentrate of the unsaponifiable lipid fraction (carotenoids), and iii) a concentrate of the saponifiable lipid fraction (fatty acids). A product containing both the carotenoids and the fatty acids is of great interest owing to that additional antioxidant properties (especially due to the presence of the carotenoid esters) can be added to the whole lipid fraction obtained from *Nannochloropsis* biomass. Following a procedure a unique end product will be obtained from the microalgae biomass which is composed by the whole lipid fraction. It will be evaluated whether

this process, in which a three-component monophasic mixture (ethanol, hexane and water) could be also valid to obtain a high extraction yield of fatty acids. A process for obtaining a concentrate of the unsaponifiable fraction of lipids (carotenoids), and a concentrate of the saponifiable fraction (fatty acids) will be also applied for obtaining two more additional products of interest. This way, two modified methods will be applied for obtaining these two high-value products. Preliminary results achieved a 93% of recovery yield for fatty acids and 70% for carotenoids. At the end of the first phase three different high-values additives should be obtained from the microalgae biomass for posterior evaluation as feed additives.

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