

LIFE ALGAR-BBE:

Microalgae with Aromatic plants as Biostimulants with Biocide Effect

Grant Agreement LIFE18 ENV/ES/000518

Deliverable:	E.E2.3
Title:	After-LIFE plan
NUMBER OF THE ASSOCIATED ACTION	E2
NAME OF THE ASSOCIATED ACTION	After-LIFE PLAN
Beneficiaries:	NEOALGAE
Type (R/P/DEC):	R
Version:	FINAL
Date:	30/06/2023
Status:	
Dissemination level:	PUBLIC



This project has received funding from the LIFE financial instrument of the European Union
under the Grant Agreement no LIFE18 ENV/ES/000518

Content

1. EXECUTIVE SUMMARY	3
2. DESCRIPTION OF THE PROJECT	3
2.1 – CONSORTIUM	3
2.2- OBJECTIVES	5
2.2 – ACTIONS	6
3. COMMUNICATION PLAN	9
3.1 – OBJECTIVES DURING THE PROJECT	9
3.2- RESULTS ACHIEVED DURING THE PROJECT	10
3.2- AFTER THE COMPLETION OF THE PROJECT	14

1. EXECUTIVE SUMMARY

This document aims to present the activities that NEOALGAE, ENDESA and CTAEX plan to carry out during the next 3 years after project termination. The Objective is to disseminate and communicate the results after the completion of the project. Rise awareness among the target audience and achieve the marketing and internalisation objectives of the product set in the business plan.

The plan consists of a detailed list of measures that have been defined to achieve the aims being pursued.

2. DESCRIPTION OF THE PROJECT

2.1 – CONSORTIUM



Endesa (www.endesa.com): it is the leading company in the Spanish electricity sector and the second operator of the electricity market in Portugal. The main business is the generation, distribution and sale of electricity and the company is a relevant operator in the natural gas sector and development of other energy-related services. Precisely, associated with its energy production activity and within the commitment to the environment, in 2009, ENDESA began its work in the study of the cultivation of microalgae in conjunction with other industrial partners and with the collaboration of numerous Research Organisations and Universities, in the pilot plant of CO₂ capture through microalgae of the Carboneras thermal power plant, in Almeria. This plant was initially conceived for the capture and valorisation of CO₂ (main greenhouse gas, GHG), and is currently a pilot plant with real microalgae production capacity, where different cultivation systems and reactors have been studied for different species such as *Nannochloropsis gaditana*, *Chlorella*, *Spirulina* and *Isochrysis galbana*, among others.

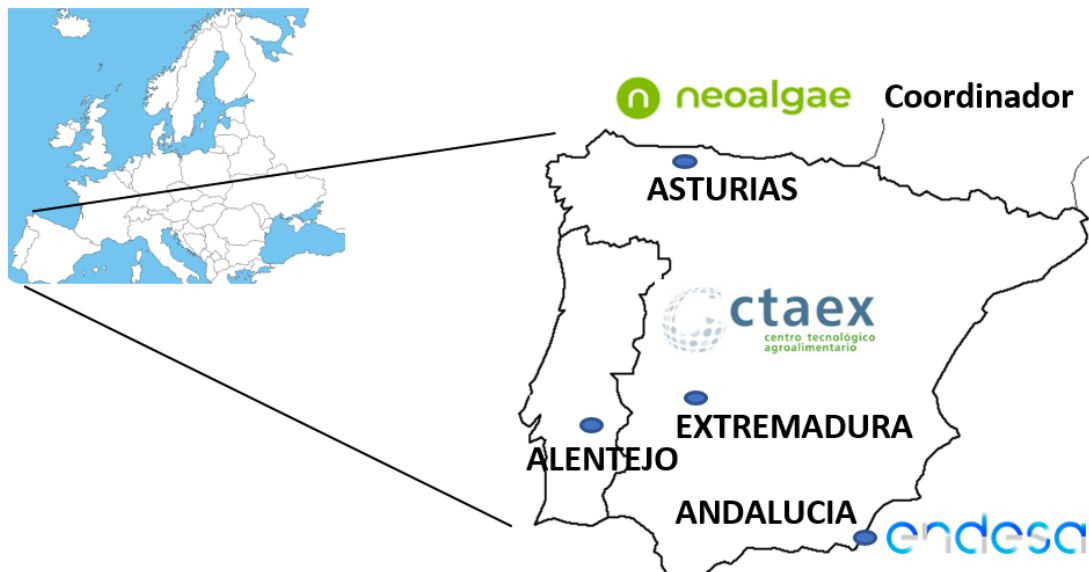
Therefore, within the project, ENDESA will develop the crops of different microalgae and produce the biomass necessary for the production of biostimulants.



