Bolsa de Investigação Científica (BIC)

In order to develop the Project PTDC /AGR-GPL/099624/2008, funded by Fundação para a Ciência e Tecnologia (FCT) - VITMULTISTRESS - *Gene expression in grapevine (Vitis vinifera L) under combined abiotic stress*, at CBAA, Instituto Superior de Agronomia, Lisboa

Proposals of owners of a Master degree in any area of Life Sciences are accepted.
Preferential items are: *i)* experience and motivation for field work in experimental vineyards out of Lisbon (monitoring water availability and meteorological data, determination of physiological and ecophysiological parameters, sampling); *ii)* experience in lab experimental measurements (photosynthesis by gas exchange, chlorophyll fluorescence, enzymatic activities, metabolites); *iii)* Molecular Biology (gene expression by RT-PCR and real time RT-PCR); *iv)* use of Bioinformatics; *v)* English language (reading, writing and oral); *vi)* able for short periods abroad.

Send proposals from January 22nd to February 8th to:
Profª Sara Amâncio
DBEB/CBAA
Instituto Superior de Agronomia,
Tapada da Ajuda
1349-017 Lisboa

The proposal file must refer:

1. Project Title and FCT reference
2. Letter of motivation (one A4);
3. *Curriculum* including degrees, scientific activity and experience related with the project research;
4. One letter of reference of a professional with whom the candidate has worked and or published
5. Candidate contacts: e-mail, telephone, mobile phone

The evaluation of the proposals is by a jury of three PhDs according to FCT rules "Normas para Atribuição de Bolsas no Âmbito de Projectos de Investigação" (http://alfa.fct.mctes.pt/apoios/bolsas/normasbolsasemprojectos).
An individual interview can be necessary.

The selection results will be communicated to all candidates by e-mail before February 28th.
The grant will start on the 1st April 2010

According to FCT grant values (www.fct.mces.pt/bolsas) the grant is of 980 € per month, for one year renewable for an equivalent period.

Project Summary

Aim: we propose to obtain the abiotic stress gene expression signature of a wine making grapevine "castas" through microarray transcriptomic analysis of the leaves under realistic multiple stress conditions.

Background: Plants under normal environmental conditions are exposed to multiple abiotic stresses due to large fluctuations in temperature, irradiance and water availability. Field observations reproduce the effects of simultaneous occurrence of multiple stresses, integrate their variation in extent and intensity and indicate the acclimation responses. The response of plants to multiple abiotic stresses is not predictable by single factor analysis because its simultaneous occurrence may lead to synergestic or antagonistic effects. Transcriptomic responses to multistress conditions can be unique and not extrapolated from the response to each one applied individually. The draft sequences of the genomes of a homozygous line and a heterozygous clone of ´Pinot Noir` grapevine, made it possible to study grapevine as a model organism.

Group expertise: Grapevine is one of the most important crops in our country. Our research unit (CBAA) has more than thirty years experience on grapevine research, aiming at the mechanistic studies on how cells and organisms respond to environmental stresses, mainly water shortage. In vitro cultures of grapevine have been used as a model system for transcriptome profiling of the antioxidative response to mild light stress. Integrated in GRASP ERA-NET Consortium our group is studying the functional genomics of irrigated grapevine.

Research: 1) Comprehensive functional analysis using new 23K Affymetrix oligonucleotide microarray Vitis GeneChip to assess gene expression in leaf samples from field plants under multiple stress (MS) and greenhouse plants under individual stresses (IS, draught, high temperature, high light); 2) Validation of the expression of genes significantly responsive to individual and/or multiple stress by quantitative real-time (qrt) RT-PCR; 3) For responsive genes acting in signaling pathways, *in silico* full length sequence, promoter analysis and regulatory sequences; 4) Gene array for qrt RT-PCR with a low number of highly specific responsive sequences to test grapevine “castas” for their response to environmental MSs.