566 ISOLATION, CHARACTERIZATION AND SELECTION OF BACTERIAL ISOLATES FROM A SUPPRESSIVE SOIL WITH BENEFICIAL TRAITS TO PLANTS

C. Vida[1], A. de Vicente [1], S. Tienda [1], J.A. Gutierrez-Barranquero[1], F.M. Cazorla[1]

[1]Facultad de Ciencias- Universidad de Málaga, Microbiología, Málaga, Spain

Backgrounds
This study focused on the characterization and selection of bacterial strains obtained from a suppressive soil displaying antifungal activity against the soilborne phytopathogenic fungi Rosellinia necatrix. Bacterial profile from this suppressive soil were first obtained by 16S rRNA gene sequencing, revealing a significant increase in the bacterial class Gammaproteobacteria, especially in some antagonistic representatives of Pseudomonas spp.

Objectives
To obtain and characterize a collection of 246 bacterial isolates obtained from this suppressive soil, in order to identify new strains with antifungal activity against fungal phytopathogens.

Methods
To obtain the bacterial collection, we performed an isolation on a selective medium for Pseudomonas-like microorganisms. Further characterization tests were used in order to analyse the bacterial collection, including identification of the general metabolic profile of glucose, the profiling of antifungals produced, including both the putative production of antifungal compounds and lytic exoenzymes, and the evaluation of traits related with beneficial effects on plants.

Conclusions
A final selection of representative strains resulted in antifungal isolates belonging to the genus Pseudomonas, but also some representatives of the genera Serratia and Stenotrophomonas. These selected strains were tested for plant protection by an in vivo experiment using avocado and wheat plants challenged by the pathogen R. necatrix, showing all of them an antifungal ability and plant disease protection.
Pseudomonas-like strains isolated from suppressive soils constitute an excellent source for novel microbial biocontrol agents against soilborne fungal pathogens.