New Disease Reports

First report of *Southern tomato virus* in tomato crops in Italy

G. Iacono [1], D. Hernandez-Llopis [2], A. Alfaro-Fernandez [2], M. Davino [1], M.I. Font [2], S. Panno [1,3], L. Galipenso [4], L. Rubio [4] and S. Davino [5,6]*

[1] *Department Di3A - University of Catania, Via S. Sofia 100, 95100 Catania, Italy*; [2] *Grupo de Virología, Instituto Agroforestal Mediterráneo, Universitat Politènica de València, Camino de Vera s/n, 46022 Valencia, Spain*; [3] *Euro-Mediterranean Institute of Science and Technology - IEMEST, Via Emerico Amari 123 - 90139 – Palermo, Italy*; [4] *Instituto Valenciano de Investigaciones Agrarias (IVIA), crt Moncada-Náquere Km 4.5, Moncada, Spain*; [5] *Institute for Sustainable Plant Protection - National Research Council (CNR), Strada delle Cacce 73,10135 Turin, Italy*; [6] *Department of Agriculture and Forest Science - University of Palermo, Viale delle Scienze Ed, 5, 90128 Palermo, Italy*

*E-mail: salvatore.davino@unipa.it

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Twenty-five tomato plants (*Solanum lycopersicum*) showing symptoms of viral disease were sampled from different greenhouses in the Ragusa province (Southern Italy) in summer 2015. Plants showed chlorosis on leaves and fruits and deformation and depressed spots of dark colour which later evolved into necrosis (Fig. 1). These symptoms were observed on the entire cluster of fruit making the product unsaleable. Based on these symptoms, samples were analysed for *Cucumber mosaic virus*, *Pepino mosaic virus* (PepMV), *Potato virus Y* (PVY), *Tomato mosaic virus* and *Tomato spotted wilt virus* by DAS-ELISA with polyclonal antibodies (Loewe Phytodiagnostica, Germany), and for the emerging *Southern tomato virus* (STV) by RT-PCR (Candresse *et al*., 2013). Three of the 25 samples analysed were positive only for PepMV whereas the rest of the samples had mixed infections: fifteen plants were co-infected with PepMV and PVY, and seven with STV, PepMV and PVY. The amplification product (894 bp) obtained from one STV-infected plant was purified using the UltraClean® PCR Clean-Up kit (Mo-Bio, USA) and the consensus nucleotide sequences were determined in both senses using an ABI 3130XL Genetic Analyzer (Life Technologies, USA) and deposited in GenBank under accession number KT948068. The nucleotide identity of the Italian STV isolate was greater than 99% with STV isolates Mexico1 (EF442780), BD-13 (KT634055), CN-12 (KT438549), MS7 (EU413670) and FR (KC333078) from Mexico, Bangladesh, China, USA and France, respectively.

STV belongs to genus *Amalgavirus* (family *Amalgaviridae*) and has a dsRNA genome of about 3.5 Kb with two ORFs encoding for the RNA polymerase and a putative coat protein. STV is reported to be transmitted by seed at a rate of 70-90% and horizontal transmission by an unknown vector is suspected (Sabanadzovic *et al*., 2009). STV has been associated with a tomato disease consisting of general leaf yellowing, stunting and different fruit malformations. However, symptoms of STV, such as those observed in Sicily (Fig. 1), remain unclear because the virus has been always detected in mixed infections (Sabanadzovic *et al*., 2009; Candresse *et al*., 2013). Initial observations suggest increased severity of symptoms in co-infected plants by comparison to plants only infected with PepMV. The high rate of STV seed transmission and its association with tomato disease mean that further studies are necessary to clarify the pathogenic potential of the virus and to confirm its distribution. To our knowledge this is the first report of *Southern tomato virus* in Italy.

References

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Figure 1

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