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ANT DIVERSITY FROM NADAPURAM AREA OF KOZHIKODE DISTRICT, KERALA, INDIA

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ABSTRACT

The present study deals with the Ant diversity in Nadapuram region of Kozhikode District, Kerala, India. Ants (Family:Formicinae) are one of the most successful group of organisms, present in all the terrestrial ecosystems of the earth. Ants are significant part of ecosystem not only because they represent a great part of the animal biomass but also, they acts as ecosystem engineers. A total of twenty species were identified from the study area. Out of the sub families identified Formicinae were the most abundant one with eleven species, followed by Myrmicinae and Ponerinae with 4 species, and Dolichoderinae with one species.

KEYWORDS: Ants, Nadapuram Region, Formicinae, Myrmicinae, Ponerinae, Dolichoderinae.

INTRODUCTION

"Ants are everywhere, but only occasionally noticed. They run much of the terrestrial world as the premier soil turners, channelers of energy, dominatrices of the insect fauna - yet receive only passing mention in text books on ecology. They employ the most complex forms of chemical communication of any animals and their social organization provides an illuminating contrast to that of human beings, but not one biologist in a hundred can describe the life cycle of any species. The neglect of ants in science and natural history is a shortcoming that should be remedied, for they represent the culmination of insect evolution, in the same sense that human beings represent the summit of vertebrate evolution" (Holldobler and Wilson, 1990)[1].

Ants include about 1% of all described insect species, with 2,136 subspecies and 12,116 extant species in 298 genera coming under 21 subfamilies all over the world. In India the ant fauna is representative of this diversity with 660 species from 87 genera and includes 12 of the 21 known subfamilies (Aenictinae, Amblyoponinae, Cerapachyinae, Dolichoderinae, Dorylinae, Ectatomminae, Formicinae, Leptanillinae, Myrmicinae ,Ponerinae , Proceratiinae , Pseudomyrmecinae) (Bharti, 2012)[2]. The current study aims to provide diversity of ants in Nadapuram region of Kerala, India.

Among all the varieties of insects, ants are the most diverse and recognized group present on earth. This is because as group they are truly pervasive and usually quite obvious. They are eusocial and are found in all kinds of land habitats from subarctic tundra to equatorial rain forests (Brian, 1978)[3], from marshes to deserts, from sea coastline to great elevations and from deep underground to the apex of the tallest trees (Bolton, 1994)[4], however they are completely absent in some regions including Iceland, Greenland and Antarctica (Holldobler and Wilson, 1990), with some islands lacking any native ant species (Wilson and Taylor, 1967)[5].

MATERIALS AND METHODS

Study Area

The Present study was aimed to study the species diversity and abundance of ants in selected area Nadapuram region at Kozhikode district. Nadapuram is a small village within Vatakara Taluk in Kozhikode district, Kerala. It is a rural area. The study of ant diversity were carried out within 10m area of Nadapuram region in Kozhikode district.

Data Collection

The study was carried for a period of 2 months from November 2020 to December 2020.

Methodology of Sample Collection

Ants were collected using pitfall traps and hand collection methods described by Gadagkar et al., (1993)[6]. Three different methods were employed for the collection of samples.

Identification of Ant

The specimens were identified to their species level using keys given by Ali (1991)[7], Bingham (1903)[8].

RESULT

From the ant diversity study, variety of ant species were identified. The identified species were showed in the table 1. Among the ant species identified, Ocecophyllasmaragdina and Myrmicariabrunnea was the most abundant in the selected area. During the period of the study, it was found that the number of Myrmicariabrunnea increased in the month of December while compared to the

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other months. At 10 mtrs subfamily Formicinae was found to be maximum. Genus Camponotus represents the maximum of the total catch.

From the Nadapuram region, fourteen generas and twenty species belonging to four subfamilies (Formicinae, Myrmicinae, Ponerinae, Dolichoderinae) were identified from the Nadapuram region during the study period. Among the subfamilies reported from the study area, Formicinae was the most abundant, with 5 genera and 11 species, followed by Myrmicinae (4 genera and 4 species), Ponerinae (4 genera and 4 species) and dolichoderinae represented by a single genus.

