



COST FA0807 Workshop - Phytoplasmas in fruit trees: multidisciplinary approaches toward disease management

- 09:00 - 09:15** Introduction by COST FA0807 – Chair A. Bertaccini
- 09:15 - 10:00** Invited lecture: *K. Oshima* - Global gene expression analysis of phytoplasma in the host switching between plant and insect
- 10:00 - 11:45** WG1 – Chairs: B. Duduk and J. Franova
- 10:00 - 10:15 Introduction of WG1 by WG leaders
- 10:15 - 10:25 Detection and identification of a phytoplasma affecting blackcurrant and redcurrant shrubs - *Y. Arocha, V. Agrawal, J. Scott, A. Bertaccini and R. Michelutti*
- 10:25 - 10:35 Molecular polymorphism in phytoplasmas infecting peach trees in Serbia – *B. Duduk, A. Bertaccini, M. Mitrovic, S. Paltrinieri, N. Contaldo*
- 10:35 - 10:40 Serological proofs for relatedness of phytoplasmas belonging to apple proliferation group – *P.G. Ploaie, C. Chireceanu*
- 10:40 - 10:50 Multilocus gene analyses of ‘*Candidatus* Phytoplasma mali’ confirms the genetic diversity of phytoplasma population in the Czech Republic - *J. Fránová, H. Ludvíková, F. Paprštejn, A. Bertaccini*
- 10:50 - 11:00 Early and reliable detection of European stone fruit yellows phytoplasma in peach trees - *J. Polák, J. Salava, P. Komínek and J. Svoboda*
- 11:00 - 11:30 Coffee break
- 11:30 - 11:35 Detectability of phytoplasmas in naturally infected *Picea* and *Pinus* spp. trees by PCR – *M. Kamińska, H. Berniak, A. Kościelak*
- 11:35 - 11:40 First occurrence of pear decline disease in Portugal – *E. Sousa, A. Marques, C. Mimoso, F. Cardoso*
- 11:40 - 11:50 Survey for apple proliferation presence in orchards close to nurseries in Norway in 2011 – *D.R. Blystad, B. Toppe, M.A. Holst, M.B. Brurberg*
- 11:50 - 13:00** WG4 – Chairs: X. Foissac and S. Hogenhout
- 11:50 - 12:20 Update of Phytoplasma Genome Sequencing Initiative (PGSI): fruit trees phytoplasmas – *S. Hogenhout, M. Kube and X. Foissac*
- 12:20 - 12:30 Evidence for ‘*Ca. P. pyri*’ and ‘*Ca. P. prunorum*’ inter-species recombination – *G. Balakishiyeva, J.L. Danet, A. Mammadov, A. Batlle, A. Laviña, I. Huseynova and X. Foissac*
- 12:30 - 12:40 Enrichment of phytoplasma DNA by selected oligonucleotides and PHI 29 polymerase amplification – *C. Siewert, J. Mitrovic, B. Duduk, J. Hecht, K. Mölling, F. Bröcker, P. Beyerlein, C. Büttner, A. Bertaccini, M. Kube*
- 12:40 - 12:50 Genetic diversity, membrane topology and relationship to virulence of the AAA+ ATPases and HflB proteases of ‘*Candidatus* Phytoplasma mali’ - *E. Seemüller, S. Sule, W. Jelkmann, M. Kube, B. Schneider*
- 12:50 - 13:00 Transcriptome analysis of *Vitis vinifera* cv. Chardonnay infected with GLRaV 3 and Aster yellows phytoplasma in a South African vineyard – *M.C. Solofoharivelo, M.C. Snyman, A. Van der Walt, D. Stephan, M.J. Freeborough, J.T. Burger and S. Murray*
- 13:00 - 14:30 Lunch
- 14:30 - 15:10** WG2 – Chairs: B. Jarausch and N. Sauvion
- 14:30 - 14:40 Introduction of WG2 by B. Jarausch
- 14:40 - 14:50 Summary of questionnaire data for the presence of phytoplasma diseases and their putative vectors through Europe and Middle East – *R. Tedeschi, D. Delić, B. Jarausch, P.G. Weintraub*
- 14:50 - 15:00 Psyllid vectors of the AP group (16SrX) phytoplasmas in Turkey - *Ç.U. Serçe, K. Kaya, M. Gazel, K. Çağlayan, N. Sauvion*
- 15:00 - 15:10 Degree of specificity among the psyllid-phytoplasma interactions and consequences in epidemiology - *N. Sauvion*
- 15:10 - 15:50** WG3 – Chairs: W. Jarausch and E. Torres
- 15:10 - 15:20 Phytoplasmas associated with Apricot chlorotic leafroll disease – *N. Contaldo, J. Mitrovic, S. Paltrinieri, B. Duduk, A. Bertaccini*
- 15:20 - 15:30 Almond witches’ broom phytoplasma, officially declared as a regulated pest in Lebanon – *Y.A. Jawdah, M. Molino-Lova, P.A. Bianco, E. Choueiri, S. Hajj-Hassan, L. Haydar and R. Al Achi*
- 15:30 - 15:40 Monitoring distribution of fruit tree phytoplasmas in Bulgaria from 2007 until 2011 – *A. Etropolska and M. Laginova*
- 15:40 - 15:50 Induction of defense genes in apple leaf tissues by an endophytic strain of *Epicoccum nigrum* and its possible use in the control of the apple proliferation disease – *K. Farhan, S. Grisan, R. Polizzotto, F. de Marco, P. Ermacora, R. Musetti*
- 15:50 - 17:00** Joint round table WG2 and WG3

