

## **Inventorization of Spider fauna of IndraVihar Park, Raigarh, Chhattisgarh, India**

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**Abstract:** The objective of the present study was to inventorize the spider fauna of IndraVihar Park, which is located (21°54'49.2" N & 83°25'40.4" E) at Raigarh, Chhattisgarh, India. The faunistic survey illustrated presence of 63 species representing 38 genera under 10 families, 2 species were unidentified. Among all these 7 families Predominant diversity was examined in the family Araneidae (15 species) followed by Gnaphosidae (13 species), Thomisidae (10 species), Lycosidae (9 species), Oxyopidae (5 species).

**Keywords:** Diversity, Chhattisgarh, IndraVihar Park, Spider, Raigarh,

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### **I. Introduction**

Spiders represent order Araneae of class Arachnida under Phylum Arthropoda, having two body segments cephalothorax and abdomen, four pair of walking legs, absence of antennae and wings. They symbolize a meaningful component of Arthropod diversity with nearly 44906 described species (Platnick, 2014; version 15.0). 1442 species of spiders representing 438 genera under 59 families in India were listed by Siliwalet. al.(2005). 1685 species belonging 438 genera and 60 families were catalogued from India by Keshwaniet. al. (2012). Sebastian and Peter (2009) illustrated 1520 spider species under 377 genera representing 60 families from India. Raigarh is known as cultural and industrial capital of Chhattisgarh. The present study was carried out in IndraVihar park which is located (21°54'49.2" N & 83°25'40.4" E) at Raigarh, Chhattisgarh, India. Average elevation of the city is 215 meter, river Kelo flows through the city which is the main source of irrigation. This study is first approach to explore the spider fauna of IndraVihar Park.

Gajbe during 1987-1999 provided major contribution in exploring diversity of spider fauna from Madhya Pradesh and Chhattisgarh. Ramakrishna et. al. (2006) have stated the fauna of spider of selected National parks of Madhya Pradesh, overall 62 species of spiders were illustrated including 16 species of spiders from Kanha National Park, 27 species from Pench National Park and 29 species from the Rani Veerangana Durgawati Wildlife Sanctuary. Chandra et. al. (2010) illustrated presence of 154 species of spiders from Basin of Narmada river, Madhya Pradesh. Shailendra et. al. (2010) reveals presence of 44 species of spiders representing 12 families from Rajghat, Madhya Pradesh. Spider fauna of Madhya Pradesh and Chhattisgarh has been compiled by Patil (2011) and listed 214 species representing 68 genera under 22 families. Sachin et. al. (2013) stated presence of 23 species of spider representing 12 genera under 7 families from Rani Veerangana Durgawati Wildlife Sanctuary. Ekka & Kujur (2015) reported 118 species of spiders representing 52 genera under 17 families from Ram Jharna, Raigarh, Chhattisgarh.

### **II. Materials and Method**

Six different collection techniques ex. Pitfall trapping, vegetation beating, ground hand collection, litter sampling, sweep netting and aerial hand collection were employed for collecting samples because spiders they inhabit all types of niches.

2.1 Sampling area: IndraVihar park is located (21°54'49.2" N & 83°25'40.4" E) at Raigarh, Chhattisgarh, India.

2.2 Sample Collection: Protocols followed by Sorensen et al. (2002).

2.2.1 Pitfall Trapping – Broadly used method for collecting spider assemblages of litter or ground dwelling.

2.2.2 Sweep Netting - Includes collection through the herb layer.

2.2.3 Ground Hand Collection – Includes hand collection of spiders from ground to knee level.

2.2.4 Aerial hand Collection – Includes the collection spiders from knee level to arm length level.

2.2.5 Vegetation Beating – The vegetation was beaten by stick for the collection of samples on a cloth.

2.2.6 Litter Sampling – Includes separation of spiders from the litter collection.

2.3 Preservation– unidentified specimens which will be collected are then transferred to 70% alcohol for later identification.

2.4 Identification- Identification of spiders on basis of the taxonomic keys for Indian spiders explained by Tikader (1982, 1987), Sebastian and Peter (2009) and published literatures.

