

forest managers can better anticipate future disease scenarios and design more effective mitigation strategies.

The rise of emerging pathogens in a changing world: the case of *Cryptostroma corticale*. R. SCHLOESSER^{1,2}, S. BIEN², J. BUSSKAMP², G.J. LANGER², E.J. LANGER³, L. GHELARDINI^{4,5}, A.L. PEPORI¹, A. SANTINI¹. ¹IPSP, National Research Council CNR, Via Madonna del Piano 10, 50127 Sesto Fiorentino, FI, Italy. ²NW-FVA, Northwest German Forest Research Institute, Grätzelstraße 2, 37079 Göttingen, Germany. ³University of Kassel, Department of Ecology, Heinrich-Plett-Straße 40, D-34132 Kassel, Germany. ⁴University of Florence, Department of Agriculture, Food, Environment and Forestry (DAGRI), Florence, Italy. ⁵National Biodiversity Future Center (NBFC), Palermo, Italy. E-MAIL: rebekkaschloesser@cnr.it

Climate change is progressively stressing and debilitating trees, encouraging the emergence of pathogens previously considered secondary as, for example, *Diplodia sapinea*, *Biscogniauxia nummularia*, *B. mediterranea* and *Cryptostroma corticale*. *C. corticale*, the causal agent of the Sooty Bark Disease (SBD), has been present in Europe at least since the middle of the 20th century. The pathogen had been reported from several central European countries in the 1950s and 1960s, causing mostly minor and localised damage, however, started causing large scale damages after the extreme drought years 2018-2020. According to literature, the pathogen emerges in cyclic patterns following years with above-average summer temperatures. SBD mainly causes damage on *Acer pseudoplatanus* but can also infect other native *Acer* species as well as *Aesculus hippocastanum*. As temperatures are expected to rise further, especially in the Mediterranean area, further outbreaks of secondary pathogens can be envisaged in the future. Since the start of the latest large-scale outbreak of SBD in Europe, interest in SBD has increased, and several papers regarding dispersion and potential management have been published. The disease has also come to the attention of the general public, as the spores produced by *C. corticale* can cause an allergic reaction in humans referred to as 'maple bark strippers' disease. As breakouts of SBD have been reported from many different regions, it was of interest to investigate whether *C. corticale* might have an endophytic life stage and thus be dispersed much farther than observed by symptomatic trees.

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ORAL PRESENTATIONS

Integrative analysis of bacterial pathogens causing acute oak decline on Portuguese fagaceae forests. L. CRUZ^{1,2}, L. DUARTE¹, D. MCGUIRE^{1,2}, A. MADURO¹, E. SOUSA^{1,3}, P. NAVES^{1,3}. ¹National Institute for Agrarian and Veterinarian Research, Oeiras, Portugal. ²BioSystems & Integrative Sciences Institute (BioISI), University of Lisbon, Lisbon, Portugal. ³GREEN-IT – Bioresources for Sustainability. E-MAIL: leonor.cruz@iniav.pt

Since the first report of acute oak decline agent *Brenneria goodwinii* affecting *Quercus suber* in Portugal (2018), an increasing number of similar findings on other Fagaceae species, namely *Quercus ilex* and *Quercus pyrenaica*, have been observed in distinct geographic areas of the country. Over 100 samples collected from trunks, twigs, acorns and insects from the Buprestidae, Dermestidae and Cerambycidae (Coleoptera) families were laboratory tested using isolation and biomolecular tools to identify the putative agents involved in this decline syndrome. Additionally, cross pathogenicity tests were made for selected strains under confinement conditions on healthy plantlets of *Q. suber*, *Q. ilex* and *Q. pyrenaica* using reference strains of *B. goodwinii* and *Lonsdalea* spp., as controls. Whole Genome Sequencing (WGS) was further implemented on a set of strains selected based on the host species, location and pathogen. Relative frequency of positive isolation and PCR tests showed differences between host species. *Q. ilex* displayed the lowest infection level (5.71%), *Q. suber* 14.29% and *Q. pyrenaica* showed the highest disease rate (17.24%). These tests highlighted the presence of distinct bacterial pathogens affecting stands and isolated trees, while cross pathogenicity tests disclosed specific host-pathogen interaction patterns. Additionally, WGS confirmed the presence, among other bacteria, of pathogenic strains of *Lonsdalea iberica*, *B. goodwinii* and *Rahnella victoriana*, affecting these hosts. This study brings to light relevant epidemiological aspects of acute oak decline, contributing to clarify the presence, diversity and risk of dispersion of these pathogens in south-western Europe Mediterranean forests, where distinct Fagaceae species coexist.

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