

# The Spiders Diversity from Different Habitats around Biosciences, Vallabh Vidyanagar

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**Abstract:** A preliminary study of spiders was carried out in June 2012 to July 2013 from five sites around Biosciences, Vallabh Vidyanagar. As the results of collected spiders, total 90 species belonging to 66 genera spread over 24 families are recorded from five sites of Vallabh Vidyanagar. The dominant family Araneidae had the highest number of species (18); followed by Salticidae (13), Thomisidae (10) and Tetragnathidae (7), Oxyopidae (5). Most of the other families had less than 5 species. This small region has detected more than 5% of Indian spiders.

**Keywords:** Spiders, diversity, Anand, Gujarat

## 1. Introduction

Spiders of Gujarat from all regions have been studied earlier by several researchers; viz. Patel, B. H. [16], Patel, B. H. and R.V.Vyas. [17], Manju Saliwal *et al.*, [6], Nikunj Bhatt, [10], Patel *et al.*, [18], Vachhani *et al.*, [26], Parmar Bharat N. *et al.*, [15], Parmar, B.M. and K.B.Patel [12], Parmar, B.M. *et al.*, [13], Parmar, B.M. and A.V.R.L.N. Acharya [14], Patel, M.B. and M.I. Patel, [5] & Reshma Solanki and Dolly Kumar [20] carried out studies. The present study of spiders was carried out in Vallabh Vidyanagar for providing base line information for future study.

## 2. Methodology

Spider collections were adopted in various habitats like agriculture areas, wasteland areas, areas nearby water body and urban areas. The collection technique used was hand picking method. After collections were over, the spiders were sacrificed and transferred into specimen tubes. All Collected specimens are transferred to 70% alcohol for later identification. For detailed examination of all specimens through Olympus stereo zoom microscope with objective 1 to 4 and eyepieces of 40x and 80 x magnifications were used. Accurate identification on the family, genus and species level is only feasible with adult specimen. The identification of the spider relies heavily on the genitalia. Thus identifying immature spiders to species level is considered impractical as sexual characters are needed for species level identification [3]. A detailed taxonomic study is carried out based on the various keys and catalogues provided by arachnologist.

## 3. Results

All 90 species were recorded and identified from study area during June 2012 to July 2013. The family Araneidae was numerical dominant which had the highest number of species (18); followed by Salticidae (13), Thomisidae (10) and Tetragnathidae (7), Oxyopidae (5). Most of the other families had less than 5 species. Total seven guilds recorded during study. The orb weaving spiders with the highest number of total species with 26 species (28.89% of all species), followed by Stalker spiders with 18 species (20%), Ground

spiders with 12 species (13.33%) and irregular web builder 12 species (13.33%), Ambusher spiders with 11 (12.22%) species each. The funnel web spiders with 7 species (7.77%) and foliage hunter/ runner spiders with 3 species (3.33%).

**Table 1:** Sites Descriptions

No.	Site	Geographic location	Habitat description
1.	Bio-science department	22°34'14.53"N 72°54'32.76"E	Mixture of small thorny trees, grasses and garden plants.
2.	Rampur Village	22°34'52.61"N 72°54'27.54"E	Wasteland with mixture of small thorny trees in which <i>Acacia</i> is conspicuous.
3.	Shashtri Medan	22°33'07.85"N 72°55'30.99"E	Mainly grasses and Trees like <i>Azadirachta indica</i> , <i>Acacia nilotica</i> etc.
4.	Botanical garden	22°33'17.99"N 72°56'04.56"E	Some medicinal plants and other garden plants, ferns, gymnosperms Pteridophytes, lawns and green house.
5.	Khodiyar wetland	22°34'51.45"N 72°56'53.50"E	Mixture of small thorny trees like <i>Acacia leucophloea</i> , <i>Acacia nilotica</i> , <i>Zizyphus sp.</i> , <i>Prosopis cineria</i> , etc. and also Agriculture farms.

