

**DIVERSITY OF ARTHROPOD FAUNA IN ORGANIC AND
CONVENTIONAL RICE AGRO-ECOSYSTEMS AT
BATALAGODA, SRI LANKA**

**K.M.H.G.N.S.B. Kekulandara¹, M.A.R.A. Mandanayake², H.N.P.
Wijayagunasekara³ and A. Balasuriya¹**

¹ *Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura.*

² *Entomology Division, Rice Research and Development Institute, Batalagoda, Ibbagamuwa.*

³ *Department of Agricultural Biology, Faculty of Agriculture, University of Peradeniya, Peradeniya.*

Modern rice cultivation systems, with heavy reliance on agrochemicals has resulted in reduction of biodiversity in rice fields, seriously disrupting its natural balance. A comparative study on arthropod communities in organic and conventional rice agro-ecosystems was conducted at Batalagoda, Sri Lanka, to assess species richness, abundance, evenness and diversity of arthropods. Samples were collected from each conventional and organic rice field at different growth stages, using five different traps; Sweep net, Dip net, Pitfall trap, Burlese-Tullgren apparatus and Aspirator. Specimens were identified using taxonomic keys and the arthropod diversity was calculated using the Shannon-Weaver and Simpson's Diversity indices. A total of 8924 arthropods belonging to 119 species under 60 families and 18 orders were collected. Coleoptera was the most diverse insect group in the rice ecosystem, with 28 species, most dominant of which were, *Pheropsophus jessoensis* (Carabidae), *Micraspis discolour* and *Harmonia octomaculata* (Coccinellidae). Species richness and abundance in organic rice ecosystem were significantly higher, compared to the conventional system. The diversity of all arthropod groups except the order Diptera was also significantly higher in organic fields. Aquatic arthropods represented 81% in the organic ecosystem followed by terrestrial (11%) and aerial (8%) arthropods, while in the conventional field the highest percentage was found to be the terrestrial arthropods. The aquatic environment of organic ecosystem was rich with arthropods, especially the primary consumers of food webs. Restricted use of insecticides in organic paddy cultivation could have contributed to conserve natural balance towards a healthier and more stable ecosystem.

Key words: Arthropods, Diversity, Natural balance, Organic, Rice eco-system