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Preliminary Study on spiders of Gulbarga, Karnataka State

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Abstract— *Gulbarga, a prominent town of northern Karnataka State (76^0-04' to 77^0-42' longitude and 16^0-12' to 17^0-46' latitude), it is located in the Deccan Plateau with an altitude of 454 above MSL. An attempt is hereby made to explore the spider fauna of this region. Spiders belonging to 10 different families have been recorded. These spiders belong to the families Araneidae, Lycosidae, Salticidae, Oxyopidae; theyalso are found to occur in sizable numbers.*

Keywords—Spiders. Gulbarga, Taxonomy, Species.

I. INTRODUCTION

The spiders especially Araneomorphs, comprising of amazing, diverse and highly adapted Arachnids, have attracted the attention of several workers in India and elsewhere. They are one of the largest groups of animals both by number and variety occupying the seventh place next only to insects in global biodiversity.

Information pertaining to Indian spiders is rather scattered. The beginning of Arachnological studies in India dates back to the 19th century. Much of the contributions were made by naturalists, biologists and taxonomists from western countries and some of the significant contributions are those of Blackwall (1867), Stoliczka (1869), Thorell (1895 and 1977), Simon (1885, 1889, 1897a and 1897b) and Cambridge (1892 and 1897). Noteworthy contributions to Arachnology of British India were made by Pocock (1895, 1899, 1900 and 1901), Sheriff (1919, 1927, 1928 and 1929), Gravely (1921 and 1935), Raimoser (1934) and Dyal (1935).

Among the notable Indian Arachnologists, Tikader's contributions are considered highly significant in view of his immense contributions spanning over four decades from 1960: his important contributions are on Thomisidae (1960); Cyrachne (1961a); Xyptilla (196b); Oelobius (1962). His further work (1982) dealt with Araneid spiders of India encompasses information on 101 species belonging to 21 genera of which 5 species were new to science. Sethi and Tikader (1988) reported on Heteropodidae from coastal Andhra Pradesh, India; Biswas and Majumder (1995) reported the occurrence of 92 species of spiders belonging to 39 genera and 7 families from Meghalaya, north east India, among these two species belonging to 2 genera and 2 families were new to science, whereas 31 species of 17 genera under 5 families were recorded for the first time from this region. Sadhana & Goel (1995) described one new species of the genus Oxyopes (Oxyopidae); Biswas and Biswas (2000, 2003, 2004, 2006 and 2007) provided noteworthy information on the spiders of north eastern states, viz. Tripura, Meghalaya, Sikkim, Manipur and Mizoram. The elaborate work on spiders of Malabar region by Peter and Sebastian (2006) provide the much needed information useful to the budding Arachnologists as well as taxonomists evincing interest on this group.

Literature survey reveals that very scanty information on the spiders from Karnataka is available; some of the works such as those of Venkatashalu (1996) and Vijayakumar (2002) on insect pest management mention the occurrence of a few spider species in the agriculture ecosystems from Bangalore and Dharwad region respectively. Further, Bastawade et al (2004) made a cursory mention of the distribution of a species of Thomisid spider from North Kanara, Karnataka; Silwal et al (2011) while studying the occurrence of genus *Tigidia* in the Western Ghats reports the availability of one species from the Karnataka region of Western Ghats; however, Nalini Bai and Ravindranatha (2012) report on the spider diversity in IISc campus, Bangalore, where in 40 species were found by the author.

II. MATERIALS AND METHODS

The present study was undertaken from January to December of 2012. The areas were surveyed to collect specimens from different habitats such as crops of agriculture fields, wild plants, dry areas, moist places, under stones, dead leaves, houses etc. from five selected stations in and around Gulbarga.

Collections were made by hand picking and transferred to the specimen bottles from various sites. The web-builders could be easily located and other spiders were traced out from their retreats. Spiders thus collected were preserved in 70% alcohol. A detailed morphological study was done under Stereo-Zoom microscope. Identification of the collected specimens was according to relevant keys (Sebastian and Peter (2006) and other related literature

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such as those of Tikader (1970, 1980 and 1982), Tocque and Dippenaar-Schoeman (2009) and expert assistance was taken where ever necessary for the confirmation of the species.

III. RESULTS

During the present study, 25 species from 10 families and 17 genera are recorded. Araneidae, Salticidae and Oxyopidae were numerically predominant families forming 20% of the total specimens collected. It was followed by Lycosidae and Pholcidae (10%), Thomisidae (6.66%), Gnaphosidae, Hersillidae, Sparassidae and Tetragnathidae (3.33%).The most abundant genus recorded is *Neoscona*.

