The mango microbiome as a source of novel biocontrol agents against fungal pathogens

Mariia Kolodeznaia[1,2], José A. Gutiérrez-Barranquero[1,2], Blanca Ruiz-Muñoz[1,2], Sandra Tienda[1,2], Marcos Pedraza Rubio[1,2], Eva Arrebola[1,2], Francisco M. Cazorla[1,2]

1. Departamento de Microbiología, Facultad de Ciencias, Campus Universitario de Teatinos s/n, Universidad de Málaga, 29010, Málaga, Spain
2. Departamento de Protección de Cultivos, Instituto de Hortofruticultura Subtropical y Mediterránea “La Mayora”, Campus Universitario de Teatinos, Universidad de Málaga-Consejo Superior de Investigaciones Científicas (IHSM-UMA-CSIC), 29010, Málaga, Spain

Mango malformation disease (MMD) is an economically important disease of mango (*Mangifera indica* L.) in both tropical and subtropical production areas. It poses a massive threat to mango industries worldwide. While *Fusarium mangiferae* has been reported as a main causal agent of MMD in mango-producing countries, the second emerging species is *Fusarium tupiense*, which is known to be predominant in Southern Spain and Brazil. The plant's health status is known to affect the structure of the plant microbiome greatly. The current research is the full microbiota study of mango plants, which includes both phyllosphere and soil analysis. The aim of this study is to compare the microbial communities of symptomatic and asymptomatic trees within MMD-affected area, using 16S and ITS amplicon sequencing, with the objective of identifying potential biomarkers associated with asymptomatic trees. The cultivable diversity of bacteria was analyzed as part of a larger study to select beneficial bacteria and utilize them as biocontrol agents to control MMD, as well as to enhance the productivity and sustainability of agroecosystems.

Keywords: Mango Malformation, microbiome analysis, biocontrol, microbial isolation