**Table 2:** Systematic list of recorded Spiders in the study area

### I. FAMILY AGELENIDAE C. L. Koch, 1837

a. Genus *Agelena* Walckenaer, 1805

1. *Agelena* sp.

### II. FAMILY ARANEIDAE Clerck, 1757

a. Genus *Araneus* Clerck, 1757

1. *Araneus mitificus* Simon 1886
2. *Araneus ellipticus*, Tikader & Bal, 1981
3. *Araneus inustus* L. Koch, 1871

b. Genus *Argiope* Audouin, 1826

1. *Argiope anasuja*, Thorell 1887
2. *Argiope* sp.

c. Genus *Cyclosa* Menge, 1866

1. *Cyclosa hexatuberculata*, Tikader, 1982

2. *Cyclosa bifida*, Doleschall, 1859  
d. Genus *Cyrtophora* Simon, 1864  
1. *Cyrtophora cicatrosa*, Stoliczka 1869  
e. Genus *Eriophora* Simon, 1864  
1. *Eriophora* sp.  
f. Genus *Eriovixia* Archer, 1951  
1. *Eriovixia* sp.

- g. Genus *Larinia* Simon, 1874  
1. *Larinia phthisica*, L. Koch 1871  
h. Genus *Neoscona* Simon, 1864  
1. *Neoscona mukerjei*, Tikader, 1980  
2. *Neoscona rumpfi*, Thorell 1899  
3. *Neoscona bengalensis* Tikader & Bal 1981  
4. *Neoscona nautica*, L. Koch, 1875  
5. *Neoscona odites*, Simon, 1906  
6. *Neoscona theisi*, Walckenaer, 1841  
i. Genus *Poltys* C. L. Koch, 1843  
1. *Poltys* sp.

### III. FAMILY CLUBIONIDAE Simon, 1893

- a. Genus *Clubiona* Latreille, 1804  
1. *Clubiona* sp.

### IV. FAMILY CORINNIDAE Karsch, 1880

- a. Genus *Castianeira* Keyserling, 1879  
1. *Castianeira tinae*, Patel & Patel, 1973

### V. FAMILY CTENIDAE Keyserling, 1877

- a. Genus *Ctenus* Walckenaer, 1805  
1. *Ctenus* sp.

### VI. FAMILY EUTICHURIDAE Lehtinen, 1967

- a. Genus *Cheiracanthium* C. L. Koch, 1839  
1. *Cheiracanthium nalsaroverense*, Patel & Patel, 1973

### VII. FAMILY ERESIDAE C. L. Koch, 1850

- a. Genus *Stegodyphus* Simon, 1873  
1. *Stegodyphus* sp.

### VIII. FAMILY FILISTATIDAE Ausserer, 1867

- a. Genus *Filistata* Latreille, 1810  
1. *Filistata napadensis*, Patel, 1975  
b. Genus *Sahastata* Benoit, 1968  
1. *Sahastata* sp.

### IX. FAMILY GNAPHOSIDAE Pocock, 1898

- a. Genus *Drassodes* Westring, 1851  
1. *Drassodes* sp.  
b. Genus *Gnaphosa* Latreille, 1804  
1. *Gnaphosa* sp.  
c. Genus *Poecilochroa* Westring, 1874  
1. *Poecilochroa*  
d. Genus *Zelotes* Gistel, 1948  
1. *Zelotes* sp.

### X. FAMILY HERSILIIDAE Thorell, 1870

- a. Genus *Hersilia* Audouin, 1826  
1. *Hersilia savignyi*, Lucas, 1836

### XI. FAMILY LYCOSIDAE Sundevall, 1833

- a. Genus *Hippasa* Simon, 1885

1. *Hippasa* sp  
b. Genus *Lycosa* Latreille, 1804  
1. *Lycosa iranii*, Pocock, 1901  
2. *Lycosa tista*, Tikader, 1970  
c. Genus *Pardosa* C. L. Koch, 1847  
1. *Pardosa birmanica*, Simon, 1884

### XII. FAMILY OECOBIIDAE Blackwall, 1862

- a. Genus *Oecobius* Lucas, 1846  
1. *Oecobius* sp.