SCIENTIFIC COMMITTEE

Wilhelm Jelkmann, Germany (co-chair ICVF)
 Gabi Krczal, Germany (co-chair ICVF)
 Marina Barba, Italy (co-chair ICVF)
 Stuart MacFarlane, UK (secretary ICVF)

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| Assunta Bertaccini, Italy | Luis Conci, Argentina |
| Delano James, Canada | Verena Muller, Chile |
| Walter Bitterlin, Switzerland | Fiona Constable, Australia |
| Gerard Jongedijk, The Netherlands | Svetlana Paunovic, Rep. of Serbia |
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Marina Barba - Emanuele Colazzo - Elisa Costantini
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EDITORIAL COMMITTEE

Emanuele Colazzo - Simone Lucchesi - Patrizia Rosset

PATRONAGE



SPONSOR



22nd International Conference on
Virus and other Graft Transmissible Diseases of Fruit Crops

June 3-8, 2012



CRA
 Conference Hall CRA-PAV
 Centro Ricerca Patologia Vegetale
 Via Carlo Giuseppe Bertero, 22
 Rome (Italy)

SUNDAY 3 June

17:00 – 20:00 Registration, Poster hanging and Welcome cocktail

MONDAY 4 June

09:00 – 10:00 Registration and poster hanging

10:00 – 10:30 Meeting opening

10:30 – 11:15 Invited lecture

G.P. Martelli - Advances in the knowledge of some fruit tree viruses

11:15 - 11:45 Coffee break

11:45 – 13:00 **Scientific session I - Fruit trees: viruses, viroids and phytoplasmas.** Chairs: W. Jelkman and A. Bertaccini

11:45 - 12:00 Molecular analysis of a 'new' Foveavirus associated with a fruit deforming disease of apple - D. James, A. Varga, G.D. Jespersen, M. Navratil, D. Safarova, F. Constable, M. Horner, K. Eastwell and W. Jelkmann

12:00 – 12:15 Genomic conformation of Apple mosaic virus Turkish isolates coat protein gene regions - F. Ertunc, D. Canik, A. Sezer, Ş. Topkaya, Ç. Ulubaş-Serçe

12:15 – 12:30 Molecular characterization of Tomato ringspot virus (ToRSV) strain responsible for "prune brownline" disease - N. Fiore, L. Rivera and A. Zamorano

12:30 - 12:45 Incidence of viral diseases on pear plants and the molecular characterization of three pear viruses in China - H. Ni, S. Yansu, M. Xiaofang, H. Guojun, W. Liping, W. Guoping

12:45 – 13:00 Detection and identification of Pear blister canker viroid occurring in pear trees in Canada - E.M. Torchetti, C. Birch, M. Cooper, C. Masters, Y. Arocha, F. Di Serio and R. Michelutti

