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Several economically-valuable crops are grown in Nilaweli area whereas paddy is the only economically valuable crop in Mahadiwulwewa area. Most of the families in Nilaweli area tend to grow red onion. As a crop grown in the two areas surveyed, the highest annual yield is obtained from onion cultivation. Yield losses during storage happen due to stored-product insects, rodents, and unfavorable conditions of food stores.

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References

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Abundance of insects in rice mills in Polonnaruwa, Sri Lanka

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Abstract

Monitoring of insect population is a prerequisite for integrated pest management attempts. The complex structures/machines in rice milling facilities, however, limit surveying attempts aggravating the ignorance of insect fauna associated with such facilities. Furthermore, insect surveys conducted in Sri Lanka are very rare. The objective of the current study was to determine the presence, diversity, and abundance of insects in rice mills of varying capacity as found in a major rice processing area in Sri Lanka. A group of large-, medium-, and small-scale mills were used for the survey. Samples were collected from different locations in the mills, and the density of insects at each location was determined. Insect species and their abundance varied with the type of mill as well as with the location in the mill. This information is useful to design and implement pest management for the mills.

Keywords: small scale, medium scale, large scale, abundance, insect

1. Introduction

Rice is the staple food of Sri Lankans. In Sri Lanka, the annual paddy production in 2015 in one season was 1.9 million MT. Of this production 14% is from Polonnaruwa district (Department of Census and Statistics, 2015). Furthermore, rice milling is popular in Polonnaruwa area. Insects in rice mills are a challenge as they cause quantitative and qualitative losses in the milling products (Hagstrum and Subramanyam, 2006; Wijayarathne et al., 2018). However, lack of information on insect pest populations and their diversity in rice milling facilities restrict the development of integrated pest management programs. No proper survey has been conducted in rice mills in Sri Lanka on the presence of insects. Therefore, this survey was carried out to determine the presence, diversity, and abundance of insects in rice mills in Polonnaruwa district, Sri Lanka.

2. Materials and Methods

Using a questionnaire, information was collected from large-scale, medium-scale and small-scale rice mills on the abundance of insects and their diversity. Samples from different parts of the mill were collected: store house, rice polishers, destoner, dehusker, separator, silky machine, grader,

elevators, paddy cleaner, flour machine, and polisher. The insects were identified using morphological characters. The abundance of insects in each sample was determined.

3. Results

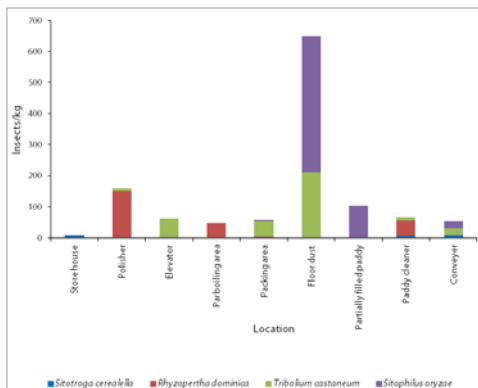


Figure 1. Abundance of insects at different places in the mill-large scale.

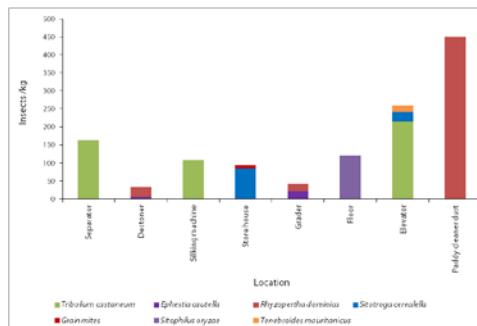


Figure 2. Abundance of insects at different locations in the mill-medium scale.

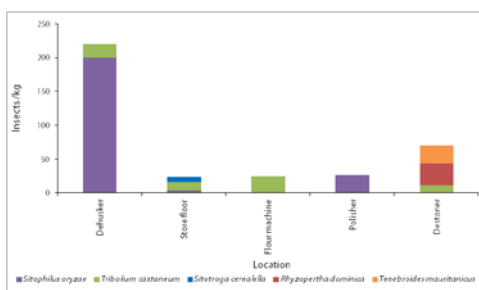


Figure 3. Abundance of insects at different locations in the mill-small scale

Insect diversity and their abundance varied with the type of the mill surveyed. As pest management methods, fumigation and vacuum cleaning are practiced in the large- and medium-scale mills whereas the small-scale millers rely on botanicals.

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