

GENETIC DIVERSITY EXPLOITATION FOR INNOVATIVE MACRO-ALGAL BIOREFINERY

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THE CHALLENGE

Seaweed, or “macro-algae”, has long been recognised as a valuable source of diverse bioactive compounds and has great potential to be used in pharmaceuticals, nutraceuticals and functional foods. However, until now, seaweed has been underexploited in Europe due to the challenges of growing seaweed industrially. For economically and environmentally sustainable production: costs need to be reduced, scales of production need to be increased, quality needs to be improved and the seaweed needs to be successfully refined into multiple useful products. If these issues can be addressed, seaweed biomass production could become more economically and environmentally sustainable.

PROJECT OBJECTIVES

The overall objective of the **GENIALG** project is to boost the European Blue Economy by designing high-yielding seaweed cultivation systems. **GENIALG** aims to increase the production and sustainable exploitation of two high biomass yielding species of European seaweed: the brown alga *Saccharina latissima* (also known as sugar kelp) and the green seaweed *Ulva rigida* (often called sea lettuce).

AT A GLANCE

PROJECT TITLE: GENetic diversity exploitation for innovative macro-ALGal biorefinery (GENIALG)

PROGRAMME: H2020-BG-2016-1

INSTRUMENT: Innovation Action

TOTAL BUDGET: €12,224,237.50

EC CONTRIBUTION: €10,885,817.25

DURATION: January 2017 – June 2021 (54 months)

COORDINATOR: Centre National de la Recherche Scientifique (CNRS), France

CONSORTIUM: 19 partners from six countries

WEBSITE: www.genialgproject.eu



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WHAT WILL GENIALG DO?

GENIALG is the first European level industry-driven project bringing together pioneering companies in large-scale integrated European biorefineries and experts in seaweed cultivation, genetics and metabolomics to boost the seaweed industry.

GENIALG will demonstrate the technical and economic feasibility of producing large and sustainable volumes of high-quality *S. latissima* and *U. rigida* seaweed biomass, by combining available knowledge in seaweed biotechnology with reliable eco-friendly tools and methods.

To capitalise on the commercial potential of nutrient rich seaweed compounds, **GENIALG** will set up two pilot pre-industrial seaweed biorefinery plants. These will provide vital seaweed compounds for a wide range of products such as cosmetics, pharmaceuticals, food and feed ingredients, fine and specialty chemicals, additives and blends such as gels, as well as precursors for biodegradable plastics.

GENIALG will also assess the ecological impacts and environmental benefits of large scale seaweed cultivation, to address social acceptability of large scale integrated seaweed biorefineries.

EXPECTED IMPACT

Responding to a rising market demand for seaweed-derived chemical compounds, **GENIALG** will enhance the supply of high-quality seaweed biomass in Europe. Larger and more sustainable stocks of seaweed will improve the range of seaweed products with commercial potential.

GENIALG expects to contribute to the European Blue Economy by strengthening the economic

competitiveness of the European seaweed industry. Boosting the seaweed industry will create new jobs, upskill employees, and facilitate growth and investment in the Blue Economy. At the same time, **GENIALG** will ensure environmental sustainability by addressing issues such as maritime space competition and social acceptability.



PROJECT PARTNERS

FRANCE

- 1 ALGAIA
- 2 Amadéite SAS
- 3 Centre National de la Recherche Scientifique (CNRS)
- 4 C-Weed Aquaculture SARL
- 5 Lessonia

IRELAND

- 6 AquaTT UETP CLG
- 7 National University of Ireland, Galway

NORWAY

- 8 Seaweed Energy Solutions AS
- 9 SINTEF Ocean

PORTUGAL

- 10 ALGApplus Produção e Comercialização de Algas e Seus Derivados Lda

- 11 Centro Interdisciplinar de Investigação Marinha e Ambiental (CIIMAR)

- 12 Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial (INEGI)

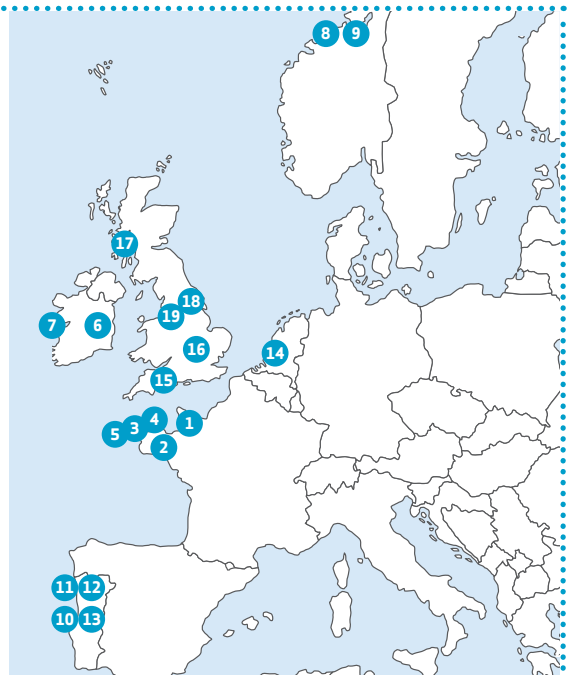
- 13 Universidade de Aveiro

THE NETHERLANDS

- 14 Stichting Wageningen Research

UNITED KINGDOM

- 15 Biome Technologies plc
- 16 IOTA Pharmaceuticals Ltd
- 17 The Scottish Association for Marine Science (SAMS)
- 18 Biorenewables Development Centre Ltd
- 19 University of York



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CONTACT US:

Project Coordinator:

Philippe Potin

CNRS

potin@sb-roscoff.fr

Project Manager:

Kevin Cascella

CNRS

kevin.cascella@sb-roscoff.fr

Communications & Press:

Avril Hanbidge

AquaTT

avril@aquatt.ie



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727892 (GENIALG). This output reflects only the author's view and the Research Executive Agency (REA) cannot be held responsible for any use that may be made of the information contained therein.