



# AquaVitae

## Case study 1 - Production of new species of macroalgae

### KEYWORDS

Seaweed, emerging species, hatchery, cultivation, novel food resources

### SPECIES

- *Codium tomentosum*
- *Ulva ohnoi*
- *Ulva rigida*

### GEOGRAPHICAL BOUNDARIES

The case study on the production of new species of macroalgae will take place on both sides of the Atlantic Ocean, namely Portugal and Brazil, with close collaboration between research institutions (CIIMAR and UFSC) and industry (ALGAplus).

### GOALS

- Develop and establish new reproduction and hatchery protocols for seedling production of the macroalgae.
- Establish new methods for the cultivation of *Codium tomentosum* and *Ulva rigida* in seeded substrates in earthen ponds.
- Evaluate the nutritional profile of the target species according to the EU-labelling requirements for foods.



### AT A GLANCE

- Project period: 2019-2023.
- Develop hatchery protocols for *Codium tomentosum*, *Ulva ohnoi*, and *Ulva rigida* in Portugal and Brazil.
- Establish new methods for the cultivation of *Codium tomentosum* and *Ulva rigida* in seeded substrates in earthen ponds.
- Low-cost and low-tech cultivation techniques in earthen ponds at ALGAplus facilities (Portugal).
- Evaluate the nutritional profile of the target species cultivated in an IMTA system (EU-labelling requirements for foods).
- Collaboration between the seaweed aquaculture industry and research institutions across the Atlantic.



Main activities take place Portugal and Brazil.



This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement No 818173. This publication reflects the views only of the AquaVitae consortium, and the European Union cannot be held responsible for any use which may be made of the information it contains.

## CHALLENGES

- Lack of genetic diversity of the biobank for the target species.
- Unreliable seedling production.
- Find suitable species and methods for underutilized earthen ponds at the industrial partner facilities (ALGAplus).

## EXPECTED RESULTS

- New hatchery protocols for seedling production of *C. tomentosum*, *U. ohnoi*, and *U. rigida*.
- New methods for cultivation of *C. tomentosum* and *U. rigida* in substrates in earthen ponds.
- Nutritional profile of seaweeds cultivated in a commercial land-based Integrated Multi-trophic Aquaculture (IMTA) system, according to the EU nutritional labelling requirements for foodstuffs.
- Establish close links and collaboration between the seaweed aquaculture industry and research institutions across the Atlantic.



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## EXPECTED USERS

- Small and medium-sized enterprises (SMEs) cultivating macroalgae.
- SMEs that commercialize macroalgae or macroalgae-based food products.
- Non-governmental organisations (NGOs) investigating the benefits of low-trophic aquaculture (LTA).
- Governmental organizations that regulate, e.g. food safety and aquaculture.
- Research institutes investigating seaweed-related topics, LTA, sustainable food resources, etc.

## WORKPLAN

Hatchery and cultivation protocols for “new” emerging species of macroalgae will be developed and established in Portugal and Brazil.

In Portugal, sexual and vegetative propagation methods, and seeding procedures in substrates (i.e. cultivation lines) will be investigated for *C. tomentosum* at CIIMAR and ALGAplus.

In Brazil, vegetative and sexual propagation of the local *U. ohnoi* will be investigated at UFSC. The protocols developed in Brazil will be applied and tested by ALGAplus for the local *U. rigida* in Portugal.

ALGAplus will further develop and upscale the cultivation of *C. tomentosum* and *U. rigida* in earthen ponds at their commercial facility. Seeded lines of both species will be monitored to assess growth, productivity and composition.

The nutritional profile of the seaweed cultivated will be evaluated, including all the mandatory compounds required for the EU labelling for foodstuffs.

## TEAM

1. CIIMAR – FCUP (Portugal)
2. ALGAplus (Portugal)
3. UFSC (Brazil)
4. PROALGA (Portugal)
5. European Algae Biomass Association-EABA (Europe)
6. EPAGRI (Brazil)



### Leader of the Case Study

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