First report of branch canker and dieback caused by *Cryphonectria naterciae* on *Quercus suber* in Algeria

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Over the last few decades, severe and widespread tree decline and mortality events have been observed in all the main growing cork oak (*Quercus suber* L.) forests in Algeria. In winter 2016, during a study on the fungal pathogens involved in the aetiology of cork oak decline, *Diplodia corticola* was found to be the main causal agent of branch canker and dieback. However, in addition to *D. corticola*, isolations from five branches showing exudation, sunken canker and dieback symptoms out of 29 trees investigated in the forest of M'sila (35°37'23''N - 0°53'00''O) yielded on potato dextrose agar (PDA) at 25°C orange to red fungal colonies, with a felty and uniform mycelium. Pycnidia were produced within 4 weeks in the centre of colony maintained on the laboratory bench at room temperature under natural daylight. The hyaline, cylindrical to ellipsoid and aseptate conidia were exuded in a yellow to orange gelatinous matrix and measured 2.7-5.6 × 0.9-2.1 µm (n = 50). All morphological characters corresponded to those reported for *Cryphonectria naterciae* M.H. Bragança, E. Diogo & A.J.L. Phillips by Bragança et al. (2011). Identity of isolates

was confirmed by analysis of the internal transcribed spacer region (ITS1-5.8S-ITS2) of rDNA. The ITS sequences of two representative isolates (BL249 and BL250) was submitted to GenBank (accession numbers: MF535393 and MF535394, respectively) and BLAST searches showed 100% identity with reference sequences of *C. naterciae*, including that of the ex-type culture CBS 129351 (accession No.: EU442657). The pathogenicity of the two representative strains was tested by inoculating freshly cut branches of cork oak following the method used by Linaldeddu et al. (2016). Ten branches were inoculated with each representative isolate and 10 were used as controls. For each branch, a 5-mm-diameter hole was punched through the bark to the wood surface with a cork borer and replaced with a colonized agar plug of the same size taken from the margin of a colony growing actively on PDA with the aerial mycelium facing the wood. Controls were treated with uncolonized agar plugs. The branches were enclosed in transparent plastic bags for 30 days, and kept in the laboratory under natural daylight at 25 °C. At the end of the experimental period, all branches inoculated with fungal mycelial plugs displayed dark brown necrotic lesions on the inner bark and vascular tissues that spread up and down from the inoculation site. The average lesion size was 4.3 ± 1.4 cm (mean ± S.D.) for the strain BL249 and 4.9 ± 0.9 cm for the strain BL250. Control branches showed a brown discoloration restricted to the inoculation site. Both strains, morphologically similar to the inoculated ones, were successfully reisolated from all inoculated branches, but none from the controls, thus fulfilling Koch's postulates. *Cryphonectria naterciae* was first isolated from *Q. suber* and *Castanea sativa* Mill. in Portugal (Bragança et al. 2011). This is the first record of *C. naterciae* in Algeria and the first report of this fungus as a cork oak pathogen. Our data, emphasize how the number of fungal pathogens involved in the aetiology of cork oak decline is greater than previously recognised and suggest that further studies are necessary to evaluate a possible synergistic interaction.

References:

Bragança, H., et al. 2011. Fungal Biol. 115:852.

Linaldeddu, B. T., et al. 2016. Eur. J. Plant Pathol. 146:259.