

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 in different agricultural environments. The group carries out its activities in the Department of Microbiology of the UMA and in the IHSM-UMA-CSIC "La Mayora".

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 plant diseases. Resistance mechanisms against pesticides. Design of phytosanitary products. Apical necrosis and mango malformation. Avocado root rots and dieback. Mildew and powdery mildew of plants.
- Biocontrol. Strategies compatible with ecological agriculture. Biotechnological approaches to agricultural crops (application of bacteria, aptamers, RNAi). Mechanisms involved in biocontrol. Multitrophic interactions in the rhizosphere.
- Metagenomics and metatranscriptomics of plant-associated microbial communities. Bioinformatics prediction of bacterial lifestyle and genes involved in plant-microorganism interactions. Improving the response of plants to biotic and abiotic stresses.

SCIENTIFIC-TECHNICAL SERVICES

- Control strategies and phytosanitary research.
- Detection and diagnosis of bacteria and fungi in plants.
- Microbiological and toxicity analyses.
- Bioinformatic analyzes of microbial communities.
- Advice on biotechnological applications based on microbiomes for sustainable agriculture.

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