

DISEASE NOTE

FUNGAL SPECIES ASSOCIATED WITH A SEVERE DECLINE OF OLIVE IN SOUTHERN ITALY

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A severe olive decline of unknown aetiology is currently under investigation in Apulia, (southern Italy). The decline affects mainly aged trees (100 years or older) growing in the Gallipoli bay, on an area extending about 10.000 ha located on the western coast of the Salento peninsula. The disease is characterized by a rapid dieback of shoots, twigs and branches followed by death of the entire tree. Leaf tips and margins turn dark yellow to brown, a condition that spreads inward, eventually leading to desiccation. Symptoms progress in severity from older to younger leaves. Desiccated leaves and mummified drupes remain attached to the shoots. Trunks, branches and twigs viewed in cross section show more or less extensive discolorations of the vascular elements, as reported earlier by Carlucci *et al.* (2008), plus sapwood and vascular cambium. Numerous galleries of the leopard moth, *Zeuzera pyrina* and bark beetles occur on the trunks, branches and twigs of affected plants. Isolations from discolored sapwood made on different growing media allowed the recovery of a number of fungi, *Phaeoacremonium* spp. in particular, which were identified based on morphometric characters and sequencing of ITS and β -tubulin gene regions (Mostert *et al.*, 2006). *P. parasiticum* was the most frequent species, followed by *P. rubrigenum*, *P. aleophilum*, *P. alvesii*. Fungi belonging to the genus *Phaemoniella* were also found. This is the first report of *P. parasiticum* and *P. alvesii* on olive in Italy. The role of these fungal species, alone or in combination with other plant pathogens, in determining the symptoms observed on olive trees is currently under investigation.

Mostert L., Groenewald J.Z., Summerbell R.C., Gams W., Crous P.V., 2006. Taxonomy and pathology of *Togninia* (*Diaporthales*) and its *Phaeoacremonium* anamorphs. *Studies in Mycology* **54**: 1-113.

Carlucci A., Lops F., Raimondo M.L., Gentile V., Colatruglio L., Mucci M., Frisullo F., 2008. Comportamento patogenetico di alcuni isolati fungini associati a striature brune del legno di olivo. *Petria*, **18**: 15-25.

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IDENTIFICATION OF DNA SEQUENCES RELATED TO *XYLELLA FASTIDIOSA* IN OLEANDER, ALMOND AND OLIVE TREES EXHIBITING LEAF SCORCH SYMPTOMS IN APULIA (SOUTHERN ITALY)

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Xylella fastidiosa is an important pathogen of commercial crops, landscape trees and ornamentals in North and South America. In Europe, symptoms resembling those caused by *X. fastidiosa* have occasionally been observed, but the presence of this EPPO quarantinable pathogen has never been confirmed. Recently, a rapidly spreading decline of aged olive trees has taken place in a large area of the Salento peninsula (Apulia, southern Italy). PCR assays on extracts from leaf veins and petioles of diseased trees gave positive reactions using *X. fastidiosa* gene-specific primers. In particular, PCR amplicons were generated by primers targeting the conserved hypothetical HL protein (Francis *et al.*, 2006), the RNA polymerase sigma-70 factor, and the 16S rDNA genes (Rodrigues *et al.*, 2003). Furthermore, molecular tests extended to almond and oleander trees with leaf scorching symptoms, growing next to diseased olive orchards, were also positive for *X. fastidiosa*. PCR products amplified from diseased olive trees were sequenced in duplicate and the sequences (EMBL-EBI provisional accession Nos HX2000034932- HX2000035003) showed 95 to 99% identity with the homologous genomic regions of *X. fastidiosa*. Tests for ascertaining the presence of *X. fastidiosa* by DAS-ELISA using two commercial kits (Agadia, USA and Bio-Rad, USA) were also positive, thus confirming molecular tests. Studies aimed at isolating the bacterium, determining the strain, evaluating its pathogenicity, and identifying the putative local vector(s) are currently in progress. *X. fastidiosa* has an extensive natural host range, including olive, from which the bacterial genotype A, pathogenic to oleander and almond, but not to grapevine, has been isolated in California (Krugner *et al.*, 2010).

Francis M., Lin H., Cabrera-La Rosa J., Doddapaneni H., Civerolo E.L., 2006. Genome-based PCR primers for specific and sensitive detection and quantification of *Xylella fastidiosa*. *European Journal of Plant Pathology* **115**:203-213.

Krugner R., Johnson M.W., Chen J., 2010. Evaluation of pathogenicity and insect transmission of *Xylella fastidiosa* strains to olive plants. California Olive Committee. Final Report 2010. <http://calolive.org/wp-content/uploads/Research-Reports-2010.pdf>

Rodrigues L.M., Silva-Stenico M.E., Gomes J.E., Lopes J.R., Tsai S.M., 2003. Detection and diversity assessment of *Xylella fastidiosa* in field-collected plant and insect samples by using 16S rRNA and gyrB sequences. *Applied and Environmental Microbiology* **69**: 4249-4255.

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