13:00 - 14:30 Lunch and Poster session

14:30 – 16:00 **Scientific session I - Fruit trees: viruses, viroids and phytoplasmas.** Chairs: F. Di Serio and S. Paunovic

14:30 – 14:45 A review of viruses infecting actinidia - A.G. Blouin, R.R. Chavan, M.N. Pearson, R.M. MacDiarmid, C. Ratti, R. Biccheri, B. Lebas, S. Veerakone, D. Cohen

14:45 – 15:00 *Pelargonium zonate spot virus* infecting kiwifruit plants in Italy - R. Biccheri, A.R. Babini, A. Blouin, C. Lanzoni, A. Pisi, C. Poggi Pollini, R. Credi, L. Laghi, P. Rocculi, C. Rubies Autonell, M.N. Pearson and C. Ratti

15:00 – 15:15 Association of phytoplasmas and rod shaped bacteria with citrus disease of unknown etiology in the State of Baja California Sur, Mexico - A. Poghosyan, V. Lebsky, J.H.-Gonzalez

15:15 – 15:30 System biology approaches: a key to lock down witches' broom disease of lime - M. Mardi, F. Ehya, L.K. Farsad, A.M. Feshani, M. Mirzadeh, V. Hajihoseini, E. Sarhadi, M. Shabani, M. Esfahanian, M. Shafiee, M.G. Zamharir, M.K. Nekouei, P.A. Haynes, M. Kube, G.H. Salekdeh

15:30 – 15:45 Detection of viruses infecting apple in north western Himalayan region - A. Brakta, P.D. Thakur and A. Handa

15:45 – 16:00 Phytoplasma detection and identification in kiwi plants and possible correlation with *Pseudomonas syringae* pv *actinidiae* presence - S. Paltrinieri, M. Piergiacomini, S. Ardizzi, N. Contaldo, E. Biondi, C. Lucchese, A. Bertaccini

16:00 – 16:30 Coffee break

16:30 – 18:00 **Scientific session II - Plum pox virus.** Chairs: D. Skoric and M. Cambra

16:30 – 16:45 An atypical Albanian isolate of *Plum pox virus* could be the progenitor of the Marcus strain - F. Palmisano, D. Boscia, A. Minafra, A. Myrta, T. Candresse

16:45 – 17:00 Epidemiology of *Plum pox virus*-T and -M isolates in stone fruit orchards in Turkey - K. Kaya, K. Çağlayan, Ç.U. Serçe, M. Gazel, E. Elçi, F.C. Cengiz, E. Vidal and M. Cambra

17:00 – 17:15 *Plum pox virus* - W appears to be the most variables strain of the seven recognized strains of the virus - A. Sheveleva, P. Ivanov, Y. Prihodko, A. Varga, D. James and S. Chirkov

17:15 – 17:30 Preliminary evaluation of the competitiveness of PPV-Rec and PPV-D under field conditions - I. Zagrai, L. Zagrai, G. Labonne, S. Dallot, A. Festila, I. Baias

17:30 – 17:45 Complete and partial genome sequences of the unusual *Plum pox virus* (PPV) isolates from sour cherry in Russia suggest their classification to a new PPV strain - M. Glasa, Y. Prichodko, T. Zhivaeva, Y. Shneider, L. Predajna, Z. Šubr, T. Candresse

17:45 – 18:00 A large scale study of *Plum pox virus* genetic diversity and of its geographical distribution - M. Glasa, T. Candresse and the *SharCo* consortium

TUESDAY 5 June

09:30 – 10:15 Invited lecture

A. Hadidi - Next-generation sequencing: applications for the detection and identification of plant viruses and viroids

10:15 – 11:00 **Scientific session III - Diagnosis and next generation sequencing.** Chairs: D. Boscia and M. Glasa

10:15 - 10:30 Direct methods of sample preparation for detection of fruit tree viruses and viroids by real-time RT-PCR amplification - E. Bertolini, M.C. Martinez, E. Vidal, A. Olmos and M. Cambra

10:30 - 10:45 Validating PCR protocols for the detection of strawberry viruses in Australia - F. Constable, L. Ko, C. Bottcher, G. Kelly, N. Nancarrow, M. Milinkovic, D. Persley and B. Rodoni

