Comparison of Alternative Methods with Intensive Method for Collecting insects and spider Data in Rice Field

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ABSTRACT

Diversity of arthropods in rice field is an important index for determining biodiversity, species richness and their balance. In order to collect data for calculating the biodiversity index, the conventional intensive method is not easy for general people because of its complexity. Hence, methods with fewer complexes that farmers can use for rapid health impact assessment need to be developed. This study aimed to compare the alternative methods for collecting arthropods data with the intensive method. A field experimental study was conducted in the wet and dry season during September 2007-April 2009. A sweep net sampling method was used to collect insects from three rice fields: untreated, treated with pesticide at recommended rate and double rate, in the following four methods: 1) Intensive method by the International Rice Research Institute, 2) Thai Farmer School method, 3) Randomly 3-points, and 4) Randomly 1-point in the centre of plot. Total of 19,200 samples were collected within 19,200 m^2 from the 12 sites of two northeastern provinces of Thailand. The species richness index (Esn) and the exponential Shannon index (exp H′) were computed by EcoSim. The Esn and exp H′ differences that were considered ecologically meaning. Sample sizes were equalized through rarefaction before comparison. Mean difference (MD) between groups with their 95% confident intervals were estimated using linear regression model. The results showed that Esn and exp H′ from the Thai Farmer School method was not significantly different from the Intensive method. This study demonstrated that the efficiency of Thai Farmer School method is comparable to the Intensive method, being easier, cheaper and more practical in farmer's opinion.

Key words: Rice field, Shannon-Wiener index, Rarefaction, Biodiversity