

COST Action FA0807 - Integrated Management of Phytoplasma Epidemics in Different Crop Systems

4th Management Committee Meeting- Sheraton Sophia Balkan Hotel, Sofia, Bulgaria
07th May 2012 from 12:30 to 19:00

1. Welcome to participants by the Chair

Prof. Assunta Bertaccini welcomed all attending members of the management committee. In total 26 members from 18 countries were present including WG1, -2 and -3 leaders.

2. Adoption of the agenda

The agenda pre-approved by the EC and presented here was accepted without changes.

3. Minutes of last meeting

Minutes of the last meeting were submitted to the COST office and deposited at the action webpage.

4. Matters arising

No particular arising matters were reported by the MC members.

5. Report from the COST Office

None.

5.1 News from the COST Office

None.

5.2 Status of Action, including participating countries

The actions in 2011 comprised meetings, training schools, short term scientific missions and dissemination of information material. The 3rd MC meeting in Cison di Valmarino, Italy was attended by 31 participants. The EUPHRESKO meeting at the EPPO office in Paris, France was attended by 15 participants discussing the results on the interlaboratory comparison and validation of detection methods for phytoplasmas of phytosanitary concern in European orchards. A core group meeting attended by 15 participants was organized in Istanbul, Turkey in December on emerging phytoplasma diseases of stone fruits and other crops and their possible impact on EU countries. A workshop attended by 38 participants from the four WGs was conducted in September in Neustadt, Germany. The training school on bioinformatical analyses of phytoplasma sequences had to be split in two parts due to the large number of applicants. The first school was held in Vilnius, Lithuania in July with 17 trainees and 7 trainers. The second school was conducted in November in Belgrade, Serbia with the same number of trainees but 8 trainers. In frame of the phytoplasma genome sequencing initiative (PGSI) of WG4 a training school was run in Norwich, UK in February 2012 on phytoplasma genome annotation, attended by 18 trainees and 8 trainers. In March 2012 a joined meeting of the COST actions FA0807 and FA0701 on phytoplasmas, insect vector symbionts and plant endophytes was held in Milan, Italy.

5.3 Budget Status, budget planning and allocation process

The total amount allocated by COST office was spent in 2011. For meetings, the total costs were slightly more than the estimated one. The expenditure for the training schools were more than estimated. The expenditure for the STSM totalled less than scheduled.

6. Progress report of working groups

6.1. Objectives and working programme

The main objective of Action FA0807 is the enhancement and exchange of scientific knowledge and technologies related to phytoplasma diseases aimed at developing strategies to detect and prevent biological invasion and spread of phytoplasma diseases of plants.

6.1.1 Working Group 1: Detection / diagnostics

Dr. Bojan Duduk represented WG1 comprising 84 members from 27 countries. The main focus of his presentation was on the training schools conducted in Vilnius and Belgrade. He outlined the program which included presentations from 7 trainers. Dr. Michael Kube gave an overview on free software for bioinformatical analyses of sequences and marker sequence determination. Dr. Xavier Foissac gave presentations on Taq polymerase errors and how to handle them and how to work with established phytoplasma markers. Two joint presentations were given by Dr. Michael Kube and Jelena Mitrović, one on sequence assembly, the other on the topic "from sequence annotation to submission". Dr. Bojan Duduk gave a lecture on phylogenetic tree construction. An overview on the history of phytoplasma classification was presented by Prof. Assunta Bertaccini. Drs. Vincent Robert and Gianluigi Cardinali were invited speakers giving keynote lectures on theoretical and practical issues in managing and achieving reliable classification and identification.

A new EUPHRESKO project (FD GRAFDEPI) on epidemiological studies on reservoir hosts and potential vectors of grapevine flavescence doree and validation of different diagnostic procedures started on May 1st 2012 coordinated by Dr. Graziella Pasquini. The action will run for two years including 13 institutions from 9 countries. The main focus is the validation of diagnostic procedures and their harmonization in the EU.

From September 3 to 7, 2012, a training school on methodologies to improve phytoplasma DNA extraction from plants and insects is planned to be held at the Ankara University (Turkey). The action was approved by the MC and Prof. Filiz Ertunc agreed to host the training school as local organizer.

