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DISEASE NOTE

First report of tomato spotted wilt virus infecting Chrysanthemum in Ecuador

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Abstract

The natural occurrence of Tomato spotted wilt virus infecting chrysanthemum was initially detected by triple antibody sandwich enzyme-linked immunosorbent assay (TAS-ELISA) and further confirmed by reverse transcription polymerase chain reaction (RT-PCR) using tospovirus universal primers. The sequence analysis of the PCR products showed 95.6 % and 95.0 of maximum identity at nucleotide and amino acid levels respectively with TSWV chrysanthemum isolate from Ecuador (KT590402). This is the first report of the natural occurrence of TSWV on chrysanthemum in Ecuador.

Keywords Chrysanthemum · TSWV · TAS-ELISA

Chrysanthemum is a member of the family Asteraceae and native to Asia and Northeastern Europe. In June 2015, mosaic, yellow blotching and brown necrotic spots were observed on chrysanthemum plants in the Pichincha province of Ecuador. Based on these symptoms, the presence of tomato spotted wilt virus (TSWV) from the genus *Tospovirus* in the family *Bunyaviridae* was suspected. Symptomatic chrysanthemum leaf samples ($n = 10$) were screened by triple antibody sandwich enzyme-linked immunosorbent assay (TAS-ELISA) using TSWV antibodies (Agdia, USA). All symptomatic samples were TAS-ELISA positive. Total RNA was isolated from a single plant with Trizol (Sigma, USA) and used in RT-PCR to amplify a DNA fragment (~800 bp) with degenerative universal primers (Chu et al. 2001). The RT-PCR product was purified, sequenced (Macrogen, Seoul Korea) and the sequence was deposited in GenBank as accession number KT590402. Sequence analysis (BioEdit v.7.05) of the Ecuadorian TSWV isolate from chrysanthemum showed 95.6 and 95% maximum identity at the nucleotide and amino acid levels, respectively, with other TSWV isolates. A phylogenetic tree constructed using MEGA version 4.1 further showed that the Ecuadorian isolate from chrysanthemum (KT590402) is closely related to a TSWV isolate from tree tomato in Ecuador (KT590404), a TSWV isolate from tomato in Australia (KM365064) and a TSWV isolate from Japan (AB921152). To the best of our knowledge this is the first report of the occurrence of TSWV on chrysanthemum in Ecuador.

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