The spider species come across in the present study can be divided into 5 functional groups or guilds based on foraging behaviour. The families with the highest number of the total species are the foliage runners belonging to Salticidae, Hersillidae, Oxyopidae with 10 species(40% of the all species)followed by ground runners belonging to Gnaphosidae, Lycosidae, Sparassidae with 5 species(20% of all species) and orb-web builders belonging to Araneidae and Tetragnathidae with 5 species(20% of the all species), scattered- line weaversincluding Pholcidae with 3 species(12% of all species) followed by Ambushers belonging to Thomisidae with 2 species (8% of all species). The abundance of spiders in the present study is in the order of Araneidae, Gnaphosidae, Hersillidae, Lycosidae, Oxyopidae, Pholcidae, Salticidae, Sparassidae, Tetragnathidae and Thomisidae.

IV. CONCLUSION

Gulbarga region in north-east region of Karnataka State is characterised by semi-arid climate conditions and supports a considerably rich spider fauna as can be summarised by the present survey of different habitats. These belong to 5 guilds. It could be observed in the present study that the occurrence and abundance of the species collected is influenced by micro-climatic and related environmental parameters. The abundance of the specimens of various groups was considerably richer in the monsoon season even though the rains were scattered and scanty. Hence, it could be stated that species occurrence and perhaps their abundance is related to habitat preference of the species. In the context of unabated deterioration of habitats, these spiders could be assigned the status of indicators of environmental changes. A more detailed study in this direction will throw light Vis-a- Vis the role of spiders as environmental indicators which the authors propose to undertake as further work.

This forms the first detailed inventory of the spider fauna of Gulbarga, in the north-east region of Karnataka State.

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Spiders recorded from Gulbarga, Karnataka during 2012.

Sl.No	Family	Genus	Species
1	Araneidae	1	4
2	Gnaphosidae	1	1
3	Hersillidae	1	1
4	Lycosidae	2	3
5	Oxyopidae	2	4
6	Pholcidae	3	3
7	Salticidae	3	5
8	Sparassidae	1	1
9	Tetragnathidae	1	1
10	Thomisidae	2	2
	Total - 10	**17**	**25**

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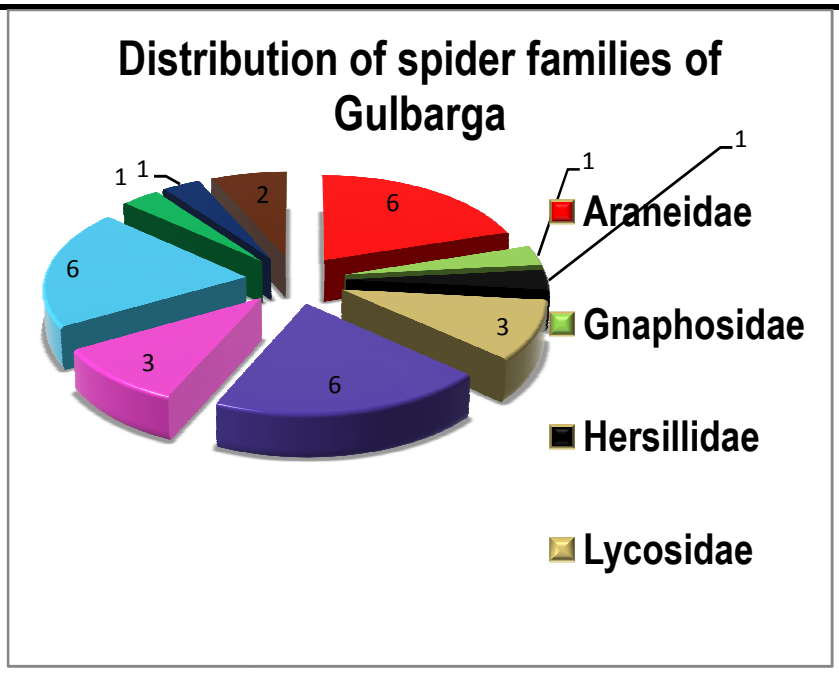

List of spiders collected.

