

14:25 - 14:45

MADALENA MENDES

PhD student, Lab and Hatchery
Technician, GreenCoLAB &
ALGAplus, PT



11th International Seaweed Conference EU
Seagriculture
29 - 30 JUNE 2022
BREMERHAVEN, GERMANY



Land-based cultivation of Atlantic Nori species in Portugal

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GreenCoLab

Joining the pieces
in algal biotechnology.



www.greencolab.com

Services

- ***Research Contract***
- ***Analytical Services***
- ***Molecular Biology Services***
- ***Data Analysis***
- ***Student training***
- ***Consulting***

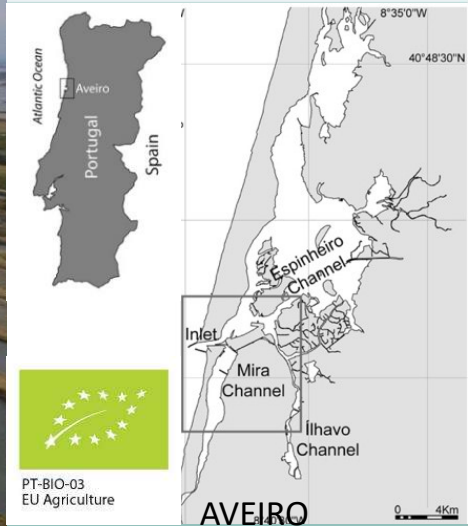


Our Integrated & Sustainable Farm | organic certified fish & seaweed



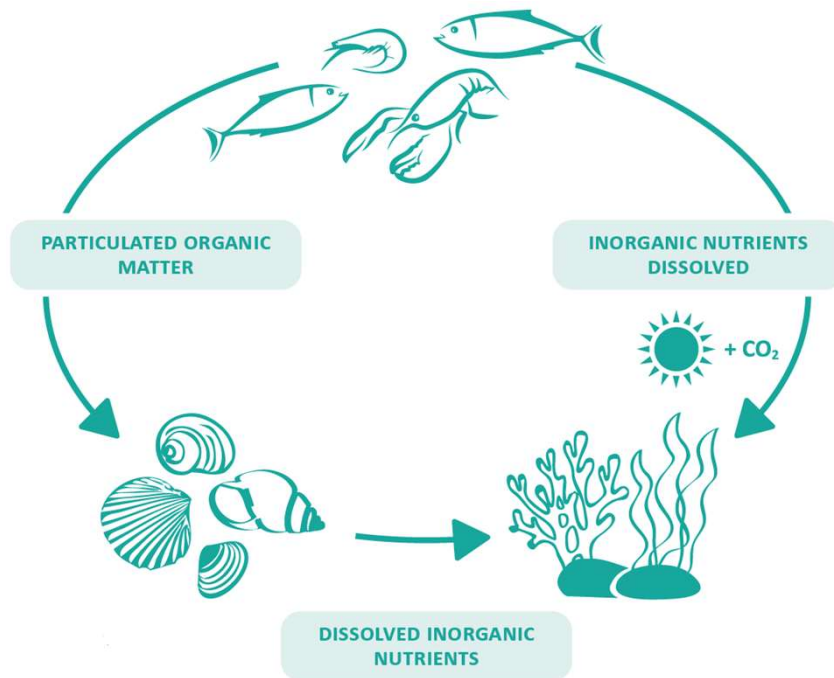
Offices & Processing

Seaweed hatcher



- ✓ NATURA 2000 site
- ✓ Private property - 14ha
- ✓ Seawater system
- ✓ Fully licensed





Nature made it all, we just need to learn it!

