



First report of *Neocosmospora solani* associated with trunk and scaffold cankers on almond in Turkey

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Turkey is the world's fifth-largest producer of almond (*Prunus dulcis* (Miller) D.A. Webb). In summer 2021, cankers symptoms were noticed on trunk and scaffolds of approximately 5% of 300 trees surveyed in a commercial orchard in Elazığ province (38°50'15.6"N, 38°58'27.4"E), Turkey. Disease symptoms involved dark black lesions on trunk, especially above the grafting point, branch dieback and brown discoloration of wood tissue. Diseased tissues from branches were cut into 1 cm lengths, surface disinfected in 1% sodium hypochlorite for 2 min and plated onto potato dextrose agar (PDA). Fusarium-like colonies produced white-greyish to pale cream, thick, floccose mycelium. Microconidia were borne on long monophialides, abundant, hyaline, fusiform to ovoid, 0–1 septate and measured 6.93–11.75 × 2.93–4.96 μm in size. Macroconidia were hyaline, 4–7 septa with rounded ends, fusiform, slightly curved which measured 19.6–36.5 × 2.80–4.35 μm in size. To confirm the identity, the β-tubulin (TUB2) and translation elongation factor 1-α (EF1-α) regions were sequenced with primers Bt2a/Bt2b and EF1-728 F/EF1-986R and deposited in GenBank (Accession Nos. EF1-α: MZ576215, β-tubulin: MZ576214) (Alves et al. 2006). BLAST analysis showed 100% sequence identity with *F. solani* strain NRRL32314 (GenBank Accession No. EF1-α: DQ246942) and CBS124666 (GenBank Accession No. β-tubulin: HE648032). Morphological and molecular results confirmed this species as *Neocosmospora solani* (Mart.) L. Lombard & Crous (syn. *Fusarium solani* (Mart.)

Sacc.) (Lombard et al. 2015). The representative isolate EB5 was deposited in Ankara University Culture Collection with accession number AUZF-1051. For the pathogenicity test, a four mm mycelial plug of *N. solani* was inserted into the center of six branch segments, each of 40 cm in length, wounded with a cork borer. Control branches were similarly treated with sterile agar plugs. Inoculated branches were sealed with parafilm and incubated at 25 °C for six weeks in moist chambers. Inoculation resulted in canker lesions with a mean length of 5.2 cm and no lesions developed in the controls. The pathogen was successfully reisolated from the infected tissue. To our knowledge, this is the first report of *N. solani* associated with trunk and scaffold canker on almond in Turkey (Farr and Rossman 2022).

Declarations

Ethical statement This article does not contain any studies with human participants or animals.

Conflict of interest All authors declare that they have no conflict of interests.

References

- Alves A, Correia A, Phillips AJ (2006) Multi-gene genealogies and morphological data support *Diplodia cupressi* sp. nov., previously recognized as *D. pinea* f. sp. *cupressi*, as a distinct species. *Fungal Divers* 23:1–5
- Farr DF, Rossman AY (2022) Fungal Databases, U.S. National Fungus Collections, ARS, USDA. <https://nt.ars-grin.gov/fungaldata-bases/>. Retrieved April 27, 2022
- Lombard L, Van der Merwe NA, Groenewald JZ, Crous PW (2015) Generic concepts in Nectriaceae. *Stud Mycol* 80:189–245

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