### III. Observation

List of Spiders of IndraVihar Park

FAMILY AGELENIDAE KOCH, 1837

Genus I.a. Tegenaria Latreille, 1804

1. Tegenaria comstocki (Gajbe 2004)  
Comment : Endemic to India

FAMILY ARANEIDAE SIMON, 1895

Genus II.a. Araneus Clerck, 1757

1. Araneus mitificus (Simon, 1886)
2. Araneus nympha (Simon, 1889)
3. Araneus sp.

Genus II.b. Argiope Audouin, 1826

1. Argiopeaemula (Walckenaer, 1842)
2. Argiope pulchella (Thorell, 1881)  
Synonym : Argiope undulata (Thorell, 1881)  
was synonymised with Argiope pulchella

Genus II.c. Cyclosa Menge, 1866

1. Cyclosa confragata (Thorell, 1892)  
Synonym : Epeira confragata (Thorell, 1892)
2. Cyclosa moondensis (Tikader, 1983)  
Comment : Endemic to India

Genus II.d. Cyrtophora Simon, 1864

1. Cyrtophora jabalpurensis (Gajbe & Gajbe, 1999)  
Comment : Endemic to India

Genus II.e. Eriovixia Archer, 1951

1. Eriovixia excelsa (Simon, 1889)  
Comment : Transferred from genus Neoscanato Eriovixia

Genus II.f. Larinia Simon, 1874

1. Larinia bhataratae (Bhandari & Gajbe 2001)  
Comment : Endemic to India

Genus II.g. Neoscana Simon, 1864

1. Neoscana bengalensis (Tikader & Bal 1981)  
Comment : Endemic to India
2. Neoscana mukerjei (Tikader, 1980)  
Comment : Endemic to India
3. Neoscana nautica (L. Koch, 1875)
4. Neoscana sanghi (Gajbe, 2004)
5. Neoscana sp.

FAMILY GNAPHOSIDAE POCOCK, 1898

Genus III.a. Callilepis Westring, 1874

1. Callilepis chakanensis (Tikader, 1982)  
Comment : Endemic to India

Genus III.b. Drassodes Westring, 1851

1. Drassodes sagarensis (Tikader, 1982)  
Comment : Endemic to India
2. Drassodes tikaderi (Gajbe, 1987)  
Comment : Endemic to India

Genus III.c. Drassyllus Chamberlin, 1922

1. Drassyllus jabalpurensis (Gajbe, 2005)  
Comment : Endemic to India

Genus.III.d. Gnaphosa Latreille, 1804

1. Gnaphosapauriensis (Tikader & Gajbe, 1977)  
Comment : Endemic to India
2. Gnaphosapooaensis (Tikader, 1973)  
Comment : Endemic to India

Genus.III.e. Herpyllus Hentz, 1832

1. Herpyllusgoaensis (Tikader, 1982)  
Comment : Endemic to India

Genus.III.f. Nodocion Chamberline, 1922

1. Nodociontikaderi (Gajbe, 1922)  
Synonym : Liodrassustikaderi (Gajbe, 1992)  
Comment : Endemic to India

Genus.III.g. Sergiolus Simon, 1891

1. Sergioluspoonaensis (Tikader & Gajbe, 1976)  
Comment : Endemic to India
2. Sergiolussinghi (Tikader & Gajbe, 1976)  
Comment : Endemic to India

Genus.III.h. Sosticus Chamberline, 1922

1. Sosticusjabalpurensis (Bhandari & Gajbe, 2001)  
Comment : Endemic to India

Genus.III.i. Zelotes Gistel, 1848

1. Zelotesjabalpurensis (Tikader & Gajbe, 1976)  
Comment : Endemic to India
2. Zelotesyogeshi (Gajbe, 2005)  
Comment : Endemic to India

