



MICROALGAE BIOMASS AS A SUSTAINABLE FOOD SOURCE
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UNIVERSITY OF LISBON
INTERDISCIPLINARY STUDIES
ON SUSTAINABLE ENVIRONMENT AND SEAS



SESSION IV - Industrial production of Microalgae biomass for different uses

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SESSION IV - Industrial production of Microalgae biomass for different uses

SUMMARY

Microalgae production: From laboratory to industrial scale

Example of a sustainable intervention (Norway)

The relevant role of Portugal as microalgae producer

Different types of productions and facilities

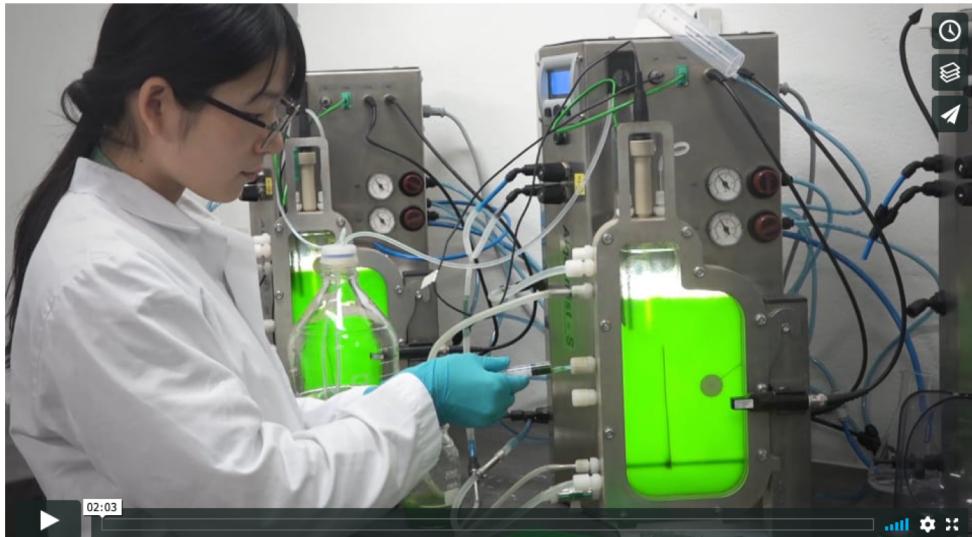
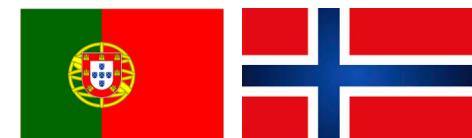


MICROALGAE BIOMASS AS A SUSTAINABLE FOOD SOURCE

From laboratory to industrial scale ...



ALGAE TO FUTURE



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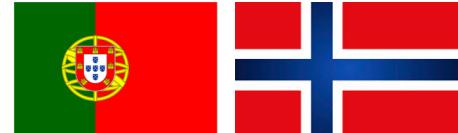


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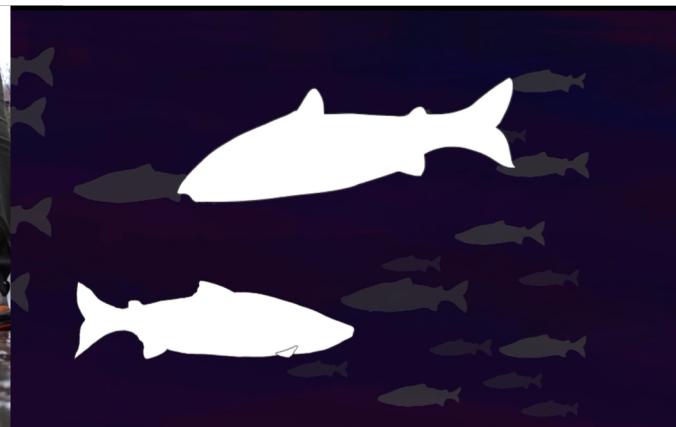
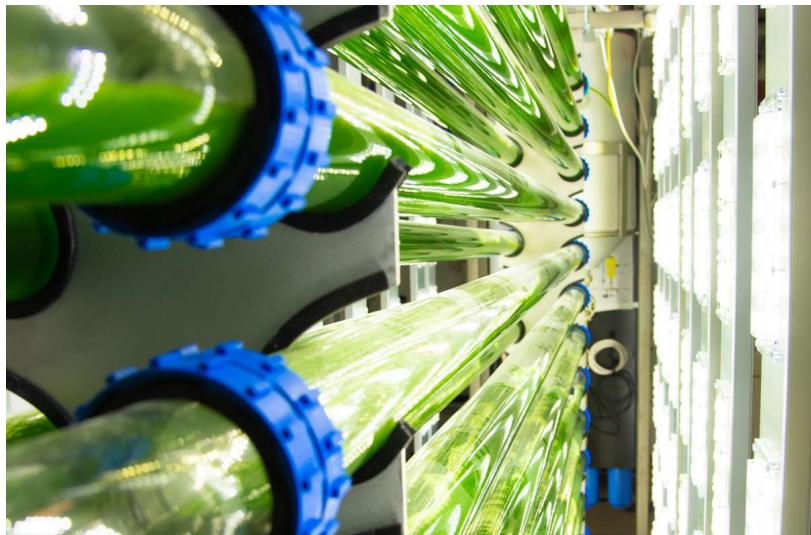


