



acib Project Offer

Photo-BioPolymers

PHB (Polyhydroxybutyrate) - Development of a cheap and sustainable production process from sunlight and CO₂ using cyanobacteria.

BACKGROUND

Bioplastics have a market share of 2% today, which is growing steadily. PHB (polyhydroxybutyrate) is particularly interesting and promising, because it resembles the commodity polymer PP (polypropylene) in its properties, but with the huge advantage of being fully biodegradable, even in an aquatic environment. PHB can be used from 3D-printing of human implants to standard plastic bags. It is currently manufactured by approx. 30 companies with a total capacity of 30,000 tons/year, with the demand projected to triple by 2020.

TECHNOLOGY

Due to a costly manufacturing process PHB today still costs 5-10 €/kg. We are now working to develop a new, sustainable and cost-effective manufacturing process, which is based on CO₂ conversion to PHB by cyanobacteria and also includes an improved downstream processing. The cyanobacteria are non-GMO, allowing their use not only in bioreactors, but also natural ponds and further the use of corresponding PHB also in potential sensitive areas. The goal is to reach a cost level comparable to other bioplastics such as PLA (polylactic acid) of 2€/kg or lower. Strain selection, PHB yield optimization and initial process design has already been concluded in a previous project.

OFFER

The project needs another 2-3 years to reach market maturity. We are looking for partner(s) to bridge the current gap (financing demand of 300,000 – 500,000 € in total) and to develop target applications for the PHB, from the medical sector to packaging materials (high volume). Potential partners will benefit from getting privileged access to this unique technology. Joint IP is possible.

KEYWORDS:

- PHB
- PHA biopolymer
- biosourced
- CO₂ recycling
- Biodegradable plastic

acib-Experts:

PD DI Dr. Maximilian
Lackner MBA
Prof. Dr. Christoph Herwig

AVAILABLE FOR:

- Joint Research Project
- Contract Research
- Funding

Development Status:

- Technology Readiness
Level: 4-5

IPR:

Patents not filed yet.

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