



First report of cucumber mosaic virus infecting *Dianthus hybridus* in Iran

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In September 2020, *Dianthus hybridus* plants exhibiting virus-like symptoms, including mosaic, mottling, stunting, and yellowing, in the Bahar area of the Hamedan province (west Iran) were indexed for the presence of viruses. Eight of 50 plants in two locations showed symptoms. Leaf samples from the eight symptomatic plants and two asymptomatic plants were collected and tested by DAS-ELISA for arabis mosaic virus (ArMV), cucumber mosaic virus (CMV), potato virus Y (PVY), tomato ringspot virus (ToRSV), and tomato spotted wilt virus (TSWV) using polyclonal antibodies obtained from Bioreba, Switzerland. The results revealed that five of eight samples reacted with antibodies to CMV. None of the samples tested reacted with the other antibodies. To confirm the presence of CMV, total RNA was extracted from three symptomatic *Dianthus hybridus* plants using the NucleoSpin RNA kit (BioFACT™, South Korea) and subjected to RT-PCR with CMV specific primers (Safaeizadeh et al. 2015). An expected RT-PCR product of ~540 bp in size was obtained from symptomatic plants. No amplicon was obtained from healthy plant extracts. For additional confirmation, mechanical transmission assays were carried out from infected *Dianthus hybridus* to herbaceous indicator plants such as *Nicotiana benthamiana* and *Vigna unguiculata*. *V. unguiculata* plants exhibited chlorotic lesions seven days post-inoculation and *N. benthamiana* showed severe mosaic, mottling and bushy growth 14 days post-inoculation.

The presence of CMV was confirmed by RT-PCR with CMV specific primers in symptomatic herbaceous plants. This is the first report of the natural occurrence of CMV on *Dianthus hybridus* in Iran.

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Declarations

Disclosure of potential conflicts of interest The author have no conflicts of interest to declare that are relevant to the content of this article. All data used during the study are available from the corresponding author by request.

Reference

Safaeizadeh M, Saidi A, Palukaitis P (2015) Molecular characterization of cucumber mosaic virus (CMV) isolates infecting tomato in Hamedan and Tehran provinces of Iran. *Acta Virol* 59:174–178

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