

A REPORT ON SPIDER FAUNA OF AHMEDNAGAR CITY

^{1*}PANDE GS, ²PAWAR NB AND ³PATIL SR

^{1,2}BPHE Society's Ahmednagar College, Ahmednagar, M.S., India.

³Zoological Survey of India, Western Regional Centre, Pune, M.S., India.

ABSTRACT

Spiders are one of the most diverse groups of animals. Though spiders form one of the most ubiquitous and diverse groups of organisms existing in India, their study has always remained largely neglected. The present research paper presents a preliminary report on spider fauna of Ahmednagar city. Spider specimen were collected from different localities in and around the city during July 2015 to March 2016. Total 25 spider species representing 9 families were recorded. Results obtained shows that the Araneidae is the most represented family with 11 species followed by Salticidae, Oxyopidae and Lycosidae (03 species each) and 01 species each from Hersilidae, Pholcidae, Eresidae, Tetragnathidae and Thomisidae. Araneidae is the most dominant family (44% of species) followed by Salticidae (12% of species), Oxyopidae (12% of species) and Lycosidae (12% of species). A note on medical importance of spiders was also added. The outcome of the present research work will update data on faunal resources of Maharashtra and will be helpful for future researchers working on the spiders of the area. The findings will also be helpful for taxonomic and phylogenetic studies on spiders.

KEY WORDS: Spider, Fauna, Diversity, Ahmednagar.

Corresponding author: PANDE GS | email: gajananspande@gmail.com

INTRODUCTION

Spiders are one of the most diverse, abundant and ubiquitous groups of arthropods. Spiders are found worldwide and distributed over every continent except Antarctica. There are approximately 42,055 species of spiders reported globally (Platnick, 2012; WSC, 2016). India has about 1520 spider species (Sebastian and Peter, 2009). Spiders play important roles in terrestrial ecosystems; they prey upon many insect pests and other invertebrates. However, despite their ecological importance, they are largely neglected and poorly studied group of invertebrates. An extensive literature is available on diversity and taxonomy of spider fauna of different states of India (Biswas and Biswas, 1992; 2003; 2004; Reddy and Patel, 1992; Takade, 1987; Gajbe, 1995; Biswas *et al.*, 1996; Biswas and Majumdar, 2000; Rao *et al.*, 2004; Siliwal *et al.*, 2005; Kapoor, 2008) Some reports on spider diversity of Maharashtra are available (Vairale and Vankhede, 2010; Wankhade *et al.*, 2012; Wankhede and Manwar, 2013; Palem *et al.*, 2017; Maheshwari *et al.*, 2018). Many areas of the Maharashtra have no published record on spider diversity even today. Published data on diversity of spiders of Ahmednagar is largely unavailable or insufficient. Hence, extensive surveys on diversity and conservation of spiders from Ahmednagar are highly needed. In view of this, a primary survey on diversity of spider fauna of Ahmednagar city was undertaken.

MATERIALS AND METHODS

Study Area

The present study was conducted from July 2015 to February 2016 at different study sites in and around Ahmednagar city. The spiders were collected from different sites at Ahmednagar city, District Ahmednagar, Maharashtra.

Sampling Method

Survey was conducted for 8 months from July 2015 to February 2016 at different sites. Spiders were collected from different city regions. Spiders were collected by adopting standard sampling techniques such as active searching, taking photographs, hand picking. All surveys were conducted in the morning hours between 8:00 am to 11:00 am. Collected spiders were photographed and preserved in 70% alcohol.

Identification

Specimen were sent to **ZSI**, Western Regional Centre, Pune for identification by expert at ZSI (Zoological Survey of India).

RESULT AND DISCUSSION

Total 25 species representing 9 families were recorded during the period of the study (Table-1). A total of 25 species representing 09 families and 19 genera were recorded of which 11 species represent Family Araneidae, followed by families Salticidae, Oxyopidae and Lycosidae each represented by 3 species. Families Hersilidae, Pholcidae, Tetragnathidae and Thomisidae are each represented by 1 species.

Similar results, with Araenidae being the most dominant family, were reported by Wankhade et al. (2012), Wankhade and Manwar (2013) and Maheshwari et al. (2018). Total 71 species were reported by Maheshwari et al. (2018) from Jalgaon region of Maharashtra. Wankhade and Manwar (2013) reported 42 species of spiders from Amravati district of Maharashtra. Wankhade et al (2012) reported 32 spider species from Pune, Maharashtra. The genus *Neoscona* seems to be widely distributed in Maharashtra as two species representing genus *Neoscona* were recorded from present study, while Chapke and Raja (2015) reported 12 species under genus *Neoscona* from Akola district of Maharashtra.

