Regulatory Questions around Waste-derived Algae & Nutrient Recycling

European Sustainable Phosphorus Platform

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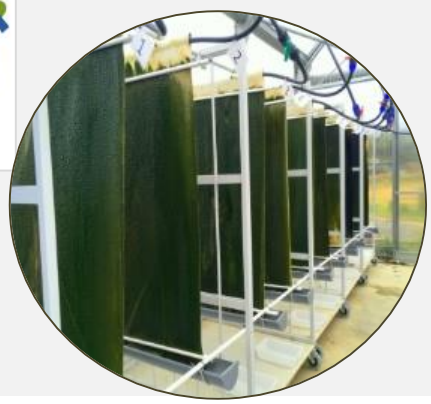
Microalgae bio-based fertilisers / biostimulants from waste streams

Life TL-BIOFER

Biofilm grown microalgae as component of bio-based fertilisers



LIFE13 ENV/ES/000800 www.life-tlbiofer.eu

H2020-BBI URBIOFIN

Production of Aminoacid-rich liquid Biostimulant from microalgae

https://www.urbiofin.eu/ *Horizon 2020 Grant agreement Nº 745785*

Biomasa Peninsular

We help NATURE to make her tasks

PYME INNOVADORA

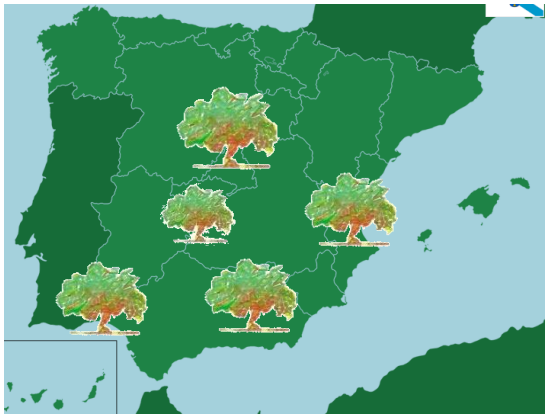
Válido hasta el 31 de diciembre de 2018

Created in 2001, 32 employees, 5,2Mi€ turnover,

220.000 t/y biowaste input, 60.000 t/año bio-products

Lines of **Activity**

- ❑ Consultancy and Engineering on biowaste recycling
- ❑ Collection & transportation of bio-waste
- ❑ Construction & Operation of Recycling Plants
- ❑ R&D&i on biowaste / bio-based products
- ❑ Bio-based & Recovered fertilisers



R&D&i projects

URBIOFIN- H2020 URBIOFIN urban biorefinery

LIFE EBP

RETOS 2016 LIGNOXBIO Unión Europea Fondo Europeo de Desarrollo Regional "Una manera de hacer Europa"

CDTI CIEN 3R2020+

LIFE TL-BIOFER TL BIOFER Blue in Green

CLAMBER L2 No Agroaliment CLaMber

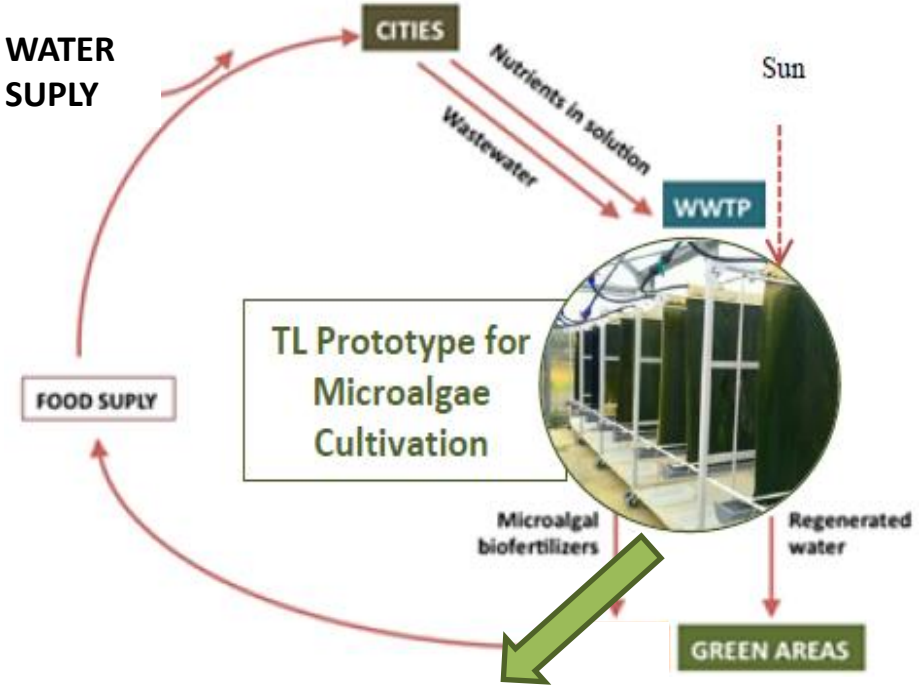
REFERTIL VII FP REFERTIL

CDTI NNTT ABIOAGRIN

Life TL-BIOFER

(2013-2017)

