

algae4a-b

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Algae for Aquaculture and Beauty

Newsletter 3 – June 2017

Consortium



Project Coordinator
CNRS, CERMAV
France



Fitoplancton Marino, S.L.
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Agricultural University Of
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Instituto Andaluz De
Investigacion y Formacion
Agraria Pesquera
Alimentaria
Spain



Apivita SA
Greece



Centro De Ciencias Do Mar
Do Algarve
Portugal



Lifesequencing, SL
Spain

The project

Microalgae were always an exciting target for Aquaculture, Cosmetology and Biotechnology, as they represent a largely untapped reservoir of novel and valuable bioactive compounds.

The ALGAE4A-B (Algae For Aquaculture and Beauty) project seeks to exploit microalgae diversity, as a source for state-of-the-art high-added-value biomolecules in aquaculture and cosmetics.

ALGAE4A-B aspires to foster both European capacity building and the strategic objectives of EU Blue Growth and Marine Biotechnology to harness the untapped potential of European seas and coasts for training and sustainable growth.

Microalgae Biomass Production

The diversification of microalgae biomass production towards two independent applications will give the microalgae industry access to alternative markets in an uncertain, highly competitive and fast changing commercial environment.

Basic and applied research

The project will combine both basic and applied multidisciplinary research in the fields of -omics technologies, biochemistry and applied biotechnology in order to:

- Develop and optimize low-input and application-based microalgae culture systems
- Develop “-omic” resources for both microalgae and fishes
- Develop downstream processing of high added value products from microalgae, with an emphasis on polysaccharides, proteins, enzymes and antioxidants
- Develop, formulate and evaluate in vitro a new range of cosmetic and nutraceutical products for aquaculture

Key figures

972 000 € EC funding
7 partners
4 years (2016-2019)

More information on www.algae4ab.eu

Workshop 2 – Grenoble, France – February 20th-24th 2017 “Sweet Microalgae”

Workshop schedule

Day	Date	Location
Day 1	Monday 20th February 2017	
	Opening and topic introduction	
	16:00-17:00	Registration
	17:00-17:30	Welcome and opening remarks
Day 2	Tuesday 21st February 2017	
	Morning session	
	09:30-10:15	Algal biomass as an alternative feedstock for plastics (Jean-François Sassi, CEA)
	10:15-11:00	Microalgae: interesting organisms to decipher the evolutionary adaptation of the N-glycosylation pathways (Muriel Bardor, Univ. Rouen)
	11:00-11:30	Coffee Break
	11:30-12:15	Analytical Methods and chromatography (to be confirmed, CNRS)
	12:15-13:00	Electron microscopy of polysaccharides (Jean-Luc Putaux, CNRS)
13:00-15:00	Lunch	
Afternoon session		
15:00-16:30	Visit of analytical facilities of CERMAV	
Day 3	Wednesday 22nd February 2017	
	Morning session	
	09:30-10:15	Micro-algae for biomanufacturing of high-added value biopolymers (Ghislaine Tissot-Lécuelle, Alganelle)
	10:15-11:00	Screening of GH and PL activities (William Helbert, CNRS)
	11:00-11:30	Coffee Break
	11:30-12:00	Chemo-enzymatic synthesis of glycoconjugates (Sebastien Fort, CNRS)
	12:00-14:00	Lunch
Afternoon session		
14:00-16:00	Round table/Open discussion	
Day 4	Thursday 23rd February 2017	
	Algae4A-B Review meeting	
	Algae4A-B Review meeting	
Day 5	Friday 24th February 2017	
	General assembly meeting	
	09:30-11:00	Management session (Pls)
	11:00-11:30	Coffee Break
	11:30-12:15	Concluding Remarks
	12:15-13:00	Lunch

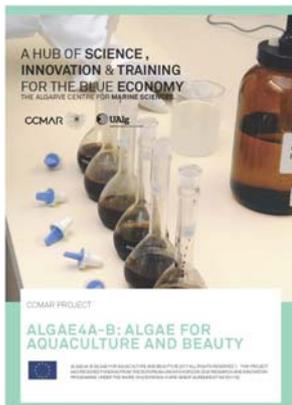
Workshop organisation

Dr. William Helbert
 CERMAV
 Algae4A-B Project Coordinator
 CNRS, Grenoble, France

Practical information

CERMAV-CNRS
 Domaine Universitaire de Grenoble
 601 rue de la chimie
 St Martin d'Hères - France
 Room Belledonne
www.cermav.cnrs.fr

Talks are available on
www.algae4ab.eu



Algae4A&B was represented by our partner CCMAR at the **Business2Sea Sea Forum 2017** event on the 5-6th of June in Porto, Portugal (www.forumoceano.pt).

