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Biodiversity of insects in Ambikapur of Chhattisgarh

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Abstract
The collection was made in Rajmohini Devi College of Agriculture and Research Station, Ambikapur Chhattisgarh sub centre of Indira Gandhi Krishi Vishwavidyalaya, Raipur during 2016-17 to study the diversity of insects in Ambikapur. Under this collection various insect orders i.e. Lepidoptera (136), Coleoptera (157), Hemiptera (143), Hymenoptera (176), Orthoptera (49), Dermaptera (5), Diptera (55), Mantodea (24), Neuroptera (04), Odonata (14) and Isoptera (05) were collected. This campus has the rich in vegetation of mango, litchi, ber, sal, bamboo, palas, neem and gulmohar.

Keywords: Biodiversity, insect, order, occurrence

Introduction
Biodiversity is the availability of plant and animal species in a particular area in the natural ecosystem. Ambikapur of Surguja district is also having the various plant flora and fauna. Here is large forest area as a shelter for insects and other animal fauna. Vegetation in this campus are trees, shrubs, crops, fruits crops, grasses, medicinal plants. Insect are most dominate organism in the world they can survive all the places due to its small size, persistent habit, fecundity, aerial respiration, food diversity and protective devices etc. In this campus various insect orders *i.e.* Coleoptera, Hymenoptera, Diptera, Orthoptera, Mantodea, Odonata, Isoptera are present.

Biological diversity encompasses the vast number of species of plants, animals and microorganisms such as bacteria and fungi. These may occur as individuals, populations, communities or as an ecosystem, thus forming a part of the biosphere. Increased human interference has threatened the stability of many ecosystems and habitats have been destroyed or changed to meet the needs of our ever increasing population. Biological diversity is essential whether it is for agriculture and forestry system, or for the protection of overall environmental quality or for the intrinsic worth of all species.

India is one of the most biologically diverse countries in the world, particularly because of the various ecosystems which nurture an extraordinary number of animal and plant species. There are an estimated 68,370 species of animals of which 60,000 are insects. There are another 4,000 species of plants. While this is the Indian scene, from the global view point, of the 1.4 – 1.5 million species, 75,000 to 100,000 species are insects, 41,000 vertibrates and 250,000 species of plants. (David and Ananthakrishnan, 2004). The main aim of this study was to collect and identify the insect species diversity and abundance in the college campus, Ambikapur which were collected.

Materials and Methods
The present investigation was undertaken at RMD CARS Ambikapur, Chhattisgarh during 2016-17. Various insect species were collected from the college campus between 800 to 1700hrs in the month of April to March to know the diversity of insects in Ambikapur. The insects were collected live with the help of hand net or light trap killed it through poison (killing bottle) and counted the number. Moths, butterflies, beetles and other insects were stretched with setting board. After killing the insects it were taken in the laboratory for identification by the entomologist. The main objectives of the study was to identify the insect species and diversity in the college campus.

Results and Discussion

The present results depicted in table 1 revealed that the various insect species were collected from the college campus to identify the insect species and diversity. Among them various insect species belonging to order Lepidoptera, Coleoptera, Hemiptera, Hymenoptera, Diptera, Dermaptera, Orthoptera, Odonata, Mantodea, Isoptera and Neuroptera were collected.

Insect of 11 orders belonging to 50 families and 50 species were identified. Maximum species of Hymenoptera identified was 176 in numbers belonging to 05 families i.e. Vespidae, Xylocopidae, Apidae, Tenthredinidae, Formicidae and Apidae. Among them Apidae was dominant followed by Coleoptera belonging to 9 families *i.e.* Curculionidae, Chrysomelidae, Hydrophilidae, scarabaidae, Meloidae, Cerambycidae, Coccinellidae, Carabidae, Dytiscidae among them Scarabaidae was dominant. Order Hemiptera was also dominant having the families Pyrrhocoridae, hydrometridae, Pentatomidae, Reduvidae, Delphacidae, aphididae, Balestomitidae, Nepidae among them Dephacidae (23) was dominant.

Order Lepidoptera was also good in number with 10 families *i.e.* Papilionidae, Nymphalidae, Dainidae, sphingidae, arctidae, Piridae, Noctuida, satyridae, saturnidae and Sychidae aming them family Nymphalidae (36) was domimant.

Order Diptera belonging to 7 families *i.e*. Syrphidae, Calliphoridae, Muscidae, Techanidae, Asilidae, Culicidae, Trypetidae among them syrphidae (25) was dominant.

Another order Orthoptera consisting the families Tettigonidae, Gryllidae, Acrididae and Grylotalpidae but the family Acrididae (18) was dominant.

Order Mantodea consists one family Mantidae (24). Order Odonata consists the families Gomphidae, Asinidae and Coenagnonidae among Gomphidae was (07) in number, Isoptera one family Termitidae, Order Dermaptera family Labiduridae and Neuroptera family Chrysopidae were recorded.