### XIII. FAMILY OXYOPIDAE Thorell, 1870

- a. Genus *Oxyopes* Latreille, 1804  
1. *Oxyopes javanus*, Thorell, 1887  
2. *Oxyope bhadatae*, Gajbe, 1999  
3. *Oxyope ryvesi*, Pocock, 1901  
b. Genus *Peucetia* Thorell, 1869  
1. *Peucetia akwadaensis*, Patel, 1978  
2. *Peucetia* sp.

### XIV. FAMILY PHILODROMIDAE Thorell, 1870

- a. Genus *Tibellus* Simon, 1875  
1. *Tibellus* sp.

### XV. FAMILY PHOLCIDAE C. L. Koch, 1850

- a. Genus *Artema* Walckenaer, 1837  
1. *Artema atlanta*, Walckenaer, 1837

- b. Genus *Crossopriza* Simon, 1893  
1. *Crossopriza lyoni*, Blackwall, 1867

- c. Genus *Pholcus* Walckenaer, 1805  
1. *Pholcus* sp.

### XVI. FAMILY PISAURIDAE Simon, 1890

- a. Genus *Pisaura* Simon, 1885  
1. *Pisaura swami*, Patel, 1987  
2. *Pisaura* sp.

### XVII. FAMILY SALTICIDAE Blackwall, 1841

- a. Genus *Epeus* Peckham & Peckham, 1886  
1. *Epeus indicus*, Prószyński, 1992  
b. Genus *Epocilla* Thorell, 1887  
1. *Epocilla aurantiaca*, Simon, 1885  
c. Genus *Hyllus* C. L. Koch, 1846  
1. *Hyllus semicupreus*, Simon, 1885  
d. Genus *Menemerus* Simon, 1868  
1. *Menemerus bivittatus*, Dufour, 1831  
e. Genus *Myrmarachne* MacLeay, 1839  
1. *Myrmarachne plataleoides*, O.P. Cambridge, 1869  
f. Genus *Phintella* Strand, in Bösenberg & Strand, 1906  
1. *Phintella vittata*, C. L. Koch, 1846  
g. Genus *Phlegra* Simon, 1876  
1. *Phlegra dhakuriensis*, Tikader, 1974  
h. Genus *Plexippus* C. L. Koch, 1846  
1. *Plexippus paykulli*, Audouin, 1826  
i. Genus *Rhene* Thorell, 1869  
1. *Rhene flavigera*, C. L. Koch, 1846  
j. Genus *Siler* Simon, 1889  
1. *Siler semiglaucus*, Simon, 1901  
k. Genus *Telamonia* Thorell, 1887

1. *Telamonia dimidiata*, Simon, 1899
2. *Telamonia sp.*
1. Genus *Thyene* Simon, 1885
1. *Thyene imperialis*, Rossi, 1846

**XVIII. FAMILY SCYTODIDAE Blackwall, 1864**

- a. Genus *Scytodes* Latreille, 1804
1. *Scytodes thoracica*, Latreille, 1802

**XIX. FAMILY SPARASSIDAE Bertkau, 1872**

- a. Genus *Heteropoda* Latreille, 1804
1. *Heteropoda nilgirina*, Pocock, 1901
2. *Heteropoda sp.*
- b. Genus *Olios* Walckenaer, 1837
1. *Olios sp.*

