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Evaluación de la incidencia y la diversidad de begomovirus en Costa Rica

Evaluation of the incidence and diversity of begomoviruses in Costa Rica

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Begomoviruses (genus *Begomovirus*, Family *Geminiviridae*) are one of the most important groups of viral plant pathogens and have emerged as important plant pathogens in tropical and subtropical regions. The genome is composed of one (monopartite) or two (bipartite) circular single-stranded DNA molecules designated as DNA A and DNA B on the latter case. Most of the species of begomoviruses native to the Americas have a bipartite genome. While these viruses were reported since the 1970s in Costa Rica, their diversity and distribution in this country are still unknown. Therefore, the objective of this research was to evaluate the incidence and diversity of begomoviruses infecting tomato and sweet pepper in different agricultural production systems. Leaf samples were collected during four seasons in different geographical locations and growth conditions and were analyzed by hybridization using a begomovirus-specific probe, cloned and sequenced. In total, isolates of five different begomoviruses were found present, cloned and sequenced: *Tomato yellow mottle virus* (ToYMoV), *Tomato yellow leaf curl virus* (TYLCV), *Tomato leaf curl Sinaloa virus* (ToLCSinV), *Peper golden mosaic virus* (PepGMV). Pathogen incidence ranged from 0 to 40% among all the geographic areas analyzed, but varied depending on the production season and sampling period. A putative novel *Begomovirus* was identified. The filo-geographical analysis showed an association among geographical region and begomovirus species. Results of this research regarding *Begomovirus* species diversity and their incidence are important for vegetable crop management and production in Costa Rica.