From laboratory to industrial scale ...

Example of a sustainable intervention



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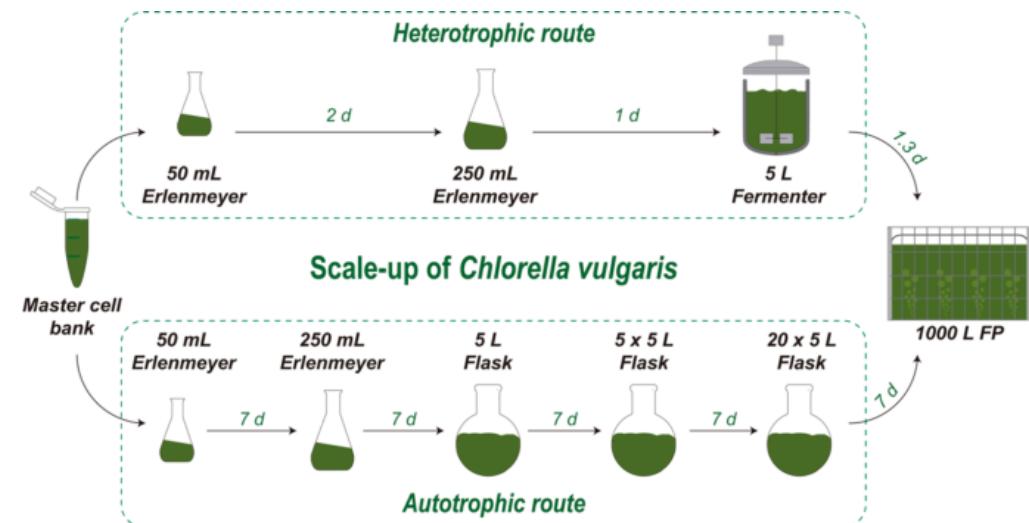
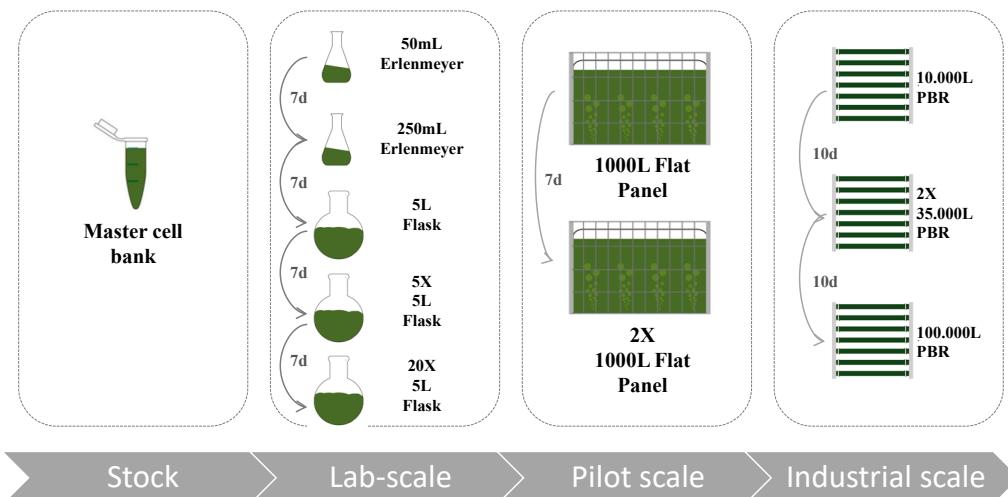
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An innovative company that is born from the opportunity to take advantage of the CO₂ produced by a cement plant (SECIL) for the production of microalgae ...

