FGK
Forschungsstelle für gartenbauliche Kulturpflanzen
der Fachhochschule Erfurt

Practice module, Bachelor or Master topic

"Adaption of *in vitro* plant production system for Petunia integrating microorganisms"

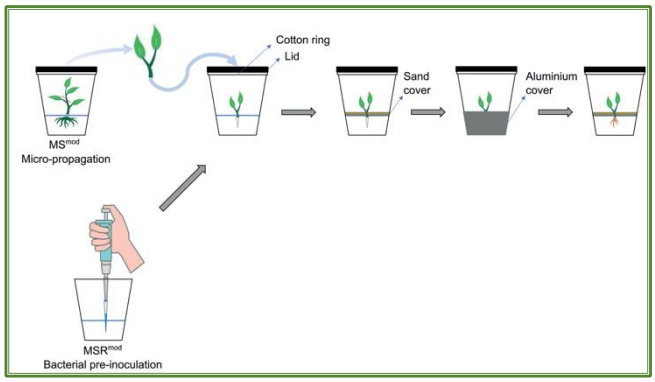
Background:

Several studies have identified phenotypic changes after *in vitro* cultivation in a huge number of plant species, Petunia cultivars among them. In previous years, we studied the epigenetic profiles of somaclonal variability in Petunia, crossing the red-flowered *P. exserta* and the white-flowered *P. hybrida* cv. 'Mitchell' to produce a population suitable for studying somaclonal variation based on flower phenotypes. We observed a huge quantity of differences after *in vitro* culture. In this Practice module, Bachelor or Master topic, we will use (and adapt) the *in vitro* system created to grow *Boraginaceae* plants, to change the way in which we grow Petunia. In order to have the plants growing in an antibiotic free medium to reduce selection pressure, we aim to design an *in vitro* culture system that is able to keep plant phenotypes stable without changing its characteristics.

On the other hand, plant-associated microorganisms have been implicated with an important role in sustaining plant growth and, through inducing or influencing synthesis pathways, in the production of plant primary and secondary metabolites. and after obtaining the protocol to grow our plants in the "system", further experiments are planned to investigate the Plant growth-promoting rhizobacteria (PGPR) effect on our plants on a molecular level.

Work Packages:

- Adaptation of the *in vitro* protocol for petunia growth: *in vitro* cultivation of Petunia in an antibiotic free medium
- Grow and characterisation of PGPR bacteria to use with our plants
- Document plant characteristics, including measurement of pH-values of plants and medium
- Isolation of plant and bacterial DNA



We are looking for a highly motivated student with strong interest in epigenetics and *in vitro* plant propagation. Join a research project in an interdisciplinary, innovative research area and an open and friendly working environment.

The **workplace** is located at the Erfurt Research Centre for Horticultural Crops (FGK), University of Applied Sciences Erfurt, Kühnhäuser Straße 101, 99090 Erfurt.

The thesis can be performed only in **English** language. If you are interested, then please contact Dr. Stefan Ehrentraut by email (stefan.ehrentraut@fh-erfurt.de) or by phone (0361 6700 3463). Further information is available at https://www.fh-erfurt.de/forschungsstelle-fuer-gartenbauliche-kulturpflanzen-fgk.