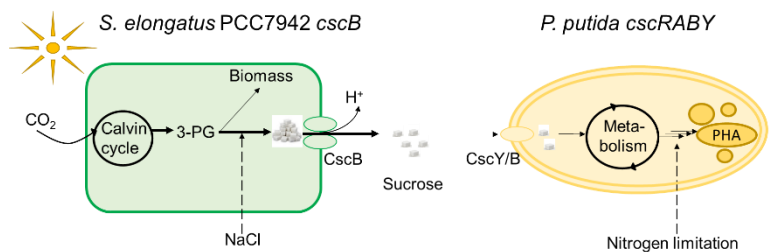


# Process-establishment in a 9-fold Parallelreactor for the production of Bioplastic from light and CO<sub>2</sub>

Keywords: Bioprocess engineering, Bioplastic, PHA, Cyanobacteria, Chassis, *Pseudomonas putida*

## Project description

In our lab, a co-culture composed of the Cyanobacterium *Synechococcus elongatus cscB* and the soil-bacterium *Pseudomonas putida* has been recently established. The cyanobacteria are able to fix CO<sub>2</sub> in sucrose upon salt-stress and to secrete the sucrose into the medium with the CscB-Symporter. The sucrose serves as the sole C-source for the co-culture partner. *P. putida* can be defined as a so-called chassis, which means, that it is a suitable host for the production of various biotechnologically interesting compounds, such as medium chain length Polyhydroxyalkanoate (mclPHA). This compound is deemed as a promising bioplastic due to its thermostability and biodegradability



## Tasks & Methods

- **Establishment of a high cell-density process** in a 9-fold parallelreactorsystem (CellDeg) for the production of bioplastic (PHA)

### Methods:

- Cultivation of Cyanobacteria, heterotrophic bacteria and the co-culture
- Analytics: HPLC (Sugar analysis), GC (PHA analysis), FACS (Cell-count), Photometer (optical density), Microscopy, Assays (Nitrogen)

## Specifications

- Bachelorthesis or Masterthesis
- For all students who are interested
- **Preferred starting date: 01.07.2021** (sooner/later start also possible)



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