

## Disease Notes

### **Newly Discovered Natural Hosts of *Tomato chlorosis virus* in Costa Rica**

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*Tomato chlorosis virus* (ToCV) is an emerging whitefly-transmitted crinivirus (2). In Costa Rica in 2007, ToCV was detected in field-grown and greenhouse tomato (*Solanum lycopersicum* L.) plants causing symptoms of severe yellowing and foliar chlorosis (1). To identify alternative hosts that may serve as virus reservoirs, 78 samples were collected from multiple species of common weeds growing adjacent to tomato nurseries in the Cartago Province, where ToCV was previously identified, during the autumn of 2008 and summer of 2009. The weeds were collected on the basis of the presence of whiteflies and/or symptoms of interveinal chlorosis, but not all samples were symptomatic for infection by ToCV. Total RNA was extracted from leaf tissue with TRI Reagent (Molecular Research Inc., Cincinnati, OH). Reverse transcription (RT)-PCR reactions were performed with the Qtaq One-Step qRT-PCR SYBR Kit (Clontech Laboratories, Mountain View, CA) and primers specific for the ToCV HSP70h gene (3). A 123-bp DNA fragment was amplified in five weeds, which were identified taxonomically as *Ruta chalepensis* (Rutaceae), *Phytolacca icosandra* (Phytolaccaceae), *Plantago major* (Plantaginaceae), a *Brassica* sp. (Brassicaceae) (two samples), and a single plant of *Cucurbita moschata* (Cucurbitaceae) growing next to those weeds. The amplified DNA fragments were sequenced and BLAST analysis showed 100% nucleotide sequence identity with the HSP70h gene of the Florida ToCV isolate (GenBank Accession No. AY903448). To confirm the presence of ToCV in these six weed samples, conventional RT-PCR reactions were performed using primers specific for the ToCV CPm and p22 genes as described previously (1). Nucleotide sequence analysis of the amplified DNA fragments verified their identity as ToCV, with 100% sequence identity to the CPm of the ToCV isolate of Florida (Accession No. AY903448) and the p22 gene of the Cartago, Costa Rican isolate (Accession No. FJ809714). Although the number of samples analyzed is not sufficient to allow a determination of the role of weed reservoirs in ToCV epidemics in Costa Rican tomato crops, this report on the wider natural host range of ToCV in Costa Rica may lead to a better understanding of the epidemiology of this virus and be useful in the development of disease management strategies. To our knowledge this is the first report of these weeds as natural hosts of ToCV.

*References:* (1) R. M. Castro et al. *Plant Dis.* 93:970, 2009. (2) M. I. Font et al. *Plant Dis.* 88:82, 2004. (3) W. M. Wintermantel et al. *Phytopathology* 98:1340, 2008.