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Detection and Characterization of Plum Pox Potyvirus (PPV) by DAS-ELISA and RT-PCR / RFLP Analysis in Turkey

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Abstract: This study was conducted to determine the presence of plum pox virus (PPV) (family Potyviridae, genus Potyvirus) in different regions of Turkey and to characterize PPV isolates by serological and molecular techniques, including ELISA and PCR/ RFLP. Thus, leaf samples from different stone fruit species (almond, apricot, nectarine, peach, plum and sour and sweet cherry) exhibiting various types of symptoms related to PPV were collected from different parts of the canopy from randomly selected orchards in the main stone fruit growing areas in Turkey, except for Malatya province. Polyclonal antibodies were used to detect the presence of PPV in the plant samples by serological assays (DAS-ELISA). The following monoclonal antibodies (MAbs); Mab 5B (Universal), Mab 4DG5 (PPV-D: Dideron-specific), Mab AL (PPV-M: Marcus-specific), Mab EA24 (PPV-El Amar-specific) and Mab AC (PPV-C: Cherry-specific), were used to identify the serotyping of PPV isolates. Reverse transcription-polymerase chain reaction (RT-PCR) assays and restriction fragment length polymorphism analysis of RT-PCR products were performed to characterize Turkish PPV isolates. The results of RT-PCR analyses using general primers were in complete agreement with the DAS-ELISA and DASI-ELISA results, showing that 2 of 52 stone fruit samples collected from apricots in Ankara province were infected with the M strain of PPV. This study confirmed the results of the previous work and demonstrated the presence of the PPV-M strain in apricots in Turkey.

Key Words: Enzyme-linked immunosorbent assay, plum pox potyvirus, restriction analysis, reverse transcription-polymerase chain reaction, sharka

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