



# Heterotrophic Cultivation of Microalgae

Did you know there is a way of growing microalgae without any (sun)light at all? And did you know that by doing so you can reach higher cell densities and better yields?

## BACKGROUND

Microalgae are a great solution for future food, feed, as well as pharma and cosmetics. However, photobioreactors providing them with the required light are expensive and ineffective due to the large surface areas and self-limitations i.e. after a certain stage microalgae block more and more light themselves and cannot continue to grow. Outside ponds are cheaper, but they cannot grow during the night, are sensitive to temperature/weather conditions and suffer from contaminations. They also have the same limitations regarding high-density algae-cultures ...

## TECHNOLOGY

*Chlorella sorokiniana* is a unicellular microalgae capable of growing heterotrophically without any light source at all by using organic substrates. Having a high protein content, as well as high concentrations of polyunsaturated fatty acids it is ideal for food/feed applications including health supplements, colouring agents, etc. *C. sorokiniana* is very versatile, being also a producer of bioactive peptides, anti-oxidants such as carotenoids and immunostimulants such as beta-1,3-glucans. For heterotrophic growth it's possible to use waste-streams e.g. paper/cardboard or textile waste treated with cellulases as a C-source. As the N-source, anaerobic digestates e.g. from biogas plants can be used. Such inexpensive starting materials make even a use for biofuel-production possible. With extremely high cell-densities of >100g/L *C. sorokiniana* might be the best chance for a highly productive and cost-efficient microalgae-production system. acib can help you realize that potential!

## OFFER

Under protection of a CDA/NDA we provide you with professional strategies for producing compounds with microalgae under heterotrophic conditions. Any IP developed in such a project would fully belong to our investor/industrial partner.

## EXPERTS

Prof. Dr. Georg Gübitz  
Dr. Katharina Meixner

## AVAILABLE FOR

- Investment
- Joint Research Projects
- Contract Research

## DEVELOPMENT STATUS

Technology Readiness Level 4  
(Technology validated in lab)

## IPR

Can be generated for our industrial partners / investors

## KEYWORDS

- Microalgae
- Heterotrophic Cultivation
- High Cell-Density
- *Chlorella sorokiniana*
- Alternative Proteins
- Bioactive peptides
- Omega-3-fatty-acids
- Antioxidants

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