= IMTA - Integrated Multi-Trophic Aquaculture =

- ✓ Mimics the ecosystem and interactions between different trophic levels
- ✓ Residues become resources
- ✓ No need of fertilizers to grow seaweed or marine plants
- ✓ Shared infra-structures & people
- ✓ Improves the ecological footprint of fish farming
- ✓ Fosters the acceptance of aquaculture products by consumers

= Circular Blue Bioeconomy =





The Seaweed | from seed to finished product



NURSERY / BIOBANK



LAND-BASED TANK SYSTEM



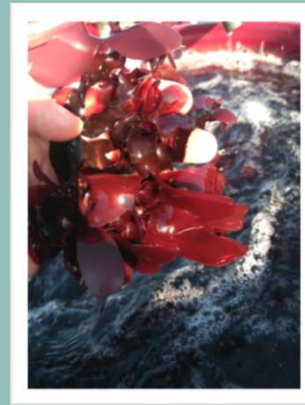
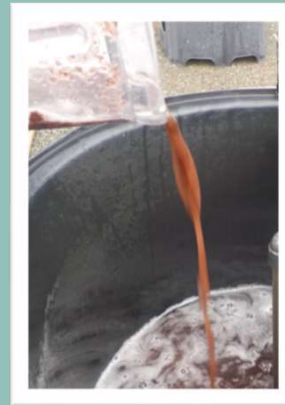
PROCESSING



PT-BIO-03
EU Agriculture

- ✓ Year-round
- ✓ Traceability
- ✓ Consistency in supply & quality
- ✓ HACCP | ISO22000
- ✓ Customized production
- ✓ Zero-Waste

- Optimizing Production & Processing
- Domestication of "new" species (customer request)
- Seaweed-based product development



Achievements – Proprietary knowledge

- Land-based modular seaweed cultivation system & associated protocols developed and optimized by ALGAplus
- Atlantic Nori (*P. umbilicalis* and *dioica*) hatchery/nursery developed and optimised by ALGAplus
- Biobank
- New raceway system
- New seaweed harvesting system

This information is considered material, non-public information and is strictly confidential and property of ALGAplus



- ❧ Sea vegetable, food and cosmetic ingredient
- ❧ Mostly wild-harvested or imported in Europe



Porphyra dioica



Porphyra umbilicalis



Porphyra dioica

12-16 weeks
Hatchery and grow out cycle

2014

2015

2016

6



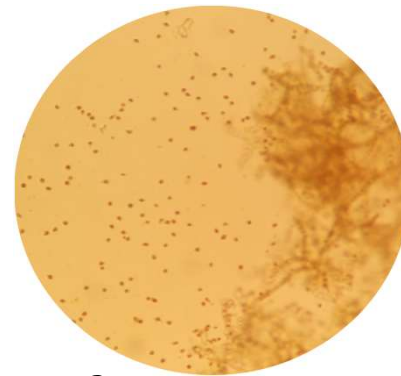
Conchocelis

14-16

10-12

4-6

weeks →



Conchospores

10-12

8-10

weeks →



Blade Harvesting



2021

1 ton wet/year (blades)

Goals 2022

3-4 tons wet/year (blades)**250 Kg** wet (conchocelis)

✓ Free-floating & Seeded substrates





PT-BIO-03
EU Agriculture

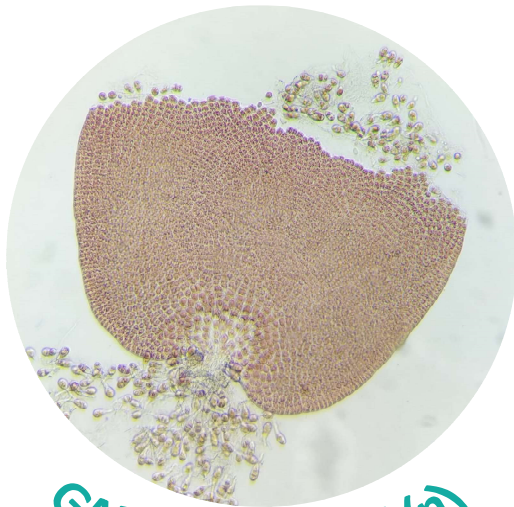


SEAWEED:

