



## CONCLUSIONS OF THE SCIENTIFIC SESSIONS

There have been five plenary sessions with the following topics:

Session A: History and ancient camellias

Session B: Gardens and tourism

Session C: Identification and characterization techniques

Session D: Pests and diseases

Session E: Uses of camellia products

### Summary Session A: History and ancient camellias

#### Chairperson: Beatrice Robson

There were six papers, all of which demonstrated careful preparation, both of the content and also the visual presentations. In the first two papers we learnt about the history of the introduction of camellias to Galicia and heard about some of these remarkable trees in greater detail. We then were given a beautifully illustrated talk on the old camellias of Portugal and, following that, a delightful presentation describing a new project integrating camellias with tourism in Portugal. We learnt about the research that is being conducted into *Camellia X hortensis* in Japan and finally heard the wonderful story of the rescue of an ancient camellia in China, and the huge physical effort involved in carrying buckets of water up many steps during the recent drought.

## Summary Session B: Gardens and tourism

**Chairperson: Zhong Lang Wang**

This is the first time that a special session has been set up especially for Gardens and Tourism in an International Camellia Congress. From 6 excellent oral presentations and 3 wonderful posters from Portugal and Spain, we got to know that beautiful camellias have been leading features in many gardens, streets and squares in Porto and Galicia as well as in Sao Miguel Island of the Azores. After systematic botanical surveys and cultural research on the outstanding camellia collections and ancient camellia trees, much first-hand information and data has been obtained and a set of interpretation tools, like Sitemaps, Guidebooks, Labels, Posters and even 2D barcodes for mobiles, etc., have been developed which make gardens much more understandable for visitors. In the past few years before the 2014 Pontevedra International Camellia Society Congress, some special and interesting camellia routes for tourists have been successfully developed. In Galicia, for example, the camellia route has become a unique tourist brand in Europe. These camellia routes should greatly promote tourism and increase the international influence of Porto and the Azores in Portugal as well as the Galician region in Spain with beautiful camellia gardens and remarkable ancient manors, and enhance the tourist image of these destinations.

## Summary Session C: Identification and characterization techniques

**Chairperson: Antonio M. de Ron**

Three main conclusions can be drawn from the session:

Camellia hybrids could have a relevant role in the improvement and release of new cultivars with new flower types and fragrance.

The taxonomy of the genus *Camellia* is under discussion. The molecular data about different species helps taxonomists but they are not definitive at all, since there is not a consistent agreement with the taxonomy based upon morphological data. More research in molecular markers is needed.

The new technologies are arising inside the Camellia germplasm management and conservation. Software tools are needed to process the increasing amount of information about the genus *Camellia* to make this information available to experts and the general public, especially to the new generations.

## Summary Session D: Pests and diseases

**Chairperson: Maria J. Sainz**

There were six oral communications and one poster in this session. At least in NW Spain, the incidence of pests and most fungal diseases in camellias is low, although attention should be paid to the mite *Cosetacus camelliae*, which infects the sepals of flower buds which prevents the flower opening or causes premature flower drop, and several species in the family *Botriosphaeriaceae* that may be important fungal pathogens for *Camellia* species.

However, most of the presentations were concerned with camellia flower blight, a widespread disease in camellia growing areas, caused by *Ciborinia camelliae*. The common goal of all the research teams is to get control of the disease, which is being addressed mainly through two approaches: by using biological control methods and by producing plant material resistant to attack by the fungus. Although some good results have been obtained *in vitro* with the use

of antagonistic fungi, some researchers suggest that the disease could be possibly controlled especially by using *Camellia* species less susceptible to the pathogen, as *Camellia lutchuensis*, *Camellia longicarpa*, *Camellia transnokoensis* and *Camellia yuhsienensis*, in breeding programs. Nevertheless this is a difficult task since the resistance to the pathogen is a plant polygenic trait.

## Summary Session E: Uses of camellia products

### Chairperson: George Orel

The papers presented in this session highlight the importance and value of food producing *Camellia* species, varieties and cultivars which are mostly used for the production of the 'tea of commerce' and of *Camellia* oil.

Studies of the *C. sinensis* clones used for the yield evaluation of tea (Vela P., Paz C., Mansilla P., Salinero C.) indicated the variability of yields and identified the most valuable of the clones.

The study which evaluated the variations in oil contents in *C. japonica* seeds (De Ron A.M., Salinero C., Vela P.) has shown the differences that were determined by the geographical location of the crops. The seed oil contents were not correlated to the seed weight, however it was negatively correlated to the subsample of varieties with lower values of oil content.

The freshness of *Camellia* oil was confirmed by the evaluation of *Camellia* oil quality indices from seeds harvested in Pontevedra (NW Spain) (Vela P., García-Sartal C., Salinero C., González-García M.).

The variability in seed storage components (protein, oil and fatty acids) in the *Camellia* germplasm collection was assessed by De Haro A., Obregón S., del Río M., Font R., Mansilla P. and Salinero C. Here a significant positive correlation between the oil content and oleic acid content was found but no correlation between oil and protein content was established.

Bioactive compounds and biological properties of oils from three *Camellia* species, namely those of *C. japonica*, *C. sasanqua* and *C. grijsii* were studied and evaluated (Salinero C., García-Sartal C., Tolentino G. and Estevinho L.M.). All the oils showed antimicrobial activity. The highest levels of biological activity were found in oils containing the highest concentration of polyphenols. It can be hypothesised that these bioactive compounds might play an important role.

The fact that locally grown *Camellia* is also used for the manufacture of handmade soap which contains vitamins A, B and E as well as antioxidants was discussed by Téllez P. The soap has therapeutic effects on the skin as it improves its softness and elasticity.

Four varieties of *C. sinensis* were assessed by Lema M.J., Salinero C., Rodríguez P. and Vela P. The results of this study indicated that the origins of *C. japonica* plants, but not of *C. sasanqua*, may be established on the basis of chemical analysis.

AnNMR analysis of the triglyceride composition of cold pressed oil from some *Camellia* species, namely of *C. reticulata*, *C. japonica* and *C. oleifera* was performed (Seijas J.A., Feás X., Salinero C., Vela P., Mansilla J.P., Sainz M.J. and Vázquez-Tato M.P.). The results indicated that all oils presented had very high levels of oleic acid and that all had a low risk of oxidation.