A Preliminary Checklist of the Spider Fauna of Sargodha (Punjab), Pakistan

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Abstract.- The survey for spider fauna was carried out from September 2008 through April 2009 from eight collecting sites of district Sargodha (Punjab), Pakistan. A total of 810 specimens were collected. A total of 56 species belonging to 16 families and 34 genera were recorded in the present study. All the species were already recorded from Pakistan but 54 species were first time recorded from District Sargodha. A preliminary checklist of spiders along with their material examined and collecting sites is presented in the paper.

Keywords: Spider fauna, Sargodha (Punjab).

INTRODUCTION

Spiders belong to one of the largest and most diverse groups of animals. There are 110 families, 3859 genera and 42751 species of spiders described in the world (Platnick, 2012). Pakistan has diverse habitats and is rich in spider fauna but no consolidated account on spiders of Pakistan still exists. The pioneer works on the systematics of spider fauna of Pakistan were done by Pocock (1900) and Dyal (1935). Some information about taxonomy of spider fauna of Pakistan was provided by Qureshi (1982), Arshad et al. (1984), Khatoon (1986), Mushtaq et al. (1995a,b), Khan et al. (1995), Mushtaq and Qadar (1999), Mushtaq et al. (2000), Butt and Beg (1996, 2000, 2001), Mukhtar (2004), Ovtchinnikov and Inayatullah (2005), Butt et al. (2006), Butt and Siraj (2006), Ovtchinnikov (2006), Parveen et al. (2007), Ghafoor and Alvi (2007), Ovtchinnikov et al. (2008), Parveen et al. (2008), Ursani and Soomro (2010) Marusik and Ballarin (2011), Perveen and Jamal (2012) and Perveen et al. (2012). Sargodha is an important agricultural area of Pakistan that is famous for its citrus orchards in the world but no organized work has been done to know about the diversity of spider fauna of this area and to use them against insect pests. Previously, only Mukhtar (2004) recorded some species of spiders from Sargodha. Thus, the present study is an initial attempt to survey the spider fauna of Sargodha. This paper presents a preliminary checklist of the spider fauna of Sargodha (Punjab), Pakistan.

MATERIALS AND METHODS

Study area

District Sargodha is located in the northwest of Pakistan and in the central Punjab; 31°-34’ to 32°-36’ North (Latitude) and 72°-70’ to 73°-18’ East (Longitude). The district consists mainly of plain area with few small hills. It is situated 150 to 200 meters above the sea level. It has an area of 5,864 km². The climate of the study area is semi arid with an annual average rainfall of 180-200 mm. The summer season is long, whereas winter season is very short. The maximum temperature reaches 50°C (122°F) in the summer while the minimum temperature recorded is as low as freezing point in the winter. Sargodha is an agricultural district being largest citrus growing area in the world. Wheat, rice and sugarcane are its main crops.

Collection and preservation

The survey for spider fauna was carried out from September 2008 through April 2009. Eight collecting sites from five “tehsils” (viz., Sargodha, Sahiwal, Silanwali, Shahpur and Kotmomin) of the...
district Sargodha were randomly selected for the present study. Spiders were collected from crops, orchards, ornamental and wild plants from some of the habitats. Most of the collection was done by shaking the plants on a white cloth sheet (2m x 2m), from which the specimens were put in a bottle including 70% ethyl alcohol. Some spiders were also collected from plants and from ground by hand. All the collection was done by Ms Sidra Jabeen, so to avoid the repetition it is not mentioned as collector name each time. The detail of the material examined is also given for each species. Each specimen was preserved separately in alcohol with little amount of glycerin.

Identification
Identification was done on the basis of morphometric characters and genitalia, using the keys and catalogues of Tikader (1980, 1982), Tikader and Malhotra (1980), Tikader and Biswas (1981), Majumder and Tikader (1991), Barrion and Litsinger (1995), Yin et al. (1997), Song and Zhu (1997), Proszynski (2006), Zhu et al. (2003), Nentwig et al. (2010), Sebastian and Peter (2009), and other relevant literature. All the specimens were labeled with family, scientific name, host plant, date of collecting, locality and collector’s name. The specimens were housed in the Museum, Department of Biological Sciences, University of Sargodha.

RESULTS AND DISCUSSION
The present effort resulted in the collection of a total of 810 specimens; some immature and juvenile specimens could not be identified up to species level. A total of 56 species belonging to 16 families and 34 genera were recognized. All species have already been recorded from Pakistan but 54 of them are recorded for the first time from District Sargodha. As the collection was done mostly by shaking method, family Araneidae was the largest with 10 genera and 14 species followed by Lycosidae (three genera and eight species). Family Tetragnathidae was represented by five species. The families Salticidae, Sparassidae, and Thomisidae were all represented by four species each; three species each in families Gnaphosidae and Clubionidae whereas two species were recorded each in families Oxyopidae, Scytodidae and Philodromidae. The families Miturgidae, Pholcidae, Oecobiidae, Corinnidae and Uloboridae were the smallest in the collection with a single species each.

