

EARLY STAGES OF INFECTION OF CORK AND
HOLM OAK TREES BY *PHYTOPHTHORA CINNAMOMI*

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ABSTRACT

Phytophthora cinnamomi is associated with cork and holm oak decline disease. In this work we reported the histological alterations observed on the early infection stages of *P. cinnamomi* on cork oak and holm oak with a view to get information to the search for non-toxic agriculture pest control.

Primary and lateral fine roots were inoculated with mycelium of an isolate of *P. cinnamomi* were observed by light and fluorescence microscopy during six days.

The penetration and intra and intercellular progression of the pathogen through the cortical parenchyma and vascular cylinder are similar in both species. Mycelium colonization in holm oak root tissues was remarkable by the number and the development of the hyphae filling parenchyma cells and phloem and xylem vessels.

Root infection was more rapid and severe in holm oak than in cork oak. The results suggest that *P. cinnamomi* invades the holm oak root tissues earlier than in cork oak; after 24 hours of inoculation the pathogen reached the vascular cylinder. In cork and holm oak trees the accumulation of phenolic compounds were observed in association with the pectins of intercellular spaces in phloem and parenchyma cells close to the hyphae.

Our observations indicate that the phenols accumulated do not prevent root invasion by this pathogen in both species, as hyphae invaded quickly the vascular cylinder.

Keywords: *Phytophthora cinnamomi*, cork and holm oak decline disease, histological alterations.