

Serological and Molecular Detection of Alfalfa Mosaic Virus in the Major Potato Growing Areas of Saudi Arabia

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Abstract : Potato is considered as one of the most important and potential vegetable crops in Saudi Arabia. Alfalfa mosaic virus (AMV), genus Alfamovirus, family Bromoviridae is among the broad spread of viruses in potato. During spring and fall growing seasons of potato in 2015 and 2016, several field visits were conducted in the four major growing areas of potato cultivation (Riyadh-Qaseem-Hail-Hard). The presence of AMV was detected in samples using ELISA, dot blot hybridization and/or RT-PCR. The highest occurrence of AMV was observed as 18.6% in Qaseem followed by Riyadh with 15.2% while; the lowest infection rates were recorded in Hard and Hail, 8.3 and 10.4%, respectively. The sequences of seven isolates of AMV obtained in this study were determined and the sequences were aligned with the other sequences available in the GenBank database. Analyses confirmed the low variability among AMV isolated in this study, which means that all AMV isolates may originate from the same source. Due to high incidence of AMV, other economic susceptible crops may become affected by high incidence of this virus in potato crops. This requires accurate examination of potato seed tubers to prevent the spread of the virus in Saudi Arabia. The obtained results indicated that the hybridization and ELISA are suitable techniques in the routine detection of AMV in a large number of samples while RT-PCR is more sensitive and essential for molecular characterization of AMV.

Keywords : Alfamovirus, AMV, Alfalfa mosaic virus, PCR, potato

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