

# PROGRAM AND ABSTRACT BOOK



IOBC-WPRS

## INTEGRATED PROTECTION OF OLIVE CROPS

11-14  
**May**  
2015



7th IOBC/WPRS • KALAMATA GREECE



## Diversity of bacteria endophytes in olive tree

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Over the last decades the number of publications concerning microorganisms as a tool to control plant diseases has increased dramatically. One group of microorganisms, that started to be better studied regarding its role in host protection against pathogens, is endophytes. Endophytic microorganisms, which include mainly fungi and bacteria, are those that inhabit the interior of plants, showing no apparent harm to the host. Olive tree (*Olea europaea* L.) has a great importance in the Mediterranean region. This plant is attacked by several diseases, being Verticillium wilt (caused by the fungus *Verticillium dahliae* Kleb), one of the most important worldwide due to their high incidence and related losses. Therefore, in this work we intend to assess the diversity of culturable bacterial endophytes in *O. europaea* and create a reservoir of strains with potential beneficial applications on olive tree protection against Verticillium wilt. Bacterial endophytes were isolated from roots, leaves and twigs of 35 olive trees cv. Picual, located in Granada (Spain). Pure bacteria cultures were identified morphological- and molecularly through sequencing of V1 to V4 regions from 16S rDNA, and further maintained in culture (PCA) and cryopreserved (-80°C in aqueous glycerol solution). A total of 35 taxa belonging to 14 genera were identified. The bacterial endophytes most frequently observed were *Alcaligenes faecalis* and *Pseudomonas aeruginosa*, found in 9% of roots and 80% twigs, and in 8% of roots, respectively. Root explants were the most colonized (96%), followed by twigs (3%) and leaves (1%). Correspondence analysis of the endophyte assemblages showed that the endophytes exhibited organ specificity. Thirty three species were consistently associated with root tissues, while one species was found predominantly in leaf. Many bacterial species are found to be restricted to root tissues, and knowledge of their interactions with *V. dahliae* might be useful in the control of this disease.

**Key words:** plant protection, *Olea europaea*, endophytic bacteria, biological control

### Acknowledgements

This work is supported by FEDER funds through the COMPETE (Operational Programme for Competitiveness Factors) and by National funds through the FCT (Foundation for Science and Technology) within the PTDC/AGR-PRO/4354/2012 project.