



## **COST863: Euroberry Research: from Genomics to Sustainable Production, Quality & Health**

### Minutes of the Workshop - WG2

#### **‘The new biotechnology applied in berry fruits’**

held in Čačak, Serbia from 18<sup>th</sup> to 20<sup>th</sup> June 2009

The Workshop ‘**The new biotechnology applied in berry fruits**’ was held at Čačak in the region of great raspberry production. It was organized by Fruit Research Institute which is situated in Čačak, too.

The objective of the workshop was to promote the new monograph ‘**A GUIDE to some *in vitro* techniques - small fruits**’, edited by COST Action 863 through presentation of new *in vitro* techniques applied in berry fruits by the authors of this monograph, but later we also added the session about the berry production in Serbia, since raspberry is really strategic product of Serbian economy.

Nineteen experts were invited to the workshop, 15 reimbursements were approved, but 13 participants were present (see the list below). All the participants were transported in our van from Belgrade airport to Čačak and the way back.

<b>No</b>	<b>Name and surname</b>	<b>Country</b>	<b><u>E-mail</u></b>
1.	Aco Mičić	Serbia	<a href="mailto:acomitic@ptt.rs">acomitic@ptt.rs</a>
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11.	Snjezana Sredojevic	Serbia	<a href="mailto:office@frigogrand.rs">office@frigogrand.rs</a>
12.	Tatjana Vujović	Serbia	<a href="mailto:tatjanal@tfc.kg.ac.yu">tatjanal@tfc.kg.ac.yu</a>
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The duration of all presentations was about 20 min. The presentations will be placed on the web site of COST863 in PDF format.

The workshop was divided in two sessions and started in the morning of June 18<sup>th</sup>.

The opening of the workshop and welcome note was given by: Dr Djurdjina Ružić, the local organiser and MC of COST863 for Serbia; Dr Svetlana Paunović, the director of FRI; Dr

Radosav Cerović, the Assistant Minister (Ministry of Science and Technological Development, Belgrade RS - Department for Technological Development, Transfer of Technologies and Innovation System).

After the welcome ceremony Prof. Dr Bruno Mezzetti, the Chairman of COST863, gave a presentation titled: 'What is COST863?'

**Session I - SOME *IN VITRO* TECHNIQUES APPLIED IN SMALL FRUITS**, took place with oral presentations made by:

**Valentina Isac** - Protocols for *in vitro* micropropagation of raspberry;

**Durdina Ružić** - Protocols for *in vitro* micropropagation of blackberry and black currant;

**Alena Gajdošová** - Micropropagation of blueberry (*Vaccinium corymbosum* L.) and lingonberry (*Vaccinium vitis-idaea* L.);

**Tatjana Vujović** - Plant regeneration by organogenesis and analysis of genetic stability in blackberry;

**Pascal Geerts** - Quality improvement in an industrial context of *in vitro* propagation of strawberry plantlets;

**Bruno Mezzetti** - Strawberry genetic transformation with genes affecting plant phenotype and fruit quality;

**Maria Antonietta Palombi** - Inheritance and expression of *uid* and *nptii* genes in *fragaria*

Sezai Ercisli - The use of a<sub>flp</sub> to determine genetic relationships among wild and cultivated blackberries;

**Bert Van Duijn** - Non-invasive respiration measurements to evaluate the dormancy level of strawberry propagation material.

**Session II: BERRY PRODUCTION IN SERBIA – PRESENT AND FUTURE**, was started in the morning of June 20<sup>th</sup>. The speakers were:

**Jasminka Milivojević** - Berry varieties spread in Serbia;

**Aco Mičić** - The technology of growing and processing raspberry in western Serbia;

**Slobodan Žunić** - Mechanized harvesting of raspberries in Serbia;

**Snježana Sredojević** - Creating the taste and habits of consumers through development of brand name - example 'FIRST FRUIT', Serbia.

After each presentation there was a discussion about it. In the first session it was about: Concentrations of growth regulators used in some protocols for micropropagation and specially the effect of TDZ and 2,4-D; cost of TC plants and their performance in the open field; the best period for taking the initial explants; duration of subcultures, and phenotypical observation; discussion about juffy pots used for direct rooting, the best length of shoots for this technology; but also about biosafety and GMO plants; measurements of O<sub>2</sub>, and connected with this the level of CO<sub>2</sub>, humidity and quality control....

In the second session we discussed about Serbian farmer unions; appearance and outspread of *Phytophthora* in Serbian raspberry orchards; raspberry prices on the market and the competition among countries and the export in EU, too. There was very interesting presentation, i.e. the film about mechanized raspberry harvesting by machine *Korvan*, and growing technology for this kind of raspberry picking. Finally we shared our experiences dealing with processing industry – one of Serbian brands of frozen berries etc.

During one coffee break the participants visited laboratories of Fruit Research Institute: Department for Fruit Physiology (tissue culture lab.), Department for Fruit Protection and Department for Pomology and Breeding.

On June 19<sup>th</sup> the group visited two commercial orchards in the Arilje region: Blueberry field – owned by Ljubiša Milijanović, having 4 ha; with average yield 3.5 t/ha and cultivars Ozark Blue, Reka, Duke, Nui, Bluecrop and Brigita Blue are planted there. This blueberry field was planted in May 2006.

Our next visit was the well-known raspberry field of Milomir Stojić, who has 5 ha of cv Willamette (3 ha) and cv Meeker (about 2 ha). He is recorder in the raspberry production with average yield of 28-30 t/ha for cv Willamette and 22 t/ha for cv Meeker. All participants had the possibility to interact with owners to ask questions about really well applied growing technology.

These photos will be included in photo gallery: <http://picasaweb.google.com/djinaruzic>). We stopped for a lunch in one restorant in Ivanjica town with a beatiful view of the waterfall. Later a farewell dinner was served at restaurant near Čačak with traditional dishes and special raspberry cake.

On our return journey we visited the monastery ‘Vavedenje’, which is one of ten monasteries of the Ovčar–Kablar gorge called *Serbian Holly Hill*. The monastery ‘Vavedenje’ (Purification of the Virgin Mary) is located on the right bank of the river Zapadna Morava. This monastery was erected by Stevan Nemanja and his son St. Sava. Its existence was mentioned for the first time in 1452.

The workshop ended with several conclusions and closed with cocktail.

#### **SOME CONCLUSIONS:**

Both topics increased scientific knowledge in berry production and this Workshop was highly useful for both areas, but also during the three days of the Workshop we confirmed old contacts and initiated new one, which is very important for research in general;

All presentations were very good and informative in both sessions, with a great contribution in developing of protocols for micropropagation, but further research and collaboration is needed to be contunued among all of us;

The book of Abstracts and presentations in PDF format will be available at the COST863-Euroberry-website <http://www.euroberry.it/>.

#### **ACKNOWLEDGMENTS:**

The organiser would like to give thanks to all participants for their presentations.

Special thanks are addressed to the COST Office in Brussel, to the Fruit Research Institute from Čačak, Ministry of Science and Technological Development RS, and to *Frigogrand* company for supporting the meeting.

Prof. Dr Bruno Mezzetti Chairman of COST863 is to be given the greatest thankfulness for finding time to attend this workshop.

Čačak, 27<sup>th</sup> June, 2009

Dr Djurdjina Ružić

