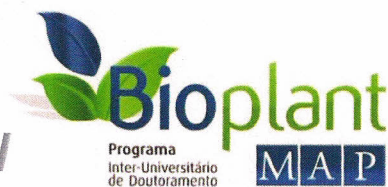


Programa  
Inter-Universitário  
de Doutoramento



**Programa Inter-Universitário de Doutoramento  
em Biologia de Plantas Fundamental e Aplicada**

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**PROGRAMA / PROGRAMME  
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Berry sugar content is directly related to the final alcoholic content of wine, and regulates the development of its aromatic and organoleptic properties. High temperatures affect berry set and development and alter the normal sugar content of the fruit. Also, peaks of high temperature, nowadays more and more frequent, may stop the ripening progress. We have been exploring the mechanisms involved in sugar import and compartmentation into the berry. VvHT1 (*Vitis vinifera* hexose transporter 1) is a high affinity plasma membrane H<sup>+</sup>-dependent symporter with broad specificity for monosaccharides abundant at early stages of berry development. The expression of this transporter is tightly regulated by sugars at transcriptional and post-translational levels (1). In the present study we aimed at the elucidation of the effect of extreme temperature and temperature fluctuations on sugar transport in grape cells. Results showed that a temperature treatment of 38°C for 12 h decreased by 40% the V<sub>max</sub> of <sup>14</sup>C-glucose transport in CSB (Cabernet Sauvignon Berry) cells. Contrarily, abscisic and salicylic acid stimulated sugar uptake. The down-regulation of glucose uptake mediated by high temperature corroborated the observed decrease of the VvHT1 levels in the plasma membrane. Additionally, proteomic analysis of the plasma membrane of CSB cells, allowed the identification of several proteins up-regulated in response to high temperature.

(1) Conde C, Agasse A, Glissant D, Tavares R, Gerós H e Delrot S (2006) Pathways of glucose regulation of monosaccharide transport in grape cells. *Plant Physiology* 141, 1563-1577

## P22 Interaction between two co-occurring fungi present in chestnut orchards

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*Hypholoma fasciculare* is a wood-decaying basidiomycete with a worldwide distribution, including tropical, temperate and boreal forest ecosystems. In Trás-os-Montes region (Northeast of Portugal) this species is commonly present in soils of several habitats, including chestnut and oak tree forests. The ectomycorrhizal fungus *Pisolithus tinctorius* is another species with high occurrence in those ecosystems. The present work intends to study the *in vitro* interaction between *H. fasciculare* and *P. tinctorius* through evaluation of fungal growth, changes on hyphae morphology, the production of volatile compounds and lytic enzymes. The results obtained showed that *H. fasciculare* inhibited significantly the growth of *P. tinctorius* in 49%, long before hyphal contact of their colonies. This inhibition could be result from the liberation from *H. fasciculare* of volatile compounds and/or diffusible inhibitory substances, such as extracellular enzymes. Alteration in the production of volatile compounds, distributed in several chemical classes (alcohols, ketones, aldehydes, terpenes, among others) was detected over the time course of interaction. In addition, amylase, cellulase, laccase and lipase were produced by *H. fasciculare*. The possible role of these compounds during interaction will be discussed.

## P23 Competitive interactions between ectomycorrhizal and saprotrophic fungi on chestnut tree

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