



# First report of strawberry polerovirus 1 infecting strawberry in Iran

Zahra Kashiha<sup>1</sup> · Nasrin Ghaderi Zandan<sup>1</sup> · Igor Koloniuk<sup>2</sup> · Mohammad Hajizadeh<sup>1</sup>

Received: 17 December 2023 / Accepted: 11 February 2024 / Published online: 26 February 2024  
© The Author(s) under exclusive licence to Società Italiana di Patologia Vegetale (S.I.Pa.V.) 2024

**Keywords** Detection · Kurdistan · Nucleotide identity · PCR · SPV1

Several viruses infecting strawberry (*Fragaria × ananassa*) have been identified in Iran in recent years (Hajizadeh et al. 2022). Further investigation to determine the presence of other known viruses in commercial fields led to the detection of strawberry polerovirus 1 (SPV1). SPV1 was discovered in 2015 in eastern of Canada in samples showing decline symptoms (Xiang et al. 2015), and was subsequently detected in the United States, Argentina, the Czech Republic, and Nepal (Kwak et al. 2022). SPV1 is related to member species of genus *Polerovirus*, family *Solemoviridae*.

During the 2019 and 2022 seasons, 153 leaf samples of strawberries which 62% of plants had symptoms including yellowing, decline, mild mosaic, and leaf margin burn, were collected from commercial fields of north (Mazandaran, Guilan and Golestan Provinces) and west (Kurdistan Province) Iran, two main strawberry-growing regions. Total RNA was extracted using the silica-capture method and subjected to cDNA synthesis using random hexamer primers (Easy™ cDNA Synthesis kit, Parstous Iran). PCR was done using specific primers SPV-FC (5-TGGTCCAAAATTGGCCCAGGTA-3) and SPV-RC (5-GGACGTCTGGCCATTAACTGT-3) (this work), amplifying 870 nt fragment containing 632 nt of 3' end region of the P1-P2 fusion protein gene. The expected DNA fragment was amplified from 8 samples (5.2% of tested samples). Three PCR products were sequenced to validate their nature. The sequences had 99.8–100% identity at the nucleotide level. Two sequences were submitted to GenBank as accession numbers OR873623

and OR873624. They showed 98.8–98.9% nucleotide identity with SPV1 isolate AB5301 (accession No. NC\_025435) from Canada. To the best of our knowledge, this is the first report of SPV1 from Iran.

**Funding** No funding was received for conducting this study.

## Declarations

**Conflict of interest** The authors declare that there is no conflict of interest.

## References

- Hajizadeh M, Ghaderi Zandan N, Kashiha Z, Koloniuk I (2022) First report of strawberry crinivirus 3 and strawberry crinivirus 4 in strawberry in Iran. *J Plant Pathol* 104:825. <https://doi.org/10.1007/s42161-022-01035-z>
- Kwak HR, Byun HS, Hong SB, Choi HS, Manandhar HK, Timila RD, Joshi S, Rokaya N, Baidya S, Humagain SP (2022) First report of strawberry polerovirus 1 in strawberry in Nepal. *Plant Dis* 106:11. <https://doi.org/10.1094/PDIS-02-22-0413-PDN>
- Xiang Y, Bernardy M, Bhagwat B, Wiersma PA, DeYoung R, Bouthillier M (2015) The complete genome sequence of a new polerovirus in strawberry plants from eastern Canada showing strawberry decline symptoms. *Arch Virol* 160:553–556

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

<sup>1</sup> Department of Plant Protection, Faculty of Agriculture, University of Kurdistan, Sanandaj, Iran

<sup>2</sup> Institute of Plant Molecular Biology, Biology Centre, Czech Academy of Sciences, 370 05 Ceske Budejovice, Czech Republic