

# plant disease

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## DISEASE NOTES

### First Report of *Tomato chlorosis virus* Infecting Eggplant and Scarlet Eggplant in Brazil

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Eggplant (*Solanum melongena* L.) and scarlet eggplant (*S. aethiopicum* L.) are economically important vegetable crops in warm regions of Brazil. Samples of the eggplant cultivars 'Napoli' and 'Ciça' with interveinal yellowing in the older leaves similar to that induced by criniviruses were collected in fields heavily colonized by *Bemisia tabaci* MEAM-1 species in Canguçu-Rio Grande do Sul State in February 2013 (isolate named as CR-131) and Formosa-Goiás State in April 2015 (isolate CR-173). Scarlet eggplants 'Comprido' showing identical symptoms were also sampled in Venda Nova do Imigrante-Espírito Santo State in April 2013 (isolate CR-148), Bragança Paulista-São Paulo State in June 2013 (isolate CR-155), and Brasília-Federal District in June 2015 (isolate CR-193). In order to check for infection by the criniviruses *Tomato chlorosis virus* (ToCV) and *Tomato infectious chlorosis virus* (TICV), RT-PCR assays were carried out (with one sample per site) using the primer pair HS-11/HS-12. All symptomatic samples displayed a 587-bp

amplicon, corresponding to the HSP-70 gene homolog, which is highly conserved across crinivirus genomes. The RT-PCR products were used as templates in nested PCR assays with ToCV (ToC-5/ToC-6) and TICV-specific (TIC-3/TIC-4) primers ([Dovas et al. 2002](#)). Only ToCV-specific amplicons (463 bp) were obtained in all five isolates, indicating the ToCV presence, but not TICV. Amplicons of the two eggplant (GenBank Accession Nos. KT727949 and KT727950) and the three scarlet eggplant isolates (KT727954 to KT727956) were sequenced. Alignments showed 100% nucleotide identity with one another and 99.7% identity with one tomato ToCV isolate from Brazil (Accession No. EU868927). Dot blot hybridization assays with a ToCV coat protein gene-derived RNA probe also confirmed the ToCV infection in all samples. Transmission tests from ToCV-infected eggplant and scarlet eggplant to seedlings of the begomovirus-resistant tomato line 'TX 468 RG' ([Giordano et al. 2005](#)) were positive using viruliferous *B. tabaci* MEAM-1 adults. Inoculated plants displayed interveinal chlorosis around 60 days after inoculation. In South America, ToCV has been detected so far on solanaceous crops and weeds ([Fonseca et al. 2013](#); [Arruabarrena et al. 2015](#)). However, this is the first formal report of *S. melongena* and *S. aethiopicum* as natural hosts of ToCV in the continent and the first worldwide report of scarlet eggplant as a crinivirus host. The wide geographical distribution of these new ToCV hosts in Brazil may have direct epidemiological implications since they are very often cultivated side-by-side with tomatoes. Therefore, they may serve as sources of inoculum to the tomato crop in which ToCV infection has become a major problem throughout many producing regions in the Southern Cone of South America ([Arruabarrena et al. 2014](#)).

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