

DISEASE NOTE

FIRST REPORT OF *CITRUS PSOROSIS VIRUS* IN SYRIA

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Citrus psorosis virus (CPsV) is one of the oldest known graft-transmissible viruses of citrus. It causes typical bark scaling lesions in the trunk and limb of sweet orange, mandarin, grapefruit and other citrus spp. During spring 2011, a total of 250 symptomatic and asymptomatic trees, including 100 from a mother block in Lattakia governorate and 150 from six commercial orchards located in Jableh, Tartous and Lattakia areas were sampled to assess the presence of CPsV. All collected samples were analyzed by DAS-ELISA according to Potere *et al.* (1999) using a commercial kit (Agritest, Italy). Results indicated the presence of CPsV in two Navel Orange trees located in Lattakia. The presence of CPsV was confirmed in these trees by reverse transcription polymerase chain reaction (RT-PCR) using primers consF (5'-ACAAAGAAATTCCTGCAAGGG-3') and consR (5'-AAGTTTCTATCATTCTGAAACCC-3') that target part of the CPsV coat protein gene (Roy *et al.*, 2005) with the amplification of the expected size (411 bp) DNA product. The RT-PCR product was cloned and sequenced. The sequence of CPsV isolate SYR-C7 (GenBank accession No. HG964696) showed 97% nucleotide identity with Italian CPsV isolates (GenBank accession Nos AM235964 and AY194917). Symptoms associated to CPsV were observed in Syria (Bové, 1995) but the causal agent had yet to be identified. To our knowledge, this is the first CPsV detection in Syria by serological and molecular assays.

Bové J.M., 1995. Virus and Virus-Like Diseases of Citrus in the Near East Region. FAO, Rome Eds, Italy, ISBN-13: 9789251038277: 518.

Potere O., Boscia D., Djelouah K., Elicio V., Savino V., 1999. Use of monoclonal antibodies to citrus psorosis virus for diagnosis. *Journal of Plant Pathology* **81**: 209-212

Roy A., Fayad A., Barthe G., Brlansky R.H. 2005. A multiplex polymerase chain reaction method for reliable, sensitive and simultaneous detection of multiple viruses in citrus trees. *Journal of Virological Methods* **129**: 47-55.

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DISEASE NOTE

FIRST REPORT OF *CHILLI LEAF CURL VIRUS* ASSOCIATED WITH LEAF CURL DISEASE OF POTATO IN INDIA

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Potato (*Solanum tuberosum* L.) is an important food crop worldwide. In India, potato is cultivated in an area of about 1.34 million hectares with a total production of about 24.7 million tons. In February 2014, potato plants with a bushy and stunted growth as well as foliar curl and bright yellowing were observed at Matera, District Bahraich in Uttar Pradesh. The incidence of the disease was high (mean of 56%) in different fields. Detection of begomoviruses by PCR using generic begomovirus coat protein gene primers (Khan *et al.*, 2014) resulted in a 770 bp amplicon in 11 symptomatic plant samples. No amplicon was obtained from asymptomatic plant samples. Amplicons from the 11 symptomatic plants were cloned in a TA plasmid (Takara Mighty TA cloning kit, Japan). Two clones per amplicon were sequenced in both orientations, resulting in a consensus sequence, which was submitted to GenBank as accession number KJ590964. BLASTn analysis of the nucleotide sequence revealed 99% identity with *Chilli leaf curl virus* (ChLCV) isolates originating from different plant species (JF682241, JN663846, HM007104, EU939533, HM007114, JN896946). Phylogenetic analyses using MEGA version 5.0 showed the virus isolate from potato clustering in a separate clade with other ChLCV isolates and having distant relationships with other members of the genus *Begomovirus* in the family *Geminiviridae*. *Tomato leaf curl New Delhi virus* was previously reported in potato affected by leaf curl disease (Usharani *et al.*, 2004; Khan *et al.*, 2014). To the best of our knowledge, this is a first report of ChLCV associated with leaf curl and bright yellowing of potato in India.

Khan M.S., Tiwari A.K., Raj S.K., Srivastava A., Ji S.H., Chun S.C., 2014. Molecular epidemiology of begomoviruses occurring on some vegetables, grain legume and weed species in the Terai belt of north India. *Journal of Plant Diseases and Protection* **121**: 53-57.

Usharani K.S., Surendranath B., Paul-Khurana S.M., Garg, I.D., Malathi V.G., 2004. Potato leaf curl-a new disease of potato in northern India caused by a strain of *Tomato leaf curl New Delhi virus*. *Plant Pathology* **53**: 235.

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