First report of *Phytophthora palmivora* causing crown and root rot of pistachio trees in northern Iran

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In May 2014, widespread chlorosis and decline symptoms were observed on 10- to 15-year-old pistachio plants in commercial orchards in the cities of Qazvin province. Symptoms on plants included lesions that extended to 13 cm above the collar of the root. Based on Jung et al. (1996), tissues from the crown and roots of four diseased plants were plated onto a *Phytophthora*-selective medium (PARP) and incubated in the dark at room temperature. *Phytophthora* was the only organism isolated from the tissue. Sporangia were hyaline, papillate, ovoid, caduceus, 31.0 to 62.5 µm in length, 24.4 to 34.2 µm wide, characters consistent with *Phytophthora palmivora* (Stamps 1985). To confirm the morphological identification the primer pair ITS6/ITS4 (ITS region) (Cooke et al. 2000) of rDNA was used for amplification and sequencing. The sequences obtained (GenBank Accession Nos. MF992173) showed 99% identity with authentic isolate P0255 of *Phytophthora palmivora* (HQ261635).

Fifteen 1-year-old potted plants of pistachio cv. Akbari were chosen for pathogenicity testing. Five 5 mm diameter plugs of *P. palmivora* (cultured on V8 medium and cultivated

at 25 °C for 14 days) were placed around the injured roots and soil was kept saturated by watering plants daily. Five plants were treated with sterile water as controls. Plants were maintained for four months and disease symptoms were observed. *P. palmivora* was identified from the lesions of inoculated plants based on both morphology and DNA sequencing. No *P. palmivora* was isolated from control plants. To our knowledge, this is the first report of *P. palmivora* causing crown and root rot of pistachio in northern Iran.

References

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