



**FIELD EVALUATION OF CORK OAK SEEDLING VIABILITY IN A SOIL NATURALLY INFESTED WITH *PHYTOPHTHORA CINNAMOMI***

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The present work describes the evaluation of the tolerance or susceptibility of cork oak seedlings to *Phytophthora cinnamomi* infection in the field, and discusses the possibility of using their genetic diversity to control the cork oak decline in areas highly infested with this pathogen in Portugal and Spain. Acorns were collected from trees located in six geographically distinct regions of Portugal (Trás-os-Montes, Estremadura, Ribatejo, Alto Alentejo, Baixo Alentejo and Algarve) and in one of Spain (Andalucía), and sown in a soil naturally infested with *P. cinnamomi* situated in Algarve, the southern region of Portugal. During three consecutive years, the height of the seedlings was measured and the mortality was assessed twice a year (June/July and December). Mortality in the first year after sowing (2004) was high, near 39 %, mainly due to the evolution of the different acorn families during storage. During 2005 and 2006, mortality decreased to 18% and 7%, respectively. Statistical analysis showed that the percentage of acorn germination was neither independent of the maternal progeny nor of the region where they were collected indicating a certain degree of local and regional differentiation. The highest percentages of germination were observed within families of the Portuguese regions of Alto-Alentejo and Estremadura. Mortality of seedlings was randomly distributed within families and regions. During 2006, seedlings with disease symptoms or already dead were collected to detect *P. cinnamomi*, which was present in ca. 80% of them. Seedling height in December 2006 was significantly different among families of same maternal origin and among regions ( $P << 0.001$ ). Those from Alto-Alentejo and Baixo-Alentejo produced the highest seedlings. The seedlings originating in these regions were already the highest six months after sowing. Preliminary results show a high variability in the percentage of survival after germination among half-sibling seedlings, which was not found to be correlated with geographical origin. In summary, maternal progeny significantly influences both acorn germination and seedling survival, indicating a distinct susceptibility to *P. cinnamomi* among maternal genotypes.