

Integrated Pest Management – Identification of the Membracoids (Leaf- and Treehoppers) on Rice Field Experiment at the Royal University of Phnom Penh

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Introduction

Eighty percent of Cambodian people are traditional mainstay on agriculture. Rice is considered a vital economic agricultural production, yet the demand of consumption due the population growth cannot support this essential need. Moreover, rice product in the country is more likely less attention in improving on quantity and quality of the product. Membracoids (Leaf and treehoppers) are comprised of about more than 25,000 species described; and some species were recorded to be a host specific on the rice where they are usually severely cause damage of rice production. Membracoids feed principally on leaves of their host plants. In addition, Millions tons of agriculture products damaged by those pests. In the study, we aim to (1) determine species abundance and host preference of Membracoids species on three different types of rice crops experiment and (2) identify pest species on rice fields experiment and a reviewing the data from the previous study.

Material and Methods

The experiments located at biological field research (N11°34.013'; E104°53.322'), southwest of the Royal University of Phnom Penh (RUPP). Three plots (2m x 3m) of rice sampling were conducted with three different rice varieties (Romdoul, Damneub and Smaprum). Insect sampling was collecting two times a day and two times a week by using sweeping net (15 mins each plot) and vacuum (5 mins each plot), respectively from 08.00–10.00 am and 02.00–04.00 pm. All collected specimens preserved in 1.5 ml tubes with 97% ethanol. All collected specimen vouchers were storing at the Entomology Collection at the Department of Biology, RUPP. Specimens were keeping and separately into three containers for future identification. Stereomicroscope was implied for morphological identification. Directed Observation sampling on each plot was also included in the data collection.



Fig1. Insect pests identification process.



Fig2. Insect pests collection methods with sweeping net and vacuum.

Results

The experiment was undertaking for 8 times with sweeping nets and vacuum and directed observation already. Insect pests were collected from plots of three different rice varieties. Through the collected process, the two families of Cicadellidae (leafhoppers) and Membracidae (Treehoppers) were presented in the three plots.

leafhoppers are more abundance on three plots compared to treehoppers where were less to find. However, a number of specimens collected in Damneub plot were less compared to Romdoul and Smaprum plot. Beside, all specimens collected were included the relative family Fulgoroidae (planthoppers) and group of beetles, damselflies, spiders ants and etc. Collection methods and directed observation shown that a vector of tungro virus on rice crops, green leafhoppers (*Nephrotettix spp.*) were presented in the rice crops.



Fig3. *Nephrotettix spp.* are the important pest species on rice crops.

What are expectations of the experiment?

The mini-project experiment on rice crops is still implementing under the Cambodian Entomology Initiatives (CEI) team. The expectation of the experiment is to draw importance of identification Membracoids pest species from the research. Data and information of experiment will be spreading implied for pest control and management in agriculture areas. In addition, understand the effective from pests on rice production will also main focus in the study. Pest specimens collected will store in the Entomology Collection at Department of Biology, RUPP for research and educational purposes. Through the experiment, education and outreach awareness will be provided to students who are interest in Entomology.



Fig4. Specimens pinning and storing at the entomology collection at RUPP.

Contact Us

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