New Disease Reports

First report of *Tomato brown rugose fruit virus* on tomato in Turkey

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Since January 2019, greenhouse tomato plants growing in Demre near Antalya in the Mediterranean region of Turkey were observed to have leaves with chlorotic mosaic, mottling, rugosity and occasional narrowing (Fig. 1). Necrotic spots were observed on the peduncle, calyces and petioles and the fruit was rough with chlorotic and necrotic patches (Fig. 2). These symptoms resemble those caused by several different tomato viruses.

Twenty-seven diseased tomato samples were collected from two greenhouses (of which approximately 20% of the total area of 0.7 ha was diseased) and tested by RT-PCR for the presence of *Pepino mosaic virus*, *Tobacco mosaic virus* (TMV), *Tomato mosaic virus* (ToMV) and *Tomato spotted wilt virus*. Since the results of these assays were all negative a generic primer set (F-3666/R-4718) was used to detect tomato-infecting tobamoviruses by RT-PCR (Luria *et al*., 2017) and this resulted in the generation of a 1052 bp amplicon which was sequenced directly (GenBank Accession No. MK888980). BLAST analysis of the sequence of the amplicon revealed 98.0-98.9% sequence identity to isolates of *Tomato brown rugose fruit virus* (ToBRFV) from Germany, Israel and Jordan (KT383474, KT383474, KX619418 and MK273189).

Ten plants of a commercial tomato variety, Bandita F1 (Seminis, Turkey) containing the *Tm-2*^{2} resistance gene were mechanically inoculated with extracts from diseased tomato leaves. All plants developed systemic mosaic symptoms (Fig. 3) and tested positive for ToBRFV using the tobamovirus-specific primers described above. Amplicons were sequenced to confirm their identity as ToBRFV. The inoculated plants tested negative using RT-PCR with primers specific for ToMV and TMV (Kumar *et al*., 2011). The production of winter-grown tomatoes is important to the economy of Turkey, and Antalya is the main centre of off-season production. If it is proven that ToBRFV is causing major production problems in Antalya then control measures need to be employed. This is the first report of ToBRFV infecting tomato in Turkey.

References

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Figure 1

Figure 2

Figure 3

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