IRJSE International Research Journal of Science & Engineering
Int. Res. J. of Science & Engineering, Volume 12 (4) 2024
ISSN: 2322-0015
SJIF Impact Factor 6.70
https://doi.org/10.5281/ zenodo.12702240
RESEARCH ARTICLE
OPEN ACCESS

Diversity of Spider from Rajaram College, Campus, Kolhapur, Maharashtra, India

Chavan JA[1*], Deshmukh US[2], Bhopale LP[1] and Taware SS[1]

[1]Department of Zoology, Rajaram College, Kolhapur, MS, India
[2]Department of Zoology, Government Vidarbha Institute of Science and Humanities, Amravati, MS, India
*Corresponding author Email: jyotiachavan@gmail.com

Manuscript Details
Received :20.06.2024
Accepted: 19.07.2024
Published: 30.07.2024

Available online on https://www.irjse.in
ISSN: 2322-0015

Cite this article as:
Chavan JA, Deshmukh US, Bhopale LP and Taware SS. Diversity of Spider from Rajaram College, Campus, Kolhapur, Maharashtra, India, *Int. Res. Journal of Science & Engineering*, 2024, Volume 12(4): 201-207. https://doi.org/10.5281/zenodo.12702240

Abstract

In the present study diversity and abundance of spider species was observed in Rajaram College, Campus. The survey was carried from 2022-23 to 2023-24. The spider was observed and photography was done in their natural habitat. Maximum species were recorded during winter, lesser during monsoon and least during summer. Total of 26 spiders species representing 8 families in the College campus. In the study period Oxyopidae is the most represented family 7 individuals observed from this family. Followed by 6 individuals from Araniedae and Salticidae, 2 individuals from Pholcidae, and Tetragnathidae, 1 individual from Hersilidae, Thomicidae and Theridiidae was recorded.

Keywords: Spider diversity, Survey, Rajaram College, Campus

1. Introduction

India is found to be rich with both floral and faunal population as it has biodiversity hotspots such as the Western Ghats and the Eastern Himalaya which are an abode of different species along with Spiders. Spiders make up a diverse portion of the world's invertebrates [1]. Spiders globally include about 47,099 described species in 4,073 genera and 113 families [2]. They are unique among all organisms in their modes of silk production and usage and of reproduction. Spiders are one of the ubiquitous and diverse groups of organisms belonging to Class Arachinidea. However, Spiders are largely been ignored because of the human tendency to favour some organisms over others of equal importance because they lack a universal appeal [3]. They are extremely sensitive to small variations in the habitat structure; including habitat complexity, litter depth and microclimate characteristics [4]. They are found every continent except Antarctica and have adapted to all know ecological environments except air and open sea [5]. The presence of carapace on dorsal side of cephalothorax is most important characteristics of spider. For injecting

venom spiders used fangs in the jaws called chelicerae. Spiders are varying in size and colour. The size of spider increased with replacement of hard and old skin with new one [6]. They are acting as biological pest control agent for the protection of crops from pests [7] [8]. Recent studies have investigated the importance of spiders as ecological indicators. Habitat destruction, modification and fragmentation are widely recognized as the most current threats to biological diversity of many regions. In most of the surveys conducted in this area has given importance to the conservation of charismatic species of animals. The study was conducted in Rajaram College, Campus Kolhapur. The aim of the present study was to identify the status of the spider species. This study may help for further studies.

2. Methodology

Rajaram College is located at Karveer taluka in Kolhapur district, Maharashtra India. This college campus falls in 60 acres of area, having floral diversity providing space to different fauna. In college campus various fileds available like, trees, herbs, shrubs and grassland area. The latitude and longitude of Rajaram College, Kolhapur is approximately 16.7025^{0}N and 74.2324^{0}E respectively. Study period was 2022-23 to 2023-24. During present study Spider photography was done in their natural habitat during morning and evening hours with the help of mobile camera and canon 750D camera.