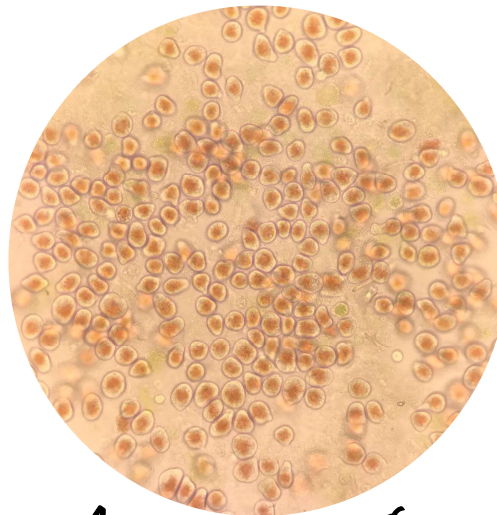
- Fresh preserved in solid brine (BBD – 6 to 12 months)
- Dried – whole, flakes, powder (BBD - 3 years)
- Mono-species or customized blends
- Sold in bulk or packed in customer private label



Identification of asexual populations in Northern Portugal



GAMETOPHYTE (n)

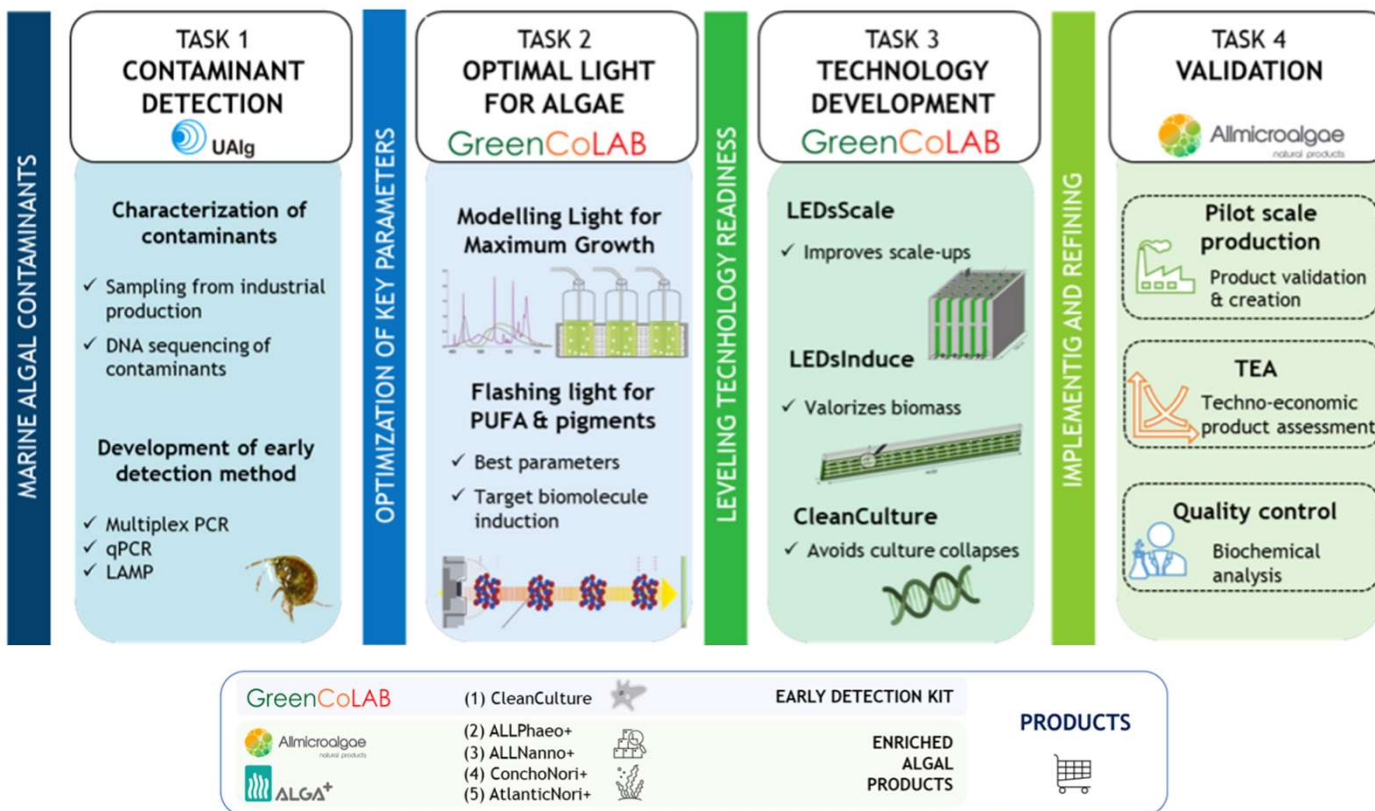


NEUTRAL SPORES



GERMINATION

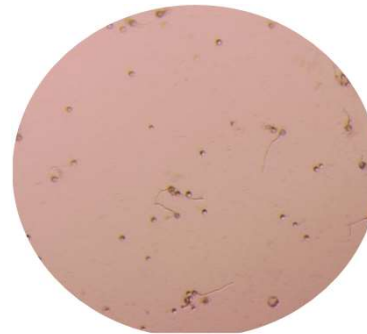
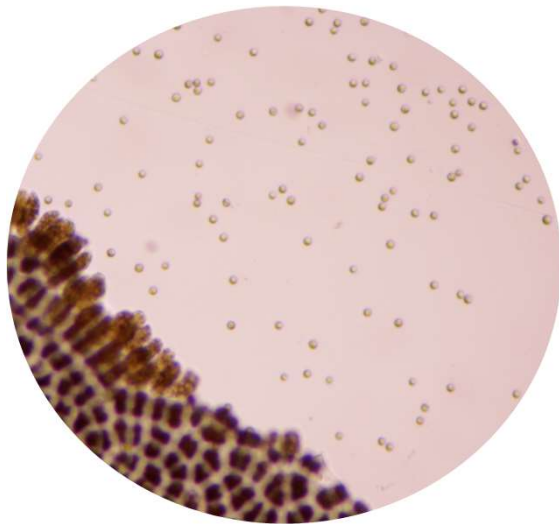




Biobanking and strain improvement of farmed *Porphyra* sp., for the food, nutraceutical and cosmetic industries



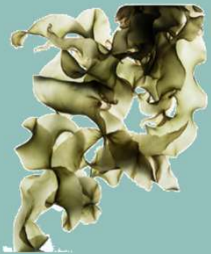
Collection of new strains
Genetic validation



30+ strains



Porphyra dioica



FOOD

12-16 Hatchery and grow out cycle
weeks

3-4 tons
wet/year (blades)



Surface production limitation

COSTS

CLIMATE CHANGE

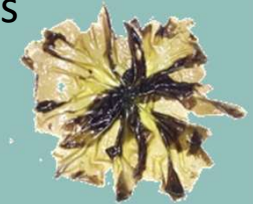
CONTAMINATION

Porphyra umbilicalis

COSMETIC

R&D Assexual cultivation for blades

250 Kg wet (conchocelis)



Challenges with production in warmer months



Active in Relevant Sectorial Workgroups



APA

Associação Portuguesa de Aquacultores

BLUEBIO
ALLIANCE



ISA
INTERNATIONAL SEAWEED ASSOCIATION



SEAWEED
for EUROPE



FÓRUM
OCEANO

Associação da Economia do Mar



PROALGA

ASSOCIAÇÃO PORTUGUESA DE PRODUTORES DE ALGAS



SEAWEED
REVOLUTION
A MANIFESTO FOR A SUSTAINABLE FUTURE



PEGASUS

Phycorrhoph European Guidelines
for a Sustainable Aquaculture of
Seaweeds



CEN/TC 454
Algae and algae
product





Working with the Best team!





ALGA⁺



Obrigada!

Thank you!

Mer Sea!



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