



# A study on Biodiversity of insects from Achalpur City, Maharashtra, India

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## Manuscript details:

Received: 26.11.2023  
Accepted: 29.12.2023  
Published: 31.12.2023

## Cite this article as:

Khadse TA (2023) A study on Biodiversity of insects from Achalpur City, Maharashtra, India, *Int. J. of Life Sciences*, 11 (4): 357-360.

Available online on <http://www.ijlsci.in>  
ISSN: 2320-964X (Online)  
ISSN: 2320-7817 (Print)



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## ABSTRACT

The present study was an attempt to study the biodiversity of insect from different parts of Achalpur City. The insect fauna is rich in the study area. Total 45 species from 24 families were obtained during the sampling from July to August. They are from the families of Papilionidae, Lycaenidae, Piperidae, Nymphalidae, Saturniidae, Spingidae, Scarabidae, Cerambycidae, Dynastinae, Hydrophilidae, Dytiscidae, Hymenoptera, Psammodoridae, Apidae, Pyrrhocoridae, Pentatomidae, Cicadidae, Tettigonia, Acridae, Phasmatodea, Mantidae, (Aeshnidae, Lestidae, Hermerobiidae. Out of 45, 22 butterflies, 4 moths, 5 beetles, 3 wasps, 4 bugs, 4 grasshoppers and 3 Dragon flies and lacewings were recorded. Based on the data total number of insects and the percentage of insect family in the Achalpur city were also calculated.

**Keywords:** Biodiversity, Insects, Family, Achalpur

## INTRODUCTION

The largest, most prosperous, most varied, and most dominating animals on the planet are insects. Because of their diversity, insects are vital to agriculture, human health, ecology, and natural resources. The reason insects have been so effective is due to a few factors, Because of their small size, they can inhabit microhabitats that are off-limits to other species. When given the correct circumstances, they can reproduce quickly, which helps them avoid predators, locate food, and successfully mate. The ability to fly was initially developed by insects. All members of the Arthropoda class known as hexapods, which includes insects, have three pairs of legs. As the only arthropods with the ability to fly with power, insects are known to possess wings. They are capable of faculous reproduction.

Insects are the primary source of pollination for the majority of flowering plants and are also a staple food for many animals. After fish, birds, and mammals as the most significant animal groups from an economic standpoint, insects rank second. They are vital to the natural economy because they aerate the soil, fertilize flowers, scavenge and

clean the earth, making waste matter available for plant food, maintain the health of the soil, provide food for fish and birds, and function as parasitoids to control insect pests and plant pests (Hill, 2012; Scudder, 2017).

The studies of moth diversity are crucial as moths are used as bioindicators in Australian rainforest (Kitching *et al.*, 2000). Kononenko and Pinratana, 2005) suggested that due to high diversity of species, several species is highly reproductive, migratory and phytophagous feeding of their larvae, many species faced serious problem for agricultural as well as forest pests.

## MATERIALS AND METHOD

The insect biodiversity was carried in and around Achalpur taluka, Dist -Amravati from Maharashtra. It is about 50 km away from Amravati district. There is variation in temperature with extremely hot summer and cold winter. The study was carried out from July to September. The insect net was used to trap the insects. At the end of the net a removable collecting

bag was attached. Many insects were attracted through the light traps by using mercury bulb. Later on in the laboratory the insects were sacrificed by transferring them to the bottle containing ether. The insects were then preserved by pinning them on thermocol sheets. The photographs of insects were taken by using Cannon digital 12 Mpx camera.

