

ABSTRACT

Distribution and molecular characterization of tomato yellow leaf curl virus in tomato (*Lycopersicon esculentum*) and pepper (*Capsicum* sp.) in Jamaica

Martina Elena Wernecke

Since 1991, farmers in southern and central Jamaica have reported losses of up to 100% in their tomato and pepper crops. A concurrent increase in whitefly population and symptoms of leaf curling and yellowing lead to the presumption that the causal agent of “Jherri Curl” disease was a whitefly-transmitted geminivirus.

Polymerase Chain Reaction (PCR) primers specific for tomato yellow leaf curl virus (TYLCV-Is) were used to amplify full-length as well as subgenomic viral fragments from total DNA extracted from tomato (*Lycopersicon esculentum*) with “Jherri Curl” symptoms and pepper (*Capsicum* sp.) with viral symptoms. These viral PCR fragments (0.3 kb) were cloned from tomato plants collected in St. Elizabeth, St. Ann and Manchester and from a pepper plant collected in St. Elizabeth. Nucleotide sequence comparison of these three clones from tomato and one from pepper gave > 97% identity to TYLCV-Is. Nucleotide sequence identities of the intergenic regions among the four viral clones were > 99%. These results indicate that TYLCV associated with these tomato and pepper plants were all isolates of TYLCV-Is. TYLCV-Is is widespread in Jamaica and was detected in plants from 10 of 11 parishes in which samples were collected. TYLCV-Is infection was identified in 94% of tomato samples and 18% of pepper samples using dot-blot hybridization with nonradioactive DNA probes. Dot-blot hybridization and PCR using degenerate primers also revealed mixed infections of TYLCV-Is

with bipartite geminiviruses from the Western Hemisphere in 18% of tomato samples and 9% of pepper samples. The data extends the results presented by McGlashan *et al.*, (1994) on Jherri Curl disease of tomatoes in Jamaica. TYLCV-Is was also recently introduced into the Dominican Republic as confirmed by Nakhla *et al.*, (1994).

Electric discharge particle acceleration inoculation of tomato and pepper using the full-length clone from tomato was used to confirm infectivity of the Jamaican isolate of TYLCV-Is on tomato and pepper. This is the first report showing the association of TYLCV with pepper.