



**The expression of resistance genes in
tomato induced by abiotic and biotic factors against
*Fusariumoxysporumf. sp. Lycopersici***

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Abstract:The vascular wilt pathogen, *Fusariumoxysporum* f. sp. lycopersici (Fol) is one of the most devastating pathogens for tomato crop. The aim of this study was to evaluate the expression of resistance genes in tomato plants treated by chemical and bio-agents factors before inoculation with Fol inoculum.

Methods :The tomato plants revealing Fusarium crown and root rot symptoms, was collected and brought into laboratory, washed separately using tap water. Leaves and roots samples were macerated using liquid nitrogen, 250mg were taken for DNA extraction and for further Quantitative Real-Time PCR experiments.

Results:The genes *LECHI3*, *LECHI9*, and *LEGLUCA* were highly significant expressed in roots rather than in leaves after the treatment of plants with Salicylic acid +Fol, CaCl₂, CaCl₂+Fol. However the gene *LEGLUCB* was showed increasing in expression rate in leaves rather than in roots after the treatments with *Trichodermaharzianum*+Fol, and CaCl₂. Tomato plants grown in infected soil (A) supplemented with sterilized extract of tomato debrisM0revealed no expression in the genes in both roots and leaves.

Conclusion :It appears that the defense genes of tomato plants against Fol are stimulated by chemical inducers and bio-control agents and that will be helpful to identify pathogenicity mechanism involved in the tomato wilt disease development. Our findings could lead to the improvement in disease control strategies.

Keywords: Gene expression, Tomato diseases, *Fusariumoxysporum*, qPCR.