**XX. FAMILY TETRAGNATHIDAE Menge, 1866**

- a. *Guizygiella* Zhu, Kim & Song, 1997
1. *Guizygiella indica*, Tikader & Bal, 1980
2. *Guizygiella sp.*
- b. Genus *Leucauge* White, 1841
1. *Leucauge decorata*, Blackwall, 1864
1. Genus *Tetragnatha* Latreille, 1804 *Tetragnatha mandibulata*, Walckenaer, 1842
2. *Tetragnatha viridorufa*, Gravely, 1921
3. *Tetragnatha sp.*
- c. Genus *Tylorida* Simon, 1894
1. *Tylorida sp.*

**XXI. FAMILY THERIDIIDAE Sundevall, 1833**

- a. Genus *Achaearanea* Strand, 1929
1. *Achaearanea tepidariorum*, CLKoch, 1841
2. *Achaearanea sp.*
- b. Genus *Argyrodes* Simon, 1864
1. *Argyrodes argentatus*, O. P.-Cambridge, 1880
2. *Argyrodes sp.*
- c. Genus *Chrysso*, O. P.-Cambridge, 1882
1. *Chrysso sp.*
- d. Genus *Steatoda* Sundevall, 1833
1. *Steatoda sp.*

**XXII. FAMILY THOMISIDAE Sundevall, 1833**

- a. Genus *Ebrechtella* Dahl, 1907
1. *Ebrechtella concinna*, Thorell, 1877.
- b. Genus *Oxytate* L. Koch, 1878
1. *Oxytate virens*, Thorell, 1891
- c. Genus *Runcinia* Simon, 1875
1. *Runcinia sp.*
- d. Genus *Synema* Simon, 1864
1. *Synema decoratum*, Tikader, 1960
- e. Genus *Thomisus* Walckenaer, 1805
1. *Thomisus projectus*, Tikader, 1960
2. *Thomisus lobosus*, Tikader, 1965
- f. Genus *Indoxysticus*, Benjamin & Jaleel, 2010
1. *Indoxysticus minutes*, Tikader, 1960
- g. Genus *Xysticus* C. L. Koch, 1835
1. *Xysticus breviceps*, O. P.-Cambridge, 1885
2. *Xysticus joyantius*, Tikader, 1966
3. *Xysticus sp.*

**XXIII. FAMILY ULOBORIDAE Thorell, 1869**

- a. Genus *Uloborus* Latreille, 1806
1. *Uloborus plumipes*, Lucas, 1846

**XXIV. FAMILY ZODARIIDAE Thorell, 1881**

- a. Genus *Asceua* Thorell, 1887
1. *Asceua sp.*
- b. Genus *Storena* Walckenaer, 1805
1. *Storena indica*, Tikader & Patel, 1975

**Table 3: Family distribution and guilds of spiders**

No	Family	Family distribution (%)	Guild
1.	Agelenidae	1.11	Funnel web
2.	Araneidae	20	Orb web weaver
3.	Clubionidae	1.11	Foliage hunter
4.	Corinnidae	1.11	Ground runner
5.	Ctenidae	1.11	Ground runner
6.	Eresidae	1.11	Snare/sheet web builder
7.	Filistatidae	2.22	Funnel web
8.	Gnaphosidae	4.44	Ground runner
9.	Hersiliidae	1.11	Foliage hunter
10.	Lycosidae	4.44	Funnel web/ ground runner
11.	Euthichuridae	1.11	Foliage runner
12.	Oecobiidae	1.11	Disc web builder
13.	Oxyopidae	5.56	Stalker
14.	Philodromidae	1.11	Ambusher
15.	Pholcidae	3.33	Scattered line weaver
16.	Pisauridae	2.22	Ground runner/ nursery web builder
17.	Salticidae	14.44	Stalker
18.	Scytodidae	1.11	Ground runner
19.	Sparassidae	3.33	Ground runner
20.	Tetragnathidae	7.78	Orb web weaver
21.	Theridiidae	6.67	Scattered line weaver
22.	Thomisidae	11.11	Ambusher
23.	Uloboridae	1.11	Orb web weaver
24.	Zodariidae	2.22	Ground runner
	<b>Total</b>	<b>100</b>	

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