Neoalgae (www.neoalgae.es): it is an innovative SME focused on microalgae biotechnology, created in 2012 with the aim of bridging the gap between the laboratory scale and industrial processes in the field of microalgae applications. This Asturian SME, with experience in the production of biofertilisers, thanks to its SPIRAGRO line, **leads the project and at a technical level is responsible for developing extractions and developing biostimulants from its microalgae crop plant in Gijón.** This plant, which is its main installation and has 1.500 m², has been financed in part by Horizon 2020 SME Instrument Phase II, and equipped with: offices, a greenhouse with the necessary equipment to develop microalgae crops, biotechnological laboratory, extraction and purification laboratory, cosmetics laboratory, production and packaging area, warehouses and strains of microalgae.



CTAEX (www.ctaex.com): The National Agri-Food Technological Center “Extremadura” is a non-profit business association established in 2000 whose objective is to support agri-food companies through R & D & I and technology transfer, actively participating in the achievement of competitive excellence in the agri-food sector. In 2004, the Spanish Ministry of Education and Science recognised it as a Technology Center (No. 80) and as a Center for Transfer of Research Results (No. 189). CTAEX has greenhouses and experimental farm of 23 hectares, 4 of them certified for organic production, useful for agronomic testing and large-scale crops. In addition, it has a wide variety of machinery that covers almost any type of manufacturing process. **CTAEX will be responsible in the project to validate in the field the formulations developed, both in crops in the region of Extremadura and in the area of Alentejo (Portugal).**



2.2- OBJECTIVES

The main objective of the LIFE ALGAR-BBE project is to mitigate the adverse effects on the environment and human health of pesticides of chemical origin that are currently used in the cultivation of tomatoes and maize.

The effectiveness of 3 formulations of natural origin, safe and sustainable, with biostimulant capacity and biocide action, the active materials of which shall be obtained from microalgae, aromatic plant extracts, as well as residues from *spirulina* extraction and olive grove residues shall be demonstrated. Replace pesticides of chemical origin with traditional fertilisers. The developed formulations can be marketed in the EU in the post-project stages.

With the expected results of this project, 56 % of the pesticides currently used for the diseases and pests identified for the crops covered by the project will be susceptible to substitution.

THE PROBLEM THAT EXISTS TODAY

Pesticides and chemical fertilisers are currently being abused in agricultural practices. 76 % of the pesticides applied annually are used in the agricultural industry, which will be the sector that is addressed in this project. According to Eurostat, almost 77 tonnes were marketed in Spain in 2016, with fungicides and herbicides being the most widely used (50.5 % and 19.75 % respectively).

Pesticides easily contaminate air, soil and water. Among other effects it decreases and impoverishes both animal and plant biodiversity and is introduced into the food chain, posing a risk to health, due in part to the residues that remain in food.

On the other hand, the excessive use of chemicals in fertilisers also has negative environmental consequences.