6.1.2 Working Group 2: Epidemiology including vector ecology

WG2 was represented by Dr. Phyllis Weintraub and Dr. Barbara Jarausch. They reported on the past, present and future activities. In 2011, 75 papers were published related to the five tasks in WG2, not including abstracts and meeting proceedings. The referees pointed out that numerous national projects are ongoing and that many national and international meetings were attended by the work group members. The most important event in 2011 was the 2nd IPWG conference followed by the COST meeting. During the IPWG conference 17 oral presentations and 5 oral poster presentations were given and 18 posters on phytoplasma vectors were displayed related to WG2 tasks. In the attached COST meeting 8 oral presentations were related to WG2 activities and a report on WG2 tasks was given.

A major accomplishment of the years 2011 and 2012 was the survey on the occurrence and distribution of the phytoplasma diseases AP, ESFY, PD, BN and FD and their insect vectors. A questionnaire was returned by 28 countries (Austria, Azerbaijan, Belgium, Bosnia & Herzegovina, Bulgaria, Croatia, Czech Republic, Finland, France, Germany, Greece, Hungary, Iran, Israel, Italy, Lebanon, Norway, Portugal, Romania, Russia, Serbia, Slovenia, Spain, Switzerland, The Netherlands, Turkey, United Kingdom) giving an up-to-date picture on the disease status and the vector occurrence in Europe and the Middle East. Distribution maps of the pathogens and their vectors were compiled and are available on the web.

The referees listed a summary of contributions given during the joint meeting of the COST action FA0701 and FA0807 on phytoplasmas, insect vector symbionts and plant endophytes in Milan, Italy in 2012.

The activities of WG2 in the years 2012/2013 will focus on one or two training schools on molecular tools to identify insect vector of phytoplasmas. Two proposals were submitted: one about molecular identification of psyllid species, the other on the identification of leafhopper and planthopper species by Nicolas Sauvion (Montpellier, France) and Domenico Bosco (Turin, Italy), respectively. The training school on psyllid identification has been approved by the MC and will be held from October 1 to 5,

2012 and will be held in Montpellier. A program outline has been submitted to the WG2 leaders. The second workshop on leafhopper and planthopper identification is scheduled for 2013.

6.1.3 Working Group 3: Phytoplasma control in crop systems

Dr. Wolfgang Jarausch presented the achievements of WG3. At the time of the meeting 60 members from 22 countries were listed in WG3 activities. Dr. Jarausch outlined again the five tasks of the working group with its subtasks and subtask leaders. More than 30 publications, not including abstracts or meeting proceedings, were published from WG3 members. The last WG3 meeting was attached to the 2nd IPWG meeting and the minutes of this meeting is available on the webpage www.costphytoplasma.eu. He underlined a few major decisions made during the meeting. First, WG3 tasks 2 and 5 will be combined. Second, the approach for data collection on disease spread and control measures by questionnaires were modified. It was decided to collect the data together with WG2 with a simplified version of the questionnaire. The data collection were delimited to COST objectives from the EFSA-funded PrimaPharcie study. For the grapevine phytoplasmas, 5 countries (Germany, Italy, Netherlands, Spain, Switzerland) responded, comprising 19 regions with 200.000 ha. For fruit tree phytoplasmas, 10 countries (Belgium, Denmark, Finland, Germany, Italy, Israel, Netherlands, Norway, Switzerland, UK) responded comprising 15 regions.

Dr. Jarausch listed workshops and joint workshops with WG3 participation. The workshop on “Emerging phytoplasma diseases of stone fruits and other crops and their possible impact on EU Countries” was held in Istanbul, Turkey on December 1st and 2nd in 2011. A joined workshop of COST Action FA0807 and FA0701 (Arthropod Symbioses: from fundamental studies to pest and diseases management) was held on March 5th 2011 at the University of Milan, Faculty of Agriculture, organised by Prof. Piero Attilio Bianco with the topic “Phytoplasmas, insect vectors, symbionts and plant endophytes”. The abstract book is available at the webpage mentioned above.

Dr. Jarausch proposed a joined action with COST action FA1103 (Endophytes in Biotechnology and Agriculture) which would fit the WG3 task 5. He informed that there was a workshop at the University in Reims, France in March 2012 with the title “Current aspects of European endophyte research”. He listed the future activities of WG3 which will comprise a meeting in Rome on the 8th of June 2012 attached to ICFV congress. He also proposed a joined meeting with COST action FA1103 in San Michele, Italy in November 2012 (see 7.5).

