Severe outbreaks of parietaria mottle virus in tomato in Sardinia, southern Italy

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In July 2019, disease outbreaks were observed in two tomato fields in South Sardinia. The first field located in Samassi was established with tomato spotted wilt virus (TSWV)-resistant cultivars Taylor and Docet. The second field located in Serramanna was established with TSWV-resistant cultivars Dask and SV051, and the TSWV-susceptible cultivar Creso. The two fields were about 4.0 km away from each other. Symptoms resembling those elicited by TSWV, consisting in leaf and stem necrosis, and necrotic rings and patches on the fruits, were noticed on most of the plants in the two fields. Preliminary screening of two symptomatic plants of each cultivar with a specific TSWV Lateral Flow (LF) assay (Forsite Diagnostics, UK) showed that none of the samples, with the exception of Creso, reacted positively to TSWV. Then RT-PCR was conducted with total RNA extracted from non-necrotic tissue of the same plants tested in LF using the E.Z.N.A.® Plant RNA kit (Omega Bio-tek, USA) and orthospovirus universal primers BR60/BR65 and primers PMoVMP1a/PMoVMP2b specific to parietaria mottle virus (PMoV) (Parrella et al. 2016). Amplicons of the expected size

(916 bp) for PMoV were obtained from all symptomatic leaf samples tested, whereas TSWV amplicons (453 bp) were obtained only from the Creso samples. No amplicons were obtained from asymptomatic samples or healthy samples used as controls. The PMoV PCR products from three tomato plants were cloned and sequenced. Sequences of the PMoV isolates were identical (GenBank accession number MN782302) and shared 96% nucleotide identity with the Spanish isolate RAMS1 from tomato (AM182748). Further, PMoV was detected in symptomatic leaf samples by dot-blot hybridization assay using a PMoV-specific riboprobe (Parrella 2002). Using this assay, the PMoV incidence was around 80% in both tomato fields (52 of 67 plants were positive in the first field and 41 of 51 plants were positive in the second field). PMoV has been previously reported in protected and open field tomato cultivation in Spain only with low incidence (Soler et al. 2010). This is the first report of a significant outbreak of PMoV in tomato in the Mediterranean basin

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