



# IMC7

## BOOK OF ABSTRACTS



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alcohols for the first time. These studies demonstrated that matric and solute potential had markedly different effects on this relationship. Studies using radio-labelled nutrients showed that accumulation of phosphate varied with regard to water potential, growth rate of strain and with water potential.

**1141 - Effect of concentration of Tris-HCl buffer (hydroxymethyl aminomethane) on sporulation of arbuscular mycorrhizal fungi (AMF)**

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Organic buffers can stimulate growth of arbuscular mycorrhizal fungi through maintenance of stable hydrogen ion concentration, and by the stimulatory capability of the molecule, being an alternative for increasing inoculum production of AMF. In order to determine the effect of concentrations of Tris-HCl buffer on sporulation of AMF, fifth spores of: *Glomus etunicatum* Becker & Gerdemann, *Gigaspora albida* Schenck & Smith, *Scutellospora heterogama* (Nicol. & Gerdemann) Walker & Sanders, and *Acaulospora longula* Spain & Schenck were inoculated, separately, in *Panicum miliaceum* L. seedlings and five replicates of each treatment were maintained for 85 days at the greenhouse (27°C ±4°C and 45 - 81% relative humidity). The pots were irrigated every other day with nutrient solution supplemented with 0, 10, 25, 50, and 75 mM de Tris-HCl and, once a week, the plants were irrigated with distilled water. Different results on spore production were related with the buffer concentration. Growth and sporulation of *S. heterogama* were not benefited by addition of buffer in the nutrient solution. Conversely, comparing with the control, 10 mM and 25 mM of Tris-HCl were enough to increase significantly the sporulation, respectively, of *G. etunicatum* and *G. albida*. For *A. longula*, production of spores was significantly stimulated when the nutrient solution was supplemented with 50 or 75 mM of buffer. The results indicate that Tris-HCl can be used for improving sporulation of some AMF.

**1142 - Physiological and molecular variability in strains of a white rot fungus *Physisporinus rivulosus***

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An isolate of *Physisporinus rivulosus* has been shown to have excellent properties for the use as a pretreatment step

for mechanical pulping. In this study, several strains from type culture collections and the wild strain T241i were compared for the cultural morphology, growth characteristics and ability to decolorise Poly R dye and oxidise ABTS. Fungal growth in spruce wood was studied by light and confocal laser scanning microscopy using conventional anatomical stains, chitin binding lectin Alexa Fluor 660 conjugate, lipid staining Nile red as well as ethidium bromide and DAPI. Another basidiomycete *Ceriporiopsis subvermispora* was used in comparison. Extracellular enzyme activities of lignin degrading manganese peroxidase (MnP) and laccase were recorded. Strain variation at molecular level was investigated using sequence data from MnP encoding genes. Growth habit and speed on malt agar, in and on wood blocks revealed differences among *Physisporinus* strains. Variation was noted in their ability to oxidise the dyes used in the study. All *Physisporinus* strains produced MnP, although heterogeneity was found in the MnP isoenzymes secreted during fungal growth in wood chips. The strain T241i was the only one capable to lower the pH value of the surrounding growth medium during the growth. Morphological, physiological and molecular data is pointing to the conclusion that *P. rivulosus* is heterogenous and may be in need of further systematic study.

**1143 - Impact of ectomycorrhiza formation on the expression of water channel proteins (aquaporins) in fine roots of Norway spruce**

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Root fungus symbiosis (mycorrhiza) improves the nutrient, and also the water supply of the host plant. Water flow across membranes is facilitated by water channel proteins, aquaporins. In order to detect a possible effect of mycorrhiza formation on root aquaporins, we used a sterile Petri dish system to obtain ectomycorrhiza between spruce (*Picea abies*) seedlings and fly agaric (*Amanita muscaria*). Two transcripts were detected with sequence homologies to plant plasma membrane aquaporins (PaPip1-1 and PaPip2-1). Translation of full length cRNA in *Xenopus* oocytes identified the respective proteins as functional aquaporins. Oocyte swelling studies showed that one of them, PaPip2-1, supported very high rates of water flow (Pf values about 200), up to now only known for aquaporins from motor cells of leaf pulvini. An organ-specific Northern blot analysis showed that the expression of PaPip2-1 was mainly confined to fine roots, and that the amount of the transcript was decreased to about 25% of the control upon mycorrhization. In contrast, PaPip1-1 dominated in hypocotyl tissue, facilitated only low rates of swelling in oocytes (Pf values around 25), and its expression was not affected by mycorrhization. We suggest, that PaPip2-1 is