



European Climate, Infrastructure and
Environment Executive Agency

**Kick-off meeting for projects selected under the
“BlueInvest Grants”
Blue Economy Window Call - EASME/EMFF/2020
27th October 2021**



Co-funded by the EMFF programme
of the European Union under grant
agreement No. 101038250

**Eco-friendly and sustainable new family of
biopesticides based on microalgae via circular
economy approach**



Co-funded by
the European Union



Dr. Joaquín Pozo Dengra, PhD
R&D Director



COMPANY SUMMARY AND FUTURE AMBITIONS

- Biorizon Biotech SL is a SME established in 2010 and located in Almería (southeast of Spain), in the middle of the largest greenhouses' concentration in the world. We are the world's pioneer and leader in developing and producing agricultural products based on microalgae.
- We have implemented several R&D projects funded by the Spanish national and regional governments and by the EU.
- Our targeted EU markets are Spain and Portugal, being our international markets Morocco, Chile and Peru.
- Our HQ and processing plant are located at the Technological Park of Almería. Next to Almería University we own a very significant infrastructure: a Large-Scale Microalgae Production Plant (1,7 hectares).



Our vision (ambition) is to launch a new and innovative line of business based on sustainable bio-pesticide products, free of synthetic chemicals, for their use in intensive and extensive agriculture, under organic or conventional farming.

THE COMPANY



Biotechnology for a circular economy in agriculture



SIGNIFICANT INFRASTRUCTURE AND EQUIPMENT



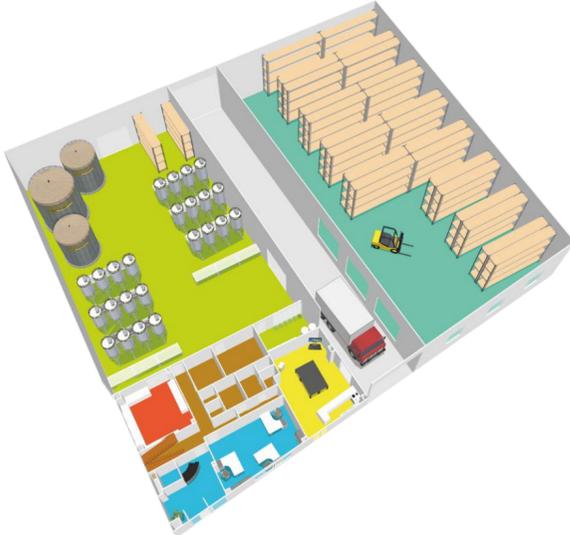
Large Scale Microalgae Production Plant consisting of raceways: (80 m² (x3); 800 m² (x4); 4.000 m² (x1)), 4 tubular photobiorreactors (12.000 L) and complete downstream line for harvesting and homogenisation.

The plant is fully instrumented and controlled in a continuous mode, as well as the culture medium preparation, harvesting and centrifugation.

Agora Sabana
Large Scale Microalgae
Production Plant
Inaugurated September 2019



PITA
HQ and processing plant
Inaugurated 2016



Plant Expansion
Planned Inauguration
November 2021

TECHNOLOGIES AND SOLUTIONS



BIO ENHANCERS



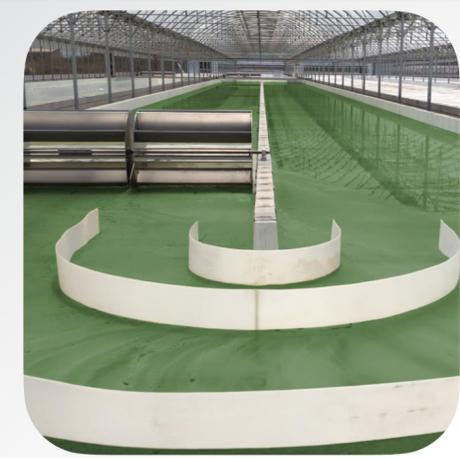
BIO PROTECTORS



MICROBIAL BIOSTIMULANTS



MICROALGAE CULTIVATION



R&D projects funded by the Spanish national and regional governments and by the EU (BIOPEST, REGENERA, BACAGRO, METinGREEN, bioREFINA, H2020-SABANA, CONTROLBAC, ALGAE4CONTROL, ALQUABIOTIC) in collaboration with relevant public and private R&D institutions.

Problem & Solution

Environmental impact of chemical residues from synthetic pesticides is one of the major problems for the sustainability of agriculture, biodiversity and human health



Eco-friendly Microalgae-Based Biopesticide Products produced via circular Economy Approach and biofertilisers from by-product for integral utilisation of biomass

- Zero residues.
- 100% Sustainable and eco-friendly.
- No wastes during the production processes.
- Biopesticides and biofertilisers for conventional and organic farming.
- Responding to increasing market demands.



