First report of beet pseudo-yellows virus in lettuce in Greece

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Lactuca sativa L. is an important leafy crop in the Mediterranean countries and worldwide. In November 2020, interveinal yellowing symptoms and slight leaf curling, which resembled infection by criniviruses or poleroviruses, appeared in a field-grown lettuce crop in Vassilika (Northern Greece) one of the most important vegetable producing areas in Thessaloniki region. The affected plants comprised about 30% of the whole crop. In order to unravel the etiology of the disease, 10 samples collected from diseased plants and 4 from asymptomatic ones were initially tested for the presence of poleroviruses using a generic, two-step RT-PCR protocol described by Lotos and colleagues (2014). Nevertheless, the results showed that both symptomatic and asymptomatic plants were negative to polerovirus infection. Therefore, samples were subsequently subjected to one-step RT-PCR assay using the primer set BPYVI/BPYVII (Boubourakas et al. 2006), which amplifies a fragment of 251 nt from the heat-shock protein 70 homologue of beet pseudo-yellows virus (BPYV). Also, one more primer set was used BPYVIII (5'-GAGTGCCTACAATTTTCATTCA TCG-3')/BPYVIV(5'-TTCGGTTTCATGTCTCCCTTG-3'), amplifying a fragment of 460 nt from the RNA- dependent RNA polymerase (RdRp) of BPYV. The virus was detected in all (10) symptomatic but not in the asymptomatic (4) ones and two of them tentatively named 'LeVa1' and 'LeVa3' were selected for Sanger sequencing. BLASTn analysis of both genomic regions showed very high sequence similarity (> 99%) between Greek isolates 'LeVa1' (MW620202-MZ476041) and 'LeVa3' (MW620203-MZ476042) and the isolate 'MI' from Japan (LC100132). BPYV is endemic in cucurbit crops in Greece for more than 20 years especially in Northern Greece where *Trialeurodes vaporariorum* West., the

vector of BPYV, is highly abundant (Orfanidou et al. 2019). However, this is the first time we detected the virus in lettuce crops. Future research is required to investigate the spread of the virus in lettuce and potentially in other crops in the region that are often infested by *T. vaporariorum*.

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Declarations

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

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