Journal of Plant Pathology (2022) 104:1579
https://doi.org/10.1007/s42161-022-01205-z

DISEASE NOTE

First report of natural infection of *Dracaena braunii* by pepper mild mottle virus in Korea

Sung-Woong Kim[1,2] · Yujin Jeong[1] · Kwang-Yeol Yang[1,2] · Rae-Dong Jeong[1,2]

Received: 6 June 2022 / Accepted: 3 August 2022 / Published online: 16 August 2022

Keywords *Dracaena braunii* · Pepper mild mottle virus · Korea

Lucky bamboo (*Dracaena sanderiana*) is one of the most popular indoor ornamental plants frequently imported to Korea from China and Taiwan and cultivated in commercial nurseries. In January 2022, virus-like symptoms, including mild mottling and chlorosis, were observed on leaves of *D. sanderiana* in a greenhouse in Gwangju, Korea (approximately 10% disease incidence). Five symptomatic plants were analyzed by transmission electron microscopy and rigid-rod-shaped particles, approximately 300 nm × 18 nm in size and typical of the genus *Tobamovirus*, were observed in all samples. These samples were further analyzed with DAS-ELISA using polyclonal antisera against cucumber green mottle mosaic virus, tobacco mosaic virus, tomato mosaic virus, and pepper mild mottle virus (PMMoV) (Agdia, Elkhart, IN, USA). All tested samples exhibited positive reactions with the PMMoV antiserum, and none of the other samples reacted with other antisera. To confirm the presence of PMMoV, total RNA was extracted from these positive samples and subjected to RT-PCR using PMMoV-specific primers (Zhou et al. 2021). Asymptomatic leaf samples were used as negative control for DAS-ELISA and RT-PCR. Amplicons with an expected size of approximately 682 bp were obtained from all samples, cloned into pGEM-T vectors (Promega, Madison, WI), and sequenced. As the nucleotide sequences obtained from all samples were identical, a representative sample was deposited in GenBank (LC677090, PMMoV-GG1). BLASTn analyses revealed that the PMMoV-GG1 isolate shared over 99% nucleotide identity with PMMoV-Kr (AB126003) and PMMoV-Iw (AB254821). The pathogenicity of PMMoV-GG1 was tested using mechanical inoculation with sap from PMMoV-infected leaves on *Nicotiana benthamiana* plants. These herbaceous plants displayed mild mottle symptoms 18 days post-inoculation. PMMoV infection was confirmed by RT-PCR using the same primers and sequencing. To the best of our knowledge, this is the first report of natural infection of PMMoV in *D. sanderiana* in Korea.

✉ Rae-Dong Jeong
jraed2@jnu.ac.kr

[1] Department of Applied Biology, Chonnam National University, Gwangju 61185, Korea

[2] Graduate School of Plant Protection and Quarantine, Chonnam National University, Gwangju 61185, Korea

Funding This work was supported by Korea Institute of Planning and Evaluation for Technology in Food, Agriculture, Forestry and Fisheries (IPET) through, Agriculture, Food and Rural Affairs Convergence Technologies Program for Educating Creative Global Leader Program, funded by Ministry of Agriculture, Food and Rural Affairs (MAFRA) (321001–03).

Declarations

Ethical approval This article does not contain any studies with human participants or animals performed by any of the authors.

Conflict of interest The authors declare that they have no conflict of interest.

Reference

Zhou WP, Li YY, Li F, Tan G (2021) First report of natural infection of tomato by pepper mild mottle virus in China. J Plant Pathol 103(1):363