

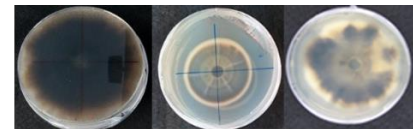
Practice module, Bachelor or Master thesis

"Dark septate endophytes (DSEs) and their impact on plant growth and metabolites production in peat-free substrates"

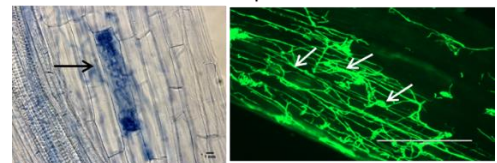
Background: Dark septate endophytes (DSEs) are a sub-group of endophytic fungi and are featured by their melanized and septate hyphae. They produce conidial as well as sterile hyphae that colonize roots intracellularly or intercellularly. Peat is a fossil material with a relevant source of greenhouse gas emissions and is since decades used as a constituent in the growing media for horticulture in Europe. Reducing peat use for greenhouse gas mitigation is essential for horticulture production. The aim of this work is to investigate the application of DSEs-plant interaction in peat-free substrates and their impact on plant growth.

Work packages:

- Isolate, identify and preserve DSEs from plant roots.
- Assess DSEs diversity associated with plant roots.
- Test and evaluate the role of DSEs for plant growth promotion and root colonization in peat-free substrates.
- Phenotypic, biochemical and molecular studies of DSEs functions.



Some examples of DSEs



Colonization of roots by DSEs by different staining techniques

We are looking for:

- A highly motivated student with strong interest in microbiology basic techniques, plant cultivation, molecular biology and/or microscopy.
- Good command of English (oral and written).
- A positive attitude towards interacting with colleagues from different backgrounds and cultures.

The work place is located at the Forschungsstelle für gartenbauliche Kulturpflanzen (FGK), Fachhochschule Erfurt, Kühnhäuser Straße 101, 99090 Erfurt.

The thesis can be prepared in English or German language.

If you are interested, then please contact Prof. Dr. Philipp Franken (philipp.franken@fh-erfurt.de) or Dr. Dalia A. Gaber Mahmoud (dalia.mahmoud@fh-erfurt.de).

Further information is available at <https://www.fh-erfurt.de/forschungsstelle-fuer-gartenbauliche-kulturpflanzen-fgk>