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HYMENOPTERAN FAUNA OF VISVESVARAYA NATIONAL INSTITUTE OF TECHNOLOGY CAMPUS, NAGPUR

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Abstract:
Biodiversity in itself offers a spectrum of services, as well as goods. It also enhances many other ecosystem services. Besides plants and higher animals, insects also form an important component of biodiversity in the tropical and subtropical forests. Insects are the most diverse group of animals comprising most of the living animal species. Hymenoptera are not only diverse in terms of structure, size and numbers of species, but also in their habits and life histories. Among insect orders, the order Hymenoptera comprises commonest, diverse, best known insects. Visvesvarya National Institute of Technology (VNIT) Campus spread over 89 hectors and is located in Western Nagpur. Green area of VNIT campus support rich insect fauna. Present work was carried out from January, 2014 to July 2014. Line transect sampling method was used to study the hymenopteran diversity and identification was confirmed by using key available in literature. In VNIT campus, order Hymenoptera is represented by 3 families, 11 genera and 13 species.
Keywords: Hymenoptera, diversity, VNIT.

Introduction

The use of the term biodiversity has become popular and widespread in the last 20 years. It is used for all aspects of biological diversity including taxon richness, genetic variation and ecosystem complexity (Magurran, 2004). Maintaining biodiversity has been linked with both ecosystem functioning and stability and the processes involved in sustaining ecosystem functions (Tilman et al., 2001; Tilman et al., 2006). The importance of biological diversity for ecosystem functioning and services is widely recognized, not only as the basis for processes in nature, but also as a prerequisite for the improvement and sustainability of human wellbeing. Thus, preserving biodiversity isone of the major standpoints of contemporary environmentalists (Mudri-Stojnić et al., 2012). Pollination by insects and other animals is significant in most terrestrial habitats. On the other hand, 35% of crop production worldwide (Kremen et al., 2007; Steffan-Dewenter and Westphal, 2008) and 70% of major global crop species rely on animal pollination (Steffan-Dewenter and Westphal, 2008).

Ants an important hymenopteran are distributed all over the world, and their colonies provide both a stable food resource and numerous niches for thousands of other organisms, termed myrmecophiles, that exhibit a diverse array of relationships with their hosts (Schmid-Hempel, 1998).

Materials and Methods

Study area

Present study was conducted from January 2014 to July 2014 in Visvesvaraya National Institute of Technology (VNIT) located in western Nagpur near Ambazari Lake, about 8 km from Nagpur Railway station and 8 km away from Dr. Babasaheb Ambedkar Airport, Nagpur. The campus of VNIT spread on 220 acres (89 hectors) and has green cover rich in natural flora and fauna.

Sampling Method

Line transects were used to observed the hymenopteran. Transects were chosen in random with semi-quantitative sampling methods to record the insects. Insects were searched for maximum two hours (0900-1100 hrs) in each compartment, extending the search with different compartment sizes. The sampling methods include visual searching for the insects as far distinct vision is possible. Occasionally the caught insects were placed separately on vials with 70% ethyl alcohol. The collection date, compartment name and habitat were recorded on each vial.

Identification

The collected Hymenopterans were identified upto the species level by using literature (Bingham, 1903; Holldobler and Wilson, 1990; Bolton, 1994; Mathew and Tiwari, 2000).

.Results and Discussion

The focus of this study was one of the most important groups of pollinators: bees (Hymenoptera) Both managed (honeybees, some bumblebee and some solitary bee species) and wild pollinators (hoverflies, bumblebees and solitary bees) were included in the study, as all these groups contribute to different aspects of the pollination of wild flowers and crops in this region.

In the present study area total thirteen species of Hymenoptera were observed. Most of the observed species belong to family Formicidae, followed by Apidae. Order Hymenoptera is represented by 3 families, 11 genera and 13 species. *Apis dorsata, A. cerena ,A. florea and Bombus terrestris* belong to Apidae. *Apis dorsata, A. cerena , A. florea* are beneficial insects. Among these, honeybee Apis *cerena* alone is exploited for apiculture. *Bombus terrestris* is important pollinator. *Vespa maculata* belongs to Vespoidae. *Vespa maculate* could play important role in controlling pest as it is predator insect. Ants belong to family Formicidae. All ants are social and with worker caste which includes soldier, major worker, media worker, minor worker, queen and king. *Monomorium, Myrmecia, Solenopsis* are the phytophagus ants. *Componatus compressus* is mound dweller while others are tree dwellers.

The importance of the Hymenoptera in the diversity of the natural habitats, emphasize the need for this group to be considered in the conservation of nature (Martínez De Murguia et al., 2001; Shaw and Hochberg, 2001; Gayubo et. al., 2004).

List of observed species.

Common name	Scientific name
Indian Honey Bee	*Apis cerena indica*
European HoneyBee	*Apis florea*
Rock Hoey Bee	*Apis dorsata*
Bumble Bee	*Bombus terrestris*
Wasp	*Vespula maculata*
Common Black Ant	*Camponotus compressus*
Red Ant	*Solenopsis geminata*
Little Black Ant	*Monomorium orientale*
Big Headed Ant	*Pheidole indica*
Pavement Ant	*Tetramorium mixtum*
Acrobat Ant	*Myrmecina urbanii*
Jumping Ant	*Crematogaster aberrans*
Jumping Ant	*Harpegnathos saltator*

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