## RESULT AND DISCUSSION

During this study, total of 45 insects from 24 families were collected. Table 1 shows all identified insects. They are from the families of Papilionidae, Lycaenidae, Piperidae, Nymphalidae (butterflies), Saturniidae, Sphingidae (Moths), Scarabidae, Cerambycidae, Dynastinae, Hydrophilidae, Dytiscidae (Beetles), Hymenoptera, Psammochoridae, Apidae (wasps), Pyrrhocoridae, Pentatomidae, Cicadidae (Bugs), Tettigonia, Acridae, Phasmatodea, Mantidae (Grasshoppers), Aeshnidae, Lestidae, Hemerobiidae (Dragon flies and lacewings). Out of 45, 22 butterflies, 4 moths, 5 beetles, 3 wasps, 4 bugs, 4 grasshoppers and 3 Dragon flies and lacewings were recorded.

Table No.1- List of the insect observed in the study area

Sr.No	Scientific Name	Common Name	Family
1	<i>Pachiliopta aristolochiae</i>	Common Rose	Papilionidae
2	<i>Papilio polytes</i>	Common Mormon	Papilionidae
3	<i>Papilio polymnestor</i>	Lime Butterfly	Papilionidae
4	<i>Graphium agamemnon</i>	Tailed Jay	Papilionidae
5	<i>Amylopodia anita</i>	Leaf Blue	Lycaenidae
6	<i>Euchrysops cnejus</i>	Gram Blue	Lycaenidae
7	<i>Eurema hecabe</i>	Common grass yellow	Piperidae
8	<i>Eurema blanda</i>	Three spot grass yellow	Piperidae
9	<i>Ixias marianne</i>	White orange tip	Piperidae
10	<i>Catopsilia pyranthe</i>	Mottled Emigrant	Piperidae
11	<i>Catopsilia pomona</i>	Common emigrant	Piperidae
12	<i>Junonia oritnya</i>	Blue Pansy	Nymphalidae
13	<i>Junonia lemonias</i>	Lemon Pansy	Nymphalidae
14	<i>Trirumala limniace</i>	Blue Tiger	Nymphalidae
15	<i>Danaus chrysippus</i>	Plain Tiger	Nymphalidae
16	<i>Euthelia nais</i>	Baronet	Nymphalidae
17	<i>Byblia lithlyia</i>	Joker	Nymphalidae
18	<i>Ariadne ariadne</i>	Angled castor	Nymphalidae
19	<i>Euploea core</i>	Common Indian Crow	Nymphalidae
20	<i>Melanitis leda</i>	Common evening Brown	Nymphalidae
21	<i>Hypolamnas misippus</i>	Danaid Eggfly	Nymphalidae
22	<i>Hypolamnas bolina</i>	Great Eggfly	Nymphalidae

Table 1 Continued..

Sr.No	Scientific Name	Common Name	Family
23	Actias selene	Indian Moth	Saturniidae
24	Pavonia species	Emperor Moth	Saturniidae
25	Archerontia species	Death Head Hawk Moth	Sphingidae
26	Daphnis nerii	Oleander Moth	Sphingidae
27	Helioapris bucephallus	Dung Roller	Scarabidae
28	Batocera rubras	Long Horned Beetle	Ceranbycidae
29	Phyllognathus	Rice Cockhafer	Dynastinae
30	Hydrophilus	Water Scavenger beetle	Hydrophilidae
31	Predaceous diving beetle	Cybister confusus	Dytiscidae
32	Odynerus species	Potter wasp	Hymenoptera
33	Pepsis heros	Spider Wasps	Psammochoridae
34	Apis indica	Honey bee	Apidae
35	Dysdercus cingulatus	Red cotton bug	Pyrrhocoridae
36	Plautia fimbriata	Pentatomid bug	Pentatomidae
37	Halys dentatus	Pentatomid bug	Pentatomidae
38	Cycada sp	Cicada	Cicadidae
39	Tettigonia sp	Great green long horned grasshopper	Tettigonia
40	Locusta migratoria	Desert locust	Acridae
41	Carausius sp	Common stick insect	Phasmatodea
42	Mantis religiosa	Praying mantis	Mantidae
43	Anax imperator	Emperor Dragon fly	Aeshnidae
44	Lester sp.	Stalked winged Damselflies	Lestidae
45	Helicomitus	Lacewings	Hermerobiidae

