Variation of Diversity and Abundance of Insects Associated with Ground Canopy in Home gardens in Matale District, Sri Lanka

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Insects play a crucial role for the sustainability of the homegarden ecosystem particularly pollination, predation and parasitization. The objective of this study was to assess diversity of insects in relation to the ecological zone, and homegarden diversity. Homegardens (25) were selected in Matale districts covering five ecological zones. Homegardens represent three levels of diversity index, based on five socioeconomic, and biological parameters. Insects associated with ground level plant canopy were sampled using a sweep net (20 sweeps/sample) and sorted them and classified into orders and families. Of the 25 samples, 1793 insects and 193 spiders were found. Insects were in Orders: Hemiptera, Hymenoptera, Diptera, Coleoptera, Orthoptera and Lepidoptera in descending order of abundance. Hemipterans belonged to 18 families: Cicadellidae (49%), Rhyparochromidae (27%), Aphididae (9%), and Pentatomidae (6%). Dipterans belonged to 19 families: Drosophilidae (35%), Agromyzidae (23%) and Lauxaniidae (12%). Hymenopterans belonged to 13 families: Formicidae (59%), Eulophidae (15%), Braconidae (9%) and Platygasteridae (5%). Hemipteran number varied significantly ($p<0.0.5$) among homegardens, ecological zones, and homegarden diversity index (HGDI). Hymenopteran number per homegarden did not vary significantly; it significantly ($p<0.0.5$) varied with ecological, and homegarden diversity index. Number of dipterans significantly varied ($p<0.0.5$) among homegardens, ecological zones, and HGDI. The highest mean insect count per ecological zone was in DL1b (91.5±23) followed by WM3b (81.5±24), IM3b (72.7±16.8) and IM3a (69.5±37). The data revealed that a diverse group of insects was associated with the vegetation of home gardens. The diversity and abundance varied with the ecological zones and HGDI. The diverse nature of the home garden also affects associated insect diversity; therefore, home gardening practices should be planned with due consideration of insect conservation.

Keywords: Order, Family, Hymenoptera, Hemiptera

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