FIRST REPORT OF PEPINO MOSAIC VIRUS ON TOMATO IN APULIA, ITALY

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In October 2013, unusual chlorotic patches were observed on the middle leaves of a few tomato plants cv. Lotty grown in a greenhouse located in the countryside of Fasano (Apulia, southern Italy). Younger leaves and fruits were symptomless and no aggravation of symptoms was detected as time went by. Electron microscope observations of leaf discs revealed the presence of filamentous virus particles ca. 520 nm in length. Mechanical inoculations with leaf extracts from symptomatic tomatoes elicited a mosaic reaction in Nicotiana benthamiana, but not in tomato plants cv. UC82, which, however, were systemically infected, as shown by RT-PCR. A RT-PCR product of the expected size (ca. 700 bp) was obtained using the degenerate broad-spectrum potexvirus primers Potex5/Potex1RC (van der Vlugt and Berendsen, 2002). The amplicon was custom sequenced (BMR Genomics, Italy) and the sequence deposited in GenBank under the accession No. KM923762. BLAST alignment (BMR Genomics, Italy) and the sequence deposited in GenBank showed that the 700 bp amplicon shared 97-99% homology with the RNA-dependent RNA polymerase (RdRp) gene of several isolates of Pepino mosaic virus (PepMV) genotype CH2, 82% homology with the LP and EU genotypes, and 79-80% with the US genotype. A RT-PCR-restriction fragment length polymorphism (RFLP) analysis of the RdRp amplicon with EcoRI and Bg/II restriction endonucleases confirmed that our isolate, designated PUG1, belongs to the CH2 genotype (Hanssen, 2010). Our observations and assays are consistent with the presence of PepMV in the tomato plants tested, and the fact that PUG1 is a mild isolate of the virus. PepMV has previously been recorded from tomato in several Italian regions, i.e. Sardinia, Sicily and Campania, but this is the first report from Apulia.


DISEASE NOTE

Liriope platyphylla (LP; family Liliaceae) is a herbaceous perennial usually grown as low-growing landscape plant, the tubers of which are used as expectorants, antitussives and tonics in traditional Chinese medicine (Hur et al., 2004). In June 2013, yellow and brown spots were observed on LP leaves in several gardens in Pan’an (Zhejiang Province, China). Symptomatic tissues were cut into small pieces, plated on potato dextrose agar (PDA), and incubated at 25°C in the dark. New white mycelia were developed from the margins of diseased tissues after 4 days, and a pure strain F13T-2 was obtained at last. Colonies grew up to about 46.0 mm in diameter after 132 h. At the same time, the surface of mycelia was covered by a large number of conidia, which made the colony purplish-dark. The ribosomal internal transcribed spacer (ITS) region was amplified with ITS1 and ITS4 primers and sequenced. Sequence analysis showed that the ITS sequence of F13T-2 (GenBank Accession No. KF672363) was 99% identical to the ITS sequence of Aspergillus japonicus strain VIT-SB1 (KC128815). Pathogenicity test showed that the fungus present on the inoculated LP leaves was morphologically identical to that originally observed on diseased plants, which fulfilled Koch’s postulates. A. japonicus had been reported as synthetic materials and potentially adequate for industrial production of fructooligosaccharides (Mussatto et al., 2009). To our knowledge, this is the first report of brown spot caused by A. japonicus on LP in China.

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Liriope platyphylla

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