



**Action 863: Euroberry Research: from Genomics to Sustainable Production,
Quality & Health COST 863**

**Minutes from COST 863 WG2 +WG 3
Small Group Meeting**

**“Emerging virus and virus-like diseases in berryfruits in Europe and
outside of Europe”**

Neustadt an der Weinstrasse, Germany, 6 July 2009

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The Small Group Meeting (SGM) was held within the 21st "International Conference on Virus and other Graft Transmissible Diseases of Fruit Crops" in Neustadt an der Weinstrasse, Germany 2009, 5 - 10. July. The meeting was organized by prof. J. Spak (Biology Centre CAS, České Budějovice, Czech Republic) in cooperation with the local organizers - Prof. Dr. Wilhelm Jelkmann, (Julius Kuehn Institute (JKI), Institute for Plant Protection in Fruit Crops and Viticulture, Dossenheim, Germany) and Prof. Dr. Gabi Krczal (RLP AgroScience GmbH, AlPlanta - Institute for Plant Research, Neustadt, Germany) at the Saalbau conference centre in Neustadt.

In total 17 researchers from 11 countries were approved for reimbursement and all of them were present (see the enclosed list of reimbursed experts), including 4 invited experts from USA - I. Tzanetakis (Univ. of Arkansas), R. Martin (USDA, Oregon), M. Fuchs (Cornell University) and D. Quito (Oregon State University). The presence of US experts was of particular importance as there is currently no research group working on strawberry viruses in Europe and most data on blueberry viruses are originating from USA and Canada. Also, recently many new viruses infecting berries in US and not occurring in Europe were described.

The objectives of the SGM was to discuss:

- 1) Current virus-like pathogens recorded in Europe and in the world and being threat to European berry industry
- 2) Define research topics and collaboration possibilities
- 3) Support declining number of labs dealing with small-fruit virus-like pathogens in Europe

During the meeting there were in total 11 oral and 9 poster presentations. During the evening general discussion, which was open for all participants of the conference and attended by around 50 of them, there were 5 additional presentations and 2 hours discussion on the topics.

Main achievements:

1) Current virus-like pathogens recorded in Europe and in the world and being threat to European berry industry

a) **Strawberry** – newly described viruses were reviewed by I. Tzanetakis, USA. Majority of them were not yet recorded in Europe.

b) **Raspberry** – about 35 viruses are reported from raspberry and blackberry including those described recently from USA (I. Tzanetakis, R. Martin, D. Quito) and U.K. (S. MacFarlane). PCR diagnostics and discrimination of individual viruses in frequently occurring mixed infections are of increasing importance as antisera for e.g. ELISA diagnostics are not available.

c) **Ribes** – a hypothesis of the presence of Blackcurrant reversion virus satellite RNA as (T. Malinowski, Poland) possibly inducing the severe form of the Blackcurrant reversion disease was discussed together with symptom appearance and diagnostic possibilities of the E- and R-form of the disease. The use of BRV antibodies in the serology based detection methods was reported by D. James, Canada.

Gooseberry associated badnavirus, Rubus chlorotic mottle virus and Blackcurrant leafroll associated virus 1 were reported from Switzerland by S. Besse.

d) **Blueberry** is new expanding crop in Europe. Blueberry scorch virus (EPPO quarantine list) was recorded in the Netherlands and Italy in 2005. Two reports of Blueberry red ringspot virus from Slovenia and the Czech Republic were reported during the SGM. The detection of BRRV by different sets of primers and symptom expression in different cultivars was discussed. New infections are expected with the spread of blueberry into new areas in Europe.

2) Research topics and collaboration possibilities

New collaborative contacts were established with the Swiss laboratory from Changins (Sebastien Besse) and the Czech laboratory at the Biology Centre, as both have similar research program on detection of new viruses in Ribes and production of certified virus-free material of Ribes. Exchange of sequence data of the recently discovered Blueberry red ringspot virus from Slovenia and Czech Republic are expected.

3) Support of declining number of labs dealing with small-fruit virus-like pathogens in Europe

was achieved through the reimbursement of at least 6 scientists, who would not be otherwise present. This is important in particular for new member states and Turkey, where a reasonable potential exists for the improvement of health status of the propagation material of small fruits. In comparison to the last meeting dealing with viruses and virus-like diseases of berry crops in Antalya, Turkey in 2006 an increasing number of laboratories was recorded and new groups were present.

4) Presentations during the general discussion

Current and emerging virus-like problems in berry crops in Europe and outside of Europe – *Fragaria*, *Rubus*, *Ribes* and *Vaccinium*. J. Spak

Potential risk of whitefly transmitted viruses in berry crops in Europe. J. Spak

Bemisia tabaci and *Trialeurodes* whiteflies are occurring in covered plantations in Spain and Portugal. Although there are well known vectors of numerous viruses, no attention is paid to the potential epidemiological aspects.

Possibilities of the detection of viruses infecting Rubus were reviewed by I. Tzanetakis, USA

The spread of 'Candidatus *Phlomobacter fragariae*' in strawberry was elucidated by X. Foissac, France.

EPPO List of quarantine virus and virus like diseases in European berries was discussed with respect to the mechanism used and possibilities of update of the list. There are viruses on the list e.g. Strawberry latent C virus, not existing in any collection in the world and with no sequence information for their detection. W. Jelkmann, Germany and G. Cervena, Czech Republic.

5) During the field trip of the conference, there was a demonstration of symptoms of many small fruit virus and virus- like diseases at the fruit growing trials of the research and education facility for fruit crops and grapevine of Baden Wuerttemberg LVWO Weinsberg, at Heuchlingen. This was a unique opportunity for the SGM participants to see field symptoms of diseases caused by e.g. by Rubus stunt phytoplasma, Raspberry bushy dwarf virus, new yellows disease in Ribes and many others, together with advanced indexing methods for their detection on indicator plants.

The outcome of the Small Group Meeting was focused on the identification of the present knowledge on viruses and virus-like diseases in small fruits in Europe. Future requirements in the area of research to reduce the risk of virus epidemics through the improvement diagnostics and virus elimination from the propagation material in order to guarantee a sustainable berry production with high quality fruits were defined. More collaboration in these fields in Europe is important.

The workshop contributed substantially to the activity and the presence of researchers working on virus and virus-like diseases of small fruits. Abstracts of contributions were published in the book of abstracts of the symposium and presented on the Action web page. The Proceedings of the Conference will be published in the series "Julius-Kühn-Archiv" and also made available online as PDF. Publication of the proceedings is expected in early 2010.

ACKNOWLEDGEMENTS

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