

MICROBIOLOGY AND PATHOLOGY OF PLANTS



INTRODUCTION

This research group joins the Department of "Microbiología y Protección de Cultivos" of the Institute named "Instituto de Hortofruticultura Subtropical y Mediterránea "La Mayora"" (IHSM-UMS-CSIC). The activity of this group concentrates on the study of the bacterial and fungal diseases in horticultural and subtropical crops, their management and control and the bases for interactions that take place between microorganisms (at the individual level as well as in microbial communities) in different agricultural environments. It is composed of 12 doctors (7 of whom are staff members) and 8 predoctoral researchers. The group carries out its activities in the Department of Microbiology of the UMA and in the Andalusian Institute of Biotechnology.

RESEARCH TOPICS

- Biology and pathogenesis of bacteria and phytopathogenous fungi on tropical plants and fruits: Infection processes. Analysis and characterisation of virulence factors. Functional and comparative genomic analysis. Pathogen-plant-BCA interactions.
- Epidemiology and control of illnesses of horticultural and subtropical crops: population dynamics, genetic structure and resistance mechanisms against pesticides. Rational design of phytosanitary products. Important diseases: apical necrosis and mango malformation. Avocado root rots. Gourd mildew.
- Biocontrol. Strategies compatible with ecological agriculture. Biotechnological approaches to agricultural crops (application of bacteria or organic amends). Mechanisms involved in biocontrol. Ecophysiology of *Bacillus* antagonists. Multitrophic interactions in the rhizosphere. Bacterial extracellular matrix and multicellularity.

SCIENTIFIC-TECHNICAL SERVICES

- Control strategies and phytosanitary research.
- Detection of bacteria and fungi in plants.
- Diagnosis of bacteria and pathogenous fungi.
- Microbiological and toxicity analyses.

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