6.1.4 Working Group 4: Phytoplasma / host interactions

Activities and actions of WG4 were presented by Prof. Assunta Bertaccini. The WG leaders Drs. Saskia Hogenhout and Xavier Foissac were tied up with other business. A short overview was given on major oral contributions of the WG4 meeting which was attached to the 2nd IPWG meeting. A more detailed report was presented on the achievements of the Phytoplasma Genome Sequencing Initiative (PGSI) Annotation School at the John Innes Centre (JIC) in Norwich, UK, on February 20-24, 2012 organized by Drs. Hogenhout, Foissac and Kube. The school was organized with the goal to disseminate knowledge about how to carry out annotation of phytoplasma genome sequences. As an example the partially sequenced genomes of six phytoplasmas were annotated. The phytoplasmas were maize bushy stunt phytoplasma (MBSP) (16SrI-B), stolbur phytoplasma (16SrXII-A), ‘*Candidatus Phytoplasma rubi*’ (16SrV-E), flavescence dorée PGYA type (16SrV-C) and ‘*Ca. P. aurantifolia*’ (WBDL - 16SrII-B). A summary on the annotation was attached to each of the phytoplasmas mentioned. The activities of the PGSI were extended and so far new genome sequence information and partial annotation of 5 new phytoplasmas were generated. It is expected that sequence information of more phytoplasmas will become available soon. PGSI school attendees will annotate the phytoplasma genomes as soon as they become available in iANT (annotation platform). The next phase of PGSI will be the selection of phytoplasmas for which the genomes will be sequenced to completion. It was proposed to subdivide PGSI into subteams with an aster yellows (16SrI), a 16SrXII (stolbur and relatives), a 16SrX (apple proliferation, pear decline and stone fruit yellows and relatives), a coconut phytoplasmas and the WBDL (and related phytoplasmas) team. Each of these teams will work together and target one or a few phytoplasmas for further sequencing and annotation. It is expected

that most PGSI participants will have completed the phytoplasma genome annotations by the beginning of 2013. The organizers of the meeting plan to organize a second PGSI annotation school at the John Innes Centre in March 2013 with the goal to compare annotations, revise annotations as necessary and compare the overall phytoplasma genome contents and (gene/operon) structures.

As a future activity, a WG4 meeting for all members who have submitted phytoplasma samples to PGSI was proposed for November or December 2012 in Berlin, Germany. The proposal was declined by the MC. The WG4 leaders asked for funding of a second phytoplasma genome annotation school (same location as above) in March 2013, in which additionally to the goals outlined above a draft outline(s) of publication(s) will be prepared. This school may also include WG1-3 members who would like to use the new sequence information for diagnostics. The MC approved this proposal but it should be approved again after next year budget final allocation. Furthermore, Dr. Hogenhout offered the possibility to organize a WG4 laboratory course. Topics could include methods on how to isolate DNA and RNA, how to amplify, clone and express phytoplasma virulence genes in planta and how to generate stable transgenic *Arabidopsis* plants and detect recombinant proteins on western blots. Autumn 2013 was proposed as a possible date. However, as the proposed date is not within the runtime of the action the proposal was not further discussed.

6.1.5 Joint WG actions, deliverables, final outputs of the Action

A joint FA1003 and FA0807 meeting on “Phytoplasmas, insect vector symbionts and plant endophytes” was held in Milan (Italy) on the 5th of March 2012. The abstracts of the meeting are available on the webpage www.costphytoplasma.eu. A working group meeting of WG1-WG2-WG3-WG4 on Phytoplasmas in fruit trees: multidisciplinary approaches toward disease management will be organized attached to the ICFV conference in Rome (Italy) on June 8, 2012.

6.1.6 Decisions about planning a final publication

The MC members expressed their interest to have a final publication at the end of the action. However, no final decision on the content and the format of the publication was made. The publication costs will be paid by the EC and not from the budget of the action.

6.2 Linking FA0708 to other COST Actions

No new initiative on the linking with other COST Actions were presented by the MC members.

6.3 Prospects for future collaborative actions under the FP7 or Horizons2020 framework

Future collaborative actions are expected and well come but specific actions have not been initiated during the meeting.

7. Action planning

7.1 Annual Progress Conference (preparation and/or feedback from DC)

Nothing under this matter.