10:45 – 11:00 Characterization of divergent *Plum bark necrosis stem pitting-associated virus* isolates and development of a polyvalent PBNSPaV-specific detection test - A. Marais, C. Faure, B. Bergey, P. Gentil and T. Candresse

11:00 – 11:30 Coffee break

11:30 – 12:15 **Scientific session III - Diagnosis and next generation sequencing.** Chairs: V. Pallas and D. James

11:30 – 11:45 A first evaluation of siRNA next-generation sequencing for detection and characterization of *Prunus* viruses - A. Olmos, M. Cambra, A. Marais, C. Faure and T. Candresse

11:45 – 12:00 Use of 454 pyrosequencing for the fast and efficient characterization of known or novel viral agents in *Prunus* materials - T. Candresse, A. Marais, C. Faure, S. Carrère and P. Gentil

12:00 – 12:15 The study of plant virus disease etiology using next-generation sequencing technologies - H.J. Maree, Y. Ne, M. Visser, B. Coetzee, B. Manicom, J.T. Burger and D.J.G. Rees

12:15 – 13:45 Lunch and Poster session

13:45 - 15:45 **Round Table on "Diagnosis of relevant pathogens: role of National and International Organizations in the frame of harmonization".** Chair: F. Petter

15:45 - 16:15 Coffee break

19:30 **Gala dinner**

WEDNESDAY 6 June

09:00 – 09:45 Invited lecture

R. Flores - Viroids: biology and molecular biology of the smallest plant pathogens

09:45 – 11:00 **Scientific session IV – Host-Pathogen interaction.** Chairs: T. Candresse and L. Conci

09:45 – 10:00 *Peach latent mosaic viroid*: data supporting the involvement of RNA silencing in peach calico (extreme chlorosis) - B. Navarro, A. Gisel, M.E. Rodio, S. Delgado, R. Flores, F. Di Serio

10:00 – 10:15 *Peach latent mosaic viroid*: further insights on a determinant associated with peach mosaic - S. Delgado, B. Navarro, S. Minoia, P. Gentil, M.F. Cambra, F. Di Serio, R. Flores

10:15 - 10:30 Disorganized non-coding DNA fragment is transcribed in plant - H. Guojun, H. Ni, W. Guoping, X. Wenxing

10:30 – 10:45 Generation of *in vitro* RNA transcripts and infectious full-length cDNA clones of ASPV and ASGV - A. Arntjen and W. Jelkmann

10:45 – 11:00 Genome organization of *Cherry leaf roll virus* and analyses of function of virus-encoded proteins - S. von Bargaen, L. Dierker, M. Rott, J. Langer, C. Büttner

11:00 - 11:30 Coffee break

11:30 – 13:15 **Scientific session V - Small fruits: viruses, viroids and phytoplasmas.** Chairs: R.R. Martin and S. MacFarlane

11:30 – 11:45 Strawberry marginal chlorosis (SMC): a disease of various bacterial and viral etiologies in France - J.L. Danet, S. Fimbeau, P. Salar, C. Faure, J.J. Pommier, M. Turque, A. Marais and X. Foissac

11:45 – 12:00 Identification and phylogenetic analysis of viruses infecting stone fruits and strawberry in Egypt - F. Fattouh, C. Ratti, E. Aleem, M. Rabea, A.R. Babini and C. Rubies Autonell

12:00 – 12:15 *Raspberry leaf blotch virus*, a new *Emaravirus* infecting raspberry - S. MacFarlane, W. McGavin, C. Mitchell, P. Cook

12:15 – 12:30 An emerging disease in blueberry caused by a novel RNA virus - R.R. Martin, D.F. Quito-Avila, W.O. Cline, P.F. Harmon, P.M. Brannen

12:30 – 12:45 Occurrence and variability in European isolates of *Blueberry red ringspot virus* - J. Špak, K. Petrzik, J. Přibylková, D. Pavingerová, V. Špaková, D. Kubelková

12:45 - 13:00 Dissecting the epidemiology of *Blackberry yellow vein associated virus* and *Blackberry chlorotic ringspot virus*; a study on population structure, transmission and alternative hosts - B. Poudeř, W.M. Wintermantel, S. Sabanadzovic and I. E. Tzanetakis