The present findings observed the diversity of insects, similar findings were also shown by Amla S. *et al*. [1], Arya M.K. *et al*. [2], Parandhaman D. [8] who worked on richness on butterflies. The present findings are in accordance with Kulshrestha R. and Jain N. [6] Muhammad A. [7], Patel D.R [9] who studied on the biodiversity of insects, Qureshi A.A.*et al*. [11] and Sharma G. [12] diversity of Lepidopterous insects and Singh M.P. [13] who studied on conservation of biodiversity.

Table 1: Occurrence of various insects in college campus Ambikapur during 2016-17.

S. No	Order	Family	Scientific Name	Occurrence
1.	**Lepidoptera**	Papilionidae	*Papilio demoleus*	17
2.	Lepidoptera	Dainidae	*Danaus chrysippus*	23
3	Lepidoptera	Nymphalidae	*Ergolis merione*	36
4	Lepidoptera	Sphingidae	*Acherontia styx*	27
5	Lepidoptera	Arctidae	*Spilosoma obliqua*	02
6	Lepidoptera	Pieridae	*Pieris brasicae*	03
7	Lepidoptera	Noctuidae	*Helicoverpa armigera*	01
8	Lepidoptera	Satyridae	*Mycalesis porsens*	18
9	Lepidoptera	Saturnidae	*Anthermea mylitta*	04
10	Lepidoptera	Sychidae	*Thyridopteryx ephemeraeformis*	05
11	**Coleoptera**	Curculionidae	*Sitophilus oryzae*	18
12	Coleoptera	Chrysomelidae	*Aulocophora foveicollis*	11
13	Coleoptera	Scarabaeidae	*Heliocopris bucephalus*	40
14	Coleoptera	Cerambycidae	*Batocera rufomaculata*	10
15	Coleoptera	meloidae	*Mylabris pustulata*	16
16	Coleoptera	Coccinellidae	*Coccinella septumpunctata*	30
17	Coleoptera	Hydrophilidae	*Helochares anchoralis*	26
18	Coleoptera	Carabidae	*Anthia sexguttata*	02
19	Coleoptera	Dytiscidae	*Copelatus indicus*	04
20	**Hemiptera**	Pyrrhocoridae	*Dysdercus koengii*	18
21	Hemiptera	Pentatomidae	*Nezara virudula*	37
22	Hemiptera	Reduviidae	*Platymeris laevicollis*	08
23	Hemiptera	Delphacidae	*Sogotella furcifera*	23
24	Hemiptera	Aphididae	*Lipaphis erysimi*	20
25	Hemiptera	Balestomatidae	*Lathocerus grandis*	07
26	Hemiptera	Hydrometridae	*Hydrometra sp.*	26
27	Hemiptera	Nepidae	*Laccotrephes sp.*	04
28	**Hymenoptera**	Vespidae	*Vespa cincta*	73
29	Hymenoptera	Xylocopidae	*Xylocopa fenestrata*	15
30	Hymenoptera	Apidae	*Apis dorsata, A. indiaca*	83
31	Hymenoptera	Formicidae	*Oecophylla smargdina*	03
32	Hymenoptera	Tenthredinidae	*Athalia proxima*	02
33	**Orthoptera**	Tettigonidae	*Suthrophylla sp.*	06
34	Orthoptera	Gryllotalpidae	*Gryllotalpa africana*	17
35	Orthoptera	Acrididae	*Schistocerca gregaria*	18
36	Orthoptera	Gryllidae	*Gryllus sp.*	08
37	Dermaptera	Labiduridae	*Labidura riparia*	05
38	**Diptera**	Syrphidae	*Syrphus balteatus*	25
39	Diptera	Caliphoridae	*Calliphora erythrocephala*	04
40	Diptera	Muscidae	*Musca domestica*	05

41	Diptera	Tachinidae	*Tachina fallox*	04
42	Diptera	Asilidae	*Zosteria sp.*	07
43	Diptera	Culicidae	*Culiceta longiareolata*	05
44	Diptera	Trypetidae	*Bactocera cucurbitae*	05
45	Mantodea	Mantidae	*Mantis religiosa*	24
46	Neuroptera	Chrysopidae	*Chrysopa flava*	04
47	Isoptera	Termitidae	*Odontotermis obesus*	05
48	Odonata	Coenagnonidae	*Nehalennia gracilis*	02
49	Odonata	Aeshnidae	*Anaxparthanope*	05
50	Odonata	Gomphidae	*Lindenia tetraphylla*	07

Conclusion

It is concluded that looking to the population of insect population, biodiversity of insects is better in Ambikapur due to ample quantity of different flora and fauna. Here a good vegetation like Mango, Litchi, Sal, Jackfruit, Bamboo, shisam, Karanj, ber, palas and kharif and rabi crops grown by the farmers. Therefore availability of above flora and fauna is good shelter for survival of organisms.

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