First report of tomato yellow leaf curl virus infecting chilli and sweet pepper plants in Mauritius

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Viruses in the genus *Begomovirus* of the family *Geminiviridae* infect a wide range of dicotyledonous crops and are transmitted by the whitefly *Bemisia tabaci*. In Mauritius, the begomovirus tomato yellow leaf curl virus (TYLCV) was first detected on tomato in the South of the island in 2009 and has since then become one of the major threats to tomato production. During a field survey in May 2020, chilli and sweet pepper plants (*Capsicum* sp.) were observed with symptoms of leaf distortion and curling, and stunted growth in the East (Ecroignard, Caroline), Center (Moka, Phoenix) and North (Goodlands, Mapou) of the island. Twenty-five symptomatic leaf samples from chilli pepper and 12 symptomatic leaf samples from sweet pepper were subjected to TAS-ELISA targeting TYLCV and TYLCSV using the DSMZ® Diagnostic kit. All the test results were negative. DNA extraction was then carried out from all 37 samples using the DNeasy® Plant Mini Kit (Qiagen) and PCR was performed using several primer pairs for the detection of geminiviruses (Rojas et al. 1993), the TYLCV-IL strain (Lefeuvre et al. 2007), and the C2 gene of TYLCV (Accotto et al. 2000). Amplicons of the expected size were obtained with all primer sets on DNA from six chilli and two sweet pepper samples. The PCR product generated from the amplification of the TYLCV C1 gene (replication-associated protein) using primer pair TYLCV-1840F and IL-2642R (Lefeuvre et al. 2007) was sequenced directly by the dideoxy method and deposited in GenBank as accession number OK391172. Sequence analysis of TYLCV isolates from both chilli and sweet pepper revealed that they were 100% identical and showed 97.51% nucleotide identity to a TYLCV isolate previously collected from tomato in Mauritius in 2009

(KX347172). This is the first report of TYLCV in *Capsicum* sp. in Mauritius.

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Availability of data and material All relevant raw data and materials are available from the corresponding author. Genbank Accession number of deposited sequence is OK391172.

Declarations

Ethics approval Not applicable (research does not involve human participants).

Consent to participate Not applicable (research does not involve human participants).

Consent for publication Not applicable (research does not involve human participants).

Conflicts of interest/competing interests The authors have no conflicts of interest to declare that are relevant to the content of this article.

References

- Rojas MR, Gilbertson RL, Russel DR, Maxwell DP (1993) Use of degenerate primers in the polymerase chain reaction to detect whitefly-transmitted geminiviruses. *Plant Dis* 77:340–347. <https://doi.org/10.1094/PD-77-0340/>
- Lefeuvre P, Hoareau M, Delatte H, Reynaud B, Lett JM (2007) A multiplex PCR method discriminating between the TYLCV and TYLCSV-Mld clades of tomato yellow leaf curl virus. *J Virol Methods* 144(1–2):165–168. <https://doi.org/10.1016/j.jviromet.2007.03.020>
- Accotto GP, Navas-Castillo J, Noris E, Moriones E, Louro D (2000) Typing of tomato yellow leaf curl viruses in Europe. *Eur J Plant Pathol* 106(2):179–186. <https://doi.org/10.1023/A:1008736023293>

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