

Diversity and abundance of hymenopteran parasitoids in Perhentian Island, Terengganu, Peninsular Malaysia

ABSTRACT

Hymenopteran parasitoid is one of the major insect component in the terrestrial ecosystems. A study was conducted to determine the diversity and abundance of hymenopteran parasitoids in a coastal and inland forest of Perhentian Island, Terengganu. Three Malaise traps were installed for each sampling points of the plot areas (i.e. coastal and inland forest). The insect samples were collected after seven days and brought to the laboratory for sorting, enumerating and identifying from order up to family level. The abundance of parasitoids collected was analyzed using T-test analysis and Kruskal-Wallis test whilst their diversity was analyzed using the Shannon-Weiner Diversity Index (H'). A total of 25 hymenopteran parasitoids comprising of 10 families were identified. The most abundance families recorded was Braconidae with eight individuals followed by Ceraphronidae with six individuals whilst Figitidae, Scelionidae and Trichogrammatidae represented by two individuals, respectively. The diversity of Hymenopteran parasitoids in the coastal forest showed higher diversity value with $H'=2.03$ than in the inland forest ($H'=1.17$). The abundance of Hymenopteran parasitoids individuals, however, was not significantly different ($p > 0.05$) between coastal forest and the inland forest plots. Overall, this study showed that the diversity of Hymenopteran parasitoids was higher in the coastal forest although the abundance was not obviously differed from the inland forest of Perhentian Island. For the future, vegetation species, distribution and abiotic factors can be taken into consideration in determining the diversity and abundance of Hymenopteran parasitoids in an island forest.

Keyword: Insect diversity; Insect abundance; Parasitoids; Hymenoptera; Island