Table 1:**List of Identified Ant Species Collected from Study Area-Nadapuram Region**

SL. NO	CLASS	ORDER	FAMILY	SUB FAMILY	SPECIES NAME
1	Insecta	Hymenoptera	Formicidae	Formicinae	*Camponotusherculeanus*
2	Insecta	Hymenoptera	Formicidae	Formicinae	*Camponotusconsobrinus*
3	Insecta	Hymenoptera	Formicidae	Formicinae	*Camponotus floridanus*
4	Insecta	Hymenoptera	Formicidae	Formicinae	*Camponotusnigriceps*
5	Insecta	Hymenoptera	Formicidae	Formicinae	*Camponotus japonicus*
6	Insecta	Hymenoptera	Formicidae	Formicinae	*Camponotusvagus*
7	Insecta	Hymenoptera	Formicidae	Formicinae	*Ocecophyllasmargdina*
8	Insecta	Hymenoptera	Formicidae	Formicinae	*Anoplolepisgracilipes*
9	Insecta	Hymenoptera	Formicidae	Formicinae	*Polyrachis dives*
10	Insecta	Hymenoptera	Formicidae	Formicinae	*Lasius flavus*
11	Insecta	Hymenoptera	Formicidae	Formicinae	*Lasiusniger*
12	Insecta	Hymenoptera	Formicidae	Myrmicinae	*Pogonomyrmex barbatus*
13	Insecta	Hymenoptera	Formicidae	Myrmicinae	*Myrmicariabrunnea*
14	Insecta	Hymenoptera	Formicidae	Myrmicinae	*Myrmeciapilosula*
15	Insecta	Hymenoptera	Formicidae	Myrmicinae	*Crematogaster sp.*
16	Insecta	Hymenoptera	Formicidae	Ponerinae	*Odontomachusbrunneus*
17	Insecta	Hymenoptera	Formicidae	Ponerinae	*Pseudoneoponerarufipes*
18	Insecta	Hymenoptera	Formicidae	Ponerinae	*Pachycondyla sp.*
19	Insecta	Hymenoptera	Formicidae	Ponerinae	*Diacammaceylonese*
20	Insecta	Hymenoptera	Formicidae	Dolichoderinae	*Dolichoderus sp.*

DISCUSSION

In the present study, different types of ant species were studied over a period of 2 months. It was observed that fourteen generas and twenty species belonging to four subfamilies (Formicinae, Myrmicinae, Ponerinae, Dolichoderinae) were identified from the study area. Out of these four subfamilies, Subfamily Formicinae shows maximum contribution during the study period with 5 genera and 11 species. The subfamily Myrmicinae was followed by it with 4 genera and 4 species.

Bharti Himender et al., (2009)[9] in his study on ants in Punjab Shivalik found that subfamily Formicinae is dominant in winter (60%) followed by subfamily Myrmicinae 30-38%). It was followed by there is moderate population of subfamily Dolichoderinae, Dorylinae and Pseudomyrmicinae. According to Gunwardene et al., (2007)[10] subfamily Myrmicinae (45%), Formicinae (25%) Ponerinae (14%). Bharti Himender, (2009) while studying diversity and abundance of ants along an elevational gradient in Jammu – Kashmir, subfamily Myrmicinae (66%) followed by Formicinae (26.81%) Ponerinae 4.84%) and Dolichoderinae (2.35%).

A Study conducted by Anu and sabu (2007)[11] in the evergreen forests of wayand district in the western ghats also reported a dominance of Subfamily Formicinae. In contrast, a maximum number of subfamilies were in Myrmicinae which hold 10 species followed by Formicinae hold 5 species, the subfamily Ponerinae occupying the third position with 2 species,Subfamily Pseudomyrmicinae and Dolichoderinae hold only one species.

Crematogastersubnuda found in all sampling sites agriculture, grassland, forest and human habitat the species closely resembled to describe by Mayr, (1879)[12]. Camponotuscompressus found in all studied sampling sites. Fabricius (1787)[13] observed this species then Ghosh et al., (2005)[14] observed from Kolkata India.

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CONCLUSION

Ant species composition and their diversity patterns at Nadapuram region have been analysed in the present study.From this survay, it was understood that, four Subfamilies (Formicinae, Myrmicinae, Ponerinae, Dolichoderinae) were dominant in Nadapuram region, Kozhikode district, Kerala. This study on Ant diversity of Nadapuram region emphasises the dominancy exhibited by the subfamily Formicinae within the ant communities, due to their ability to adapt to different niches with a variety of feeding habits.

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