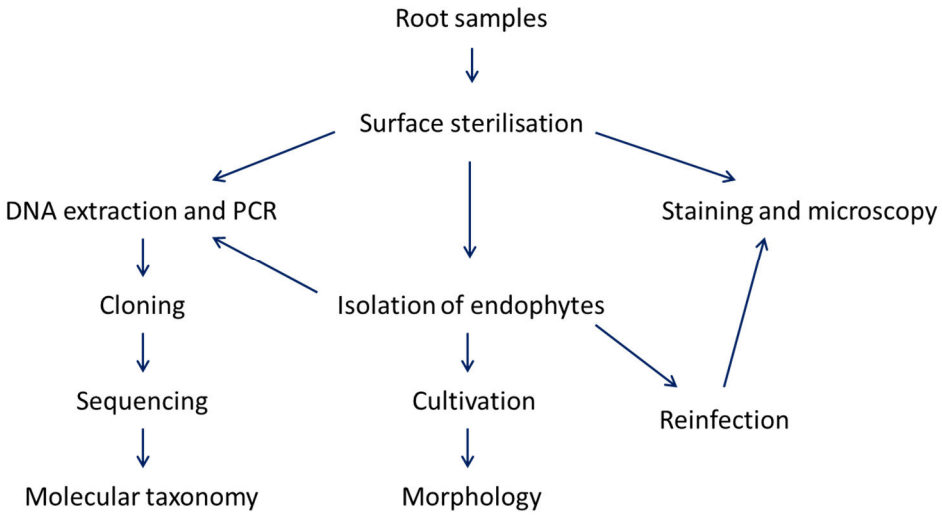
Report to EU COST FA1103 Training School 2014: „Isolation and characterization of fungal root endophytes"

Twelve young scientists from nine countries shortly before or after their PhD participated in a training school at the Leibniz-Institute of Vegetable and Ornamental Crops in Grossbeeren from 8 to 12 September 2014 organized by Philipp Franken. Subject matters of the school were theory and practice for the isolation and characterization of fungal root endophytes.



Every participant brought its own samples which were roots e.g. from a Portuguese maize field, a tomato plant from an Italian garden or from strawberries cultivated in pots in Poland. After a rough surface sterilization, three different approaches (Hyperlink to protocol booklet) were taught by four advisors. In the first approach, DNA was extracted and fungal sequences from the rRNA gene cluster were amplified with general fungal or fungal group-specific primers. All participants were able to clone at least one fragment from their samples. These fragments are currently sequenced and sequences will be provided. How to analyse such sequences by molecular taxonomy has been shown in frame of the workshop. In the second approach, root fragments were placed on different media in Petri dishes and observed for outgrowth of fungal hyphae. How such hyphae are sub-cultured, morphologically characterized and used for infection of plantlets in order to proof the Koch'sche postulate was one teaching line. Although time was short, first outgrowths could be already observed after a few days and the participants will further analyse the cultures in their home laboratories. Topic of the third approach was staining of the root fragments for visualisation of the fungal root endophytes. As time was short only simple techniques could be practically tested. However, root-colonising hyphae were observed by after clearing using stains like trypan blue, aniline blue or different type of inks.

Participants			
Aragon	Sandra	Germany	Plant volatile organic compounds induced by entomopathogenic endophytic fungi
El-Sebai	Mahmoud	Finland	The discovery of potent and safe drugs for hepatitis C virus
Farhan	Khaled	Italy	Apple proliferation disease: insights on the phenomenon of 'recovery' and use of fungal endophytes for phytoplasma control
Krimi	Zoulikha	Algeria	Endophytes from native plants for control of bacterial plant diseases
Kusari	Souvik	Germany	Chemical ecology of maytansine-producing endophytes harbored in *Putterlickia* plant roots
Nigris	Sebastiano	Italy	Insights into grapevine inner tissue life: characterization of the bacterial endophyte community
Pereira	Sofia	Portugal	Diversity and characterization of culturable bacterial endophytes from *Zea mays* and their potential as plant growth promoting agents in degraded soils
Peter	De Vries	The Netherlands	Endophytes for commercial use in biocontrol and plant growth promotion
Sibanc	Natasa	Slovenia	Impacts of elevated CO_2 on soil microbial communities from natural CO_2 springs (mofettes)
Trzewik	Aleksandra	Poland	Detection and identification of Phytophthora species - pathogens of ornamental plants, trees and shrubs
Venneman	Jolien	Belgium	Improvement of soil fertility in the tropics
Yakti	Wael	Germany	Impact of DSEs on plant nutrition and resistance
Advisors			
Andrade	Diana	Germany	Fungal traits of DSE
Döring	Matthias	Germany	Non-culturable endophytes
Franken	Philipp	Germany	The history of *Piriformospora indica*
Kovács	Gábor	Hungary	Detection, identification and visualization of root endophytes