



International Association for the  
**PLANT PROTECTION SCIENCES**

**IAPPS**

**NEWSLETTER**

Number IV

April, 2014

## **MICROBIAL GENETIC RESOURCES WORKING GROUP REGENSUR- PROCISUR**

The Cooperative Program for Technological Development in Agrifood and Agroindustry in the Southern Cone (PROCISUR) constitutes a joint effort of the National Agricultural Research Institutes (NARIs) of Argentina, Bolivia, Brazil, Chile, Paraguay, Uruguay, and the Inter-American Institute for Cooperation on Agriculture (IICA). PROCISUR organizes its partners in different Platforms; one of them is the Microbial Genetic Resources Working Group. This scientific working group develops technical activities that support strategic research on microbes for agriculture, which are implemented through the Regional Genetic Resources Platform (REGENSUR). Current focus is placed on the “Search of multifunctional traits in microbial collections for agricultural innovation”, bridging microbial strains through biological control agents for the implementation of successful integrated pest management programs.



The Microbial Genetic Resources Working Group met recently at Chillán, Chile (November 12-13, 2013). The regional partners were represented by Alejandro Peticari (Argentina), Sueli Correa de Mello (Brasil), Andrés France (Chile), Patricia Rodríguez (Paraguay), and Nora Altier (Uruguay). The group attended a seminar on “The Budapest Treaty: Protecting the Intellectual Property of Microbial Resources” and visited the Colección Chilena de Recursos Genéticos Microbianos (CChRGM) at INIA Quilmapu research station, which recently acquired the status of International Depository Authority (IDA) under the Budapest Treaty.

Additionally, the group received the visit of Dr. David Smith (on the right in the picture), Director of Biological Resources (CABI, United Kingdom) and President 2004 to 2010 of the World Federation for Culture Collections (WFCC). Dr. Smith shared the MIRRI (Microbial Resource Research Infrastructure) initiative, driven by the Global Biological Resource Centre Network (GBRCN)

Secretariat. It gathers pan-European activities, while it pursues the linking to national and regional activities within the USA, South America, Asia, and other potential partners. MIRRI focuses efforts to improve biological resources to meet user needs, while it helps scientists release the potential of microorganisms in agriculture.

Furthermore, the working group shared the visit of Dr. Ewald Glantschnig, chief of the Budapest Treaty Section, Patent Division, from the World Intellectual Property Organization (WIPO), Switzerland. Dr. Glantschnig is expert in intellectual property and the microbial protection by patents and the establishment and functions of IDA through the world.

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## **INVASIVE MEALYBUGS IN SOUTHEAST ASIA ECOLOGICAL INSIGHTS TO FACILITATE CONTROL**

The international workshop on ‘invasive mealybugs in Southeast Asia - ecological insights to facilitate control’ took place December 8-11, 2013, at the Institute for Agricultural Sciences (IAS), Ho Chi Minh City, Vietnam. It was organized by Kris Wyckhuys, a cassava entomologist with the International Center for Tropical Agriculture (CIAT) (on the left in the below picture from a cassava field visit). He was assisted by several prominent entomologists and pest management professionals, including Dr. Muni Muniappan (IPM Innovation Lab, Virginia Tech, USA), Dr.



Heikki Hokkanen (University of Helsinki, Finland), Dr. Ingeborg Menzler (University of Helsinki, Finland), Dr. Jan-Willem Ketelaar (FAO, Bangkok), Dr. Geoff Gurr (Charles Sturt University, Australia), Dr. Yijuan Xu (South China Agricultural University), Dr. James Harwood (University of Kentucky, USA), Dr. Takumasa Kondo (Corpoica, Colombia), and Dr. Aunu Rauf (Bogor Agricultural University, Indonesia).

This workshop raised a broader awareness about invasive mealybugs in Southeast Asia in order to

gain critical insights into their ecology, and to design a plan of action to slow their spread and impact. It brought national scientists from Thailand, Vietnam, Cambodia, Laos, Myanmar and southern China together with pest management professionals from abroad. Academic talks were alternated with active discussion sessions around a select set of topics. For graduate students and the technical staff of local plant health institutions, hands-on training was provided by two celebrated mealybug taxonomists. These experts conducted training on sample processing, slide mounting and morphology-based identification of some of the new invasive pests. A field trip was organized to Tay Ninh province, a major cassava-growing area affected by the cassava mealybug *Phenacoccus manihoti* (Hemiptera: Pseudococcidae)

Southeast Asian cassava crops remained virtually free of major phytosanitary problems until 2008, when one of the most destructive pests of cassava, *P. manihoti*., was recorded in Thailand and then in neighboring countries. However, an effective parasitoid of this pest, *Anagyrus lopezi*, was introduced to Thailand by the International Institute of Tropical Agriculture (IITA) in Benin in 2009. The papaya mealybug, *Paracoccus marginatus*, another neotropical species, appeared in Southeast Asia in 2008; and it has been controlled by the fortuitously introduced parasitoid, *Acerophagus papayae*.

Other invasive exotic mealybugs recorded in Southeast Asia include *Phenacoccus solenopsis*, a serious pest of cotton, and the polyphagous mealybugs *Phenacoccus madeirensis* and *Pseudococcus jackbeardsleyi*.

In general, proper management approaches wait to be defined for several of these novel invasive mealybugs. Biological control measures have been taken against *P. manihoti* and *P. marginatus*, but other pests wait to be addressed. Successful pest management programs hinge upon in-depth insights into the ecology of these invasive species and their correct identification. However, up until the present, no comprehensive workshops or training events had been held on these topics in the Southeast Asia region.

The workshop came up with the following recommendations for dealing with invasive mealybugs in South and Southeast Asia:

1. Establish a Southeast Asia network led by the International Center for Tropical Agriculture (CIAT) and the Asian Institute of Technology (AIT) to develop a database to help with tracking invasive mealybugs and their natural enemies.
2. Each country should survey and identify invasive mealybugs that have already become established, and should implement quarantine measures to prevent the introduction of new invasive mealybugs. This should be coordinated with the Asia Pacific Plant Protection Commission.
3. Provide training for national plant protection and quarantine officers in order to prevent inadvertent introduction of exotic mealybugs.
4. Provide training for researchers, extension workers, NGOs and farmers in the management of invasive mealybugs.

5. When the absence of natural enemies of an exotic mealybug is observed, a country should consider taking up classical biological control by introducing the pest's known effective natural enemy.
6. Regarding the introduction of natural enemies, each country should follow the International Standards for Phytosanitary Measures (ISPM 3) that deals with the introduction of biological control agents.
7. When classical biological control is adopted, pre- and post-release surveys and impact assessment should be conducted according to the ISPM 3.
8. Strengthen national capacity for the mass rearing and release of natural enemies for the control of invasive mealybugs.
9. Involve the private sector in the production and release of natural enemies.
10. Countries should review existing policies and plant quarantine regulations in order to encourage environmentally-friendly alternatives to pesticides.

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**The IAPPS Newsletter is published by the International Association for the Plant Protection Sciences and distributed in *Crop Protection* to members and other subscribers. *Crop Protection*, published by Elsevier, is the Official Journal of IAPPS.**

**IAPPS Mission: to provide a global forum for the purpose of identifying, evaluating, integrating, and promoting plant protection concepts, technologies, and policies that are economically, environmentally, and socially acceptable.**

**It seeks to provide a global umbrella for the plant protection sciences to facilitate and promote the application of the Integrated Pest Management (IPM) approach to the world's crop and forest ecosystems.**

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