

IPM CRSP Trip Reports

Country Visited: INDIA

Dates of Travel: 17 – 24 JULY 2011

Travelers Names and Affiliations:

ABDJAD ASIH NAWANGSIH and SAMSUDIN, Department of Plant Protection, Faculty of Agriculture, Bogor Agricultural University, INDONESIA

Purpose of Trip:

The International Workshop on “The Production of Biocontrol Agents (Pseudomonas and Trichoderma)”

Sites Visited:

- (1) Tamil Nadu Agricultural University (TNAU) Campus at Coimbatore
- (2) T.Stanes & Company Limited, 8/23-24, Race Course Road, Coimbatore-641018
- (3) Bio-Control Research Laboratories (BCRL), a division of Pest Control (India) PVT Ltd.(PCI), 36/2, Sriramanahalli, Near Rajankunte Dodbhallapur Road, Arakere Post, Bangalore

Description of Activities/Observation:

Workshop was held in the classroom, in the laboratories, and in the field. In the classroom we were exposed to the theory and research activities done by the TNAU members in the developing of biocontrol formulations for Trichoderma spp. and Pseudomonas fluorescens. After each theory session we were taken to the laboratory for hands on exercises on biocontrol agents from isolation, antagonism tests, mass production and quality control.

At the last day the participants visited a private company named T. Stanes & Co. Limited in Coimbatore to discuss the process in commercialization of biocontrol, from mass production to distribution to the market.

After the workshop, we were lucky to visit a laboratory of a private company in Bangalore named as Bio-Control Research Laboratories (BCRL), a division of Pest Control (India) PVT Ltd. (PCI). This institution has developed some synthetic pheromones used for trapping urban insects: mosquito, cockroach, black ant, bed bugs and termites. Mass production of biocontrol agents, especially Trichoderma, in this laboratory was quite different with that in TNAU or T.Stanes & Company Limited. Formulation of Trichoderma in this Laboratory was based on the use of resting spores (chlamydospores) of the fungi. In TNAU mass

production was based on spores. The medium used in mass production was semi solid medium, while in TNAU was liquid medium.

The workshop gave some new knowledge for us in mass production and quality control. Good team work shown by TNAU staffs made the workshop successful. We appreciated for them. We hope someday there will be a similar workshop in controlling plant pathogenic bacteria.

We would like to say thank you to the IPM CRSP for the opportunity.

Training Activities Conducted:

Program Type	Date	Audience	Number of Participants		Training Provider	Training Objective
			Man	Women		
Workshop	18-21 July 2011	TNAU staff members, delegation from Indonesia, Bangladesh, USA, Uzbekistan, Kyrgyzstan, Honduras.	5	5	VirginiaTech, College of Agriculture and Life Sciences and Tamil Nadu Agricultural University (TNAU)	To expose the IPM CRSP host country scientists on the Mass Production of Biocontrol Agents, their effective utilization in vegetable IPM and to develop collaboration among the scientists working in this area globally

Program Schedule

Date	Time	Topics	PIC
Sunday, July 17th 2011		Arrival of international participants	
Monday, July 18th 2011	09.00 - 10.00 AM	Inaugural session	
	10.00 - 10.30 AM	Tea break	
	10.30 - 11.45 AM	Introduction and prospects of biological control	Dr. E. I. Jonathan
	11.45 - 01.00 PM	Pseudomonas fluorescens as biocontrol agent in vegetable IPM	Dr. R. Samiyappan
	01.11 - 02.00 PM	Lunch break	
	02.00 - 03.00 PM	Host country presentations	
	03.00 - 03.30 PM	Tea break	
	03.20 - 05.30 PM	Host country presentations	
Tuesday, July 19th 2011	08.00 - 10.30 AM	Isolation of Trichoderma from soil and in vitro screening	Dr. A. Kamalakannan
	10.30 - 10.45 AM	Tea break	
	10.45 - 01.30 PM	Mass production of Trichoderma	Dr. S. Nakkeeran
	01.30 - 02.30 PM	Lunch break	
	02.30 - 04.30 PM	Formulation and delivery system of Trichoderma	Dr. S. Sriram
	04.30 - 05.30 PM	Selection of biocontrol agents	Dr. G. Chandrasekar

Wednesday, July 20th 2011	08.00 – 10.15 AM	Isolation of Pseudomonas from rhizosphere soil and in vitro screening	Dr. A. Ramanathan
	10.15 – 10.30 AM	Tea break	
	10.30 – 01.00 PM	Mass production of Pseudomonas fluorescens	Dr. T. Raguchander
	01.00 – 02.00 PM	Lunch break	
	02.00 – 03.30 PM	Formulation and delivery system of Pseudomonas	Dr. T. Raguchander
	03.30 – 03.45 PM	Tea break	
	03.45 – 05.30 PM	Enumeration of population of biocontrol agents in the formulation	Dr. D. Dinakaran
Thursday, July 21st 2011	08.00 – 09.00 AM	Role of private entrepreneurs in the production of biocontrol agents	Dr. Malvika Chaudhary (rep. Dr. K.P. Jayanth)
	09.00 – 01.00 PM	Visit to biocontrol unit/Field visit	Dr. S. Mohankumar & Dr. G. Karthikeyan
	01.00 – 02.00 PM	Lunch break	
	02.00 – 03.15 PM	Induced Systemic Resistance (ISR)/ Systemic Acquired Resistance (SAR)	Dr. D. Saravanakumar
	03.15 – 03.30 PM	Tea break	
	03.30 – 04.30 PM	Storage and shelf life of biocontrol agents	Dr. S. Nakkeeran
	04.30 – 05.30 PM	In vitro screening of biocontrol agents and Bioefficacy of biocontrol agents	Dr. S. Vishwanathan
Friday, July 22nd 2011	08.00 – 09.00 AM	Biological control of seed borne pathogens	Dr. K. Prabakar
	09.00 – 10.00 AM	Quality control of biocontrol agents	Dr. L. Rajendran
	10.00 – 10.15 AM	Tea break	
	10.15 – 11.15 AM	Registration procedures for biocontrol agents in India	Dr. G. Chandrasekar
	11.15 – 12.15 Noon	Mode of action of biocontrol agents	Dr. G. Karthikeyan
	12.15 – 01.15 PM	Role of gender issues in production and utilization of bioagents in IPM	Dr. K. Uma
	01.15 – 02.15 PM	Lunch break	
	02.15 – 03.15 PM	Influence of Pseudomonas and Trichoderma on Phytonematodes	Dr. S. Ramakrishnan
	03.15 – 03.30 PM	Tea break & Group Photo	
	03.30 – 04.30 PM	Group discussion on problems and prospects of utilization of biocontrol agents in IPM/ Post evaluation	Dr. S. Mohankumar
	04.30 – 05.30 PM	Plenary session	
Saturday, July 23rd 2011	06.30 – 09.00 AM	Departure to Bangalore	Dr. Malvika Chaudhary
	09.00 – 12.00 AM	Discussions and Laboratory visit in BCRL - PCI	Dr. K.P. Jayanth
	12.00 – 13.30 PM	Departure to Chennai, Singapore, Jakarta	