**Characterisation, control, and utilisation of bacterial endophytes in in-vitro cultures of *Prunus avium* L.**

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**Project aims**

**Plant material**

*Prunus avium* is cultivated as a fast growing hardwood for the production of high quality furniture. Fast-growing trees and such with a straight growth have the highest value on the market. To achieve these characteristics single trees with a good habitus are selected and propagated as in-vitro clones.

**Challenge**

During propagation, rooting and acclimatisation, large-scale losses of plantlets have been observed. It is expected, that this is caused by the presence of endophytes.

**Detection of endophytes**

Two strategies can be used to analyse endophytes:

- **Culture-dependent approach**
- **Culture-independent approach**

**Flow chart**

**Project background**

We want to investigate the interaction between *Prunus avium* (wild cherry) in-vitro plantlets and bacterial endophytes and try to differentiate between bacteria with beneficial, neutral or negative properties for the plant. This knowledge will be used to balance the endophytic population and to enhance positive bacteria.

**Outlook**

- Sequencing of the PCR-amplificates will reveal the species identity of endophytes in the *Prunus avium* in-vitro cultures.
- Establishment of qPCR protocols for bacteria of interest will enable quantification of specific species densities in different plant organs under different cultivation conditions. This will allow to correlate increasing / decreasing plant quality with specific changes in the endophyte population.
- Influences of chemical and physical factors on wild cherry in-vitro culture will be analyzed and used to enhance the quality of plant material.

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