

Newsletter

Issue 7, March 2020



ENHANCE MICROALGAE

High-added value industrial
opportunities for microalgae in the
Atlantic Area



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Research output by Teagasc Ultrasound-assisted Extraction for Protein recovery in *Chlorella vulgaris*



The EnhanceMicroAlgae team of researchers at the Food Research Centre in [Teagasc](#), the Agriculture and Food Development Authority of Ireland, have been working on recovering total proteins from *Chlorella vulgaris*. Extraction of proteins from the intracellular matrix has been challenging due to the presence of a thick outer layer. In a recent investigation, Teagasc researchers attempted multiple ultrasound-assisted extraction strategies to enhance the recovery by disintegrating their cellular structure. A Teagasc Hosted Research Master's student (Ms. Gunda Hildebrand) carried out an extensive study on this and showed that ultrasound-assisted extraction in combination with lytic enzymes (cellulase and protease) enables up to 80% recovery of proteins. The scanning electron microscopic imaging showed that ultrasound and enzyme treatments damaged the cells significantly.

The project was accomplished with an international collaboration, wherein Asst. Prof. Mahesha M. Poojary and Prof. Marianne N. Lund from the University of Copenhagen (Department of Food Science), Denmark assisted in the analysis of taste-active amino acids present in the extract. Interestingly, the extracts contained ca. 50% of umami free amino acids. In fact, the microalgal extracts are under-explored for their prospective utilization as food flavorings. The researchers have published this research in the [Journal of Applied Phycology](#). They are currently working on the scalability of ultrasound processing and characterizing these extracts for potential food applications for the food industry applications.

Teagasc is carrying out key research activities in the area of extraction technologies, characterisation of biomolecules and their application for various food and nutraceuticals, contributing to several [WPs](#) of the EnhanceMicroAlgae project.



Recent Publications by EnhanceMicroAlgae

The Nagoya Protocol and its Implications on the EU Atlantic Area Countries was published in the [Journal of Marine Science and Engineering](#). The Nagoya Protocol determines the access to genetic resources and fair and equitable sharing of benefits arising from their utilisation. In this work, researchers from the EnhanceMicroAlgae project review and provide clarity on the existing legislation under the Nagoya Protocol, and propose a decision framework that helps users of genetic resources within the microalgae sector to comply with the legislation of the Nagoya Protocol at the EU Atlantic area level. [Get a copy of the publication here!](#)

A Bibliometric Analysis of Microalgae Research in the World, Europe, and the European Atlantic Area was recently published in [Marine Drugs](#), and presents an in-depth review of microalgae research. A corpus of 79,020 publications was obtained and analysed to show the evolution of the research domain. Emerging research concepts are highlighted, from a perspective of regional bioeconomy development, differentiating from the global European and world activities. [Get a copy of the publication here!](#)



EMA Virtual MarketPlace

Remember, the EnhanceMicroAlgae virtual Marketplace is now active: an online platform for the exchange of interests, knowledge, and offers and demands on microalgae-related services. The Marketplace aims to connect scientific research and innovation with industry and market to boost the development of the microalgae sector within the Atlantic Area, but worldwide members of the microalgae sector are welcome to contribute.

This platform is developed and managed by the EnhanceMicroAlgae coordinators, [ANFACO-CECOPESCA](#).

Visit our MarketPlace

Users of the Marketplace can use it to find Offers and/or place Requests about microalgae services, products, or processes within the following categories: Technology, Biomass, Food & Feed, Cosmetics & Pharma, Vacancies, and Others. Visit the marketplace to find the latest offers:

- [Method to extract and purify Chlorophyll and Xanthophyll from Biomass | Simple and efficient method for fucoxanthin extraction from microalgae](#), by UACOOPERA, University of Aveiro, Portugal
- [Tailor-made biomass](#), by Bioréa, France.
- [R&D services in the agro-food, cosmetics and nutraceutical fields](#), by GLECEX, Spain.
- [Spirulina farm rental](#), by Ecospirulina,
- [Strain acquisition, isolation, identification and cryopreservation of cyanobacteria and microalgae](#), by CIIMAR, Portugal.
- [Novel method to increase production and extraction of phytosterols in plant cell cultures](#), by the University of Alicante, Spain.
- [Health, nutrition & pharma support | Production of microalgal biomass tailored to customer needs](#), by ANFACO-CECOPESCA, Spain.