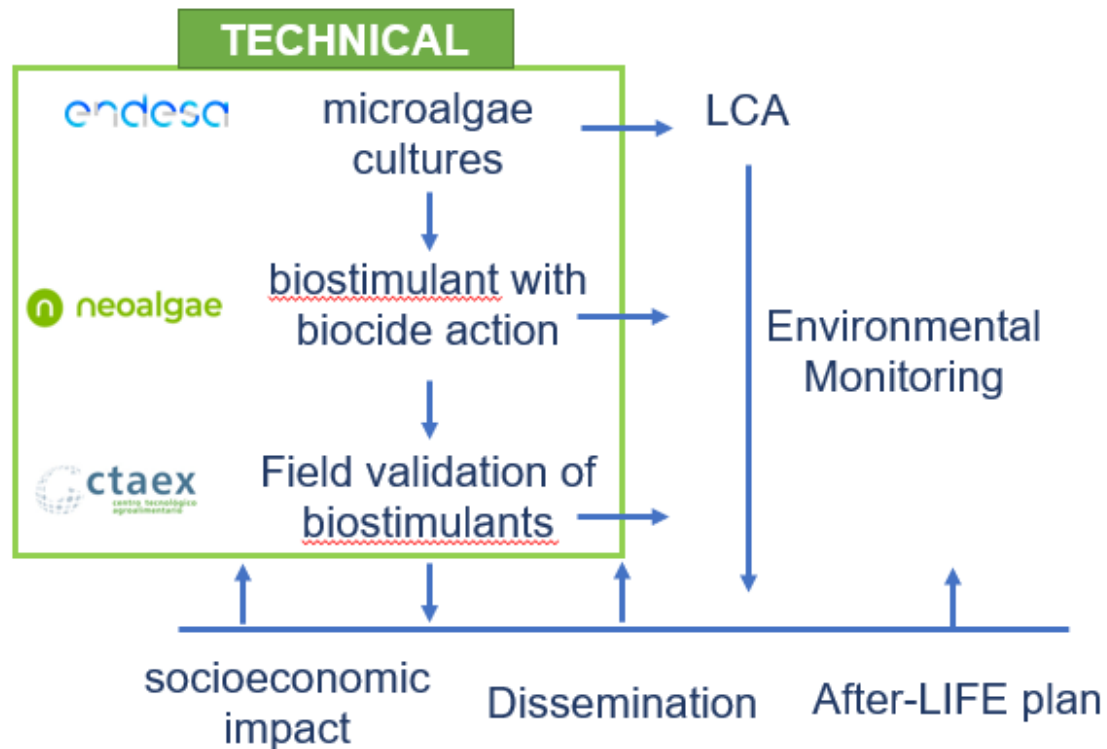
THE SOLUTION PROPOSED BY THE PROJECT

The Project aims to **develop new biostimulant products with biocide action**, initially tested in tomato and corn crops with the aim of reducing almost 56 % of pesticides

- The **biostimulant** action was achieved by adding **microalgae**
- The **biocide** action is achieved thanks to extracts of **aromatic plants**



2.2 – ACTIONS



B1 – Development and optimisation of microalgae crops

Produce sufficient volume of concentrated biomass for use as a raw material in the production of new fertilisers. For this purpose, two microalgae species with a high degree of protein concentration and demonstrated biostimulant capacity will be cultivated for application in agricultural soils

B2 – Design and manufacture of a biostimulant from microalgae with biocide action

Carry out extractions from aromatic plants, using extraction methods using sustainable substances capable of acting as solvents. Once the biocide capacity has been validated, develop formulations and develop biostimulants using enzymatic biocatalysis. Finally, carry out the validations of the biocidal capacity, as well as the assessment of phytotoxicity.

B3 – Validation study in semi-field and field of stimulants

Demonstrate the effectiveness of those formulated in the control of pests and diseases, allowing the substitution of chemical pesticides, and as a biostimulant in improving the availability and absorption of nutrients, being the results of the project reproducible in other countries and transferable to other crops. The application dose shall be crop-adjusted and synergies between

formulations shall be identified. For this purpose, field trials will be carried out on the experimental farm of CTAEX (Spain) and in Portugal under real conditions, of maize crops, industrial tomatoes, peppers and potatoes.

