



First report of tomato brown rugose fruit virus infecting bell pepper in Iran

Fereshteh Esmailzadeh¹ · Davoud Koolivand¹

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In 2021, a new disease caused by tomato brown rugose fruit virus has emerged in greenhouse-grown tomato plants in Iran (Esmailzadeh and Koolivand 2021; Ghorbani et al. 2021). In late December of 2021, greenhouse-grown pepper plants showed brown-colored spots and deformed fruits. Most symptomatic plants were bell peppers cultivated on approximately 3 hectares. Based on the symptomatology, the presence of TBRFV was suspected in diseased bell peppers. To test for TBRFV in bell pepper plants, total RNA was extracted from symptomatic leaves and fruits of 12 plants by the CTAB method (Gambino et al. 2008) and used in RT-PCR with primers ToBRFV-F-5722 (5'-CACAAATCGCAACTCCATCGC-3') and ToBRFV-R-6344 (5'-GTGCCTACGGATGTGTATGA-3) to amplify a 623-bp fragment corresponding to the coat protein gene. The expected fragments were amplified in five suspected samples that was around 41.7% of plants symptomatic, and one isolate was sequenced as representative of the monitored greenhouse. Sequence analyses showed that the Iranian TBRFV isolate from bell pepper had high nucleotide identity with TBRFV isolates from tomato in Iran (99%), the USA, the Netherlands, and Turkey. Phylogenetic analyses of the complete CP gene sequence by the neighbor joining method in MEGAX confirmed the relationship of the Iranian TBRFV isolate from bell pepper and other isolates. The sequence of the Iranian TBRFV isolate from bell pepper was deposited in GenBank as accession number OM386673. For biological assays, tobacco plants (*Nicotiana rustica*) were mechanically

inoculated with sap from TBRFV-infected leaves and resulted in the development of necrotic local ring on leaves at 3 days post-inoculation. TBRFV causes economic losses in tomato and pepper as infected fruits cannot be exported to other countries. Therefore, effective management practices should be put in place to prevent the spread of TBRFV in virus-free locations in the country. To the best of our knowledge, this is the first report of TBRFV in pepper in Iran.

Declarations

Conflict of interest The authors declares that there are no conflict of interest.

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✉ Davoud Koolivand
Koolivand@znu.ac.ir

¹ Department of Plant Protection, Faculty of Agriculture, University of Zanjan, Zanjan, Iran