PL-P13.
ANALYSING THE EXPRESSION OF GENES ASSOCIATED WITH INDUCED RESISTANCE IN POTATO PLANTS TREATED WITH PHOSPHITES

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Phosphites (Phi) have the ability to protect plants against different pathogens, both through a direct effect in oomycete metabolism and by an indirect effect stimulating the plant´s natural defence responses. We have previously shown that KPhi foliar application to potato plants resulted in different protection levels against *Phytophthora infestans* depending on dose and plant age at application time.
In order to identify genes that are involved in induced resistant in plants treated with KPhi, we analyzed by RT PCR, the time course of transcript levels of two genes which encode predicted transcription factors involved in pathogen perception and defence gene expression. Preliminary results showed that *WRKY* and *NPR1* were differentially induced in plants both treated with Phi and infected with *Phytophthora infestans*, showing an earlier and highest induction than infected plants non treated with Phi. These results may allow us to hypothetize that Phi treatment might trigger a fast mechanism to protect potato plants to pathogen infections.

PL-P14.
PROTEIN WITH INHIBITORY ACTIVITY AGAINST MICROBIAL GLYCOSIDASES FROM LEMON

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Microorganisms have several glycosidases that degrade the polysaccharides of the plant cell wall and their involvement in pathogenesis has been demonstrated. In response, many plants produce proteins that specifically recognize and inhibit these enzymes. In a previous work we reported proteins that exhibit antimicrobial activity and inhibitory effects on microbial glycosidases. The aim of the work was to investigate the presence of proteins with inhibitory activity against microbial glycosidases in lemon peel (Citrus limon). The inhibitory protein (IP) was isolated from peel of mature lemon collected (Tucumán). The purification was carried out by chromatography techniques. The homogeneity was verified by SDS-PAGE. The IP in lemon peel was extracted with NaCl 1M, which indicates that the protein is bound to the cell wall. The IP was purified to apparent homogeneity by successive steps of salt precipitation, anionic exchange and gel filtration chromatography. IP was characterized in terms of their ability to inhibit microbial polygalacturonase, invertase and protease. The IP was able to inhibit 70 % of the *G. candidum* polygalacturonase activity (10 µg) and 65% of *S. commune* invertase activity. Protease activity from *Bacillus* was not affected. The data presented demonstrated that this protein can act on fungi glycosidades and may be considered as a defence-related cell wall protein.

PL-P15.
ROSMARINUS OFFICINALIS (ROSEMARY) REDUCE SUSCEPTIBILITY TO PLANT ARN VIRUSES

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Viruses cause many important plant diseases and are responsible for huge losses in many economically important crops in the world. Plant viruses can not be directly controlled by chemical application. Previously, we have shown that rosemary extracts reduce the growth of tobacco necrosis virus (TNV), decreasing significantly the number and size of virus lesions in *Nicotiana tabacum* plants. In this work we analyzed the biological role of two active principles of rosemary extract against several ARN viruses in *N. tabacum*. We have shown that the inhibition of virus infection is associated with the presence of micro-oxidative bursts and callose deposition. To investigate the roles of hormone-mediated signaling to TNV resistance by rosemary extracts, we analyzed the induction of genes involved in salicylic acid and jasmonic acid pathways. Our results indicate that both hormone-signaling pathways are involved in the activation of plant immune response to virus infection.

PL-P16.
SUPPRESION OF CALLOSE SYNTHASE GENE IN CITRUS CAUSES INCREASED SUSCEPTIBILITY TO *Xanthomonas*

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Citrus is an economically-important fruit crop which is severely afflicted by citrus canker, a disease caused by the bacterial phytopathogen, *Xanthomonas axonopodis pv. citri*. Identification of host genes with a role in resistance to canker would be an important step in development of new and sustainable strategies to manage the disease. However, the introduction of new genes for functional analysis through stable transgenesis continues to be a difficult process in citrus, because transformation efficiencies are generally low and competence for regeneration is very low or null. In this context, we have developed a post-transcriptional gene silencing system for *Citrus limon* to allow functional analysis of candidate genes. Double-stranded RNA expression vectors, encoding hairpin RNAs for the citrus *CALLOSE SYNTHASE* gene were delivered to lemon leaves by transient infiltration with transformed *Agrobacterium*. Phenotypic, histo-anatomic and molecular analysis showed that this vector was functional not only in lemon plants, but also in other species of the Rutaceas family. With this approach we demonstrate that plant cell wall-associated defence is the principal initial barrier against *Xanthomonas* infection in citrus plants.