7.2 Action Budget Planning 2012

For the period 2012 the total budget granted was already partly spent for meetings (EC, MC and joined meeting with FA1003) and one WG4 school, the working groups meeting in Rome, a new WG3 meeting, STSMs, a WG1 school on “Methodologies to improve phytoplasma DNA extraction from plants and insects” and another from WG2 on molecular identification of insect vectors are planned.

7.3 Action Budget Planning 2013

The budget that will be allocated for 2013 will be mainly used for training schools of WG1; WG2 and WG4, a meeting for nurseryman and stakeholders held by WG3 and STSM.

7.4 Request of Action activity prolongation to the end of 2013

The MC members discussed a non-cost involved extension of the COST action until the end of 2013. The participants agreed to apply for an extension based on reasons outlined below. Within WG 2 (Epidemiology and Vector Ecology) most of the 5 tasks have been successfully completed and results have been posted on the webpage. However, in order to complete all of the tasks, extra time will be needed to synthesize the results to tackle the task of attempting to establish a risk assessment system. For this, all of the results from WG2 and WG3 are needed. The WG4 activities pending for the last few months of the action (second phytoplasma genome annotation school) are expected to have impact on other WG activities concerning diagnostics and management, so the prolongation of the action with the aim of integrating the results and outcomes would be very beneficial. Even though WG1 activities will be completed within the runtime of the action, the same benefit of the results integration are expected also in this groups tasks as mentioned above. In WG1 more training schools will may be also necessary according to requests of participants.

7.5 Action Planning (including meetings)

As stated above, the training schools in 2012 in Istanbul, Turkey on improvements of phytoplasma DNA extraction from plants and insects and the training school in Montpellier, France on psyllid identification have been approved. No decision has been made on the training school on leafhopper and planthopper identification in Torino, Italy in 2013.

A request of WG3 for a meeting at IASMA in San Michele, Italy, on phytoplasma control aspects of fruit tree related topics was approved if financial resources are available.

In frame with the Phytoplasma Genome Sequencing Initiative (PGSI) a second school on phytoplasma genome annotation at the JIC in Norwich, UK was approved. A meeting on genome associated questions in Berlin, Germany was declined by the MC members.

An outline for a meeting with representatives of plant protection institutions and industry (“growers meeting”) was presented by Dr. Jarausch and tentatively agreed. However, no consensus on the venue, program or length of the meeting was reached.

A final meeting in Portugal was approved by the MC members paid by special extra budget.

7.5.1 Location and date of the next meeting

The MC agreed to hold the final MC meeting in Lisbon, Portugal. The meeting will be organized by Dr. Esmeraldina de Sousa.

7.5.2 Planning a final publication

The MC members agreed to have a final publication at the end of the action. However, no definitive agreement was reached, neither on the style nor location of the publication.

8. STSM status, applications

In 2011, ten short term scientific missions were approved. Nine scientific exchanges have been completed in 2011 and one is scheduled for 2012. The duration of the stays were between 7 days and 2 months. Three additional STSM applications have been approved and three applications are in progress.

9. Publications, dissemination and outreach activities INTERNET/WEB site

Prof. Bertaccini summarized the activities in 2011. A total 240 publications from all WGs were published. An extended abstract book of the 2nd IPWG meeting in Neustadt including the working group contributions was published. Abstract books of the Istanbul and Milan meeting are also available. Minutes of the 3rd MC meeting and EC meeting in Neustadt are available. The new journal “Phytopathogenic Mollicutes” has been mentioned as an excellent instrument to spread information on all aspects of phytoplasma research.

10. Request for new members

Two requests for membership were submitted to the chairperson from Jamaica (represented by Wayne Myrie) and from Pakistan.

11. Promotion of gender balance and of Early Stage Researchers (ESR)

Prof. Bertaccini mentioned that conference grants for early stage researchers are available within the COST's strategy. Applicants can submit their application at three collection dates per year listed in the web page.

12. Non-COST country participations

Nine non-COST country are at the present associated with the action (Mauritius, India, Chile, Colombia, Brazil, Canada, Thailand, Saudi Arabia, Iran). South Africa, Australia, New Zealand, Argentina, all with COST reciprocal agreement are also associated as well as three countries (Egypt, Lebanon, Azerbaijan) bordering EU countries.

13. Web news

Martin Verbeek from The Netherlands managing the web page.

14. AOB

None.

15. Closing

The meeting was closed at 19:00 by the chair.