Microalgae cultivation



<https://www.allmicroalgae.com/en/our-process/>

Process-level innovation - fermentation to increase production yield.

Portugal is an important producer of microalgae worldwide!



<http://www.buggypower.eu/pt/>



BUGGY
POWER



Production of microalgae on the island of Madeira, taking advantage of being close to the sea.



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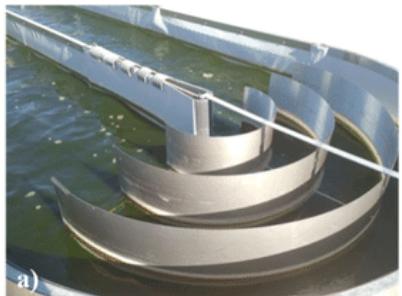
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a)
b)

Pilot raceways installed in Allmicroalgae facilities



Arizona Center for Algae Technology and Innovation



<https://explorebiotech.com/everything-need-know-algal-biotechnology/>

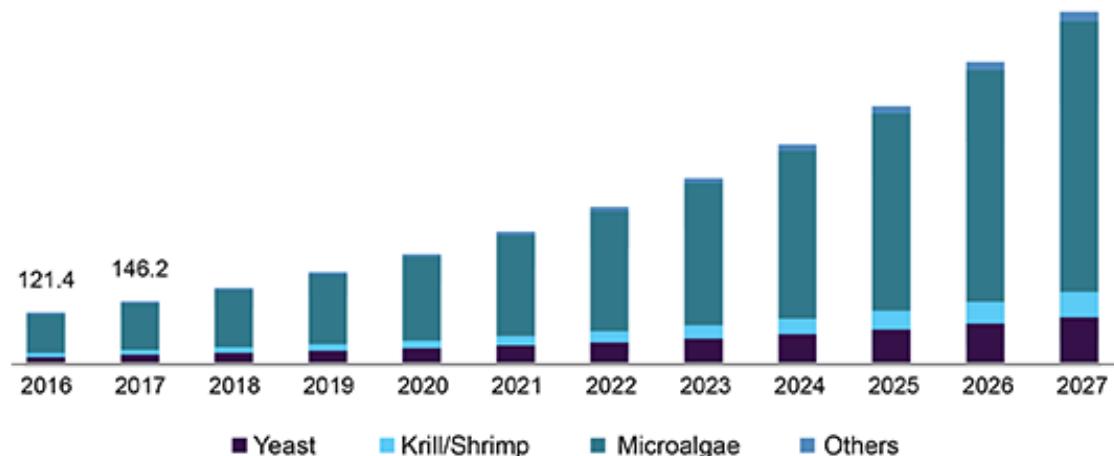


<https://news.algaeworld.org/2017/11/can-we-maximize-the-economic-benefits-of-microalgae-biofuel-production/>





U.S. astaxanthin market size, by product, 2016 - 2027 (USD Million)

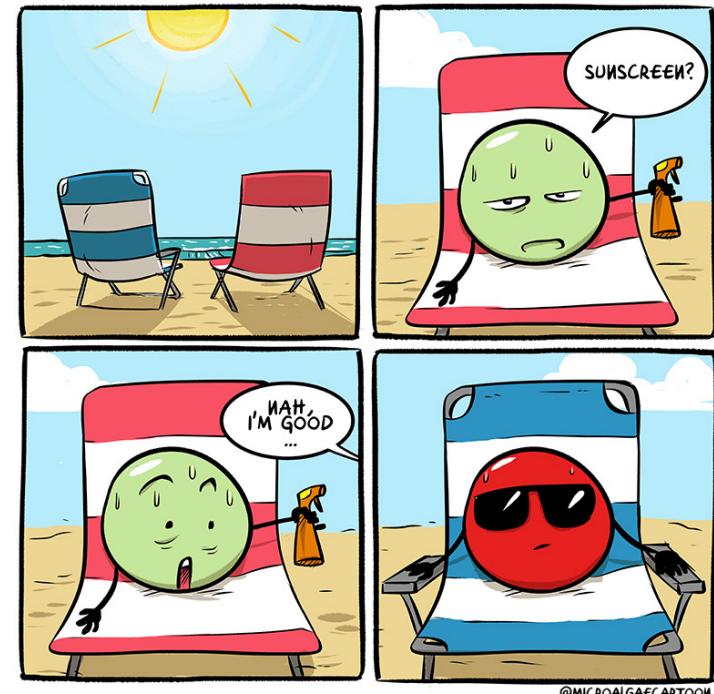


Source: www.grandviewresearch.com

<https://www.grandviewresearch.com/industry-analysis/global-astaxanthin-market>

The production of microalgae has been associated with a market of high economic value, both for the use of whole biomass and for the extraction of value-added products.

