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A five-year survey of tospoviruses infecting vegetable crops in main producing regions of Brazil

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The "spotted wilt" disease caused by tospoviruses (genus *Tospovirus*; family *Bunyaviridae*) transmitted by thrips (Thysanoptera: Thripidae) is a major cause of economic losses in many vegetable crops in Brazil, including tomato, peppers, and lettuce. The present work describes a five-year survey (2010–2014) of tospoviruses infecting these vegetable crops under Brazilian conditions. A total of 318 samples from tomato (*Solanum lycopersicon* L. – 285), lettuce (*Lactuca sativa* L. – 14), pepper (*Capsicum* L. species – 11), gilo (*Solanum aethiopicum* var. *gilo* Raddi – 5) and pigweed (*Amaranthus* L. species – 5) were collected from plants displaying typical tospovirus symptoms. Samples were obtained across 13 counties in four major vegetable-producing regions (Goiás, Minas Gerais, and São Paulo States and, in the Federal District). Viral infection was detected by two-step RT-PCR using total RNA as template. The primer J13 (encompassing the eight terminal nucleotides conserved in all tospovirus RNA termini) was used in the reverse transcription step, and the primer set BR060 and BR065 (targeting the non-translated region from the 3' terminal portion of the S RNA and the protein N-coding gene, respectively) was used in the conventional PCR assays. Tospoviruses were detected in 79.6% (253) of the samples, encompassing all host plants. A set of 184 randomly selected samples (175 from tomato and nine from lettuce) were tested using species-specific primers for *Tomato spotted wilt virus* – TSWV (TSWV722/TSWV23) and *Groundnut ringspot virus* – GRSV (GRSVNv/GRSVNvc). GRSV was identified in 97, while TSWV was detected in 66 samples, indicating the prevalence of these two tospovirus species. These data reinforced the economic importance and the widespread incidence of tospovirus infection in vegetable crops in Brazil and the need of identifying and/or incorporating resistance factors into commercial cultivars and hybrids.