

## 68. Phenotypic expression and spectrum of efficiency to four bipartite *Begomovirus* species of novel tomato resistance sources

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Begomovirus species (family *Geminiviridae*) are the most economically important pathogens of tomato (*Solanum lycopersicum* L.) throughout the world. In Brazil, a begomovirus complex transmitted by Bemisia tabaci biotype B and composed exclusively by species with bipartite genomes has been reported infecting tomato crops. The most efficient control strategy has been the employment of cultivars with virus resistance. However, the amount of information available about the phenotypic expression as well as the spectrum of efficiency of distinct *Solanum* (section *Lycopersicon*) resistance sources to Brazilian begomovirus is still limited. So far, the Ty-1 and Ty-3 loci (introgressed from accessions of the wild species *S. chilense*) are the most frequently employed resistance factors. Five new accessions (named as 'LAM 100', 'LAM 156', 'LAI 132', 'H-24' and 'Ty-198') without the Ty-1 and Ty-3 loci were identified as promising sources of resistance after preliminary greenhouse or field assays. In the present work, individual plants of these five accessions as well as the tomato cultivar 'Viradoro' (susceptible control) and 'TX-468-RG' (resistant control due to the recessive locus *tcm-1*) were evaluated in biolistic assays with infective clones of four begomovirus of the Brazilian complex: Tomato severe rugose virus (ToSRV); Tomato rugose mosaic virus (ToRMV); Tomato yellow vein streak virus (ToYVSV) and Tomato chlorotic mottle virus (ToCMoV). Plant reaction to each virus was evaluated at 14, 21, 28 and 45 days after inoculation. Virus accumulation was evaluated with Southern Blot assays using a universal probe. 'Viradoro' displayed severe symptoms and high virus DNA accumulation in all assays. The line 'H-24' (source of Ty-2 locus introgressed from *S. habrochaites*) displayed a susceptible reaction to ToSRV and ToRMV. The accession 'LAI 132' displayed a peculiar species-specific resistant reaction only to ToCMoV. The 'TX-468-RG' as well as the accessions 'LAM 100', 'LAM 156' and 'Ty-198' were resistant to all virus species, being, therefore, recommended for preferential use in breeding programs aiming to develop lines with a wide spectrum of resistance. Analyses conducted with a panel of molecular markers linked to all currently characterized begomovirus resistance loci in tomato (Ty-1, Ty-2, Ty-3, Ty-4, and Ty-5/ty-5) indicated that 'LAI 132', 'LAM 100', 'LAM 156', and 'Ty-198' are sources of either new genes or alleles related to begomovirus resistance.