Table 1. LIST OF SPIDER SPECIES REPORTED FROM PRESENT STUDY	
Family Araneidae	
1.	<i>Argiope anasuja</i> Thorell, 1887
2.	<i>Araneus sp.</i> Clerck, 1757
3.	<i>Chorizopes sp.</i> Cambridge, 1870
4.	<i>Cyrtophora cicatrosa</i> (Stoliczka, 1869)
5.	<i>Cyrtophora citricola</i> (Forsskal, 1775)
6.	<i>Cyclosa hexatuberculata</i> Tikader, 1982
7.	<i>Cyclosa moonduenis</i> Tikader, 1963
8.	<i>Eriovixia excelsa</i> (Simon, 1889)
9.	<i>Gibbaranea bituberculata</i> (Walckenaer, 1802)
10.	<i>Neoscona mukerjei</i> Tikader, 1980
11.	<i>Neoscona punctigera</i> (Doleschall, 1857)
Family Salticidae	
12.	<i>Marpissa sp.</i> Koch, 1846
13.	<i>Plexippus paykulli</i> Audouin, 1826
14.	<i>Telamonia dimidiata</i> (Simon, 1899)
Family Oxyopidae	
15.	<i>Oxyopes chitrae</i> Tikader, 1965
16.	<i>Oxyopes pankaji</i> Gajbe & Gajbe, 2000
17.	<i>Peucezia viridana</i> (Stoliczka, 1869)
Family Lycosidae	
18.	<i>Hippasa madraspatana</i> Gravely, 1924
19.	<i>Hippasa olivacea</i> (Thorell, 1887)
20.	<i>Hippasa pisaurina</i> Pocock, 1900
Family Hersiliidae	
21.	<i>Hersilia savignyi</i> Lucas, 1836
Family Pholcidae	
22.	<i>Crossopriza lyoni</i> (Blackwall, 1867)
Family Eresidae	
23.	<i>Stegodyphus sarasinorum</i> Karsch, 1892
Family Tetragnathidae	
24.	<i>Leucauge celebesiana</i> (Walckenaer, 1842)
Family Thomisidae	
25.	<i>Henriksenia hilaris</i> (Thorell, 1877)

Spiders are widely feared animals, however, only a few of them are dangerous to people (Vetter and Isbister, 2008). Although all Spiders can bite humans in self-defense, only a few can produce worse effects than bee-sting. The two genera *Loxosceles* and *Latrodectus* are reported for most spider bites, however, spider bites were not verified in most cases (Marielle and Wolfgang, 2016). The spider species recorded in the present study have not been reported for medically serious bites from

study area. There is no published or confirmed report of lethal venomous bites of spiders from study area.

There are some investigations reporting possible use of spider venoms for treatment of human diseases such as erectile dysfunction, strokes, Alzheimer's disease and cardiac arrhythmia (Lewis and Garcia, 2003; Andrade et al., 2008). The spider species reported from the present study may be medically important, however further studies are needed to investigate possible medical importance of them.

We hope that the results obtained will encourage future research on spider diversity of Ahmednagar area.

CONCLUSIONS

The present research paper presents a preliminary report on spider fauna of Ahmednagar city. Spider specimen were collected from different localities in and around the city during July 2015 to March 2016. Total 25 spider species representing 9 families were recorded. Results obtained shows that the Araneidae is the most represented family with 11 species followed by Salticidae, Oxyopidae and Lycosidae (03 species each) and 01 species each from Hersiliidae, Pholcidae, Eresidae, Tetragnathidae and Thomisidae. Araneidae is the most dominant family (44% of species) followed by Salticidae (12% of species), Oxyopidae (12% of species) and Lycosidae (12% of species). 1 species each from families Eresidae, Hersiliidae Pholcidae Tetragnathidae Thomisidae were also recorded. The spider species recorded in the present study have not been reported for medically serious bites from study area. The spider species recorded may be medically important, however further studies are needed to investigate possible medical importance of them.

ACKNOWLEDGMENTS

Authors are thankful to ZSI, Western Regional Centre, Pune, (MS), India for providing expertise for identification of spider specimen.

REFERENCES

1. Andrade E, Villanova F, Borra P, Leite K, Troncone L, Cortez I, Leonardo M, Paranhos M, Joaquim C and Miguel S (2008). Penile erection induced in vivo by a purified toxin from the Brazilian spider *Phoneutria nigriventer*". British Journal of Urology International. **102** (7): 835–37.
2. Biswas B, Biswas K (1992). Fauna of West Bengal (Araneae: Spiders). State Fauna Ser. 3: 357-500.
3. Biswas V, Kundu B, Kundu M, Saha S (1996). Spiders of genus *Oxyopes* Latreille (Araneae: Oxyopidae) of Buxa Tiger Reserve, West Bengal. Acta Arachnol. 45: 53-61.
4. Biswas B, Majumdar SC (2000). Fauna of Tripura (Arachnida: Araneae). State Fauna Ser. 7: 113-122.
5. Biswas B, Biswas K (2003) Fauna of Sikkim (Araneae: Spiders). State Fauna Ser. 9: 67-100.