ALGAE PIGMENTS: HAE MATOCOCCUS PLUVIALIS AND ASTAXANTHIN



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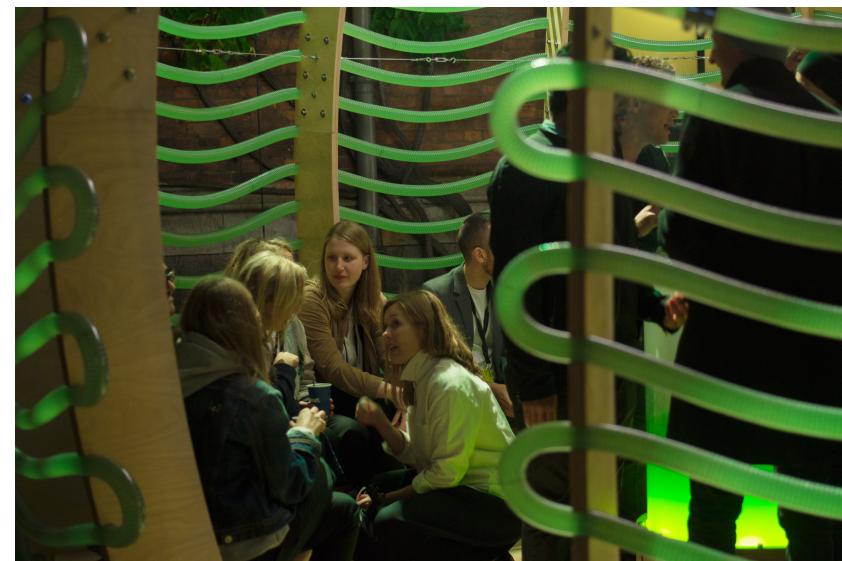


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Different concepts for the future – our cities, our gardens...



<https://www.dezeen.com/2017/09/10/ikea-space10-algae-producing-pavilion-copenhagen/>



Algae Dome

Won an architecture competition.

Architects Aleksander Wadas, Rafal Wroblewski, Anna Stempniewicz worked with Space10's bioengineer-in-residence Keenan Pinto to design and build the dome:

"It's inviting, yet enclosed form provides shelter and creates oasis for social interaction".



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THE PLATFORM FOR GREEN BUILDING

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BIQ – The Clever Treefrog | SPLITTERWERK
Hamburg, Germany | 2013

IMAGES INFO SUSTAINABILITY CLIMATE PRODUCTS TEAM



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TEAM

Client: KOS Wulff Immobilien GmbH
Architect: SPLITTERWERK
Sustainability Consultant: Arup GmbH

LOCATION



Hamburg, Germany | Dados do mapa ©2018 Google, Termos de Utilização

PROJECT INFO

Building type: Residential
Year: 2013
Project Status: Built
Gross Area: 1600 Sqm
Certificates:
Climatic zone: Temperate

SUSTAINABILITY FEATURES

Designing buildings so not only are they energy efficient but also able to make fuel, AND grow crops.

They are already doing algae architecture in office buildings in Europe and Asia.

Algae Architecture: Buildings That Produce Food and Fuel

Algae architecture is the cutting edge of urban architecture.



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Massages to take home

Large-scale production of microalgae allows its widespread use in several areas.

There are interesting examples of microalgae production in full balance with nature.

There has been a very significant evolution in the means of production, expanding the use of fermentative processes to increase yield.



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The background of the image is an underwater scene. A large green sea turtle is swimming towards the right. The water is filled with various plastic waste, including a large blue plastic sheet, several plastic bottles of different colors (yellow, blue, green), and a white plastic bag. In the background, there are many small fish swimming. The surface of the water is visible, showing a cloudy sky above.

Ulisses

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