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Root and Stem Rot Caused by *Fusarium Solani* on a New Host, Apricot

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Abstract

Apricot plantations (*Prunus armeniaca* L.) in Malatya and Elazığ cover approximately ten thousand hectares with nearly 10 million trees. In a survey carried out in apricot production areas of Malatya and Elazığ provinces from April to November in 2015 and 2016, apricot trees displayed symptoms of yellowing, stunting, rotting of roots and basal stems, and wilting, especially on those with injuries. A severe brown discoloration of vascular tissue along the stems of infected trees was also observed. Tissues samples collected from symptomatic trees were disinfected with 2% sodium hypochlorite and isolations were conducted on potato dextrose agar (PDA). A *Fusarium* sp. was consistently isolated from the roots and stems of diseased trees at Pötürge, Doğanşehir, Darende, Doğanyol, Akçadağ, Battalgazi and Baskil districts with 5.7, 10.0, 2.0, 3.3, 6.7, 6.7 and 6.7% incidence, respectively. All isolates obtained had white fluffy aerial hypha on PDA. Morphological characteristics of two types of conidia, macroconidia with three to five septate and microconidia with mostly non-septate to one septate, and chlamydospores produced pointed the fungal isolates to be *Fusarium solani* (Mart.) Sacc. 1881 (Ascomycetes, Hypocreales). Microconidia were abundant and macroconidia were sparse on PDA. To confirm pathogenicity, 20 healthy 1-year-old wild apricot 'Zerdali' rootstock seedlings grown in pots (25 cm in diameter) with sterilized soil were used for two experiments. For the first experiments, a conidial suspension from one isolate (Fs3) cultivated on PDA plates at 28°C for 7 days was used for root inoculation of 6 plants by submerging roots for 20 min in a conidial suspension (5×10^5 conidia/ml). Four seedlings inoculated with sterile water were used as controls. After 1 month incubation in a greenhouse, dark brown lesions were observed in the inoculated mature roots but not in the control roots. Pathogenicity was also confirmed by stem inoculations of plants in the second experiments. Six plants were inoculated with one mycelium disk of Fs3 (1 cm diameter) each, and sterile PDA disks were placed on four additional plants as controls. The inoculation site was wrapped with Parafilm for 2 days, and then the film was removed. After 1 month, symptoms similar to those observed in the field developed on the trunks of all inoculated plants, while only slight scars formed on the control plants. *F. solani* was reisolated from all inoculated root and stem tissues. For species confirmation, the internal transcribed spacer region (ITS) of rDNA of Fs3 isolate was amplified using the ITS6/ITS4 primer pair and sequenced. NCBI BLAST results of a 509-bp sequence shared 100% identity with those of many *F. solani* GenBank accessions previously reported. The new sequence was deposited in GenBank (Accession No. MF536534). To our knowledge, this is the first report of *F. solani* causing disease on this host plant, *P. armeniaca*, in Turkey and worldwide, which may help to establish the appropriate measures to control this disease.

Keywords: *Prunus armeniaca*, *F. solani*, Malatya and Elazığ.