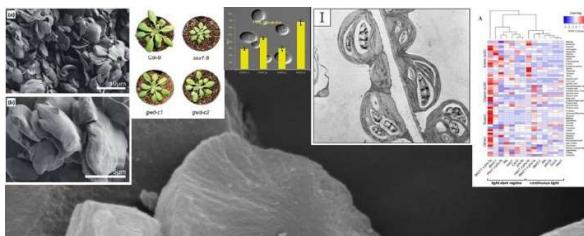


## Biopolymer Analytics for crop improvement

### Description



The 13 person strong team of the Biopolymer Analytics group led by Prof apl. Dr. habil Joerg Fettke, is interested in primary metabolism of plants, especially starch metabolism. Starch synthesis and degradation

includes several enzymes (>40) and different glycans, sugars, and sugar derivatives. The interplay between all these components as well as the fluxes through the various pathways are of special interest to the group.

### Details

Current research focus:

- Role of glucan phosphorylation on starch metabolism
- Identification and analysis of carbohydrate transporters
- Initiation of starch granule formation
- Morphology of starch granules
- Variability of carbon fluxes related to starch metabolism
- Protein-carbohydrate interaction.

### Infrastructure

Several analytical systems and methods are available for the characterisation of biopolymers, especially focused on peptides / proteins / carbohydrates, partially in combination with radiolabeling (\*).

- Mass spectrometry devices:
  - Bruker Microflex II (MALDI-TOF)\*
  - Thermo LTQ XL (MALDI / ESI-LTQ)\*
- Chromatography devices:
  - Dionex DX 600 (HPAEC-PAD / Berthold Radioflow LB 509)\*
  - Dionex ICS 3000 (HPAEC-PAD)
  - Dionex HPLC (PDA-100)\*
- Multisizer - Beckman Coulter Multisizer 3 (20-280µm)\*
- Capillary electrophoreses - ProteomLab PA800 and PA800plus (LIF / P/ACE MDQ / Dioden Array)
- Asymmetric and symmetric field flow-fractionation device - Wyatt Technology Eclipse F / F1000 coupled to MALLS (DAWN-EOS) DRI (Optilab DSP)
- \*Radionuclides:  $^{32}\text{P}$ ,  $^{33}\text{P}$ ,  $^{3}\text{H}$ ,  $^{14}\text{C}$ ,  $^{45}\text{Ca}$ , and  $^{35}\text{S}$

### Applications

- Crop improvement
- Precision agriculture

### Keywords

- Analytics
- Peptides
- Proteins
- Carbohydrates
- Radiolabeling
- Starch metabolism
- Plant physiology
- Biochemistry
- Biophysics
- Molecular biology
- Plant physiology
- *Arabidopsis thaliana*
- *Solanum tuberosum L*

### Interest in cooperation

- Research cooperation
- Contract Research

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