Table 2: Total number of insects and the percentage of insect family in the Achalpur city

Sr.No	Insect Family	Total (Approx)	Percentage
1	Nymphalidae,	11	24.44
2	Papilionidae	4	8.88
3	Lycaenidae	2	4.44
4	Piperidae	5	11.11
5	Saturniidae	2	4.44
6	Sphingidae	2	4.44
7	Scarabidae	1	2.22
8	Ceranbycidae	1	2.22
9	Dynastinae	1	2.22
10	Hydrophilidae	1	2.22
11	Dytiscidae	1	2.22
12	Hymenoptera	1	2.22
13	Psammochoridae	1	2.22
14	Apidae	1	2.22
15	Pyrrhocoridae	1	2.22
16	Pentatomidae	2	4.44
17	Cicadidae	1	2.22
18	Tettigonia	1	2.22
19	Acridae	1	2.22
20	Phasmatodea	1	2.22
21	Mantidae	1	2.22
22	Aeshnidae	1	2.22
23	Lestidae	1	2.22
24	Hermerobiidae	1	2.22
Overall Insect recorded		45	100 %

Butterflies are important as ecological indicators, (Chakavathy *et al.*, 1997). Shull in 1963 had documented the butterflies of southern Gujarat and recorded 145 species from the region. Pallot (1998) had recorded 65 species butterflies from Calicut. Nair (2002) recorded 96 species of butterflies from Govt. college campus Madapally, Dist -Kerala. In the present study total 22 species of butterflies were recorded.

Peters (1981) reported 26 species of Odonata from Thiruvanthapuram district of kerala state, Southern India. In the present study only 2 species two species of Odonata were recorded one belongs to Aeshnidae and another belongs to Lestidae family.

## CONCLUSION

This work was conducted to investigate the faunal diversity of insects from Achalpur City. The present checklist can enrich the information about insect fauna found in Achalpur City as well as in Vidarbha region. The presence of this fauna is good shelter for survival of organisms which provide information of different insect species which influences the conservation of biodiversity.

## Acknowledgement

I acknowledge all the people in this area for their co-operation in data collection and my colleagues for his help and cooperation in identification of the insects.

**Conflict of interest:** The authors declare that they have no conflict of interest.

## REFERENCES

- Chakravarthy AK, D. Rajagopal and R. Jagannatha (1997) Insects as bioindicators of Conservation in the tropics, *Zoo's Print* 12:21 -25.
- Hill DS (2012) *The Economic Importance of Insects*, Springer Science and Business Media.
- Kitching RL, Orr AG and Thalib *et al.* (2000) Moth assemblages as indicators of environmental quality in remnants of upland Australian rain forest. *Journal of Applied Ecology*, 37:284-297.
- Kononenka VS and Pinratana A (2005) Moth of Thailand Vol.3: Noctuidae .an illustrated Catalogue of the Noctuidae (Insecta, Lepidoptera) in Thailand: Part 1: Subfamilies Herminiinae, Rivulinae, Hypeninae, Catocalinae, Aganaine, Euteliinae, Stictopterinae, Pluslinae, Panthelnae, Acronictinae and Agaristinae. *Brothers of St Gabriel in Thailand* PP1-261.

Nair VP (2002) Butterflies of the Government College Campus, Madapally, Kozhikode District Kerala. *Zoo's Print Journal* 17(10):911-912.

Pallot NJ (1998) A report on butterflies of Calicut University Campus. *Zoo's Print Journal* ,13(11):32-33.

Peter G (1981) Trockenzeit-Libellen ausdam Indischen Tiefs and. *Deutsch Entomologische Zeitschrift (N.F)*28:93-108.

Scudder GG (2017) The importance of insects. In *Insect Biodiversity: Science and Society*, Wiley Blackwell, Oxford, United Kingdom, pp. 9-13.

Shull EN (1963) The butterflies of South Gujarat. *Journal of the Bombay Natural History Society*, 60(3):585-599.

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