Mineral fertilization is responsible of the ground water pollution, salinization of soil and eutrophication of freshwater reservoirs

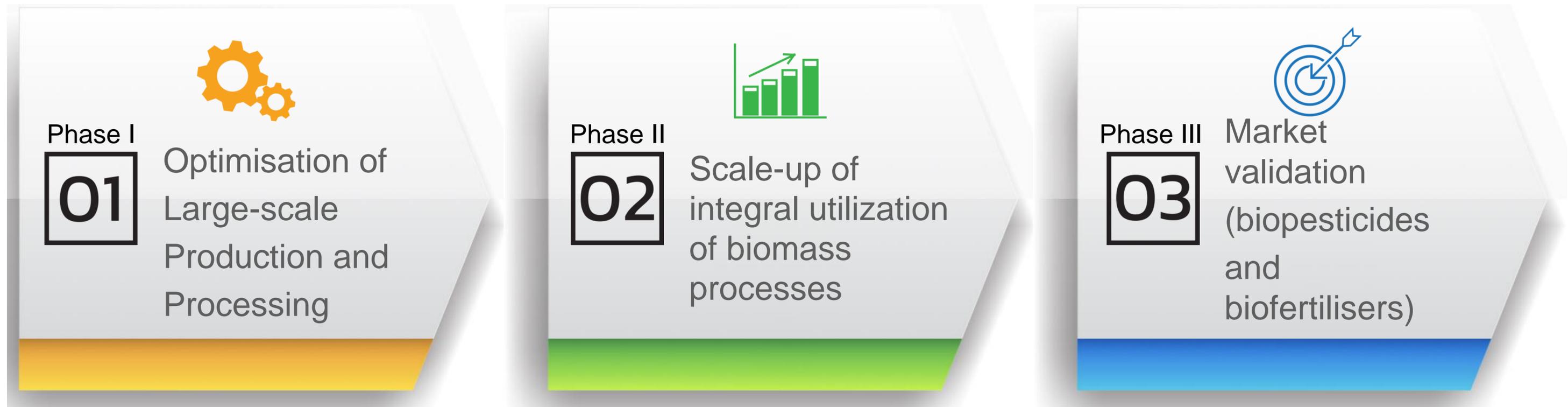


Problem & Solution

Global market is nowadays demanding the reduction of synthetic chemicals in the phytosanitary treatments in agriculture.

The alternative use of biological products with inhibitory activity against phytopathogens has been revealed as a real sustainable option in the last years.

BIORIZON BIOTECH innovation plan for the following 2 years is divided into 3 main phases:



An Eco-Innovative Process

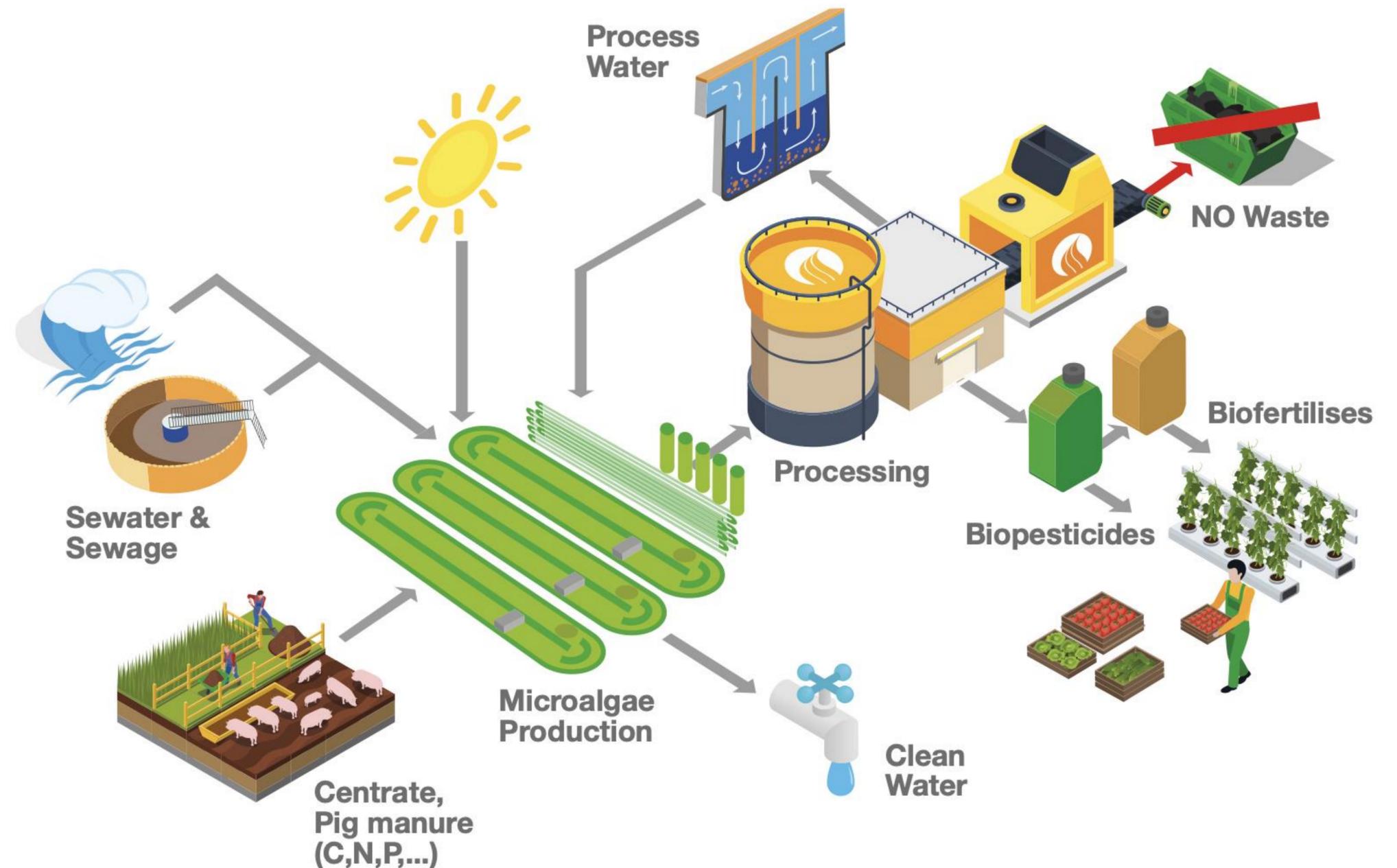


Microalgae biomass will be produced using nutrients recovered from urban wastewater and pig manure (rich in nutrients such as phosphorus and nitrogen). As a result, regenerated clean water is also obtained.

The water will be recirculated to the photobioreactor system to be reused by mixing it with fresh wastewater.

The concentrated microalgae biomass will be processed by solvent extraction for the production of biopesticide extracts.

In addition, the residual biomass of residual microalgae will be hydrolyzed and formulated for the preparation of biofertilizers.