6. Biswas B, Biswas K (2004). Araneae: Spiders. In Fauna of Manipur. State Fauna Ser. Zool. Surv. India. 10: 25-46.
7. Chapke S and Raja IA (2015). The spider diversity of the genus, *Neoscona* from Akola region of Maharashtra. *Biosci. Biotech. Res. Comm.* **8(2)**: 204-207.
8. Gajbe UA (1995). Spiders Fauna of conservation areas: Fauna of Kanha Tiger Reserve, Madhya Pradesh. Zoological Survey of India, Publication. Pp. 27-30.
9. Kapoor V (2008). Effects of rainforest fragmentation and shade coffee plantations on spider communities in the Western Ghats, India. *J. Insect Conserv.* 12: 53-68.
10. Keswani S, Hadole P, Rajoria A (2012). Checklist of Spiders (Arachnida: Araneae) from India-2012. *Indian Journal of Arachnology*, 1(1):1- 129.
11. Lewis RJ and Garcia ML (2003). Therapeutic potential of venom peptide. *Nature Reviews Drug Discovery.* **2** (10): 790–802.
12. Maheshwari N, Patil SR And Chopda MZ (2018). Spider fauna from North Maharashtra, India. *Flora and Fauna* 24(1):163-173.
13. Marielle S and Wolfgang N (2016). How informative are case studies of spider bites in the medical literature?. *Toxicon.* **114**: 40–44.
14. Palem H, Kanike S, Purushottam VRS (2017). Diversity of spider fauna (Arachnida: Araneae) in different ecosystems, Eastern Ghats, Southern Andhra Pradesh, India. *S. Asian J. Life Sci.* 4(2): 51-60.
15. Patel BH (2003). Fauna of protected areas - A preliminary list of spiders with the descriptions of three new species from Parambikulam Wildlife Sanctuary, Kerala. *Zoo's Print J.* 18: 1207-1212.
16. Patil SR, Roy S and Bano R (2016). A note on soil spiders (Arachnida: Araneae) from Jaisalmer district, Rajasthan. *International Journal of Fauna and Biological Studies*, 3(2): 22-23.
17. Platnick NI (2012). The world spider catalogue, version 12.0. American Museum of Natural History. Available online at: <http://research.amnh.org/entomology/spiders/catalog/index.html>. Accessed on 16-01-2019.
18. Rao KT, Raju MP, Krishna ISR, Javed SMM, Siliwal M, Srinivasulu C (2004). Record of *Poecilotheria regalis* Pocock, 1899 from Nallamala Hills, Eastern Ghats, Andhra Pradesh. *Zoos' Print J.* 19(10): 1668.
19. Reddy TS, Patel BH (1992). A new species of *Neoscona* Simon (Araneae: Araneidae) from Coastal Andhra Pradesh, India. Brief Communication. *Entomon.* 17: 129-130.
20. Sebastian PA and Peter KV (2009). Spiders of India. *Universities Press (India) Pvt. Ltd.* Pp. 1-614.
21. Siliwal M, Molur S, Biswas BK (2005). Indian Spiders (Arachnida: Araneae) Updated Checklist 2005. *Zoos' Print J.* 2010: 1999- 2049.
22. Tikader BK (1987). Handbook of Indian Spiders. Calcutta, Zoological Survey of India. Pp. 251.
23. Vairale AB and Vankhede GN (2010). Diversity and ecology of spiders in Satpuda. Ph.D. Thesis, Sant Gadge Baba Amravati University, Amravati (MS) India.
24. Vetter RS and Isbister GK (2008). Medical Aspects of Spider Bites". *Annual Review of Entomology*, **53**: 409–29.
25. Wankhade VW, Manwar NA, Rupwate AA and Raut NM (2012). Diversity and abundance of spider fauna at different habitats of University of Pune, M. S. (India). *Global Advanced Research Journal of Environmental Science and Toxicology* (ISSN: 2315-5140) Vol. 1(8): 203-210.
26. Wankhade VW and Manwar N (2013). Diversity and guild structure of spider fauna at Sawanga-vithoba Lake (Malkhed project) area in Pohara forest dist Amravati, Maharashtra, india. *International Journal of Zoology and Research*, 3(1): 7-16.
27. World Spider Catalogue (2016). Natural History Museum Bern, online at <http://wsc.nmbe.ch>, version 16.5 (Accessed on 13.01.2016).