C1- Life Cycle Analysis

Perform the life cycle analysis of the different parts of the project process

C2- Monitoring and updating the LIFE KPI tool

Carry out a monitoring and update of the web tool life KPI TOOL, to ensure a correct update of the indicators described

C3- Socio-economic Impact Study

Assess the difference in the cost of production and application of the new formulations compared to other traditional active materials. To be able, therefore, to estimate a larger scale implementation plan, i.e. to assess the short- and medium-term economic sustainability of the results beyond the project

C4 – Environmental monitoring at exploitation scale

Monitoring of the absorption of CO₂, the amount of water and nutrients used for the cultivation of microalgae, during the initial preparation phase of the formulations and monitoring of water, soil and raw material harvested from corn and tomato.

D1- plan for communication and dissemination of the project

Through this action, all the networking and dissemination tasks of the project will be carried out.

E1 – Project management and coordination

Coordination, management, and monitoring of the project, including administrative and financial aspects, necessary to ensure proper and satisfactory development

E2- after-LIFE plan

Collect the tasks necessary to update the business plan and the preparation of the marketing resulting in a satisfactory commercial exploitation of the results of the project, as well as the dissemination and communication of the results after completion.

3. COMMUNICATION PLAN

3.1 – OBJECTIVES DURING THE PROJECT

The Communication and Dissemination Plan of the LIFE ALGAR-BBE project has organised, coordinated, collected and highlighted the actions of public awareness and dissemination of results, within the framework of the dissemination strategy of the LIFE programme in general and this particular project. This coordination has taken into account the plurality of partners, interests and possibilities of action of each of them.

This has meant the need to generate and have common materials for the dissemination and communication of actions that comply with the conditions of the LIFE programme.

In this way, the general objectives of the Plan have been:

- Optimise the dissemination of information and organise efficient communication between the project partners.
- Publicise the project to the potential actors involved and to the main beneficiaries.
- Inform and communicate the results of the project to public and private bodies and entities in other European regions and national and European institutions that might be interested in the project.

In order to achieve these objectives and in order to work more efficiently, the following specific objectives have been defined:

internal communication:

- ✓ systematise the communication between the partners, especially between the partners and the Coordinator, since it will depend on the correct management and execution of the project.
- ✓ keep partners informed about common actions and administrative and financial obligations, as well as monitoring and evaluation.

external communication:

- ✓ inform the target audience of the LIFE ALGAR-BBE Project: what it consists of; its objectives; reason for its creation; partners; its results; etc.
- ✓ disseminate the progress made and the results obtained during the course of the project.

- ✓ provide a documentary base and reference material for the realisation of future works or studies – public institutions and bodies supporting the creation and development of new research projects.
- ✓ disseminate new knowledge or reference material for policy makers at local regional, national and European level.
- ✓ make effective and transparent and understandable communication to the whole society, on the topics of the LIFE ALGAR-BBE project and its main objective: reduce the negative environmental impacts arising from the use of chemicals such as fertilisers and pesticides.

3.2- RESULTS ACHIEVED DURING THE PROJECT

During the project, the following tasks have been carried out, which will lay the foundations for the tasks to be carried out once the project is completed and for the next 3 years.

