

Institute of Microbiology CAS - ALGATECH Centre

Mikrobiologický ústav AV ČR, v. v. i. - Centrum ALGATECH

The Třeboň workplace of the Institute of Microbiology of the CAS - ALGATECH Centre - is one of the world-renowned workplaces for basic and applied research on microscopic algae, cyanobacteria and photosynthetic bacteria, including the development of algal biotechnologies. It is the largest workplace dealing with basic and applied research on microscopic algae in the Czech Republic.

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Services

We offer collaboration in the form of contract or collaborative research.

In the application sector, we are mainly engaged in:

- Selection of suitable microalgae strains for the production of the desired substances.
- Breeding of microalgae (non GMO).
- Determination of conditions for optimal cultivation of selected strains of microalgae.
- Cultivation of microalgae in autotrophic and heterotrophic regimes.
- Cultivation of enriched microalgae (for example, selenium or iron)
- Isolation and purification of valuable compounds by chromatographic methods (CCC).
- Algal biomass processing.
- Analyses of valuable substances, especially pigments and fatty acids.
- Special microscopic analyses.

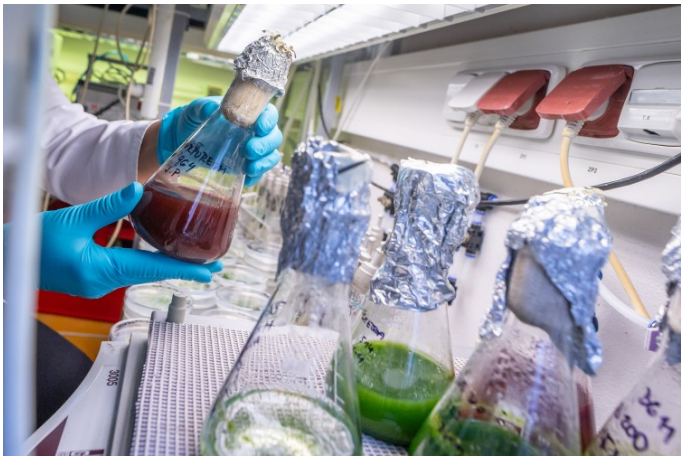




Equipment / infrastructure

- Ccultivation systems for autotrophic and heterotrophic cultivation of microalgae, including technological facilities for downstream processing (concentration, disintegration, drying, packaging in inert atmosphere).
- Culturing systems are available in sizes from laboratory to semi-operational scale (millilitres to hundreds of litres) and in different environments - open, closed, outdoor, indoor, fermenters.
- Analytical facilities for detailed chemical analysis of algal (plant) biomass.
- Chromatographic instruments for separation and purification of substances, especially counter-current shaking chromatography.
- We have modern microscopic equipment at our disposal, especially a laboratory confocal microscope, which is suitable for super-resolution imaging of all classical fluorescent dyes and proteins excitable with our laser kit (e.g. DAPI, TFP, GFP, Alexa, CFP and others) used in single-cell biology. Experimental procedures include methods for detecting protein mobility and interaction at the nanoscale level, including Fluorescence Recovery After Photobleaching (FRAP), correlation methods (e.g., Fluorescence Correlation Spectroscopy (FCS).





Best practices / case studies of cooperation

Algamo s.r.o., Czech Republic

- Development of a genetic method to determine contamination of culture systems.

BDI-BioLifeScience Gmbh, Austria

- Downstream processing of Haematococcus pluvialis microalgae biomass.

Aveflor a.s., Czech Republic

- Development of a chromatographic method for the purification of astaxanthin monoesters for use in pharmacology.

Bioenergy 2020+, Austria

- Consultancy in the field of heterotrophic cultivation of microalgae.

Phycom, NL

- Breeding microalgae for heterotrophic cultivation within the H2020 project

Keywords

microbiology, microalgae, cultivation, biotechnology, analysis, chromatography, purification of substances