Occurrence of beet western yellows virus in spinach in Turkey

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A survey of poleroviruses in vegetable growing areas of Kahramanmaraş, a province of the Mediterranean area in Turkey, was conducted in 2017. Leaf tissue with typical symptoms such as chlorosis of young leaves and bright color of older leaves was collected from lettuce (*Lactuca sativa*), spinach (*Spinacia oleracea*), beet (*Beta vulgaris*), garlic (*Allium sativum*) and parsley (*Petroselinum hortense*). A total of 50 samples was tested by DAS-ELISA using a commercial kit for cucurbit aphid-borne yellows virus (CABYV) (Sediag, France) since serological cross-reaction had been observed between CABYV and other poleroviruses (Buzkan et al. 2013). Samples were considered positive when their A_{405} was higher than three times the A_{405} mean of negative controls. Three samples (two lettuce and one spinach) reacted positively to the CABYV antiserum in DAS-ELISA. The occurrence of poleroviruses was confirmed in total plant RNA by RT-PCR with the general polerovirus primer pair Pol-G-F and Pol-G-R (Knierim et al. 2010). The amplified DNA bands from lettuce samples were faint and could not be further processed for sequencing. The 1.1 kb amplified portion of the polerovirus RNA-dependent RNA polymerase genomic region from one spinach isolate was subsequently sequenced and a 539 nt sequence was subjected to a BLASTn search to identify which polerovirus species was present. Results

showed the spinach isolate (GenBank accession number MG874884) with 95% nucleotide sequence identity to a beet western yellows virus (BWYV) isolate from beet in the USA (AF473561) and BWYV isolates from pepper (*Capsicum annuum*) in Turkey (HE978254-HE978259) (Buzkan et al. 2013). BWYV was previously reported from field-grown pepper (Buzkan et al. 2013) and broad bean (*Vicia faba*) plants (Buzkan et al. 2018) in Turkey. To our knowledge, this is the first report of BWYV in spinach in Turkey.

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