

Title First report of postharvest fruit rot in persimmon caused by *Phacidiopycnis washingtonensis* in Italy

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Citation Plant Disease 94 (6): 788. 2010.

Keywords persimmon; fruit rot

Abstract

Persimmon (*Diospyros kaki* L.) is widely grown in Italy, the leading producer in Europe. In the fall of 2009, a previously unknown rot was observed on 3% of fruit stored at temperatures between 5 and 15°C in Torino Province (northern Italy). The decayed area was elliptical, firm, and appeared light brown to dark olive-green. It was surrounded by a soft margin. The internal decayed area appeared rotten, brown, and surrounded by bleached tissue. On the decayed tissue, black pycnidia that were partially immersed and up to 0.5 mm in diameter were observed. Light gray conidia produced in the pycnidia were unicellular, ovoid or lacrimiform, and measured 3.9 to 6.7 × 2.3 to 3.5 (average 5.0 × 2.9) µm. Fragments (approximately 2 mm) were taken from the margin of the internal diseased tissues, cultured on potato dextrose agar (PDA), and incubated at temperatures between 23 and 26°C under alternating light and darkness. Colonies of the fungus initially appeared ash colored and then turned to dark greenish gray. After 14 days of growth, pycnidia and conidia similar to those described on fruit were produced. The internal transcribed spacer (ITS) region of rDNA was amplified using the primers ITS4/ITS6 and sequenced. BLAST analysis (1) of the 502-bp segment showed a 100% similarity with the sequence of *Phacidiopycnis washingtonensis* Xiao & J.D. Rogers (GenBank Accession No. AY608648). The nucleotide sequence has been assigned the GenBank Accession No. GU949537. Pathogenicity tests were performed by inoculating three persimmon fruits after surface disinfecting in 1% sodium hypochlorite and wounding. Mycelial disks (10 mm in diameter), obtained from PDA cultures of one strain were placed on wounds. Three control fruits were inoculated with plain PDA. Fruits were incubated at 10 ± 1°C. The first symptoms developed 6 days after the artificial inoculation. After 15 days, the rot was very evident and *P. washingtonensis* was consistently reisolated. Noninoculated fruit remained healthy. The pathogenicity test was performed twice. Since *P. washingtonensis* was first identified in the United States on decayed apples (2), ‘Fuji’, ‘Gala’, ‘Golden Delicious’, ‘Granny Smith’, ‘Red Chief’, and ‘Stark Delicious’, apple fruits also were artificially inoculated with a conidial suspension (1×10^6

CFU/ml) of the pathogen obtained from PDA cultures. For each cultivar, three surface-disinfested fruit were wounded and inoculated, while three others served as mock-inoculated (sterile water) controls. Fruits were stored at temperatures ranging from 10 to 15°C. First symptoms appeared after 7 days on all the inoculated apples. After 14 days, rot was evident on all fruit inoculated with the fungus, and *P. washingtonensis* was consistently reisolated. Controls remained symptomless. To our knowledge, this is the first report of the presence of *P. washingtonensis* on persimmon in Italy, as well as worldwide. The occurrence of postharvest fruit rot on apple caused by *P. washingtonensis* was recently described in the United States (3). In Italy, the economic importance of the disease on persimmon fruit is currently limited, although the pathogen could represent a risk for apple.