Timetable

DAY 1: 26th November 2018 | LOCATION: Fraunhofer IGB, Nobelstrasse 12, 70569 Stuttgart, Seminar rooms 6A/B

MORNING THEORY

08:45 – 09:15 **Arrival and registration of participants**

09:15 – 09:30 **Welcome and introduction of Fraunhofer IGB** | Hon.-Prof. Dr. Christian Oehr, Deputy Head of Fraunhofer IGB

09:30 – 10:15 **Algal biochemicals. Extraction and analysis** | Dr. Matthew Davey, University of Cambridge

10:15 – 11:00 **Algal ingredients and tailored production thereof in photobioreactors** | Dr. Ulrike Schmid-Staiger, Fraunhofer IGB

11:00 – 11:15 **Coffee break**

11:15 – 12:00 **Scale-up of algal production** | Dipl.-Ing. Gordon Brinitzer, Fraunhofer CBP

12:00 – 12:45 **Requirements for algae biotechnology from an industrial point of view** | Dr. Jeroen Muller, Nestlé Research Lausanne

12:45 – 13:45 **Lunch** (walk to Fraunhofer cafeteria/canteen for lunch)

AFTERNOON PRACTICAL (small group rotation, each session lasting 45 min), Department of Environmental Biotechnology and Bioprocess Engineering

13:45 – 14:00 **Group introduction**

14:00 – 17:00 **Afternoon practical**

Session 1: The CellDEG cultivation system: high-density cultivation using membrane-mediated CO_2 supply | Dr. Ralf Steuer, Humboldt-University of Berlin and CellDEG GmbH

Session 2: Best practice lab reactors: cultivation conditions, important parameters, sterilisation and inoculation, control and feeding system, sampling and OD/DW determination | Konstantin Frick M.Sc., University of Stuttgart

Session 3: Scale-up principles – 25L FPA reactors, CBP pilot plant, LEDs concept, harvesting | Dipl.-Ing. Gordon Brinitzer, Fraunhofer CBP

15:30 – 16:00 **Coffee break**

18:30 **Dinner and networking** | **Brauhaus Schönbuch, Stuttgart** (transfer with bus)

DAY 2: 27th November 2018 | LOCATION: Fraunhofer IGB, Nobelstrasse 12, 70569 Stuttgart, Seminar rooms 6A/B

MORNING THEORY

Welcome, introduction to algal downstream processes for recovery of algal ingredients, legal framework and risk assessment for algal ingredients.

09:00 – 09:45 **EFSA's role on novel foods – focus on algae (online presentation)** | Dr. Wolfgang Gelbmann, European Food Safety Authority (EFSA)

09:45 – 10:30 **Process development and downstream techniques for microalgal ingredients** | Felix Derwenskus M.Eng., Fraunhofer IGB

10:30 – 11:00 **Coffee break**

11:00 – 11:45 **Novel cell disruption and extraction techniques for ingredients recovery** | Dr. Ana Lucía Vásquez-Caicedo, Fraunhofer IGB

11:45 – 12:30 **Algae in human nutrition** | Ulrike Neumann M.Sc., University of Hohenheim

12:30 – 13:30 **Lunch** (walk to Fraunhofer cafeteria/canteen for lunch)

AFTERNOON PRACTICAL (small group rotation, each session lasting 45 min), Departments of Environmental Biotechnology and Bioprocess Engineering and Physical Process Technology

13:30 – 13:45 **Group introduction**

13:45 – 16:30 **Afternoon practical**

Session 1: Visit IGB pilot PCT plants | Dr. Ana Lucía Vásquez-Caicedo, Fraunhofer IGB, and other lab members

Session 2: Biomass drying with superheated steam | Dr.-Ing. Antoine Dalibard, Fraunhofer IGB

Session 3: Characterisation/analysis of extracts (fatty acids, proteins, carotenoids, antioxidative activity etc.) | Felix Derwenskus M.Eng., Fraunhofer IGB, and others

15:15 – 15:45 **Coffee break**

16:30 – 17:00 **Course close and feedback on algal course**