

Potato Y Potyvirus Detection by Immunological and Molecular Techniques in Plants and Aphids

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An antiserum against potato Y potyvirus (PVY) was produced and the double antibody sandwich (DAS)-ELISA technique with a detection sensitivity of 10 ng/ml purified virus, was applied. One-step immunocapture (IC) – reverse transcription (RT) – polymerase chain reaction (PCR) was assessed using published primers; a gain in sensitivity of 1000-fold over ELISA was achieved. Furthermore, the use of PCR-ELISA to detect the produced amplicons after their direct adsorption on a microplate offered a supplementary 100-fold gain in sensitivity. Thus, 100 fg/ml purified virus in healthy tobacco extract became readily detectable, as did an infected potato sample at a dilution end point of 10^{-7} , equivalent to 1 ng tissue. This highly sensitive procedure coupled with the print-capture (PC) modification to avoid specific sample preparation, offered a most handy and useful tool for effective PVY detection in single aphids (*Myzus persicae*).

KEY WORDS: Potato Y potyvirus (PVY); ELISA; IC-PCR; PCR-ELISA; aphids.

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