Before this study, only Mukhtar (2004) sampled small area of district Sargodha and reported eight species under seven genera and six families. Of these, only two species are reported in this study again viz., Neoscona bengalensis and Neoscona mukerjei. The remaining six species were not found in this study which could be because this collection was done from different localities or different habitats. Of the 56 species recorded in the present study, 54 are reported for the first time from Sargodha. All the species have already been reported from Punjab, Pakistan by various workers already mentioned in the introduction. Some of the species have also been recorded from other provinces/areas (viz., Sindh, Islamabad, Khyber Pakhtunkhwa, FATA and Kashmir) of the country as well. This is very interesting because this area has diverse habitats including crops, orchards, undisturbed sand dunes and small hills as well. Other possibility of occurrence of these species in hilly or other areas may be their wide range of tolerance, altitude and habitat.

The spider fauna recorded in the present study is somewhat different from Sindh (Ursani and Soomro, 2010) and Peshawar and FATA (Perveen and Jamal, 2012; Perveen et al., 2012). These results are not unexpected as the climate and habitat of the areas mentioned are different from the study area. This is a preliminary survey and more extensive study of this rich in biodiversity area is needed. It is expected that further studies will explore many more and some interesting species from this ecological and agricultural important area of the Punjab. The details of the spider species collected in the present study along with material examined and their collecting sites are given below.

Family Araneidae Clerck, 1757

Genus ARANEUS Clerck, 1757
1. Araneus mitificus (Simon, 1886)

Material examined
1 ♂, Acacia nilotica, 9.11.2008, Raitri,

Genus *ARGIOPE* Savigny, 1825

2. *Argiope trifasciata* (Forsskål, 1775)

*Material examined*


Genus *CYCLOSA* Menge, 1866

3. *Cyclosa confraga* (Thorell, 1892)

*Material examined*


4. *Cyclosa hexatuberculata* Tikader, 1982

*Material examined*


Genus *CYRTOPHORA* Simon, 1864

5. *Cyrtophora citricola* (Forsskål, 1775)

*Material examined*


Genus *ERIOVIXIA* Archer, 1951

6. *Eriovixia excelsa* (Simon, 1889)

*Material examined*


Genus *GEA* C. L. Koch, 1843


*Material examined*


Genus *LARINIA* Simon, 1874

8. *Larinia phthisica* (L. Koch, 1871)

*Material examined*


Genus *LIPOCREA* Thorell, 1878

9. *Lipocrea fusiformis* (Thorell, 1877)

*Material examined*


Genus *NEOSCONA* Simon, 1864


*Material examined*

1 ♀, 20.10.2008, Sargodha.

11. *Neoscona mukerjei* Tikader, 1980

*Material examined*

2 immatures, *Pyrus communis*, 10.11.2008, Sahiwal, Sargodha; 1 ♀, 1 ♂, 24.09.2008,

Material examined
1 ♀, University of Sargodha, 24.09.2008.

13. *Neoscona vigilans* (Blackwall, 1865)

Material examined

Genus *PARAWIXIA* F. O. P.-Cambridge, 1904

14. *Parawixia dehaani* (Doleschall, 1859)

Material examined

Family Clubionidae Wagner, 1887

Genus *CLUBIONA* Latreille, 1804

15. *Clubiona drassodes* O. P.-Cambridge, 1874

Material examined

16. *Clubiona filicata* O. P.-Cambridge, 1874

Material examined


Material examined

Family Corinnidae Karsch, 1880

Genus *OEDIGNATHA* Thorell, 1881


Material examined

Family Gnaphosidae Pocock, 1898
Genus *GNAPHOSA* Latreille, 1804

19. *Gnaphosa jodhpurensis* Tikader & Gajbe, 1977

**Material examined**

Genus *Scopoides* Platnick, 1989

20. *Scopoides kuljitae* (Tikader, 1982)

**Material examined**


**Material examined**

Genus *HIPPASA* Simon, 1885

22. *Hippasa madhuae* Tikader & Malhotra, 1980

**Material examined**

23. *Hippasa pisaurina* Pocock, 1900

**Material examined**
1 ♂, 1 ♀, 1 immature, *Oryza sativa*, 7.11.2008, Sahiwal, Sargodha.

Genus *LYCOSA* Latreille, 1804

24. *Lycosa madani* Pocock, 1901

**Material examined**

25. *Lycosa tista* Tikader, 1970

**Material examined**

Genus *PARDOSA* C. L. Koch, 1847

26. *Pardosa birmanica* Simon, 1884

**Material examined**

27. *Pardosa mysorensis* (Tikader & Mukerji, 1971)

**Material examined**
1 immature, ground, 26.10.2008, Sahiwal, Sargodha.

28. *Pardosa pseudoannulata* (Bösenberg & Strand, 1906)

**Material examined**

29. *Pardosa sumatrana* (Thorell, 1890)

**Material examined**

Family Miturgidae Simon, 1886

Genus *CHEIRACANTHIUM* C. L. Koch, 1839

30. *Cheiracanthium inornatum* O. P.-Cambridge, 1874

**Material examined**
Family Oecobiidae Blackwall, 1862

Genus *OECOBIUS* Lucas, 1846

31. *Oecobius putus* O. P.-Cambridge, 1876

**Material examined**

3 ♀, house, 11.11.2008, Sargodha.