Fig. 1 Location Map of Rajaram College, Kolhapur

3. Results and Discussion

Rajaram College, Kolhapur provides diverse habitat to various spider species. A total of 26 spiders species representing 8 families (Table-1) in the College campus. In the study period Oxyopidae is the most represented family. In the present study 7 individuals belonging to family Oxyopidae, followed by six individuals from Araniedae and Salticidae, two individuals from Pholcidae and Tetragnathidae, one individual from Hersilidae, Thomicidae and Theridiidae was recorded. Most of the species observed in winter season as compared to rainy and summer. From the above study a greater number of species observed from salticidae as compared to other families. So, most abundance recorded from salticidae because suitable environment for this family as compared to other.

It is also interesting to note that out of 60 families recorded in India region [9] 8 families were recorded at Rajaram College, Campus. Oxyopidae was the dominant family in this biome. The members of this family were mostly found on the tree barks, College campus is rich with flora and fauna which is suitable habitat for this family. The second most dominant families were Araneidae and Salticidae were identified. The members belonging to these families are orb weavers and stalkers respectively.

The family Pholcidae includes two individuals these spiders are Space web builders, Family Tetragnathidae includes two individuals these are orb weavers, belonging to Hersilidae, Thomicidae and Theridiidae observed only one individual these are Foliage runners, Ambushers and Space web builders respectively.

Table: 1 List of spiders observed during study period

Sr. No.	Family	Species
1.	Araneidae	1. *Neoscona mukerjei*
		2. *Neoscona theis*
		3. *Neoscona subfusca*
		4. *Neoscona species*
		5. *Neoscona crucifera*
		6. *Neoscona excelsus* (Simon)
2.	Hersilidae	1. *Hersilia savignyi*
3.	Oxyopidae	1. *Oxyopes elegans*
		2. *Oxyopes quadrifasciatus*
		3. *Oxyopes sunandae* Male
		4. *Oxyopes birmanicus*
		5. *Oxyopes pawanii*
		6. *Oxyopes salticus*
		7. *Oxyopes jacksoni*
4.	Pholcidae	1. *Pholcus walckenaer*
		2. *Pholcus phalangioides*
5.	Salticidae	1. *Telamonia festiva*
		2. *Menemerus species*
		3. *Plexippus paykullii*
		4. *Euophrys frontalis*
		5. *Pelegrina galathea*
		6. *Hyllus semicupreus*
6.	Tetragnathidae	1. *Tetragnatha montana*
		2. *Leucage decorata*
7.	Theridiidae	1. *Steatoda borealis*
8.	Thomicidae	1. *Mecaphesa species*

Family: Araneidae

Fig. 1 *Neoscona mukerjei*

Fig. 2 *Neoscona theis*

Fig. 3 *Neoscona subfusca*

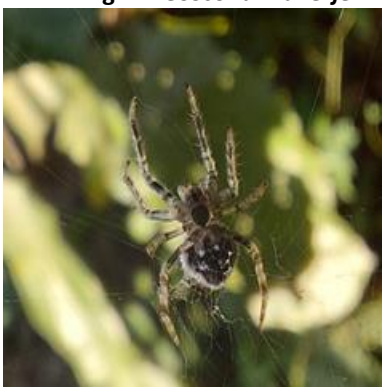

Fig. 4 *Neoscona species*

Fig. 5 *Neoscona crucifera*

Fig. 6 *Neoscona excelsus* (Simon)

