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Disease Notes

First Report of *Oidium neolycopersici* on Greenhouse Tomatoes in Serbia

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Abstract

In September 2011, tomato (*Solanum lycopersicum* L. 'Big Beef') plants showing typical symptoms of powdery mildew were collected in a greenhouse in the vicinity of Padinska Skela (District of City of Belgrade) in Serbia. Numerous circular, white colonies of powdery mildew were observed predominantly on the adaxial surface of the leaves, the petioles, and the stems. The foliage of infected plants turned yellow and necrotic, which was followed by rapid defoliation. Disease incidence was estimated by counting plants with powdery mildew symptoms in a random batch of 100 plants in four replicates and estimated to be extremely high, approaching 90%.

Tomato plants ('Novosadski Jabučar') were inoculated with conidia released from diseased tomato leaves positioned above the tomato leaves and maintained at 25°C with a 14-h photoperiod. Healthy tomato plants from the same lot, which were not exposed to the conidia shower, were used as negative control. The first white fungal colonies appeared on the leaves of the inoculated plants within 4 to 7 days after inoculation, while no fungal growth was observed in the control plants. To determine the morphological characteristics of the pathogen, surface mycelium was removed with small strips of clear adhesive tape and examined using light microscopy. Microscopic observation revealed mycelium with lobed appressoria and hyaline, ellipsoid-ovoid or doliform conidia (32.5 to 47.5 × 17.5 to 25 μm) with no distinct firosin bodies and which produced sub-terminal germ tubes. Conidia were produced on the unbranched, erect conidiophores (82.5 to 150 μm) consisting of a cylindrical foot-cell followed by one to three short cells. No chasmothecia were found. On the basis of morphological characteristics, the pathogen was identified as *Oidium neolycopersici* (4), which was confirmed by internal transcribed spacer (ITS) sequence analysis. Total DNA was extracted directly from the whitish spots of superficial mycelium on the leaves with a DNeasy Plant Mini Kit (Qiagen, Hilden, Germany) following the manufacturer's instructions. PCR amplification and sequencing were performed with primers ITS1F and ITS4 (1). The nucleotide sequence of the representative isolate 809-11 (Accession No. JQ619840) shared 100% identity with 16 *O. neolycopersici* isolates deposited in GenBank from different parts of the world. Tomato powdery mildew caused by *O. neolycopersici* is present in many European (4) and other countries around the world (3) and is becoming economically very important as majority of the tomato cultivars have shown to be susceptible (2). To our knowledge, this is the first report of *O. neolycopersici* in Serbia. Because tomato is a very popular and widely grown vegetable in Serbia, the presence of a new and potentially harmful disease could endanger greenhouse as well as open field tomato production.

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