

Entomofaunal diversity of class insecta at different elevations of Denai Cadamba, UiTM Puncak Alam

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Structured Abstract

Background: Insects comprise 30 orders and are known as a widespread animal that plays a significant role in shaping the ecosystem community and is beneficial to mankind in many ways. They are known for many roles such as pollinators, bioindicators, scavengers, and vectors for diseases.

Methods: A study of the diversity and distribution of Class Insecta has been conducted using two Malaise traps at the hiking trail of Denai Cadamba, UiTM Puncak Alam as no study has been done here before. Two different elevations which were low elevation (70 meters from sea level) and high elevation (110 meters from sea level) were chosen to see any difference in the distribution of insects. The traps were left for two weeks and later the samples were collected, sorted, and pinned according to their respective order in the laboratories.

Results: A total of 2476 individuals from 335 morphospecies belonging to 13 orders of insects were collected. The identified orders were Diptera, Lepidoptera, Hymenoptera, Coleoptera, Hemiptera, Collembola, Thysanoptera, Orthoptera, Blattodea, Microcoryphia, Isoptera, Mantodea, and Psocoptera. Order Diptera was the most common order found while Microcoryphia and Psocoptera were the least with only two individuals found. The Shannon-Weiner Diversity Index (H') showed that higher elevation (Trap 2) has a higher diversity value with $H'=1.362$ compared to the low elevation (Trap 1) with $H'=1.017$. The Evenness Index (E') and Margalef Richness Index (R') were also higher in Trap 2 with the values $E'=0.300$ and $R'=1.635$ respectively while in Trap 1, the Margalef Richness Index showed $E'=0.276$ and the $R'=1.315$. Mann-Whitney test showed that there was a significant difference in the insect's distribution between the low elevation and the high elevation of Cadamba trail where $P<0.05$.

Conclusion: In general, this study found that the distribution of order differs across the elevation might be due to rainy seasons, sunlight's exposure, warmer conditions, less human disturbance, and type of vegetations. The data obtained in this study can be used as baseline data for future researchers while serving as an educational purpose to create awareness among the public about insect conservation and management.

Keywords: Abundance, Distribution, Diversity Indices, Insects

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