13:00 – 13:15 Phytoplasmas of group 16SrI associated with strawberry (*Fragaria x Ananassa*) in Colombia - L.M. Perilla and L. Franco-Lara

13:15 – 15:00 Lunch and Poster session

15:00 – 16:00 **Scientific session VI – Control strategies.** Chairs: W. Jaraush and T. Malinowski

15:00 – 15:15 Transgenic approach for improving resistance of plum cultivars for sharka disease - S. Dolgov, R. Mikhailov, O. Shulga, A. Firsov

15:15 – 15:30 Robust and wide spectrum RNA silencing mediated resistance to *Plum pox virus* - E. Di Nicola-Negri, M. Tavazza and V. Ilardi

15:30 – 15:45 Production and *in vitro* assessment of transgenic plums for the resistance to *Plum pox virus* - S. Monticelli, E. Di Nicola-Negri, A. Gentile, C. Damiano and V. Ilardi

15:45 – 16:00 Use of horticultural mineral oil treatments for the control of different *Plum pox virus* isolates in nursery blocks - E. Vidal, L. Zagrai, S. Milusheva, V. Bozhkova, E. Tasheva-Terzieva, I. Kamenova, I. Zagrai, M. Cambra

16:00 - 16:30 Coffee break

16:30 - 17:15 **Scientific session VI – Control strategies.** Chairs: K. Çağlayan and S. Dolgov

16:30 – 16:45 The present status of commercialized and developed biotech (GM) crops, results of evaluation of plum 'honeysweet' for resistance to plant viruses in the Czech Republic - J. Polák, J. Kumar, B. Krška, M. Ravelonandro and R. Scorza

16:45 – 17:00 Role of conifer extract as repellent on *Cacopsylla pruni* and their effect on the spreading of ESFY in apricot - P. Ermacora, F. Ferrini, M. Martini, N. Loi

17:00 – 17:15 Use of micropropagated *Malus* to study latent apple viruses - A. Liebenberg, A. Kappis, J. Barth, M. Weiter, M. Herdemertens, T. Wetzl and W. Jarausch

17:30 – 19:30 **Scientific Committee meeting**

THURSDAY 7 June

09:00 – 12:30 **Workshop on EU Certification**

"TOWARD THE EUROPEAN CERTIFICATION OF FRUIT PLANT: STATE OF THE ART" Comparison between the research community, representatives of EU countries and stakeholders

09:00 – 09:30 Welcome by Giandomenico Consalvo – President CIVI-Italia

09:30 – 10:45 **Scientific session VII – Certification.** Chairs: P. Giorgetti and M. Barba

09:30 – 09:45 Clean plants, the national clean plant network and harmonizing certification standards in the United States - R.R. Martin, K.C. Eastwell, S.W. Scott, I.E. Tzanetakis

09:45 – 10:00 Establishment of virus-free planting material for pome fruits in Latvia - A. Kāle, A. Gospodaryk, N. Pūpola, I. Moročko-Bičevska

10:00 – 10:15 Development of molecular diagnostic tools to detect endemic and exotic pathogens of *Prunus* species for Australia - F. Constable and B. Rodoni

10:15 – 10:30 Quality systems for production of nursery stock in apple - E.T.M. Meekes, D. Bakker, H. Konings

10:30 – 10:45 Establishment, activities and results of plant biotechnology laboratory in Kabul, Afghanistan - S. Rehman, J. Ahmad, C. Lanzoni, C. Rubies Autonell and C. Ratti

10:45 - 11:15 Coffee break

11:15 - 11:30 **State of the art on the implementing measures of Dir. CE 2008/90** - B. Foletto - D.G. Sanco, EU Commission, Brussels

11:30 – 11:45 **Current status and evaluation of the pests included in the technical protocols for the coming EU certification rules** - Italian Experts Group consulted by MiPAAF

11:45 – 12:30 **Workshop on EU certification: final discussion**

12:30 - 13:30 **ICVF General Assembly**

13:30 – 14:30 Lunch and Poster session

14:30 – 19:00 Technical and touristic tour (Farfa Abbey and visit to the Certification facilities at the CRA-PAV experimental farm of Tor Mancina)

20:00 **Country dinner**