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ROS INVOLVEMENT DURING THE INITIAL STAGES OF ECTOMYCORRHIZA ESTABLISHMENT IN *CASTANEA SATIVA* MILL.

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Mycorrhiza are mutualistic associations between soil fungi and roots of vascular plants. During mycorrhiza establishment morphological, physiological and ecological alterations occur in both symbionts. However, very little is known about the mechanisms controlling the colonization process and how this process is started. It was suggested that, during the early stages of fungal invasion, an induction of defence responses in host plant occurs, similar to the one induced by pathogens that will be suppressed in well developed symbiosis. The present work pretends to evaluate the production of reactive oxygen species (ROS) namely superoxide anion ($O_2^{\cdot-}$) and hydrogen peroxide (H_2O_2) during the early stages of plant-ECM fungi contact.

The experimental work has concerned two different ECM associations established in an "in vitro" system (*Castanea sativa* Mill. / *Pisolithus tinctorius* and *Castanea sativa* Mill. / *Amanita muscaria*). During the first hours of contact (0-48 hours), roots were harvested and hydrogen peroxide levels were determined. Superoxide anion was detected using nitroblue tetrazolium (NBT) staining procedure in *C. sativa* roots collected within the first hours of fungi contact (0-9 hours). In both symbiotic associations three peaks of H_2O_2 and two peaks of $O_2^{\cdot-}$ production were evident, similar to an incompatible plant-pathogen interaction. These findings suggest that hydrogen peroxide and anion superoxide could act as a signal molecule during ectomycorrhizal symbiotic establishment.