

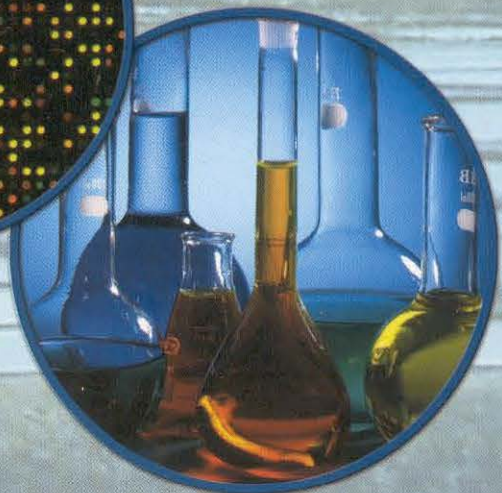
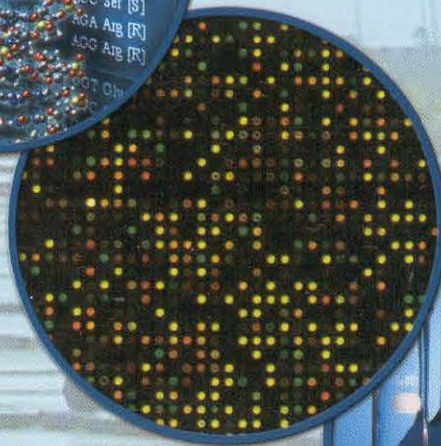
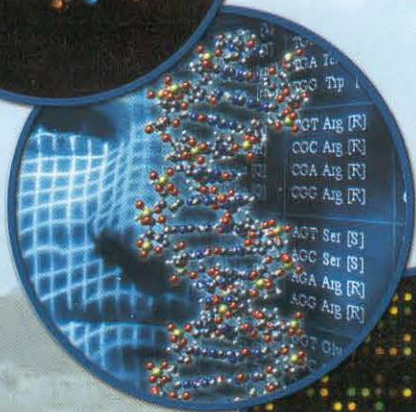
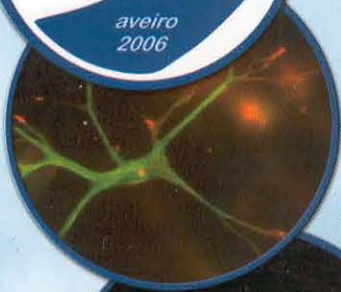


# XV<sup>th</sup> National Congress of Biochemistry

Aveiro, Portugal 8-10 Dec. 2006

[www.ieeta.pt/ncb2006](http://www.ieeta.pt/ncb2006)

Book of Abstracts  
Vol. 2



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## SIGNALLING PROCESS DURING THE EARLY CONTACT OF ECTOMYCORRHIZAL FUNGI *PISOLITHUS TINCTORIUS* WITH *CASTANEA SATIVA* ROOTS

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Ectomycorrhizas (ECM) are symbiotic associations between roots of higher plants, mainly trees (e.g. Pinacea and Fagaceae), and soil fungi (asco- and basidiomycetes). The establishment of this symbiotic association requires a sequence of highly regulated and coordinated events, initiated by an exchange of specific signalling compounds between both partners. The triggering mechanisms and the progression of the colonization process are still not well understood. The present work focus on the signalling process occurring during the early contact of ectomycorrhizal fungi with *Castanea sativa* roots, using a model ECM fungus (*Pisolithus tinctorius*). Early contacts between symbionts were also observed by scanning electron microscopy. In previous work, we have evaluated the involvement of reactive oxygen species (ROS) during the first 48 h after *P. tinctorius* contact with *C. sativa* roots, in which three production peaks of H<sub>2</sub>O<sub>2</sub> and two O<sub>2</sub><sup>•-</sup> burst were detected. The effect of *C. sativa* root extracts in promoting ECM fungi growth was also evaluated by measuring the radial growth of *P. tinctorius* mycelium cultured in medium supplemented with crude extracts from *C. sativa* roots elicited with the same ECM fungi up to 48h. *P. tinctorius* growth is differentially stimulated in the presence of aqueous extracts from elicited *C. sativa* roots, and was significantly correlated with H<sub>2</sub>O<sub>2</sub> production pattern. The results suggest that during the early stages of ECM establishment, H<sub>2</sub>O<sub>2</sub> appears to be an important initial product and a serious candidate to act as a signal molecule during symbiotic development and might be a general strategy to enable successful colonization of the roots.

This work is supported by projects POCTI/BSE/38059/2001 and AGRO 689.