I) ARANEIDAE

1. *Neoscona nautica*♂
2. *Neoscona nautica* ♀
3. *Neoscona odites*♂
4. *Neoscona molemensis*♂
5. *Neoscona molemensis*♀
6. *Neoscona* sp.♀

II)GNAPHOSIDAE

1. *Gnaphosa*sp.♀

III) HERSILLIDAE

1. *Hersilia savignayii*♂

IV) LYCOSIDAE

1. *Hippasa agelenidae*♀
2. *Hippasa holomerae*♀
3. *Draposa atropalpis*♀

V) OXYOPIDAE

1. *Oxyopes javanus*♂
2. *Oxyopes javanus*♀
3. *Oxyopes birmanicus*♂
4. *Oxyopes birmanicus*♀
5. *Oxyopes* sp.♂
6. *Peucetia viridana*

VI) PHOLCIDAE

1. *Pholcus* sp♂
2. *Crossopriza lyoni*♂
3. *Belisana* sp.

VII) SALTISIDAE

1. *Plexippus paykulli*♂
2. *Plexippus petersi*♀
3. *Telamonia dimidiata*♂
4. *Telamonia dimidiata*♀
5. *Telamonia* sp.
6. *Ptocassius*sp.♀

VIII) SPARASSIDAE

1. *Heteropoda* sp.♂

IX) TETRAGNATHIDAE

1. *Leucauge decorata*♀

X) THOMISIDAE

1. *Runcinia roonwali*♀
2. *Stigoplus*sp.

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Spiders of Gulbarga

N.nautica♂

N.nautica♀

N.odites♂

N.molemensis♂

N.molemensis♀

Neoscona.sp♀

Gnaphosa.sp♀

H.savignayii

H.agalenidae

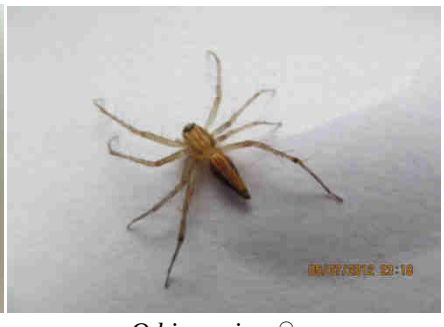
H.holomerae♀

D.atropalpis♀

O.javanus♂

O.javanus♀

O.birmanicus♂



O.birmanicus♀

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P.viridana


Pholcus.sp♂


C.lyoni♂


Belisana sp


P.paykulli♂


P.petersi♀


T.dimidiata♂


T.dimidiata♀


Telamonia.sp


*Ptocassius*sp♀


*Heteropodas*p♂


L.decorata♀


R.roonwali♀


Strigoplus.sp

REFERENCES

[1] Bastawade, D.B. (2004), Extension of distribution of the Thomisid spider platythomisus sudeepi Biswas, Thomisid: Araneae, from North Kanara. J. Bombay Nat.Hist.Soc. 101(1), Jan-Apr. 2004.

[2] Biswas B. and S.C Majumder. (1995). Araneae: Spider. In: Fauna of Meghalaya, State Fauna series. Zool. Surv. India, 492: 93-128.

[3] Biswas, V. and D. Raychoudhuri. (2000). Sac spiders of Bangladesh-II: Genera: Castianeira Keyserling, Sphingius Thorell & Trachelas Koch (Araneae: Clubionidae). Rec.zool.Surv.India. 98:131-139.

[4] Biswas, V. and Raychoudhuri (2003). A new species of spider of the genus Tibellus Simon (Araneae: Thomisidae) from Jhenidah, Bangladesh. J.Bombay Nat.Hist.Soc, 100: 81-86.

[5] Biswas and Biswas. (2004). Araneae: Spider fauna of Manipur State fauna Series 10 .Zool. Surv, India. 25-46.

[6] Biswas, B. and K.Biswas (2006), Araneae: Spider, Fauna of Arunachal Pradesh, State fauna series. Zool.Surv.India.13 (2): 491-518.

[7] Biswas.B.K and Biswas. (2007).Araneae: SpiderIn: Fauna of Mizoram, State Fauna Series. Zool. Surv. India.14: 455- 75.

[8] Blackwall, J. (1867). Description of seven new species of East Indian spiders received from Rev.O.P.Cambridge. Ann.Mag.Nat.Hist.

[9] Cambridge, F.O.P. (1892). On a new spider from Calcutta. Ann.Mag.Nat.Hist. (6) 10: 417-419.

[10] Cambridge, F.O.P (1897). On the Cteniform spiders of Ceylon, Burma and the Indian Archepelago west and North of Wallace's line; with bibliography and list of these from Australia, South and East of Wallace's line. Ann.Mag.Nat.Hist. (6) 20: 329-356.

[11] Dyal.S. (1935), Fauna of Lahore; Spiders of Lahore, Bull. Zool. Punj.Univ, 1: 119-252.

[12] Gravely, F.H. (1921).The spiders and Scorpions of Barkuda Island, Records of the Indian Museum 22: 399-421.

