

**ABUNDANCE AND DIVERSITY OF ARTHROPOD FAUNA IN ORGANIC,
CONVENTIONAL AND REDUCED INPUT AGRO-ECOSYSTEMS**

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The conventional rice-fallow-rice cropping system in the dry zone of Sri Lanka is characterized by overreliance on synthetic fertilizers and other agrochemicals. These inputs may negatively effect on the environment causing significant loss of agrobiodiversity. Organic farming and reduced-input cropping systems are a sustainable alternative to maximize the ecological balance. Arthropod fauna is a key indicator for assessing biological diversity and ecosystem health in any ecosystem. However, the biodiversity loss due to agriculture is not fully understood in the local context, Therefore, the present study was conducted to assess the arthropod diversity in organic, conventional and reduced agro-ecosystems in the Research Unit, Faculty of Agriculture, Rajarata University of Sri Lanka. Arthropods were collected from the three ecosystems at reproductive and ripening stages, using sweep netting. The collected specimens were preserved and identified up to the most possible taxa. The arthropod diversity was compared using Shannon-Weaver (H) and Simpson's diversity (D) indices. A total of 1010 arthropods belonging to 44 families and 10 orders were collected. As expected, the organic rice field was the most diverse ecosystem recording the highest species diversity ($H = 0.83$; $D = 1.85$) compared to the conventional cropping system that recorded the lowest diversity ($H = 1.36$; $D = 0.732$). Family Araneae which include spiders, dominated (23.17%) the taxa. Order Hemiptera was the most abundant group of insects (20.69%) of which *Leptocorisa oratorius* dominated the species diversity in all three ecosystems. However, the abundance of pest species was significantly high ($p > 0.05$) in organic agroecosystem and it was lowest in the reduced-input ecosystem. The restricted use of inputs in rice cultivation increase the diversity of arthropod fauna, suggesting a transformation towards healthier and more stable ecosystems.

Keywords: Arthropods, Diversity, Ecological balance