

**P1165****Preliminary Study on Genes Involved in Cold Tolerance in Two Spanish Olive Cultivars**

Carolina Font i Forcada , Genome Center, University of California, Davis, CA

Marco Cirilli , Dipartimento di Scienze e Tecnologie per l'Agricoltura, le Foreste, la Natura e l'Energia,, Viterbo, Italy

Beatriz Bielsa , Hortofruticulture Department. Agrifood Research Center of Aragón (CITA), ZARAGOZA, Spain

Angel Fernandez i Marti , Genome Center - University of California, DAVIS, CA

Rosario Muleo , Dipartimento di Scienze e Tecnologie per l'Agricoltura, le Foreste, la Natura e l'Energia,, Viterbo, Italy

**Maria J. Rubio-Cabetas** , Hortofruticulture Department, Agrifood Research Center of Aragón (CITA), Zaragoza, Spain

The olive [*Olea europaea* L. subsp. *europaea*] is an old traditional crop which was domesticated from the wild at various locations around the Mediterranean basin resulting in a vast number of accessions worldwide. This is the case of the northeast part of Spain (Aragon), where several genotypes were prospected and have been characterized for cold tolerance. Two cultivars have been used to identify genes involved in cold tolerance, the worldwide cultivar 'Arbequina' and 'Royeta de Asque' autochthonous from the Pyreneans mountain. The experiment was done in a growth chamber at -4°C during 98 hrs, and physiological data were monitored along the experiment. The following involved cold genes have been studied by RT-qPCR: *CBF3*, *DREB1*, *ICE1*, *HOS1*, *TINY* and the RT results have been normalized using the geometric mean of two housekeeping genes: *POLYUB* and *EF1 $\alpha$* . RT-qPCR analysis was conducted on two biological sample, each one repeated twice, for every leaf tissue samples. The results obtained show an inverse relationship between molecular and physiological data. However, it is necessary to keep in mind that this relationship is only apparent, because in resistant plants the expression of cold-involved genes usually occurs during the first few hours from the beginning of the perception of the frost treatment. Subsequently, the expression of those genes drops down and other target genes became more expressed. This is supported by the observations that on the susceptible plants the time scale of gene expression is delayed, coherently with the level of gene expression detected in susceptible genotype Arbequina. Evidences on this interpretation are under examination by analysing the gene expression of a small set of *COR* genes that are target of *ICE1/CBF3* signalome, and their target genes like the subfamily *FAD*, which codify for protein involved in the cell membrane stability.

Back to: [Genome Mapping, Tagging & Characterization: Fruit Species](#)

[<< Previous Poster](#) | [Next Poster >>](#)

[Home/Search](#)

[Browse by Day](#)

[Browse by Type](#)

[Poster Categories](#)

[Meeting Information](#)