First report of Euphorbia leaf curl virus and papaya leaf curl Guangdong virus on passion fruit in mainland China

Aijun Huang^{1,2} · Peipei Gu¹ · Min Ding¹ · Ying Wang¹

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Passion fruit (*Passiflora edulis* Sims) is an important horticultural crop grown in tropical and sub-tropical regions worldwide. The cultivation area has increased in Jiangxi province, China. Euphorbia leaf curl virus (EuLCV) and papaya leaf curl Guangdong virus (PaLCuGDV), which can cause obvious symptoms on passion fruit, were first reported in Asia (Cheng et al. 2014, Kil et al. 2016). In July 2018, 57 passion fruit leaf samples, with symptoms of mosaic, malformation, chlorotic ringspot or yellowing, were collected from Ganzhou, Jiangxi province. Total DNA was extracted from each sample and used for PCR assay with the EuLCV and PaLCuGDV specific primers (Chong et al. 2018). Amplicons of the expected size were cloned, sequenced and subjected to GenBank BLASTn search. One clone containing 235 nucleotides showed 100% nt identity with EuLCV isolate (MK066926) and another clone containing 345 nt showed 98.51% identity with PaLCuGDV isolate (MK070467). To obtain these two virus genomes, overlapping primers were designed based on published genome sequences. The complete 2745 nt DNA-A genome of EuLCV, designated as EuLCV-JX-Pf (MK673114.1), showed 100% identity to several passion fruit EuLCV isolates (MK066926.1, MK066927.1, KC161185.1) from South Korea and Taiwan. The complete 2732 DNA-A genome of PaLCuGDV, designated as PaLCuGDVJX-Pf (MK757483.1) showed 98.51% nt identity to several passion fruit PaLCuGDV isolates from South Korea and Taiwan (MK070467.1, MK070454.1, KP876482.1). Southern blot hybridization with virus-specific digoxigenin-labeled probes confirmed EuLCV and PaLCuGDV mixed infection of three

passion fruit samples among the 57 samples. These three samples exhibited slight yellowing symptoms. Among the other samples, none were infected with these two virus, but seven were infected with papaya leaf curl China virus, others were also infected with cucumber mosaic virus (16/57), Tomato mosaic virus (9/57), and citrus-associated rhabdovirus (17/57) alone or mixed. To the best of our knowledge, this is the first report of EuLCV and PaLCuGDV on passion fruit in mainland China.

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Declarations

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

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

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✉ Aijun Huang
hajgnu@sina.com

¹ College of Life Science, Gannan Normal University, Ganzhou, China

² National Navel Orange Research Center, Ganzhou, China