Microalgae cultivation in biofilms to improve N & P removal from wastewater and valorization as a component of bio-based fertilisers



- ✓ Biofilms are an interesting option to improve effluents´quality in small WWTP
- ✓ Microalgae met requirements for bio-based fertilisers:
  - High N, P & enzymatic activity
  - Close to zero values for toxics
- ✓ Valorising microalgae would reduce the dependence of intensive agriculture on inorganic fertilisers and allow the closing of the N and P biogeochemical cycles.

1. Liquid Extracts / Diluted microalgae
2. Solid blends: Microalgae and Biochar as additives combined with Compost

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The TL-BIOFER Project is co-funded by the European Union, LIFE+2013 Programme

H2020-BBI URBIOFIN

(2017-2023)

Demonstration of an integrated innovative biorefinery for the transformation of M.S.W. into new BioBased products

10 t/d OFMSW

<u>Municipal Solid Waste O. F. into new Bio-Based products</u>: Bioethanol, Bioethylene, PHAs bioplastics, Org-min fertilisers and Aminoacid-rich liquid Biostimulant from microalgae

Raceway

UVa

Biogas upgrading

Algae Biomass

ainia centro tecnológico

Centrifugation & Enzymatic Hydrolysis = *Amino acids at 10% w/w*

Aminoacids´ Biostimulant from microalgae

BIO-BASED INDUSTRIES Public-Private Partnership

Bio-based Industries Consortium

https://www.urbiofin.eu/ Horizon 2020 Grant agreement Nº 745785

This Project has received funding from the Bio-Based Industries Joint Undertaking under the European Union's Horizon 2020 research and innovation Programme under grant agreement Nº 745785

Microalgae from waste streams as component of bio-based fertilisers/ biostimulants: LEGAL ASPECTS

Market Trends

Organic fertilisers market (excl. manure) represents around **6%** of the total inorganic fertiliser market but with potential to replace partly inorganic fertilisers if all waste streams are used (1).
Biostimulant global market: **US$ 3,000 billion/year**. Growing steadily 10%/ year (2)

Legal Aspects FPR 2019/1009

Enzymatic Hydrolysate of µalgae from waste may not be eligible for CMC1

Living Blue-green algae/bacteria or **Cyanophyceae** with N_2 fixing properties is not included in CMC 7 (living or dead microorganisms), and hence not covered

Absence of microplastics (<2mm) limit as a requirement in fertilisers products

Driver: New CMC for recovered products→ **Biochar, Struvite, Ashes** *"STRUBIAS" Report*

No harmonized EN standards exist on bio-based fertilisers and biostimulants.
OJEU Standards Publications estimated in 2024. Tech Committees already existing:

CEN/TC 454 on algae and algae products
CEN/TC 260: Fertilisers and liming materials.

(1) Impact assessment Accompanying the Proposal {COM(2016) 157 final} {SWD(2016) 65 final}COD (2)Dunham Trimmer

Microalgae from waste streams as component of bio-based fertilisers / biostimulants: LEGAL GAPS

Organic Farming Reg 2018/848 Not clearly specified which fertilisers from waste could be accepted, neither conditions to be elegible.

REACH Reg (CE) 1907/2006 Difficult and expensive procedure of admitting new substances and not easy to fully understand if Enzymatic Hydrolysate of µalgae fed with biogas and digestate have to be registered under REACH. If it is eligible for CMC1 on FPR Regulation, then it is subject to REACH registration

Directive (EU) 2018/851 on Waste Waste conversion into products reaching EoW status is still unclear and difficult due to the lack of harmonization of EoW criteria other than Compost and digestate. Lack of EoW harmonization rules at EU / MS on the EoW criteria for some specific bio-waste streams.

Nitrates Directive 91/676/EC It is outdated since the conditions set do not consider the specific characteristics of bio-based fertilisers other than manure.

Urban Waste Water Diretive 91/271/EEC Gap for nutrients recovery through microalgae from wastewater.