First report of tomato chlorosis virus in pepper in Greece

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In February 2021, pepper plants displaying symptoms of pepper yellows disease (PYD) such as interveinal yellowing, upward leaf-rolling, short internodes and fruit malformation were observed in several fields in Tympaki (Crete), Greece. To determine putative associated pathogen(s), samples were collected from 25 symptomatic (13 from field PeTi, 12 from field PeKu) and 10 asymptomatic (5/field) pepper plants. Total RNA (White et al. 2008) was extracted from two composite samples (PeTiA and PeKuB) containing the symptomatic plants of each field and were characterized by high-throughput sequencing analysis on a NovaSeq 6000 platform (Illumina, Inc., Macrogen). The HTS run yielded approximately 50 million 101 nt paired-end reads for each sample. *De novo* assembly produced 1,324 contigs and 901 contigs for PeTiA and PeKuB, respectively. BLASTn revealed the presence of two contigs in each sample which shared > 99% nucleotide identities with tomato chlorosis virus RNA1 and RNA2 sequence deposited in GenBank. To confirm HTS results, all symptomatic individual plants were subjected to real time RT-PCR assay utilizing the protocol described by Papayannis and colleagues (2011). ToCV was identified in all plants of the field PeTi and in four plants from the field PeKu. The remaining eight samples of the field PeKu were positive for polerovirus infection using the RT-PCR protocol developed by Lotos and colleagues (2017). Furthermore, all positive samples in ToCV infection were subjected to RT-PCR assay using the primer pair p22F(5'-AGTATGGATCTCACTGGTT-3')/p22R(5'-AGCAAACGATCACCCAT-3'), to amplify a fragment of 603 bp. Two samples were selected for Sanger sequencing and BLASTn analysis revealed that Greek isolates PeTi8 (OK149170) and

PeKu51 (OK149169) were similar to the HS isolate from Korea (KP137098.1) with > 99% nt identity. To the best of our knowledge, this is the first report of ToCV in pepper in Greece, thus further increasing the number of viruses associated with PYD in the country.

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Declarations

Conflict of interest The authors have no conflicts of interest to declare that are relevant to the content of this article.

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