



Tomato spotted wilt virus associated with lettuce dieback in Bekaa Valley, Lebanon

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In August 2019, lettuce plants (*Lactuca sativa*) of Romaine hybrid showing virus-like symptoms such as brown necrotic spots, necrosis and drying out of one section of the lamina were observed in three fields located in Bekaa Valley (Bar Elias, Terbol and Zahlé areas) at various incidence (7%, 10% and 15%, respectively). Plants which became infected at an early stage grew poorly and often died. Samples from 32 symptomatic and 10 asymptomatic plants were collected from the three fields and were subjected to DAS-ELISA using commercially antibodies against alfalfa mosaic virus (AMV), tomato spotted wilt virus (TSWV), cucumber mosaic virus (CMV) and impatiens necrotic spot virus (INSV) (Loewe, Germany) (Clark and Adams 1977). All symptomatic plants reacted positively with the TSWV antiserum and no positive reaction was obtained from the asymptomatic plants. AMV, CMV and INSV were not detected. To confirm the occurrence of TSWV, primers L1 and L2 (Mumford et al. 1994) were used to amplify a 276 bp fragment of the L RNA segment. PCR products of two positive samples (RAK-5.AS-1 and RAK-5.AS-4) were purified using PCR Purification Kit (Qiagen, USA) and sequenced in both directions. BLAST analysis of the sequences (GenBank accession numbers

LR878364 and LR878368) revealed 98.1% and 99.2% nucleotide identity, respectively, with TSWV isolate TRAntToMVEgp from Turkey (KC261947). TSWV was previously reported on tomato in the Byblos coastal area (Abou-Jawdah et al. 2006) but this is the first identification of TSWV on lettuce plants in Bekaa Valley.

Compliance with ethical standards

The authors declare that they have no conflict of interest from this research, and that it doesn't contain any studies with human participants or animals.

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