Family: Salticidae

Fig. 1 *Telamonia festiva*

Fig. 2 *Menemerus species*

Fig. 3 *Plexippus paykullii*

Fig. 4 *Euophrys frontalis*

Fig. 5 *Pelegrina galathea*

Fig. 6 *Hyllus semicupreus*

Family: Oxyopidae

Fig. 1 ***Oxyopes elegans***

Fig. 2 ***Oxyopes quadrifasciatus***

Fig. 3 ***Oxyopes sunandae*** **Male**

Fig. 4 ***Oxyopes birmanicus***

Fig. 5 ***Oxyopes pawanii***

Fig. 6 ***Oxyopes salticus***

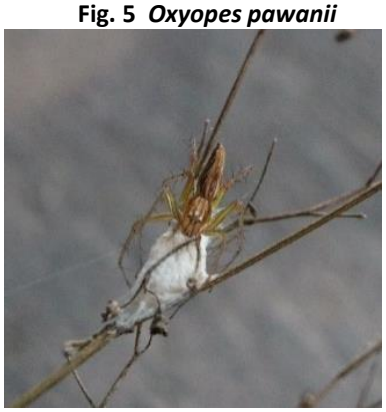

Fig. 7 ***Oxyopes jacksoni***

Family: Pholcidae

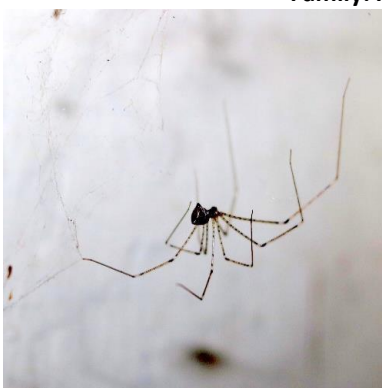

Fig. 1 ***Pholcus walckenaer***

Fig. 2 ***Pholcus phalangioides***

Family: Tetragnathidae

Fig. 1 ***Tetragnatha montana***

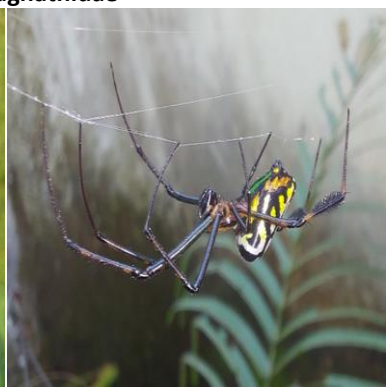

Fig. 2 ***Leucauge decorata***

Family: Hersilidae

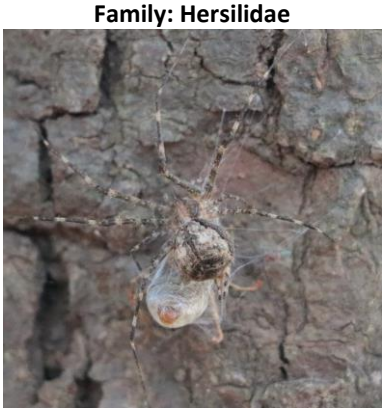

Fig. 1 ***Hersilia savignyi***

Family: Thomicidae

Fig. 1 ***Mecaphesa species***

Family: Theridiidae

Fig. 1 ***Steatoda borealis***

Conclusion

Spiders being the largest portion of invertebrate fauna with over 52,116 recognized species, Rajaram College, campus exhibits remarkable and good number of spider diversity. From the recent studies the importance of spiders as ecological indicators is also inferred. This ecosystem with rich floral diversity provides a favourable environment to the spider fauna and emphasizes the need for conservation of this ecosystem by characterizing species diversity.

Acknowledgements

The authors express deep gratitude to the Rajaram College, Kolhapur, Dist. Kolhapur, and the Department of Zoology for sanctioning this study work.

Conflicts of interest: The author stated that no conflicts of interest.

References

1. Coddington JA & Levi HW. Systematics and evolution of spiders (Araneiae). Ann. Rev. Ecology and Systematics; 22: 565-592 (1991).
2. World Spider Catalog, World Spider Catalog. Natural History Museum Bern, online at http:// wsc.nmbe.ch, version 18.5, accessed on 27/12/2017 (2017).
3. Humphries CJ, Wilson and Vane-Wright. Measuring spider diversity value for conservation. Annual Review of Ecology and Systamatics, 26: 93-111. 1995.
4. Downie IS, Wilson WL, Abernethy VJ, McCracken DI, Foster GN, Ribera I, Waterhouse A and Murphy KJ. The impact of different agricultural land-uses on epigeal spider biodiversity in Scotland. J. Insect Conserv. 3, pp. 275–288. 1999.
5. Foelix RF. Biology of spiders. 2nd ed., Oxford University Press, New York. 1996.
6. Kingsley R. The spiders. New Star Std. Indus. (Pvt.) Ltd. Sing., pp. 2-34. 1999.

7. Fabre JH. The life of the spider. Mell. Uni. Mell. UK. pp. 1-13. 1999.
8. Platnic N. An abundance of spiders. Nat. Hist. Mus. USA., 104: 50-53. 1995.
9. Sebastian PA and Peter KV. Spiders of India University Press Pvt. Ltd. 1st Edition, Hyderabad, India. 2009.