XV FISV CONGRESS
Sapienza University of Rome, Italy
September 18-21, 2018

Programme & Abstracts

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FISV - Federazione Italiana Scienze della Vita

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P22.1 - Rolb-transformed tomato plants increase their defence response following Pyrenochaeta lycopersici infection

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Pyrenochaeta lycopersici is among the most relevant soilborne pathogens of tomato. The ascomycete is the causal agent of Corky Root Rot (CRR), a disease characterised by necrotic lesions on the surface of roots. It is well documented for *rolB* a role in enhancing plant resistance to fungal attacks. In the present work, *rolB* expressing tomatoes were tested following infection with *P. lycopersici*. Infected transgenic roots seem to undergo a hypersensitive response at the site of infection, close to root/stem interface, while the wild type roots show more extended necrosis. The exposition to *P. lycopersici* was also conducted *in vitro* on detached leaves, in this case *rolB* plants show fainter symptoms of necrosis compared to wild type plants. Furthermore, we have selected some of the tomato genes known to be involved in the defence response to pathogens and we are currently evaluating their expression in *rolB* infected plants by qRT-PCR analyses. The differences at gene expression level between wild type and *rolB* plants, both infected and not-infected, will be discussed. First results suggest the potential of *rolB* in improving tomato tolerance against *P. lycopersici*.

P22.2 - Plant-microbe interaction in Antarctica

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Endophytes are microorganisms that dwell inside healthy plant tissues without causing any detectable disease symptoms to the host. They are ubiquitously associated with almost all plants and are able to improve plant ecology and fitness, conferring resistance to abiotic and biotic stresses. Their ecological role becomes even more important when plants live in extreme environmental conditions such as those of Antarctica. In recent years, many studies focused on the analysis of soils and roots microbial communities associated to the Antarctic vascular plants *Colobanthus quitensis* and *Deschampsia antarctica*, whereas less it is known about leaf-associated microorganisms.

In this work, we show a preliminary study on the disclosure of bacterial, fungal and viral communities associated to *C. quitensis* leaves. A metatranscriptome analysis revealed the presence of sequences belonging to plant (72%), fungi (23%), bacteria, viruses and algae (5%). The ecological role of viruses was mainly addressed in order to deepen knowledge on the tripartite plant-fungus-virus interaction. Culturable bacteria and fungi have been also isolated and are currently under investigation.

P22.3 - A Berberine-Bridge enzyme-like protein is a specific oxidase that modifies cellulose oligomers and plays a role in Arabidopsis immunity and development

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