

Feed the Future: Innovation Lab for Integrated Pest Management Trip Report

Country(s) Visited: Cambodia

Dates of Travel: 6-February to 8-February

Travelers' Names and Affiliations: Ricardo Oliva, IRRI

Purpose of Trip: visit RUA to define future research activities; Visit CESAIN to discuss about studentship and support on training activities

Sites Visited:

Description of Activities/Observations:

Objective 1. Define research objectives and elaborate a research plan for 2017 with Ms. Socheath Ong, Lecturer at the Royal University of Agriculture (RUA). During the visit we agreed in the following plan:

Royal University of Agriculture and IRRI research plan

BACKGROUND

Bacterial blight and blast are major rice diseases in Southeast Asia. To assess the level of resistance of a variety, national programs rely on laboratory and field evaluations. In that scenario, isolation and characterization of pathogen samples is essential to develop a successful breeding program. One of the limiting factors to fight against rice diseases in Cambodia is the absence of a reference collection to reinforce resistance of released varieties.

OBJECTIVES

1. Develop a national reference collection of bacterial blight and blast
2. Identify the population structure of both pathogens
3. Test a set of bio control products under control conditions

ACTIVITIES

Activity 1. Building the Cambodia national collection of BB and blast.

We will collect BB and blast symptoms in three different provinces: Kongpong Cham, Kongpong Thom, and Takeo. We will isolate in the lab and select representative samples to cover most of the diversity. Collections will be done at different seasons to ensure more variation. We expect to store long-term at least 30 reference isolates for screening purposes.

Activity 2. Virulent spectrum and genetic structure of BB and blast samples

Isolated samples will be pathotyped using the Standard Evaluation System (SES) for rice. To understand the virulent spectrum, each isolate will be

inoculated on a set of near-isogenic lines (NILs) carrying known resistance genes. Disease scores will determine if the resistance gene is to that particular pathogen genotype.

Activity 3. Alternative strategies to control BB and blast

We will test the efficiency of commercially available products to control disease symptoms under controlled conditions. We will select highly virulent isolates of BB and blast to conduct the experiments. We have selected five treatments: Trichoderma sp. , Bacillus sp., salicylic acid , chitosan, and carrageenan.

Activity 4. Training visits and research collaboration

One RUA staff will visit IRRI at least twice to have a one week training session on management of pathogen collections as well as pathogenicity test and field evaluation. A second training session will be planned to learn genetic characterization of pathogens.

Objective 2. Visit to the Center of Excellence on Sustainable Agricultural Intensification and Nutrition (CE SAIN). We updated Dr. Lyda about our collaboration with RUA. We also discuss the possibility to have a student involved in the project under direct supervision of Ms. Ong.

Suggestions, Recommendations, and/or Follow-up Items:

IRRI will provide adequate funding to RUA for the research activities. The IRRI office in Phnom Penh will assist with this matter.

List of Contacts Made:

Name	Title/Organization	Contact Info (address, phone, email)
Ms. Socheath Ong	Lecturer/RUA	ongsocheath@yahoo.com
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