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Disease Notes

First Report of *Tomato chlorosis virus* Infecting Tomato Crops in Uruguay

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A survey of viral diseases was carried out during 2012 to 2013 in two major tomato (*Solanum lycopersicum* L.) producing regions in Uruguay (Salto and Canelones). Lower leaves of fruit-bearing plants were observed displaying yellowing and interveinal chlorosis under greenhouse conditions. The symptoms were similar to those associated with magnesium deficiency. However, the chlorosis displayed a tendency to move up affecting medial and apical leaves and prevailed even after supplementary magnesium applications to the soil, indicating potential infection by either *Tomato chlorosis virus* (ToCV) or *Tomato infectious chlorosis virus* (TICV) (3). Four leaf samples were collected from two sites in Canelones and 28 samples were collected from distinct commercial fields in Salto. Whiteflies (*Bemisia tabaci* biotype Q and *Trialeurodes vaporariorum*) were present in all sampling sites. Total RNA was extracted from symptomatic and healthy (control) plants and used for cDNA preparation with the HS-11/HS-12 primer pair followed by PCR amplification using the same primer pair. The 587-bp amplicon, corresponding to a highly conserved region of the heat shock protein (HSP-70) homolog gene reported in both TICV and ToCV genomes, was observed only in the symptomatic samples. These PCR products were then subjected to nested PCR using the ToCV specific primer pair (ToC-5/ToC-6) and TICV specific primer pair (TIC-3/TIC-4) (1). The expected 463-bp ToCV-specific amplicon was observed in all symptomatic plants but not in the healthy controls. The 223-bp amplicon corresponding to TICV was not observed in any sample, indicating the sole presence of ToCV. The amplicon of one Uruguayan ToCV isolate from Salto (named as CRS03) was purified and directly sequenced (GenBank KC626018). BLAST analysis revealed 99% identity of CRS03 with one Spanish isolate (AF233435.1) (2). Virus-free *B. tabaci* biotype Q adults were exposed to symptomatic plants infected with the CRS03 isolate for a 24-h

period and then cage-confined with 10 healthy tomato plants (line ‘LT17’) for a 48-h period. Symptoms were reproduced in all tested plants after a 65-day period and ToCV infection was confirmed via PCR assays and by sequence analysis of the gel-purified amplicons. This is the first formal report of ToCV infecting tomatoes in Uruguay. Incidence of symptomatic plants in tomato crops varied from 30 to 100%, even under low whitefly pressure. Epidemiological information needs to be generated in order to evaluate the impact of ToCV in the fresh-market tomato yield and quality.

References: (1) C. I. Dovas et al. Plant Dis. 86:1345, 2002. (2) G. Lozano et al. Arch. Virol. 151:581, 2006. (3) G. C. Wisler et al. Arch. Virol. 151:409, 2006.