TECHNOLOGY OFFER

METHOD FOR OBTAINING RICH-PROTEIN EXTRACTS FROM ALGAE

Background

Algae extracts are rich in several bioactive compounds that can increase health and provide environmental benefits. At an industrial level, there is a pressing need to have more efficient algae biomass-extracting methods, that can meet the needs of the use of this resource.

Technology

The technology allows an effective disruption of algae cell walls to obtain high-nutrient-digestible protoplast. As a first step, the cellulosic cell wall is disrupted through physicalmechanical means with a vibratory mill with rings; in the second step, the disrupted algae is submitted to enzymatic hydrolysis carried by a specific mixture of enzymes. This results in a disrupted algal suspension with a high level of "free" protein, peptides, and amino acids, as well as other valuable soluble nutrients and bioactive compounds.

The extract can be further used as a food and feed ingredient due to its high nutrient digestibility. Other applications for the extract, such as in healthcare and cosmetics, can be also considered.



Microscopy images (100x) of Hydrated Ulva sp. cell wall disruption: A – after 5 minutes of ultra-turrax action; B – after 10 minutes of gravitational ball mill action; C –after 5 minutes of vibratory rings mill action.

Advantages

- Efficient algae extraction process already tested at pilot scale;
- Cost and resource-efficient alternative to traditional mechanical and enzymatic methods;
- Versatile application.

PATENT STATUS

International Patent Application via PCT <u>WO2019171293</u> Priority date: 06.03.2018 Granted in Europe Pending in India

DEVELOPMENT STAGE

TRL4 – Technology validated in lab Further development for validation in large scale setups required.

APPLICATIONS

Biomass sector; Aquaculture; Food/feed ingredients; Nutraceuticals and Cosmeceuticals; Fertilizers industries.

COOPERATION

Licensing agreement; Product development and marketability; Validation in large scale up setups.

KEYWORDS

Algal biomass Algal proteins Aquafeed Novel ingredients Cell wall disruption Digestive enzymes

DEVELOPED BY

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