

## **OCCURRENCE AND DISTRIBUTION OF THE GEMINIVIRUS BRAZILIAN CURLY TOP VIRUS IN TOMATO PLANTS IN BRAZIL**

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### **ABSTRACT:**

Among the viral pathogens affecting the tomato crop in Brazil, the Brazilian curly top virus (BraCTV), belonging to the family *Geminiviridae* and the genus *Topilevirus*, has been identified in open-field cultivations for fresh consumption. BraCTV is persistently transmitted by leafhoppers. After infection, symptoms manifest as chlorosis, reduced vegetative growth, leaf curling and deformation, as well as purplish coloration along the leaf margins, significantly compromising the plant's physiological performance and, consequently, productivity. BraCTV is associated with curly top disease (CTD). The disease's incidence in Brazil declined from the 1950s onward. Since then, no records of its occurrence were observed in tomatoes until the detection of similar geminiviruses in cleome and also in tomato plants. The present study aimed to investigate the presence of BraCTV in major tomato-producing regions of Brazil, including the Federal District, Pernambuco, Mato Grosso, Santa Catarina, and São Paulo states. To achieve this, techniques, such as RCA, PCR, and sequencing, were employed to detect the presence of BraCTV in the collected tomato samples. In the Federal District, out of 100 plant samples from symptomatic or asymptomatic plants, 20% tested positive for BraCTV. Additionally, the presence of other viruses, such as ToSRV, was detected in the area. In Santa Catarina state, 20.9% of the 43 evaluated samples tested positive for systemic BraCTV infection. In São Paulo, 79.2% of the 24 samples were positive. The plants that tested positive for BraCTV displayed characteristic symptoms of viral infection, primarily severe leaf curling, a purplish coloration along the leaf margins, and stunting. BraCTV isolates were also detected in samples collected in Mato Grosso and Pernambuco states, but not in samples from Goiás and Paraná states. These results confirm the presence of BraCTV in different tomato-producing regions in Brazil and highlight the potential losses this virus may be causing for growers. Efforts to monitor the disease and seek management methods are urgently needed.

**KEYWORDS:** Geminivirus; Viral Epidemiology; Curly Top Disease

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