



First report of watermelon mosaic virus isolated from *Sicyos angulatus* in Korea

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Received: 26 August 2019 / Accepted: 3 December 2019 / Published online: 16 December 2019
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Keywords Watermelon mosaic virus · *Sicyos angulatus* · Burcucumber

Sicyos angulatus, called Bur cucumber, is an annual plant in the gourd family, Cucurbitaceae, and a common plant on the roadside. In April 2016, we found *Sicyos angulatus* showing virus-like disease such as severe chlorosis and systemic mosaic symptoms on the roadway in Gapyeong, Gyeonggi-do, in Korea. Total RNA was extracted from the symptomatic leaves. We detected watermelon mosaic virus, named as WMV-Sa, from *S. angulatus* by RT-PCR using potyvirus degenerated primers (5'-GTITGYGTIGAYGAYTTYAAAYAA-3' [Nib(F)] and 5'-TCIACIACIGTIGAIGGYTGNCC-3' [Nib(R)]) (Zheng et al. 2008). We tested the host response of Cucurbitaceae and tobacco plants by inoculating WMV-Sa to determine its host range. As the result, WMV-Sa induced systemic leaf curling and mosaic symptoms in *Nicotiana benthamiana* and chlorotic spots on upper leaves of *Cucurbita pepo* and *Cucumis melo*. However, WMV-Sa did not infect *N. rustica*, *Chenopodium quinoa*, *C. amaranticolor*, *Cucumis sativus*, and *Citrullus vulgaris*. To further characterize, we determined the full genome sequence of WMV-Sa (Genbank accession No. LC412927). WMV is a member of genus *Potyvirus*, and the length of genome is approximately 10 kb. Therefore, we divided the WMV genome into 8 segments and amplified it by RT-PCR using specific primer sets. Each pair of primers is overlapped by 100 ~ 150 bp and the size of amplified PCR products is about 1.3 ~ 1.5 kb. Sequence alignment and phylogenetic analysis was carried out based on

nucleotide and amino acid sequence of polyprotein of WMV-Sa and other isolates. These results showed that WMV-Sa isolates were closely related to the Yeongju6-1 isolate (KT992086), isolated from *Panax ginseng* in Korea, at 98.17%/98.69% (nt/aa) identity. To our knowledge, WMV-Sa infects only a few specific host plants (*N. benthamiana*, *C. pepo*, and *C. melo*) and this is different from other WMV isolates reported previously. This is the first report of WMV infecting *Sicyos angulatus* in Korea.

Funding information This research was financially supported by Cooperative Research Program for Agricultural Science & Technology Development (Project No. PJ014507032019).

References

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