Title:

Cyanobacteria as a Production System for Valuable Products

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Abstract:

CO_2 is one of the major reasons climate change has been started. Using this CO_2 to produce valuable products could be one possible approach to reduce the atmospheric amount. Photosynthesis uses CO_2 to synthesize carbon-containing products and is performed by plants and some prokaryotes such as cyanobacteria. Therefore, the cyanobacteria *Synechocsystis sp.* PCC6803 is used to produce the model products ethanol and starch by genetically engineering within the Interreg funded project Algenetics. Different strategies with use of different gene constructs for overexpression and knock out of several genes as well as different promoters will be tested in order to produce ethanol and starch, which are not naturally synthezised by *Synechocsystis sp.* PCC6803. Transformants will be tested on DNA and protein level to ensure the genomic integration of gene constructs, which will be done via homologous recombination. Growth characterization, even in pilot scale, and product determination will be done in cooperation with Centre Algatech, Třeboň.