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First Report of *Onion yellow dwarf virus* Infecting Shallot in Serbia

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The genus *Allium* is one of the largest plant genera; it includes more than 600 species, with several being very important crops all over the world. Potyviruses *Onion yellow dwarf virus* (OYDV) and *Leek yellow stripe virus* (LYSV) are often found in almost all *Allium*-cultivating regions and cause significant yield losses worldwide (Tsuneyoshi et al. 1998; Katis et al. 2012). In June 2014, approximately 30% of field-grown shallot (*Allium cepa* var. *aggregatum*) plants in the Rimski Šančevi locality (South Bačka District, Serbia) showed leaf symptoms in the form of yellow stripes accompanied by leaf curling and plant stunting. A total of 15 symptomatic plants were collected and tested using commercial double-antibody sandwich (DAS)-ELISA diagnostic kits (DSMZ, Braunschweig, Germany) for the presence of OYDV and LYSV and (TAS)-ELISA diagnostic kits (DSMZ) for *Shallot latent virus* (SLV). Commercial positive and negative controls were included in each assay. OYDV was detected serologically in 12 out of 15 shallot samples, and all were negative for LYSV and SLV. The virus was mechanically transmitted from an ELISA-positive sample (572-14) to five plants of each *Chenopodium amaranticolor*, *C. quinoa*, and *A. cepa* var. *aggregatum* using 0.01 M phosphate buffer (pH 7). All five mechanically inoculated *Chenopodium* sp. plants reacted uniformly

showing local lesions, while shallot developed symptoms identical to those observed on the original host plants, five and 14 days postinoculation, respectively. All five inoculated plants of each experimental host were DAS-ELISA positive for OYDV. Presence of OYDV in ELISA-positive shallot plants was further confirmed by conventional reverse transcription (RT)-PCR. Total RNAs were extracted using the RNeasy Plant Mini Kit (Qiagen, Hilden, Germany) and RT-PCR was carried out with the OneStep RT-PCR Kit (Qiagen). OYDV-specific primer pair 1-OYDV and 2-OYDV (**Parrano et al. 2012**), designed to amplify the part of coat protein (CP) gene, was used for both amplification and sequencing. Total RNAs obtained from healthy shallot leaves as well as RNase-free water were included as negative controls in RT-PCR analysis. All infected shallot plants yielded an amplicon of the expected size (730 bp), while no amplification products were obtained from healthy controls. The RT-PCR product derived from the isolate 572-14 was sequenced directly after purification with QIAquick PCR Purification Kit (Qiagen) and submitted to GenBank (Accession No. KR025485). Pairwise comparison of the 572-14 isolate CP sequence with other homologous sequences available in GenBank, conducted with MEGA 5 software (**Tamura et al. 2011**), revealed that Serbian shallot isolate showed the highest nucleotide identity of 98.4% (99.6% amino acid identity) with onion isolate from Germany (JX433020). To our knowledge, this is the first report of OYDV on shallot in Serbia. Because different species of *Allium* are widely and traditionally grown in Serbia, the presence of OYDV could be a limiting factor for their successful production, and further investigation is necessary in order to prevent spread of this pathogen to new locations and to new hosts in Serbia.

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