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BOOK OF
ABSTRACTS



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INFLUENCE OF MYCORRHIZAL SYMBIOSIS IN ANTIOXIDANT POTENTIAL OF FUNGI AND SEEDLINGS

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Keywords: mycorrhizal systems, antioxidant potential, fungus-plant interactions

Ectomycorrhizal (ECM) symbiosis plays a major role in nutrient cycling and the functioning of forest ecosystems. Trees with well developed ectomycorrhizas are more resistant to environmental stresses such as drought and to biotic stresses such as root pathogens (Smith and Reid 2008). The establishment of ECM symbiosis is triggered by signals produced by both partners. These signals lead to morphological changes and a complex development of specific structures in both the plant root and the fungus (Martin *et al.* 2001).

In the present work, the development of the ECM fungi, *Paxillus involutus* and *Pisolithus arhizus*, in presence and absence of the symbiont – *Pinus pinaster* – was evaluated, as well as their antioxidant properties and phenolic compounds composition in response to the symbiotic association. Phenolic compounds were analyzed by reversed phase HPLC-DAD and the antioxidant properties were evaluated by three *in vitro* assays: 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity, reducing power and lipid peroxidation inhibition through β -carotene bleaching inhibition (Reis *et al.* 2011).

ECM fungi grew less in the presence of *P. pinaster*, with *P. arhizus* being less affected in growth and thus being more adapted to this association. Protocatechuic acid was found only in *P. involutus*, while *P. pinaster* roots, both in association and isolated, proved to have other phenolic acids, such as *p*-hydroxybenzoic and *p*-coumaric acids. The symbiosis between *P. involutus* and *P. pinaster* had no major effects on the symbionts. Otherwise, the association between *P. arhizus* and *P. pinaster* seems to generally decrease the antioxidant effects of both symbionts, despite the increase in *p*-coumaric and cinnamic acids in the ECM fungi, accounting for the hypothesised reduced oxidative stress of the mycorrhizal association induction for both partners.

Literature

Smith, S.E., Read, D.J. 2008: Mycorrhizal symbiosis. Academic Press, San

Diego, CA, USA.

Martin, F., Duplessis, S., Ditengou, F., Lagrange, H., Voiblet, C., Lapeyrie, F. 2001: *New Phytol.*, 151:145–154.

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CAN ECTOMYCORRHIZAL FUNGI BE CHEATERS?

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Keywords: mycorrhizal systems, root meristem, ectomycorrhizae, intracellular hyphae, Hartig net, cheater

Fungi are commonly regarded as ectomycorrhizal when they are able to form ectomycorrhizae (ECM) with roots, irrespective of whether they can cause in addition arbutoid, ericoid, orchidoid or jungermannioid classes of mycorrhizae, indicating a decisive influence of the plant upon the anatomical relation between root cells and hyphae. Whereas the latter three classes present exclusively intracellular hyphae and lack a hyphal mantle, ECM develop apart from a hyphal mantle also intercellular hyphae, the Hartig net. Arbutoid mycorrhizae discern in addition to intracellular hyphae a Hartig net and a hyphal mantle. The latter mycorrhizal classes, are—as indicated by their designation—mostly restricted to special plant relationships whereas ECM plants are widely distributed over angiosperm and gymnosperm families. For all classes there seems to be no possibility to grow beyond the endodermis and to colonize the root meristem.

Although it is known that the Hartig net of ECM can differently deeply protrude into the root cortex, all ECM that form any kind of Hartig net are regarded as typical ECM. As also the mantle can differ in thickness from very wide and compact to a mantle consisting of almost only a single hyphal layer, a high variability of root fungus relations is evident. Extreme issues are examples where hyphae form only a mantle and no Hartig net (Agerer & Beenken 1998). The relation between hyphae and roots is even more diversified, when ECM fungi use foreign ECM as their nutritive basis (Agerer 1990, Beenken 2004), or grow into the meristem and hamper cell

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Monday, September 19

Congress Opening Ceremony

Plenary Session

Moderators: Dr. Stephanos Diamandis & Organizing Committee

08:00-09:00		Registration
09:00-09:30	Meliton Hall (middle floor)	Congress Opening Ceremony Speakers: Dr. S. Diamandis Mr. I. Tzitzios Mayor Dr. K. Mallidis NAGREF Dr. T. Papachristou director FRI Dr. D. Minter president EMA, ISFC
09:30-10:00	Meliton Hall (middle floor)	Keynote speaker: Professor John Taylor <i>Fungal evolution: divergence and adaptation</i>
10:00-10:30	Meliton Hall (middle floor)	Keynote speaker: Dr Paul Cannon <i>Fungal families: morphology, phylogeny and conflict resolution</i>
10:30-11:00	Meliton Hall (middle floor)	Discussion
11:00-11:20		Coffee break
11:30-13:00		Parallel Thematic Sessions in 3 Rooms



Thematic Area: Developmental Mycology

Moderator: Prof. R. Poeder

11:30-11:45	CHLOE (Room I)	Fungal interactions of <i>Hypholoma fasciculare</i> . E. Pereira, D. Baptista, P. Baptista, Teresa Lino-Neto
11:45-12:00	CHLOE (Room I)	Measurement of mycelium growth rate of homokaryotic mycelium obtained from single spore isolates of <i>Hericium erinaceus</i> in different culture media and their compatibility. Ilgaz Akata, E. Kalmis, F. Kalyoncu, M. Atmaca
12:00-12:15	CHLOE (Room I)	Lipid metabolism in <i>Aspergillus niger</i> under heat shock. Vera M. Tereshina, A.S. Memorskaya, E.R. Kotlova
12:15-13:00	CHLOE (Room I)	Discussion
13:00-14:00		Lunch
14:00-15:00	CHLOE (Room I)	Poster Session

Thematic Area: Edible and medicinal fungi

Moderator: Prof. Joao Baptista-Ferreira

15.00-15.15	CHLOE (Room II)	Saprotrophic and mycorrhizal wild edible mushrooms from Portuguese mycoflora as a source of nutrients and nutraceuticals. C. Grangeia, S.A. Heleno, L. Barros, Anabela Martins, I.C.F.R. Ferreira
15.15-15.30	CHLOE (Room II)	Localization of the phenolic compounds on the surface of micelle cells of <i>Lentinula edodes</i> (Berk) Pegler cultivated without or with 20 ppm of Na_2SeO_3 added to the