- **SOCIAL NETWORKS OF THE PROJECT**

WEBSITE: <http://www.algarbbelife.eu>

FACEBOOK: <https://www.facebook.com/pg/lifealgarbbe>

LINKEDIN: <https://www.linkedin.com/company/proyecto-life-algar-bbe/>

TWITTER: <https://twitter.com/algarBBElife>

- **NOTICE BOARD**

BIOESTIMULANTES A PARTIR DE MICROALGAS CON EFECTO BIOCIDA
LIFE18 / ENV / ES 000518
[HTTP://WWW.ALGARBBELIFE.EU/](http://www.algarbbelife.eu/)

OBJETIVOS PRINCIPALES
Mitigar los efectos adversos sobre el Medio Ambiente y la Salud humana de los pesticidas y fertilizantes químicos utilizados actualmente en cultivos agrícolas

- Demostrar la eficacia de 3 formulados de origen natural, seguros y sostenibles, con capacidad bioestimulante y acción biocida
- Reducción del uso de pesticidas en un 56%
- Pruebas en tomate y maíz (réplicas en pimiento y patata)
- Captura de CO₂, ACV, reciclado de materias primas

ACCIONES

Desarrollo y optimización de los cultivos de microalgas
↓
Diseño y elaboración de un bioestimulante fabricado a partir de microalgas con acción biocida
↓
Pruebas de campo con tomate, maíz, patata, pimiento.
↓
Impacto socioeconómico Comunicación After-LIFE plan

SOCIOS DEL PROYECTO

neo ALGAE
PYME biotecnológica especializada en cultivos de microalgas y extractos, que son la base de sus desarrollos innovadores comerciales (LIDER del proyecto)

endeso
Empresa líder del sector eléctrico español y el segundo operador del mercado eléctrico en Portugal con una planta piloto de microalgas en la central térmica de Carboneras (Almería)

ctaex
Asociación empresarial sin ánimo de lucro que ayuda a las empresas agroalimentarias mediante I+D+i y transferencia tecnológica. Cuenta con invernaderos y finca experimental para ensayos agronómicos y a gran escala

PROBLEMAS AMBIENTALES Y DE SALUD A SOLVENTAR

- Uso de químicos en exceso
- Eutrofización
- Contaminación alimentaria
- Desequilibrios en los ecosistemas
- Agotamiento de las tierras de cultivo
- Envenenamiento animal

PRESUPUESTO: 1.276.642 €
FINANCIACION LIFE: 700,671 €
LUGAR DE DESARROLLO: Asturias, Extremadura, Andalucía y Portugal

- **LEYMAN REPORT**



- Logo and corporate identity of the project

LIFE
ALGAR-BBE



PANTONE® COOL GREY 9C



PANTONE® 354C



PANTONE® 802C

Barlow Thin
Barlow Medium

- Publication of press releases: 2 press releases published
- Different merchandising materials, graphic images, etc.
- Newsletters: 4 newsletters published



- ADVERTISING INSERTS: 1

“Es la ciencia la que ha de proveer las soluciones necesarias”
Angela Santianes, Presidenta de Dupont España
Hemos perdido el miedo a colaborar más abiertamente. Antes quizá dábamos más miradas a la hora de proteger nuestro conocimiento y nuestra tecnología. Hemos visto que necesitamos más rápido cuando colaboramos con los clientes o con la cadena de valor, así se traduce en oportunidades de crecimiento para todos”
P. 04-05

El centro de I+D de IDESA ya es una realidad
Julio Martín, Director General de IDESA
Nuestro centro de I+D ya es una realidad. Hemos empezado a trabajar en él y ya estamos recibiendo resultados. Este es un momento clave para nosotros y para el sector.
P. 04-05

Riesgos, oportunidades y desafíos científico-tecnológicos para Asturias
Marta Ballester, Consejera de Ciencia, Innovación y Juventud
P. 16

Projecto Algar-BBE
www.algarbbelife.eu
Elaborado por Conecta Industria en el marco del programa de innovación e industria 4.0

● **TRIPTYCHS AND PROJECT BROCHURES**



● **ROLL-UPS OF THE PROJECT**



● **MEDIA OUTREACH**

- Print/online press:
- Radio

- **PARTICIPATION IN EVENTS:** participation in 18 events with a total of 2,135 direct attendees for the LIFE ALGAR-BBE project
- **ARTICLES AND TECHNICAL PUBLICATIONS:** 4 PUBLICATIONS
- **VIDEOS:** 3 videos made and published

