DISEASE NOTE

FIRST REPORT OF CITRUS TRISTEZA VIRUS IN CITRUS CHANGSHANENSIS cv. HUYOU IN ZHEJIANG, CHINA

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Citrus changshanensis cv. Huyou is one of the major citrus cultivars in eastern China. More than 90% of Huyou trees are grown on trifoliate orange (Poncirus trifoliata), a rootstock with high degree of resistance to Citrus tristeza virus (CTV) (Garnsey et al., 1987). A new disease characterized by yellowing and decrease of marketable fruit production has emerged in many cv. Huyou orchards of Zhejiang province. Twenty-five symptomatic and 11 symptomless leaf samples were collected in April 2010 and February 2011 from seven different cv. Huyou orchards. Samples were tested by TASS-ELISA using CTV-specific commercial kits (Agdia, USA). Twenty-one of the 25 symptomatic samples reacted positively whereas no reaction was obtained from symptomless leaves. Total RNA was extracted from the leaves of a citrus accession denoted CS-7, reverse transcribed using primer CP3, then PCR-amplified with the degenerate primer pairs CP1 and CP3 (Gillings et al., 1993), and primers CTCpol and CTCpo2 (Kim et al., 2000) specific for CTV major and minor coat proteins, respectively. Two PCR fragments of 670 and 750 bp were obtained for the major and minor coat proteins, respectively. Three independent clones were sequenced for each fragment, and representative sequences were deposited in GenBank under accession Nos. HQ634290 and HQ634291. BLASTn search and phylogenetic analysis indicated that CTV isolate CS-7 is closely related to several CTV isolates from New Zealand that overcome trifoliate orange resistance (Harper et al., 2010). The emergence of a trifoliate orange resistance-breaking CTV isolate in this region may cause serious damage to cv. Huyou. To our knowledge, this is the first report of CTV in cv. Huyou in Zhejiang.


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Received December 21, 2010
Accepted February 6, 2011

FIRST REPORT OF CITRUS TRISTEZA VIRUS ASSOCIATED WITH STEM-PITTING OF CITRUS DECUMANA IN INDIA

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Citrus tristeza virus (CTV), genus Closterovirus, family Closteroviridae, occurs in all citrus-growing regions of the world. According to the virus strain, infection results in a variety of symptoms, such as stem pitting, seedling yellows, vein clearing, decline and, ultimately, tree death. Recently, a stem pitting condition on the scion was observed in Citrus decumana, a species grown in south-eastern Asia for fruit production and as a traditional medicinal plant. Leaf samples were collected from symptomatic trees in the Kodagu region of Karnataka (India) were analyzed for the presence of CTV. Total nucleic acids were extracted from leaf tissues according to Adkar-Purushothama et al. (2007) and analyzed by RT-PCR as described previously (Huang et al., 2004). The expected 672 bp product was amplified from all symptomatic samples. Two amplicons were cloned and shown to have identical sequences that were deposited in GenBank under the accession No. HM853684. Nucleotide sequence analysis indicated 91-99% identity of the CTV isolate from C. decumana and other isolates from various citrus species from north-eastern India (accession Nos. DQ272579, GQ475549 and GQ272579). To the best of our knowledge, this is the first report of CTV infection to C. decumana in India.


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Received December 24, 2010
Accepted January 12, 2011