Family OXYOPIDAE Thorell, 1870

Genus *OXYOPES* Latreille, 1804

32. *Oxyopes ratnae* Tikader, 1970

**Material examined**


Genus *PEUCETIA* Thorell, 1869

33. *Peucetia viridana* (Stoliczka, 1869)

**Material examined**


Family Philodromidae Thorell, 1870

Genus *PHILODROMUS* Walckenaer, 1826

34. *Philodromus betrabatai* Tikader, 1966

**Material examined**


35. *Philodromus devhutai* Tikader, 1966

**Material examined**


Family Pholcidae C. L. Koch, 1850

Genus *ARTEMA* Walckenaer, 1837

36. *Artema atlanta* Walckenaer, 1837

**Material examined**

1 ♂, 24.09.2008, University of Sargodha, Sargodha; 2 ♂, 2 immatures, house, 19.11.2008, Sargodha; 1 ♂, 1 immature, Faroka, Silanwali, Sargodha.

Family Salticidae Blackwall, 1841

Genus *MARPISSA* C.L. Koch, 1846

37. *Marpissa decorata* Tikader, 1974

**Material examined**


38. *Marpissa tigrina* Tikader, 1965

**Material examined**

Genus *PLEXIPPUS* C.L. Koch, 1846
39. *Plexippus paykulli* (Audouin, 1825)

**Material examined**

Genus *RHENE* Thorell, 1869
40. *Rhene indica* Tikader, 1973

**Material examined**

Family Scytodidae Blackwall, 1864
Genus *SCYTODES* Latreille, 1804
41. *Scytodes propinqua* Stoliczka, 1869

**Material examined**
2 immatures, house, 29.10.2008, Sargodha.

42. *Scytodes thoracica* (Latreille, 1802)

**Material examined**
1 immature, 24.09.2008, University of Sargodha, Sargodha.

Family Sparassidae Bertkau, 1872
Genus *OLIOS* Walckenaer, 1837
43. *Olios lutescens* (Thorell, 1894)

**Material examined**

44. *Olios mahabangkawitus* Barrion & Litsinger, 1995

**Material examined**
Lakhiwal, Sahiwal, Sargodha; 3 immatures, Gardenia florida, 9.11.2008, Raitri, Sahiwal, Sargodha; 1 ♂, Morus alba, 10.11.2008, Sahiwal, Sargodha.

45. Olios punctipes Simon, 1884

Material examined
1 ♀, Citrus limonia, 16.03.2009, Sahiwal, Sargodha.

46. Olios punjabensis Dyal, 1935

Material examined

Family Tetragnathidae Menge, 1866

Genus GUIZYGIELLA Zhu, Kim & Song, 1997

47. Guizygiella indica (Tikader & Bal, 1980)

Material examined

48. Guizygiella melanocrania (Thorell, 1887)

Material examined
4 ♂, Syzygium cumuni, 10.11.2008, Sahiwal, Sargodha; 1 ♂, Citrus limon, 10.11.2008, Sahiwal, Sargodha.

Genus LEUCAUGE White, 1841

49. Leucauge decorata (Blackwall, 1864)

Material examined

50. Leucauge dorsotuberculata Tikader, 1982

Material examined
1 ♂, 25.09.2008, University of Sargodha, Sargodha.

Genus TETRAGNATHA Latreille, 1804

51. Tetragnatha javana (Thorell, 1890)

Material examined

Family Thomisidae Sundevall, 1833

Genus RUNCINIA Simon, 1875

52. Runcinia affinis Simon, 1897

Material examined

Genus THOMISUS Walckenaer, 1805

53. Thomisus labefactus Karsch, 1881

Material examined

54. Thomus okinawensis Strand, 1907

Material examined

59. Thomus pugilis Stoliczka, 1869

Material examined
1 immature, Pyrus communis, 10.11.2008, Sahiwal, Sargodha; 1 immature, Punica granatum, 23.02.2009, Sahiwal, Sargodha.

Family Uloboridae Thorell, 1869

Genus ULOBORUS Latreille, 1806

56. Uloborus danolius Tikader, 1969

Material examined
1 ♂, 1 immature, 25.09.2008, University of Sargodha, Sargodha.

REFERENCES


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