Work Plan for the next 2

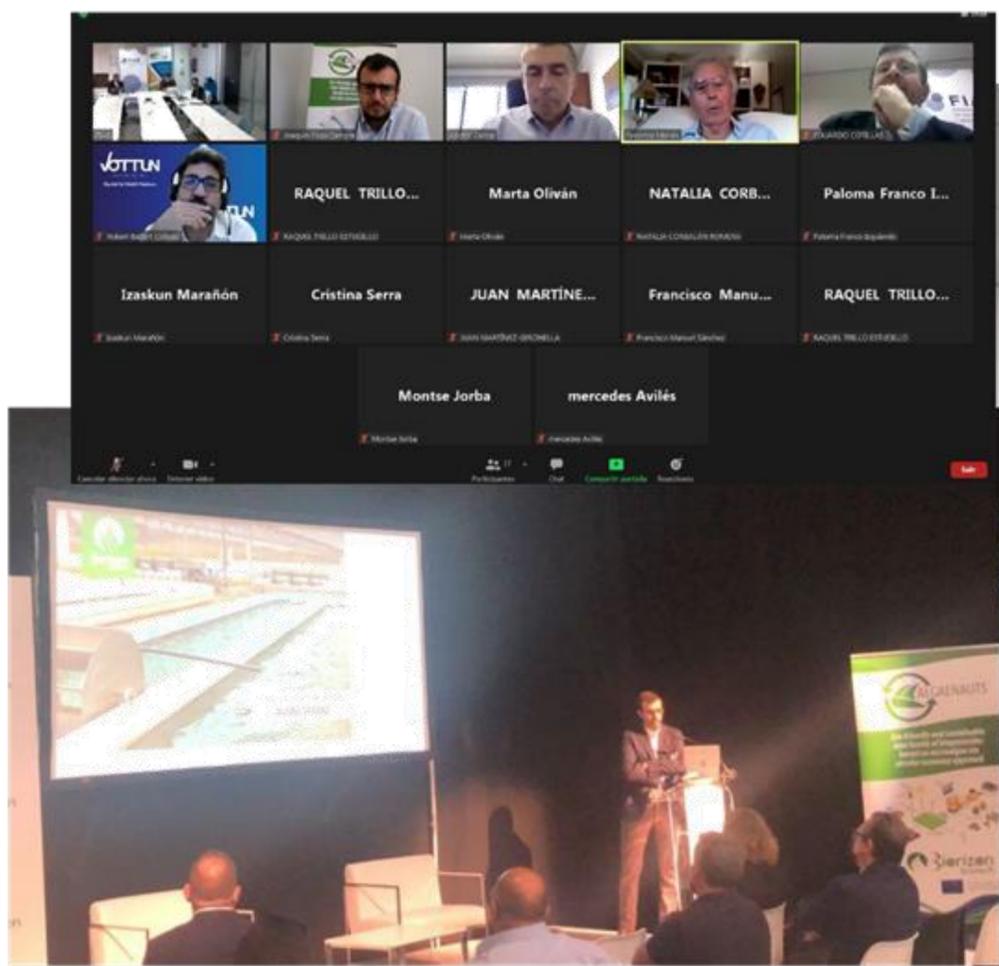


WP1. PROJECT MANAGEMENT AND DISSEMINATION. years

Task 1.1. Administrative, financial, legal and technical management.

Task 1.2. Risk Management.

Task 1.3. Dissemination Actions.



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Work Plan for the next 2



WP2. OPTIMISATION OF LARGE-SCALE PRODUCTION AND PROCESSING OF MICROALGAE STRAINS WITH BIOPESTICIDE ACTIVITY FOR THE PRODUCTION OF END PRODUCTS.

Task 2.1. Laboratory trials to select optimal microalgae strains and operational method with residual streams to maximize compounds of interest during cultivation

Task 2.2. Optimal production of selected strains at large-scale using residuals

Task 2.3. Optimal harvesting and downstream processing of biomass for biopesticides and biofertilizers production



WP3. ENGINEERING AND SCALE-UP FOR INDUSTRIAL MANUFACTURING PROCESSES

Task 3.1. Complete engineering development of processing pre-commercial pilot line

Task 3.2. Construction and assembling

Task 3.3. Commissioning and optimization



Work Plan for the next 2 years



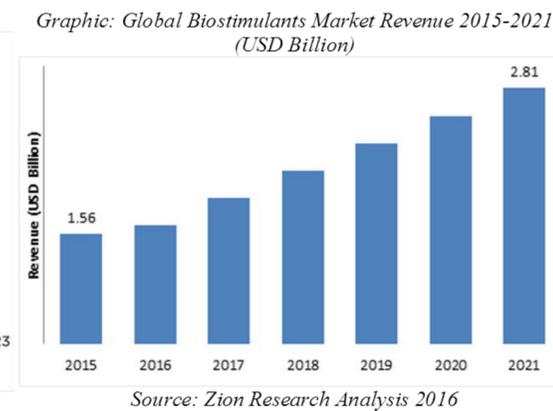
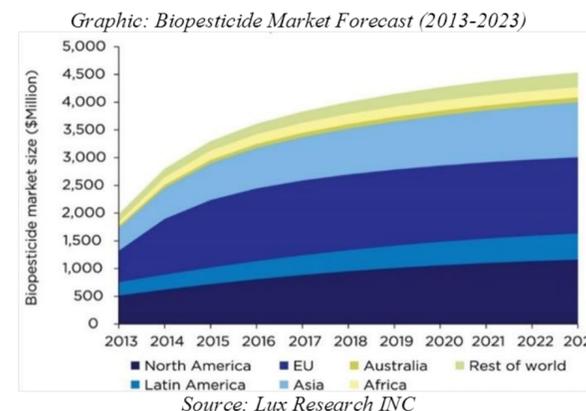
WP4. AGRONOMICAL VALIDATION

- Task 4.1. In vitro and in plant trials
- Task 4.2. Field trials at pre-commercial scale
- Task 4.3. Trials with farmers and distributors in real conditions



WP5. TECHNO-ECONOMIC AND SUSTAINABILITY/LCA ASSESMENT, MARKETABILITY AND LEGAL FRAMEWORK

- Task 5.1. Techno-economic assessment
- Task 5.2. Sustainability assessment and life cycle analysis
- Task 5.3. Marketability
- Task 5.4. Legal framework



Subcontractors



UNIVERSIDAD
DE ALMERÍA

Research Group Bio-173:
«*Biotechnology of Marine Microalgae*»
Engineering for new downstream
processes and microalgae cultivation
consultancy.



FUNDACIÓN
cajamar

Field trials and market validation



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www.algaenauts.eu