3.2- AFTER THE COMPLETION OF THE PROJECT

AUDIENCE

Taking into account the objectives of the LIFE ALGAR-BBE project, once the project is finished we intend to continue addressing a very wide audience. The stakeholders of the Communication Plan are as follows:

- Group 1. Public administration.
- Group 2. Scientific and technical community: Universities, research centers, centers and related technological platforms.
- Group 3. Professional sector: Farmers and other professionals in the agricultural sector
- Group 4. Society in general

On the other hand, even if the project is finished, the methodology and approach developed in the different actions will be used as lessons learned and good practices in other projects that the Consortium jointly or each individual beneficiary develops.

As of the writing of this report, the following actions are already underway (see final table):

⁽¹⁾ Attendance at the European Congress of Marine Biotechnology (Malaga, Spain, 21-24 November): Neoalgae will participate in the Congress with a poster on the project entitled “*A rthrospira platensis* like a biostimulants as a new way to produce tomato and corn in a organic form”, which has already been accepted

⁽²⁾ Neoalgae, in collaboration with CTAEX has already begun to prepare a scientific article “peer review” with the results of the project on the application of those formulated in the field, which is estimated to be published in early 2024 in a scientific journal of the sector.

TYPE	ACTION TO TAKE	BENEFICIARY	RESOURCES REQUIRED	SOURCE OF FUNDING	G1	G2	G3	G4
<u>SOCIAL NETWORKS OF THE PROJECT</u>	Maintain RRSS and feed them with up-to-date content	NEOALGAE	Personnel, domain maintenance	PRIVATE	x	x	x	x
<u>PROJECT WEBSITE</u>	Maintain the website and feed it with updated content	NEOALGAE	Personnel, domain maintenance	PRIVATE	x	x	x	x
<u>DIFFUSION THROUGH OTHER RRSS</u>	Use the web pages and RRSS of the beneficiaries to disseminate content related to the project	NEOALGAE, CTAEX, ENDESA	Personnel	PRIVATE	x	x	x	x
<u>NOTICE BOARD</u>	It will be updated if necessary and disseminated, as well as maintaining and updating prominently in the installation.	NEOALGAE, CTAEX, ENDESA	Staff, graphic material	PRIVATE	x	x	x	x
<u>LEYMAN REPORT</u>	Follow dissemination in RRSS and different media	NEOALGAE, CTAEX, ENDESA	Personnel	PRIVATE	x	x	x	x
<u>MATERIALS (LOGO, ROLL-UP, BROCHURES, ETC.)</u>	Use the material in the events in which the ALGARBE-LIFE PROJECT participates	NEOALGAE, CTAEX, ENDESA	Staff, graphic material	PRIVATE	x	x	x	x
<u>Newsletters</u>	Continue developing and disseminating new editions	NEOALGAE	Personnel	PRIVATE		x	x	x
<u>TRIPTYCHS AND BROCHURES</u>	Use the material in the events in which the ALGARBE-LIFE PROJECT participates	NEOALGAE, CTAEX, ENDESA	Staff, graphic material	PRIVATE		x	x	x
<u>PARTICIPATION IN EVENTS</u> ⁽¹⁾	Take advantage of events in which the project can participate to increase the dissemination of results and knowledge	NEOALGAE, CTAEX, ENDESA	Staff, travel, graphic material	PRIVATE		x		x
<u>TECHNICAL/SCIENTIFIC ARTICLES AND PUBLICATIONS</u> ⁽²⁾	Make scientific publications, at least in one scientific journal	NEOALGAE, CTAEX	Personnel	PRIVATE		x		x
<u>PLANT VISITS (OPEN DAY)</u>	Organise the visit to the NEOALGAE facilities that could not be carried out during the project.	NEOALGAE	Personnel	PRIVATE	x	x	x	x