During this event flyers publicizing the Algae4A&B were distributed as well as **samples of the new sun care line launched by APIVITA in 2017**, containing the “3D PRO ALGAE” active ingredient (commercial spin-off from a previous MSC RISE project funded by FP7). This was presented as an example of how a well-defined knowledge-based end product from microalgae was used in a high value cosmetic product. The concept and innovative ideas of the Algae4A&B project were very well received by the visitors and the use of sea products in natural cosmetics and aquaculture raised much curiosity and interest.

The Business2Sea aims to disseminate projects, studies and knowledge on issues related to the Sea. This event promotes dissemination and networking between national and international public authorities, enterprises, universities, R&D centers, clusters and associations with activities in different areas of the maritime economy.



Algae4A-B Implemented secondments

Research and Innovation Staff Exchange (RISE) projects fund short-term exchanges (“secondments”) for staff to develop careers combining scientific excellence with exposure to other countries and sectors. RISE enables more interaction between academia and non-academic organisations within Europe and worldwide.

CCMAR – LIFESEQ

Patricia Pinto – 2 months

The objectives of the secondment were to carry out microbiome analysis of the skin and gut of pigmented or albino sole (*Solea senegalensis*) as well as the environmental water and food. Transcriptome analysis (RNA-seq) was also carried out in parallel for the skin and gut of pigmented and albino sole. This pilot study established the methods to be used in subsequent studies.



CCMAR - APIVITA

Liliana Anjos Guerreiro

The aim of this study was to determine the effect of a fish and microalgae derived compound on human skin cell lines (towards D3.2/D3.3). Cartilage acidic protein 1 (CRTAC1) is an ancient protein found from cyanobacteria, microalgae, teleost fish and other vertebrates like humans. The bioactivity of the microalgae / fish derived compound was tested using a human skin cell line (fibroblasts) and in vitro functional assays established in APIVITA. An additional aim integrated in this secondment was to test different solubilisation buffers for microalgae extract preparation.

LIFESEQ - AUA

Juan Martinez – 2 months

The objectives of the secondment were focused on the evaluation of methods for nucleic acid isolation (RNA) and the development of the bioinformatic pipeline for NGS data analysis.

LIFESEQ - CNRS

Juan Martinez – 3 months

The objective of these secondments were to learn techniques for isolation, purification and characterization of polysaccharides for cosmetics, and to develop a Next Generation Sequencing (NGS) procedure targeted to the specific operon involved in polysaccharides metabolism in microalgae.



FITMAR – CCMAR

Carlos Infante – Sonia Torres - 3 months

The overall objective of the secondment was to establish and optimize a set of tools to serve as a proxy to screen and infer the likely effect of microalgae on the modulation of innate immune barriers/immunity in fish. That is, the work performed in this secondment can be considered as a first attempt to find a correlation between selected features displayed by microalgae extracts and their likely immune-related bioactive properties in fish. In this way it will be possible to predict, using relatively cheap and high throughput assays, potential bioactivities of interest in microalgae extracts obtained under a multiplicity of culture conditions. For this proof of concept exercise, *Nannochloropsis gaditana* was chosen as the target species, and extracts obtained using different cell lysis procedures and solvents were used for optimization of assays. Activities targeted were related to antioxidant capacity, effects on enzymes closely related with improved food conversion, and inhibition of bacterial growth. All these results will serve as a valuable asset for further analysis of microalgae extracts in fish immunity.

FITMAR – CNRS

Carlos Unamunzaga – 2 months

The objective of the secondment was to perform structural characterization of 23 exopolysaccharides (EPS) purified from cyanobacteria at FITMAR by CNRS staff members during a previous secondment. The analyses conducted by FITMAR concerned seven EPS samples which revealed the structural diversity of the EPS.

APIVITA - CNRS

Giota Dragani - Mariliz Gkika – 3 months

The aim of the secondment was to learn methods for the characterization of polysaccharide. For this, several exopolysaccharides (EPS) purified from FITMAR's collection of cyanobacteria by CNRS members were investigated. Altogether, the monosaccharide composition of 16 EPS were determined. With the 7 EPS characterized during the secondment of FITMAR in CNRS (27/02/2017-28/04/2017), all the cyanobacteria EPS available were analysed.

UPCOMING EVENTS OF INTEREST

10th European Conference on Marine Natural Product

ECMNP 2017 - September 3-7, 2017 - Kolybari, Crete, Greece

<https://www.ecmnp2017.com/>

International Flatfish Symposium

11-16 November, 2017 - Saint-Malo, France

<http://www.flatfishsymposium.com/international-flatfish-symposium-2017>

More information on www.algae4ab.eu



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