

STSM Mobility Internship

Title: New approaches to discriminate plant pathogens (Xanthomonadales, Pseudomonadales) using the new IR-Biotyper

Host Institution: University of Porto /REQUIMTE

Supervisor and Contact Person: PhD Nuno Mariz-Ponte (nuno.ponte@fc.up.pt); PhD Conceição Santos

Focus Area: Plant pathogens, new detection diagnostics, Fourier-Transform Infrared) spectroscopy, molecular biology.

State of the art: The IR Biotyper (uses Fourier-Transform Infrared) spectroscopy has an enormous potential in microbiology. We are developing/validating new approaches to validate this technique in environmental/agrifood sciences. Some IR-Biotyper approaches use cell wall composition to provide rapid, high-resolution strain typing and differentiation beyond the species level. We propose to use IR-Biotyper to analyse/discriminate plant pathogens (Xanthomonadales, Pseudomonadales), supporting genomic approaches.

Internship Offer: We invite a PhD student/PhD researcher with expertise in microbiology and phytopathology to develop a project at UPorto investigating the discrimination of phytopathogen strains using the IR-Biotyper supported by other omics approaches (eg., molecular and/or Biolog).

Research Objective: To characterize phytopathogenic strains (eg Xanthomonadales, Pseudomonadales) through IR-Biotyper.

WorkPlan and Training: During your visit, the trainee will:

1. **Cultivate Microorganism strains from the host institution or from other collection** (eg case studies), using plant pathogens of Xanthomonadales and Pseudomonadales and models to build the library. Optimize procedures to harvest biomass/suspended cells and dilution procedures, using our standard protocols and literature as supportive material.
2. **IR-Biotyper measurement: apply to** silicon IR Biotyper target plate (eg 70% ethanol), apply, and data acquisition to discriminate strains/ecotypes.
3. **Molecular Identification:** the discriminated strains will in parallel be used to discriminate by qRT-PCR and/or by Biolog.
4. **Data integration and analysis:** using R statistics.

Mobility (travel/accommodation) funding: the applicant must apply for a standard COST STSM grant for travel/accommodation. The host lab will provide all equipment, reagents, and technical supervision. Laboratory costs will be supported by the host laboratory (app 3500 euros)

Selection Criteria: 1 participant will be selected. Ideal candidates have should have experience in microbiology, molecular biology, culturing techniques, molecular identification methods.

STSM Duration: 3 months

How to Apply: Interested researchers should submit a 1-page proposal covering:

1. **Motivation letter:** Explain your interest, motivation and expertise in this project.
2. **Expected outcomes:** valorize how the experience and expected outcomes may contribute to your future career profile, in microbiology/plant pathology, etc.
3. **CV:** Describe your scientific background, emphasizing the activities related to the project.