



Scholars Research Library

Archives of Applied Science Research, 2015, 7 (9):28-30  
(<http://scholarsresearchlibrary.com/archive.html>)



## Biodiversity of spider fauna near Narmada River at Rajghat (Barwani), M. P.

Rekha Sharma, Amrita Vyas, Shalendra Sharma and Nageshwar Wast\*

Department of Zoology, Govt. Holkar Science College, Indore (M.P) India

### ABSTRACT

An attempt has been made to assemble the biodiversity of spider fauna near Narmada River at Rajghat (Barwani), M.P. There are 159 spiders was collected from the Rajghat (Barwani) near the Narmada basin, out of which 50 species were identified belonging to 12 family namely; Araneidae (17), Salticidae (11), Oxyopidae (3), Erasidae (4), Therididae (3), Thomosidae (2), Lyosidae (3), Pholcidae (2), Clubionidae (1), Philodromidae (1), Tetragnathidae (2) and Uloboridae (1). The most abundant species were represented by the families, Araneidae and Salticidae. Its identification was done on the basis of morphometric characters of various body parts.

**Key words:** Biodiversity, spider and Narmada.

### INTRODUCTION

Spiders are an ancient and successful invertebrate, resides in all types of habitats worldwide [1]. Spider diversity, distribution and their insect feeding habits play an important role in the balance of nature [2 and 3]. Diversity generally increases due to presence of a greater variety of habitat [4]. Spiders are more sensitive to the habitat changes such as habitat complexity, litter depth and microclimate characteristics [5]. Spider plays an important role in the regulation of insect populations in many ecosystems [6]. Since the spider species near Narmada River are poorly documented. In view of this, an attempt has been made to assess the biodiversity of spider fauna near Narmada River at Rajghat (Barwani), M.P.

### MATERIALS AND METHODS

#### Study area

Barwani also known as Siddh Nagar in the state of madhya pradesh, india. The town is situated near the left bank of the Narmada River. The great Narmada River flows through Barwani (just five kilometers from city). Barwani is located 150 km away from Indore. Its latitude is 22 1 '60 "N and longitude is 74 54 '0 "E.

#### Preservation and Identification

Spider fauna were collected near Narmada River at Rajghat (Barwani), M.P. Collected specimens were washed with xylene and each specimen was preserved in a separate vial in 70% alcohol. Identification was done by using the keys of Dyal [7]; Tikader and Malhotra [8]; Tikader and Biswas [9]; Barrion and Litsinger [10]; Biswas and Biswas [11] and other related literatures.

### RESULTS AND DISCUSSION

In present investigation, 159 spiders were collected from the Rajghat (Barwani) near the Narmada basin, out of which 50 species were identified belonging to 12 families. Family Araneidae are represented by three *Araneus* sp., two *Argiope* sp., four *Cyclosa* sp., six *Neoscona* sp., *Larinia* sp. and *Zygilla* sp. Whereas, Salticidae includes *Myrmarachne* sp., *Phintella* sp., *Marpissa* sp., *Thyene* sp., *Thiania* sp., two *Telamonia* sp., *Euophrys* sp., two

*Phidippus* sp. and *Plexipus* sp. Oxyopidae and Erasidae consists of three *Oxyopopus* sp. and four *Stegodypus* sp. respectively. Therididae includes *Theridion* sp., *Leucauge decorate* and *Leucauge* sp. Thomosidae consists of two sp. namely; *Thomisus* sp. and *Xysticus* sp. Lyosidae is represented by one *Lyosa* sp. and two *Hyppasa* sp. Pholcidae and Tetragnathidae includes two *Pholcus* sp. and two *Tetragnatha* sp. respectively. However Clubionidae, Philodromidae and Uloboridae consist of *Clubiona* sp., *Philodromous* sp. and *Uloborus* sp. of each respectively (Table-1).

**Table-1: Showing family wise name of Species collected from the Rajghat (Barwani) near the Narmada basin**

S. No.	Name of Family	Name of Species
1.	Araneidae	<i>Araneus</i> sp., <i>Argiope</i> sp., <i>Cyclosa</i> sp., <i>Neoscona</i> sp., <i>Larinia</i> sp. and <i>Zygilla</i> sp.
2.	Salticidae	<i>Myrmarachne</i> sp., <i>Phintella</i> sp., <i>Marpissa</i> sp., <i>Thyene</i> sp., <i>Thiania</i> sp., <i>Telamonia</i> sp., <i>Euophrys</i> sp., <i>Phidippus</i> sp. and <i>Plexipus</i> sp.
3.	Oxyopidae	<i>Oxyopopus</i> sp.
4.	Erasidae	<i>Stegodypus</i> sp.
5.	Therididae	<i>Theridion</i> sp., <i>Leucauge decorate</i> and <i>Leucauge</i> sp.
6.	Thomosidae	<i>Thomisus</i> sp. and <i>Xysticus</i> sp.
7.	Lyosidae	<i>Lyosa</i> sp. and <i>Hyppasa</i> sp.
8.	Pholcidae	<i>Pholcus</i> sp.
9.	Tetragnathidae	<i>Tetragnatha</i> sp.
10.	Clubionidae	<i>Clubiona</i> sp.
11.	Philodromidae	<i>Philodromous</i> sp.
12.	Uloboridae	<i>Uloborus</i> sp.