[13] Gravely, F.H. (1935). Notes on Indian Magalomorphs spiders. II. Rec.Indian mus., 37: 69-84.

[14] Nalini bai and Ravindranath (2012).Spider diversity in IISc. Bangalore, India. Indian Journal of Arachnology, 1(2) 050-058.

[15] Peter.K.V and Sebastian.P.A (2009).Spiders of India, Universities press (India). Himayantnagar, Hyderabad.

[16] Pocock, R.I, (1895). On a new and natural grouping of some of the oriental genera of magalomorphs with description of new genera& species, Ann.Mag.Nat.Hist, 15(6): 165-184.

[17] Pocock, R.I. (1899).Diagnoses of some new Indian Arachnida, J. Bombay Nat. Hist.Soc., 12: 744-753.

[18] Pocock, R.I. (1900). Great Indian spiders-The genus Poecilatheriaits habits, history and species. J. Bombay nat.hist.Soc. 13: 121-133.

[19] Pocock, R.I. (1901).Description of some new species of spiders from British India.J.Bombay nat.hist.Soc. 13:478-498.

[20] Reimoser, E. (1934). Araneae aus sud-Indian. Rev Suisse.zool. 41: 465-511.

[21] Sadhana, G.L.and N.K.Goel. (1995). New species of spider of the genus Oxyopes Latreille from India. Entomon, 20: 71-73.

[22] Sethi, V.D and B.K.Tikader. (1988). Studies on some gaint crab-spiders of the family Heteropodidae from India. Rec. Zool. Surv. India. Occ. pap. 93: 1-94.

[23] Sheriff, W.R. (1919). A contribution to the study of south Indian Arachnology I. Ann. Mag. Nat. Hist., 9:220-253.

[24] Sheriff, W.R. (1927). A contribution to the study of South Indian Arachnology II. Ann. Mag. Nat. Hist., 9: 533-542

[25] Sheriff, W.R. (1928), South Indian Arachnology part.III. Ann. Mag. Nat. Hist. (10) 2: 177-192.

[26] Sheriff, W.R. (1929), South Indian Arachnology part. IV. Ann. Mag. Nat. Hist. (10) 4:233-246.

[27] Siliwal (2011).First record of the genus Tigidia Simon, 1982 (Araneae: Barychelidae) from India with description of three new species from the Western Ghats, India.

[28] http://threatenedtaxa.org/ZooPrintJournal/2011/December/manju.htm.

[29] Simon.E. (1885).Arachnids recueillispar. M. Weyers a Sumatra//Premier envoi.An.Soc.Ent.Belge.Vol 29.P.30-39.

[30] Simon.E. (1892-1900) Hist .Nat. Araign. Histoire naturelle des Araignees (2nd edition) Par. Eugene Simon Paris,

[31] Stoliczka. (1869). Contributions towards the knowledge of Indian Arachnoidae. J. Asiat. Soc.Beng. 38: 201-251.

[32] Thorell, T. (1895). Descriptive catalogue of the spiders of Burma based upon the collection made by Eugene W.oates and preserved in the British museum. London. U.K., 406pp

[33] Thorell, T. (1977). Studisui Ragni Malesi e Papuauti.I.Ragni di selebesraccoltinel 1874 dal Dott.o.Beccari Annali de Museacivio di stirianaturalle di Genova 10.341-637.

[34] Tikader, B.K. (1960). On some new species of spiders (Arachnida) of the family Thomisidae from India. J.Bombay Nat.Hist.Soc., 57: 173-183.

[35] Tikader, B.K. (1961a).Revision of Indian spiders of the genus Cyrtachne (Argiopidae: Arachnida) J.Bombay Nat.Hist.Soc., 57: 547-556.
[36] Tikader.B.K (1961b). On two new species of spider of the genus Oxyptilla (Family, Thomisidae) from India. Proc. Zool. Soc. 13: 115-118.
[37] Tikader.B.K. (1962).Studies on some spiders of the genus Oecobius (Family Oecobidae) from India.J.Bombay Nat.Hist.Soc., 59:682-685.
[38] Tikader, B.K. (1982). Fauna of India (Araneae). 2(1): 1-293.
[39] Venkatashalu. (1996). Ecological studies on spiders in rice ecosystems with special reference to their role as bio control agents. M. Sc. (Agri) Thesis, University of Agricultural Sciences, Bangalore, Karnataka (India)
[40] Vijayakumar. (2002). Status of paddy insect pests and their natural enemies in Tungabhadra project area, M. Sc. (Agri) Thesis, University of Agricultural Sciences, Dharwad, Karnataka (India)