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# Detection of Viral-Plant Interaction Using Some Pathogenesis Related Protein Genes to Identify Resistant Genes against Potato LeafRoll Virus and Potato Virus Y in Egyptian Isolates

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**Abstract :** Viral RNAs of both potato leaf roll virus (PLRV) and potato virus Y (PVY) were extracted from infected potato leaves collected from different Egyptian regions. Differential Display Polymerase Chain Reaction (DD-PCR) using (Endogluconase, β-1,3-glucanases, Chitinase, Peroxidase and Polyphenol oxidase) primers (forward strand) for was performed. The obtained data revealed different banding patterns depending on the viral type and the region of infection. Regarding PLRV, a 58 up regulated and 19 down regulated genes were detected, while, 31 up regulated and 14 down regulated genes were observed in case of PVY. Based on the nucleotide sequencing, variable phylogenetic relationships were reported for the three sequenced genes coding for: Induced stolen tip protein, Disease resistance RPP-like protein and non-specific lipid-transfer protein. In a complementary approach, using the quantitative Real-time PCR, the expressions of PRs genes understudy were estimated in the infected leaves by PLRV and PVY of three potato cultivars (Spunta, Diamont and Cara). The infection with both viruses inhibited the expressions of the five PRs genes. On the contrary, infected leaves by PLRV or PVY elevated the expression of some defense genes. This interaction also may be enhanced and/or inhibited the expression of some genes responsible for the plant defense mechanisms.

**Keywords :** PLRV, PVY, PR genes, DD-PCR, qRT-PCR, sequencing
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