In present study, there are 159 spiders were collected from the Rajghat (Barwani) near the Narmada basin, out of which 50 species were identified belonging to 12 families. Whereas, Sudhikumar *et al.* [12] conducted a study on the spider diversity in Mannavan shola Forest in Kerala state, India and identified a total of 72 species of spiders belonging to 57 genera of 20 families. There are 1520 spider species represented in India, belonging to 377 genera and 60 families [13]. There are 39,882 valid species of spiders has been described in 3676 genera belonging to 108 families globally [14]. However, Maqsood [15] recorded the maximum abundance (%) of families Lycosidae (65.52%) followed by the Salticidae (22.11%) and Thomocidae (9.04%) whereas Araneidae (3.11%), Clubionidae (3.41%); Gnaphosidae (2.55%) and Oxyopidae (2.34%) from guava gardens of district Faisalabad, Pakistan. Ghafoor and Mahmood [16] recorded a total of 178 araneid fauna belonged to seven families, 10 genera and 22 species from rice and sugarcane field of District Gujranwala, Pakistan and found that Lycosidae (111) was the most common family whereas specimens holding Oxyopidae (2) family found least common among all the families. The Lycosidae was represented by nine species where as Oxyopidae by one. Whereas, Wankhade *et al.* [17] observed 32 species of spiders belonging to 7 families at different places of University of Pune and found that Araneidae was the most dominant family exploring 35% of species. There are a total 69 species of spiders were documented and highest of Araneidae family with *Argiope pulchella* as the dominant species from different habitats of the several blocks of Barpeta District, Assam were found [18]. Bhat *et al.* [19] revealed the occurrence of 117 species of spiders belonging to 18 families viz., Araneidae, Clubionidae, Corinnidae, Gnaphosidae, Hersilidae, Linyphiidae, Lycosidae, Miturgidae, Nephilidae, Oxyopidae, Pholcidae, Pisauridae, Salticidae, Sparassidae, Tetragnathidae, Theridiidae, Thomosidae and Uloboridae. Of these, 30 species were classified as very common, 26 species common, 34 species rare and 27 species very rare during three year survey. Salticids were predominant (30 %) and Araneidae contributed 22 % of the spider fauna. However, Lone *et al.* [20] assessed the distribution, diversity and occurrence of spider communities in Gulmarg wildlife sanctuary. These authors [20] represent the spider communities by 18 taxa and found that Araneidae was dominant family followed by Lycosidae, Linyphiidae, Pholcidae, Salticidae, Sparassidae and Clubionidae. Results of the present investigation also support the findings of previous authors.

The present investigation helps in the management of spiders and related pests, and also plays an important role in the balance of environment in studied area.

## REFERENCES

- [1] Turnbull, A.L., *Annual Review of Entomology*, **1973**, 18:305–348.
- [2] Gertsch, W.J., *American Spiders*. 2nd Edition, Van Nostrand, New York. **1979**.
- [3] Young, O.P. and Edwards, G.B., *Journal of Arachnology*, **1990**, 18, 1-27.
- [4] Ried, W.V., Miller, K.R., Keeping options alive: A scientific basis for conserving biodiversity. Washington D. C., World Resources Institute. **1989**.
- [5] Downie, I.S., Wilson, W.L., Abernethy, V.J., Mccracken, D.I., Foster, G.N., Ribera, I. and Murphy, K.J., *Journal of Insect Conservation*, **1999**, 3:273-286.
- [6] Russell-Smith, A., Royal Geographical Society, London. **1999**.

- [7] Dyal, S., *Bull. Deptt. Zool. Punjab Univ. Lahore.*, **1935**, 1: 117-252.
- [8] Tikader, B. K. and Malhotra, N. S. The fauna of India. Araneae. Vol. I Part-2. Lycosidae. *Zoological Survey of India*, Calcutta., **1980**, 30: 1-478.
- [9] Tikader, B. K. and Biswas, B., Spider fauna of Calcutta and vicinity. *Rec. Zool. Surv. India Misc. Publ. Occ. Pap.*, **1981**, 30: 1-149.
- [10] Barrion, A. T. and Litsinger, T. E., *Riceland Spiders of South and Southeast Asia*. Cab. Int. Wallingford, UK. **1995**, 1-700.
- [11] Biswas, B. and Biswas, K., Fauna of Delhi (Arachneid: Araneae), **1996**, 6: 447- 484.
- [12] Sudhikumar, A.V., Mathew, M.J., Sunish, E., Shourimuthu Murugesan,S. and Sebastian, P.A., *European Arachnology*, **2005**, 1: 319-327.
- [13] Sebastian, P.A. and K.V. Peter, *Spiders of India*, First edition, Universities Press, Hyderabad, India, **2009**: 615.
- [14] Platnick, N.I., *The World Spider Catalog*, Version 12.0. American Museum of Natural History, **2011**.
- [15] Maqsood, I., M. Phil. Thesis (Unpublished), Deptt. of Zoology, Govt., College Univ. Faisalabad, Pakistan. **2011**.
- [16] Ghafoor, A. and Mahmood, A., *The journal of of Animal & Plant Sciences*, **2011**, 21(4): 812-816.
- [17] Wankhade, V. W., Manwar, N. A., Rupwate, A. A. and Raut, N. M., *Global Advanced Research Journal of Environmental Science and Toxicology*, **2012**, 1(8): 203-210.
- [18] Singh, S., Borkotoki, A. and Sarmah, C. K., *E-International Scientific Research Journal*, **2012**, 1(4): 47-57.
- [19] Bhat, P.S. Srikumar, K.K. and Raviprasad, T.N., *World Applied Sciences Journal*, **2013**, 22 (6): 763-770.
- [20] Lone, M.A., Dar, I.U. and Bhat, G.A., *Journal of Ecology and Natural Environment*, **2015**, 7(3): 81-86.