

DISEASE NOTE

FIRST RECORD OF *FUSARIUM OXYSPORUM* F.SP. *RADICIS-LYCOPERSICI* IN MALTA

A. Porta-Puglia and D. Mifsud

Ministry for Rural Affairs and the Environment,
Department of Plant Health, Agricultural Research
and Development Centre, Għammieri, Marsa CMR 01, Malta

Crown and root rot symptoms were observed on tomato (*Lycopersicon esculentum* L.) F1 hybrid Thomas (S. & G., Novartis Seeds B.V., Enkhuizen, Holland) in a greenhouse at Wardija, Malta, in November 2004. Symptoms included stem cankers starting mostly at the soil level and extending for 5-20 cm above it. Most severely affected plants wilted and died. *Fusarium oxysporum* was constantly isolated from rotten roots and crowns and from stem cankers. Colonies of a crown isolate, grown on potato dextrose agar (PDA), were suspended in sterile tap water by a blender. Ten tomato seedlings ('Thomas', growth stage: 6-8 leaves) were inoculated by root immersion in the inoculum suspension (concentration: $2.5 \cdot 10^6$ CFU ml⁻¹ on PDA) for 5 min and were successively transplanted in 16 cm diameter plastic pots containing a mixture (1:1:1 w/w/w) of soil, sand and peat. Ten seedlings (controls) were treated in the same way with sterile tap water. All the plants were kept under glasshouse conditions (15±5°C), regularly watered, and examined after one month. The inoculated plants showed typical symptoms of crown and root rot, including 1-3 cm cankers, and *F. oxysporum* was re-isolated from all of them. The controls were healthy, and the attempts to isolate the pathogen from them failed. The morphology of the fungus and the symptoms, observed both on the crop and after artificial inoculation, coincided with those described for *F. oxysporum* Schlecht. f.sp. *radicis-lycopersici* Jarvis and Shoemaker (FORL) (Jarvis and Shoemaker, 1978; Brayford, 1996). Therefore we conclude that FORL was the causal agent of the disease reported above. This is the first record of FORL in Malta.

Jarvis W.R., Shoemaker R.A., 1978. Taxonomic status of *Fusarium oxysporum* causing foot and root rot of tomato. *Phytopathology* **68**: 1679-80.

Brayford D., 1996. *Fusarium oxysporum* f.sp. *radicis-lycopersici*. *Mycopathologia* **133**: 61-63.

Corresponding author: A. Porta-Puglia
Fax: +356.25.904211
E-mail: angelo.porta-puglia@gov.mt

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FIRST REPORT OF FRUIT TREE PHYTOPLASMAS AND THEIR PSYLLID VECTORS IN BOSNIA AND HERZEGOVINA

D. Delic¹, M. Martini², P. Ermacora², L. Carraro²
and A. Myrta¹

¹ Istituto Agronomico Mediterraneo, Via Ceglie 9,
70010 Valenzano (Bari), Italy

² DiPi, University of Udine, Via delle Scienze 208,
33100 Udine, Italy

During autumn 2004, orchards were surveyed in seven districts of north-western, central and southern Bosnia and Herzegovina (BiH) for the presence of phytoplasma diseases. Symptoms of apple proliferation (AP), pear decline (PD) and European stone fruit yellows (ESFY) were observed in several districts. Samples were collected for laboratory analyses from a number of symptomatic and symptomless fruit trees. In the same orchards, during spring 2005, the vectors of AP, *Cacopsylla costalis* and *Cacopsylla melanoneura*, of PD, *Cacopsylla pyri*, and of ESFY, *Cacopsylla pruni*, were collected and analysed for the presence of the respective phytoplasmas. After nucleic acid extraction from plants and insects, nested PCR assay was done using the phytoplasma universal primers P1/P7 followed by R16F2n/R2. The R16F2n/R2 amplicons, when digested with *Mse*I, showed the restriction profile typical of the 16SrX phytoplasma group. The identities of the detected agents was confirmed by a second nested PCR using 16SrX phytoplasma group specific primer pair f01/r01 (Lorenz *et al.*, 1995), followed by RFLP with *Ssp*I and *Bsa*AI. Laboratory analyses showed the presence of phytoplasmas belonging to: (i) 16SrX group, subgroup A (*Candidatus* Phytoplasma mali) in apples, in *C. costalis* and in *C. melanoneura*; (ii) 16SrX group, subgroup C (*Candidatus* Phytoplasma pyri) in pears and in *C. pyri*; (iii) 16SrX group, subgroup B (*Candidatus* Phytoplasma prunorum) in apricots and peaches, and in *C. pruni* (Anonymous, 2004). Following the report of pear decline in BiH (Duduk *et al.*, 2005), we have demonstrated, for the first time, the presence of AP, ESFY and the respective psyllid vectors in the country. The presence of both typically epidemic diseases and infected vectors represents a serious threat for fruit-growing in Bosnia and Herzegovina.

Anonymous, 2004. '*Candidatus* Phytoplasma', a taxon for the wall-less, non-helical prokaryotes that colonize plant phloem and insects. *International Journal of Systematic and Evolutionary Microbiology* **54**: 1243-1255.

Duduk B., Botti S., Trkulja V., Ivanovic M., Stojcic J., Bertaccini A., 2005. Occurrence of pear decline in Bosnia and Herzegovina. *Journal of Plant Pathology* **87**: 75.

Lorenz K.H., Schneider B., Ahrens U., Seemüller E., 1995. Detection of apple proliferation and pear decline phytoplasmas by PCR amplification of ribosomal and nonribosomal DNA. *Phytopathology* **85**: 771-776.

Corresponding author: L. Carraro
Fax: +39.0432.558501
E-mail: luigi.carraro@uniud.it

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