

WG 1 meeting on
Long Term Preservation of Woody Species by Cryo-Techniques
organized in the frame of COST Action FA1104
'Sustainable production of high-quality cherries for the European market'
Sesto Fiorentino (Firenze), 26-27 March, 2015

Scientific Report

The local organizer of the Workshop was CNR-IVALSA (National Research Council, Trees and Timber Institute). The meeting was held in Sesto Fiorentino (about 10 kms from Firenze), at the CNR Florence Research Area ([link](#)).

The first day and part of the second day were devoted to the scientific sessions, inclusive of a visit to the laboratories of tissue culture and cryopreservation of the CNR-IVALSA ([link](#)). In the afternoon of the second day, a scientific excursion to the Hesperidarium, an ancient and unique collection of ornamental citrus species, of the Oscar Tintori Nursery in Pescia (Pistoia) was arranged.

Invited speakers and other COST-participants attending the workshop and signing the attendance list were 22. The total number of persons (researchers, technicians, students) who took part to the Workshop was 43.

On day 1 of the Workshop, in the welcome greetings part, Daniela Giovannini, on behalf of the Coordinator and the Management Committee, briefly presented to the audience the scope and the WG organization of COST ACTION FA1104. Then, Mauro Centritto, Director of the CNR-IVALSA, welcomed the participants and made a short description of the scientific activities carried out at IVALSA, with special attention to the basic and practical studies concerning plant cryopreservation. Finally, Maurizio Lambardi, local organizer of the Cryomeeting, brought the welcome of the President of SOI (the Italian Horticulture Society) which collaborated to the Workshop organization.

The scientific sessions were organized in Oral presentations (10) and video posters (5), addressing the following specific topics:

Oral presentations

1. Applied plant cryobanking at CGIAR plant collections: from protocol development to genebank management
2. Cryopreservation of woody species and cryotherapy
3. Cryopreservation of *Malus* and *Fragaria*
4. Cryopreservation of ornamentals
5. Cryopreservation of conifers: challenges and bottlenecks
6. Cryopreservation of synthetic seeds
7. Overview on *Prunus* cryopreservation with focus on cherry
8. Genetic and epigenetic stability assessment of plants regenerated from cryopreservation
9. Pollen cryopreservation
10. Some experiences in the field of *in vitro* cryopreservation of woody species (cherry species included) in the Fruit Research Institute of Čačak (Serbia).

In the video-posters section, each speaker was given 5-10 minutes to synthesise the content of her/his poster:

Poster topics

11. In vitro preservation of patrimonial fruit varieties of Emilia-Romagna region, Italy
12. Preliminary results of cryopreservation experiments aimed to long-term maintenance of Hungarian sour cherry germplasm.
13. Droplet vitrification cryopreservation of Prunus mahaleb using shoot tips from in situ plants.
14. In vitro methods for increasing genetic variability and preserving woody fruit and ornamental species biodiversity applied in Fruitgrowing Institute Plovdiv, Bulgaria
15. Application of the droplet vitrification method for cryopreservation of temperate fruit species

Scientific excursion

In the afternoon of day 2, COST participants visited the Hesperidarium of the Oscar Tintori Nursery (Pescia, about 60 kms far from Sesto Fiorentino). The Hesperidarium is a unique collection of rare Citrus species and varieties. The Tintori's collection is a partial reproduction of the ancient collection initiated in the XVI^o century by Cosimo I^o de' Medici. The trees are maintained in big terracotta basins, along a walkway inside a big greenhouse. Mother plants, from which the collection was created by vegetative propagation, are located in various Medicean Villas, located in the outskirts of Florence . In recent years, the CNR-IVALSA has embarked on a project aimed to secure the valuable material, currently maintained in the garden of the Villa Medicea di Castello in Florence, the Villa with the largest number of accessions. This germplasm is constantly under the risk of losing unique accessions, mainly due to late frosts, when the trees are moved in the outside, and vandalic acts, when the garden is frequented by hundreds of visitors. IVALSA researchers have successfully established a Citrus seed cryo-bank at the CNR of Sesto Fiorentino, the first example in Italy of practical application of plant cryopreservation.

This scientific meeting brought together the most prominent international experts in cryo-techniques applied to the long-term preservation of plant genetic resources. The purpose of the meeting – the exchange around the most up-to-date research advances on cryopreservation, focusing on woody plants and cherry species – was fully achieved. During the meeting, indeed, the experts outlined the progresses made in the development of innovative techniques of cryopreservation, and overviewed, for several woody species, included cherry, examples of application of cryo-techniques to safeguard genetic resources biodiversity. In the recent years, indeed, cryopreservation proved to be a technique that, for many species, has made great advancements in the transition from a theoretical approach to a more-and-more applied practice. Today, numerous germplasm cryobanks, already established in the world, offer the opportunity to maintain plant biodiversity for a practically unlimited period of time, preserving intact the genetic characteristics and sanitary status of germplasm at a relatively low cost of labor.

The list of participants was duly signed every day and a pdf copy sent to the Grant Holder on Monday, 30 March 2013.

An electronic copy of the Book of Abstracts; the pdf of lectures and posters will be collected and soon made available for the COST Action website

Sincerely yours,

Maurizio Lambardi and Daniela Giovannini
Co-Organizers

Date: 31 March 2015