Stakeholders Database

The **EMA database of stakeholders** is an easily accessible, visual and open access database bringing together all the European Atlantic Area players working in the microalgae sector.

Visit our Database

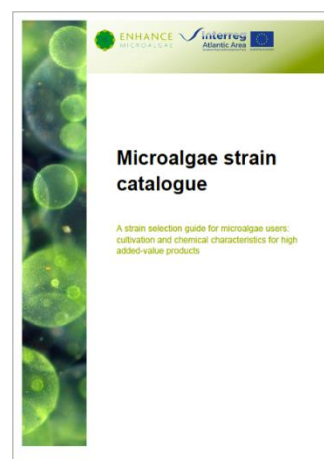


The database, which includes an interactive map, facilitates the access to updated information and cooperation between companies and public institutions of the whole sector, and is part of EMA's [Work Package 4](#), led by [Université de La Rochelle](#).



EMA Strain Catalogue

The microalgae [Strain Catalogue](#), compiled by the EMA team at [The University of Manchester](#) is receiving a 2nd update. This catalogue is part of the deliverables from [WP7](#), led by [Swansea University](#). Stay tuned!





Upcoming Conferences & Workshops

A calendar of courses and conferences of interest to the microalgae community is now available in the [EnhanceMicroalgae](#) website.

- [7th Conference of the International Society for Applied Phycology \(ISAP\)](#) | *Re-scheduled for May 23-28, 2021* | Makuhari Messe, Chiba, Japan
- [28th European Biomass Conference & Exhibition – Transition to a Bioeconomy](#) | *Re-scheduled for July 6-9, 2020* | Marseille, France
- [10th European Algae Industry Summit](#) | *Re-scheduled for Autumn 2020* | Reykjavik, Iceland
- [10th International Conference on Algal Biomass, Biofuels and Bioproducts](#) | 15-17 June, 2020 | Pittsburgh, USA
- [2nd Seaweed for Health Conference](#) | 21-24 June 2020 | Galicia, Spain
- [International Conference on Algal Biotechnology](#) | 22-23 June, 2020 | Venice, Italy
- [3rd International Conference for Bioresource Technology for Bioenergy, Bioproducts & Environmental Sustainability](#) | 20 -23 September, 2020 | Rive del Garda Congress Centre, near Lake Garda, Italy
- [14th World Congress on Biofuels and Bioenergy](#) | 21-22 September 2020 | Rome, Italy
- [AlgaEurope 2020](#) | 1 - 3 December, 2020 | Rome, Italy
- [AquaFarm 5th Edition \(International Conference & Tradeshow on Aquaculture, Algaculture and Fishing Industry\)](#) | 17-18 February, 2020 | Venice Area, Italy

Workshops

- [11th European Workshop on the Biology of Cyanobacteria](#) | *Re-scheduled for 6-10 September 2020* | Porto, Portugal
- [Microalgae and Microtechnologies Incubator Workshop](#) | 9-12 June, 2020 | Queen Margaret University Campus, Edinburgh, UK
- [EABA Workshops 2020 \(Technical Webinars\)](#)
 - Seaweed valorization | 21-22 April
 - Fucoxanthin from Micro and Macroalgae | 16-17 June

- Algae based Fish and Meat | 29-30 June
- Phycocyanin from Algae | 3-4 September
- Fermentation for Algae Production | 16-17 September
- Algae Biofertilizer and Biostimulants | 6-7 October
- Atlantic Sargassum Belt | 3-4 November

[EnhanceMicroAlgae Conference](#)

Enhancing microalgae potential: From microalgal strains to products

The University of Manchester
Manchester, UK



The University of Manchester

Notice: In light of the on-going coronavirus outbreak and the evolving governmental measures taken across Europe to tackle the virus, **the upcoming EnhanceMicroAlgae Manchester conference originally scheduled to take place on June 17-18, 2020 will be postponed.** We expect to re-schedule the conference for September 2020 when the situation will have hopefully stabilised, allowing all attendees and participants to travel freely and safely.

We will keep you updated of the latest developments in the planning of this event, including important deadlines.

Sign-up to this Newsletter on the [EMA website](#), and remember to connect with us on social media to keep track of the latest project updates:

