(72)

Diversity and Community Composition of Ants (Hymenoptera, Formicidae) in four Coconut Plantations and Non-Agricultural Lands in the Wet Zone of Sri Lanka

Premadasa S.*, Dias S.

Department of Zoology and Environmental Management, University of Kelaniya, Kelaniya, Sri Lanka
**sajithpriyanathpremadasa@gmail.com*

Abstract

Agricultural practices are blamed for the reduction of ant diversity on earth. The diversity of ants at a coconut plantation (CP) and a non-agricultural land (NL) in Minuwangoda, Mirigama, Katana and Veyangoda in the wet zone, Sri Lanka was investigated from May to October, 2018 by honey baiting and soil sifting methods. Worker ants were surveyed at three, 50 m^2 of land of each type, along two, 100 m transects. Twenty pieces of gauze with a drop of honey were placed on the ground at 1 m interval along each transect and collected after an hour. Twenty soil samples taken at 1 m interval along each transect were sifted and ants fallen to a white tray were collected. Collected ants were preserved in 85% ethanol and identified to the possible taxonomic levels using a low-power stereo-microscope. Number of individuals of each ant species observed by each method was recorded. Air temperature (CP:29.7-30.7° C; NL:25.3-31.0° C), soil temperature (CP:29.0-30.7° C: NL:28.3-33.3° C), soil moisture content (CP:12.4-15.8; NL:10.8-16.3), soil organic matter content (CP:4.0-19.3; NL:4.0-17.5), soil pH (CP:6.2-6.4; NL:6.0-7.1) and soil texture (clay, silt, very fine sand) were also recorded on each occasion. Percentage frequency of occurrence observed by each method and mean percentage frequency of occurrence of each ant species were calculated. Proportional abundance of each species in each community was calculated by pooling the number of individuals of each species observed by both methods. Overall, 29 species in 23 genera of 5 subfamilies, Dolichoderinae, Dorylinae, Formicinae, Myrmicinae and Ponerinae, were observed at the coconut fields while a higher species richness, 36 and 26 genera and 2 additional subfamilies, Leptanillinae, Pseudomyrmicinae, were observed at the non-agricultural lands. Shannon-Wiener Diversity Index values (H', CP:2.06-2.36; NL:2.11-2.56) and Shannon-Wiener Equitability Index values (J', CP:0.73-0.87; NL:0.70-0.88) showed a considerable diversity of ants at both types of lands. *Camponotus* sp.1 and *Myrmicaria brunnea* were observed only at the coconut fields and *Anoplolepis gracilipes, Tetramorium bicarinatum* and *T. walshi* were observed only at the non-agricultural lands. *Lophomyrmex quadrispinosus, Meranoplus bicolor, Pheidole* sp.1 and *Diacamma rugosum* were common to the eight lands.

Keywords: Ants, Diversity, Gampaha District, Wet zone