

# Algae Biorefineries for Europe: towards a sustainable economy

## *Preliminary program*

### Day 1: Tuesday 17<sup>th</sup> October 2017

#### **9.20 – 11.10 Opening Session. Chair: Patricia Harvey**

9.20 – 09.30: Welcome and Opening of the conference by Patricia Harvey, Chair

9.30 – 09.55: Microalgae: Crops for the future! Philippe Willems, Value For Technology, BE.

9.55 – 10.20: Marine Biotechnology: EU perspective. *To be confirmed*

10.20 – 10.45: Value of the Algae Biomass sector in Europe and the current share of Biorefinery and future potential. Vitor Verdelho, European Algae Biomass Association (EABA).

10.45 – 11.10: *Success story*: Cultivation of *Dunaliella* in large scale open raceways for the commercial production of beta-carotene and novel carotenoids. Ami Ben-Amotz, NBT, Israel (D-Factory)

#### **11.10 – 11.40 Coffee break and Poster Session**

#### **11.40 – 13.00 Session: Major innovations and new products from the four biorefinery projects. Chair tbc**

Objectives, highlights, main conclusions presented by the project coordinators

- *Bisigodos*: High value-added chemicals and bioresins from algae biorefineries produced from CO<sub>2</sub> provided by industrial emissions. Ana Palanca, Aimplas, ES.
- *D-Factory*: From Development to Demo: A sustainable *Dunaliella* biorefinery. Patricia Harvey, University of Greenwich, UK.
- *Miracles*: Multi-product Integrated bioRefinery of Algae: from Carbon dioxide and Light Energy to high-value specialties. Hans Reith, Wageningen University, NL.
- *PUFACchain*: A value chain from micro-algae to PUFA. Thomas Friedl, University Göttingen, DE.

#### **13.00 – 14.15 Lunch and Poster Session**

#### **14.15 – 17.05 Session: Sustainability and economics. Chair: tbc**

14.15 – 14.40: Sustainability of algae cultivation and use: conclusions and recommendations. Guido Reinhardt, IFEU, DE. (D-Factory, PUFACchain)

14.40 – 15.05: Socio-economic sustainability of an innovative Algae Value Chain: the case of PUFACchain. Marcel van der Voort, Wageningen University and Research, NL. (PUFACchain)

15.05 – 15.30: *Success story*: Prospecting niche markets: successful scale up, product and business development. Carlos Unamunzaga, Fitoplancton Marino, ES. (Miracles)

**15.30 – 16.00: Refreshment break and Poster Session.**

16.00 – 16.25: Marine phytoplankton into natural bioactives. Eloy Chápuli Fernández, BFS. (Bisigodos)

16.25 – 16.50: Consumer acceptance and Marketing of microalgae products: insights from MIRACLES. Philippe Willems, Value for Technology, BE. (Miracles)

**17.00 – 18.00: Panel discussion. Chair tbc**

The aim of the panel discussion is to identify requirements for successful further development and commercialisation. The project coordinators and representatives from industry will briefly present their views. Conference participants will be invited to provide feedback and input for the discussion.

Panellists (tbc): Ana Palanca (BISIGODOS). Patricia Harvey (D-Factory), Hans Reith (Miracles), Thomas Friedl (PUFACHain), Philippe Willems (VFT), Vitor Verdelho (EABA), Carlos Unamunzaga (Fitoplancton)

**18.00 – 18.30: Concluding remarks and next steps. Chair tbc**

**18.30 – 20.00: Cocktails, networking, poster session**

**20.15: Conference Dinner in the Bedford hotel**

## Day 2: Wednesday 18<sup>th</sup> October 2017

### 9.00 – 10.05: Session 1: Metabolism and strain development

9.00 – 9.25: KEYNOTE. Unambiguous identification of algae strains through exact genetic characterisation and taxonomic identification. Thomas Friedl, University Göttingen, DE (PUFACHain)

9.25 – 9.45: Searching for Superalgae. Dorinde Kleinegriss, UiB, NO (Miracles)

9.45 – 10.05: Molecular tools for real time monitoring and control of valuable target products during cultivation. Carlos Infante, FitoPlancton, ES. (Miracles)

### 10.05 – 13.00 Session 2: Cultivation and harvesting

10.05 – 10.25: CO<sub>2</sub> concentration from air. Wim Brilman, University Twente, NL. (Miracles)

10.25 – 10.45: Cultivation of *Dunaliella* in closed photobioreactors for high value products. Luis Costa A4F, PT. (D-Factory)

### 10:45 – 11.15 Coffee Break and Poster session

11.15 – 11.35: The Algae Crop Rotation principle as a potential basis for algae mass production. Thomas Leya, Fraunhofer, DE. (PUFACHain)

11:35 – 11.55: The Foam Bed Photobioreactor concept. Agnes Janoska / Marcel Janssen, Wageningen University, NL. (Miracles)

11.55 – 12.15: Membrane technology for integrated algae pre-harvesting and medium recirculation. Leen Bastiaens, VITO, BE. (Miracles)

12.15 – 12.35: Harvesting of a fragile alga *Dunaliella salina* by membrane filtration with permeate recovery for microalgae cultivation. J Crespo (IBET, PT), F Jacobs, (Evodos, NL) (D-Factory)

### 12.35 – 14.00 Lunch and Poster Session

### 14.00 – Session 3: Biorefinery

14.00 – 14.25: KEYNOTE: Multiple products from algal biomass: Need for integrated Biorefinery approaches. Lolke Sijtsma, WFBR, NL. (Miracles)

14.25 – 14.45: Simulation-based optimization of microalgae refineries, from microalgae production in photobioreactors to microalgae-based products. Marie-Amélie de Ville d'Avray, CASPEO. (Bisigodos)

14.45 – 15.05: Lipid Analysis of Microalgae – The Influence of Sample Preparation. Michael Stehr, (PUFACHain)

15.05 – 15.25: Extraction of lipids from wet or dried algae. Martin Sova, Natex (PUFACHain)

15.25 – 15.45: Separation and valorisation of algae protein and polysaccharide fraction. Juha Linnekoski, VTT, (Bisigodos)

15.45 – 16.05: Green biorefinery strategies. Elena Ibanez, CSIC. (Miracles)

**16.05 – 16.35: Refreshment break and poster session**

16.35 – 16.55: Extraction and formulation of microalgae products using supercritical CO<sub>2</sub>-technologies. Nadine Igl, NATECO, DE (D-Factory)

16.55 – 17.15: Optimization and screening of product portfolios in algo-biorefinery value chains: from research through development to scale-up. A Kokossis, NTUA D Rooke, DE (D-Factory)

17.15 – 17.35: Products from microalgae: the formulator's perspective. Isabel Mira, Karin Persson. RISE, SE (D-Factory)

17.35 – 17.55: Sustainability assessment of the 5 Miracles value chains. Elke Breitmayer, nova. (Miracles)

**18.00 END of Program**