FAMILY LYCOSIDAE SUNDEVALL, 1833

Genus.IV.a. Arctosa C.L. Koch, 1847

1. Arctosahimalayensis (Tikader & Malhotra, 1980)

Genus.IV.b. Hippasa Simon, 1885

1. Hippasaagelenoides (Simon 1884)
2. Hippasagreenalliae (Blackwall, 1867)

Genus.IV.c. Lycosa Latreille, 1804

1. Lycosajagdaldpurensis (Gajbe, 2004)  
Comment : Endemic to India
2. Lycosapooaensis (Tikader & Malhotra, 1980)  
Comment : Endemic to India
3. Lycosashaktae (Bhandari & Gajbe, 2001)  
Comment : Endemic to India

Genus.IV.d. Pardosa C.L. Koch, 1847

1. Pardosaamkhasensis (Tikader & Malhotra, 1976)  
Comment : Endemic to India
2. Pardosajabalpurensis (Gajbe & Gajbe, 1999)  
Comment : Endemic to India
3. Pardosaranjani (Gajbe, 2004)  
Comment : Endemic to India

FAMILY NEPHILIDAE SIMON 1984

Genus.V.a. Nephila Leach, 1815

1. Nephilaclavata (L. Koch, 1878)
2. Nephilapilipes (Fabricius, 1793),  
According to Platnick 2011, Nephilamaculata  
was synonymised with Nephilapilipes

FAMILY OXYOPIDAE THORELL, 1870

Genus.VI.a. *Oxyopes* Latreille, 1804

1. *Oxyopesjabalpurensis* (Gajbe&Gajbe, 1999)  
Comment : Endemic to India
2. *Oxyopeskamalae* (Gajbe, 1999)  
Comment : Endemic to India
3. *Oxyopesketani* (Gajbe&Gajbe, 1999)  
Comment : Endemic to India

Genus.VI.b. *Peucetia* Thorell, 1869

1. *Peucetiaashae* (Gajbe&Gajbe, 1999)  
Comment : Endemic to India
2. *Peucetiajabalpurensis* (Gajbe&Gajbe, 1999)  
Comment : Endemic to India

FAMILY PHILODROMIDAE THORELL, 1870

Genus.VII.a. *Philodromus* Walckenaer, 1826

1. *Philodromusashae* (Gajbe&Gajbe, 1999)  
Comment : Endemic to India
2. *Philodromusbhagirathai* (Tikader, 1966)  
Comment : Endemic to India
3. *Philodromusjabalpurensis* (Gajbe&Gajbe 1999)  
Comment : Endemic to India

Genus.VII.b. *Thanatus* C.L. Koch, 1837

1. *Thanatusjabalpurensis* (Gajbe&Gajbe, 1999)  
Comment : Endemic to India
2. *Thanatusketani* (Bhandari&Gajbe)  
Comment : Endemic to India

Genus.VII.c. *Tibellus* Simon, 1875

Comments : Genus *Tibellus* was removed from family Thomisidae and placed in the family Philodromidae by Homann (1975)

1. *Tibellusjabalpurensis* (Gajbe&Gajbe, 1999)  
Comment : Endemic to India

FAMILY SALTICIDAE BLACKWALL, 1841

Genus.VIII.a. *Phidippus* C.L. Koch, , 1846

1. *Phidippusbhimrakshiti* (Gajbe, 2004)

Genus.VIII.b. *Plexippus* C.L. Koch, , 1846

1. *Plexippuspaykulli* (Audoun, 1826)  
Synonym : *Marpissabengalensis* was synonymised with *Plexippuspaykulli* by Zabka (1990);  
*Marpissamandali* was synonymised with *Plexippuspaykulli* by Tikader&Biswas (1981).

Genus.VIII.c. *Rhene* Thorell, 1859

1. *Rhenesanghrakshiti* (Gajbe, 2004)  
Comment : Endemic to India

FAMILY TETRAGNATHIDAE MENGE, 1866

Genus.IX.a. *Tetragnatha* Latreille, 1804

Synonym : Genus *Eucta* Simon 1881 was synonymised with *Tetragnatha* by Levi 1981

1. *Tetragnathachamberlini* (Gajbe, 2004)

Comment : Endemic to India

FAMILY THOMISIDAE SUNDEVALL, 1833

Genus.X.a. *Misumenoides* Cambridge, 1900

1. *Misumenoidesgwarighatensis* (Gajbe, 2004)

Comment : Endemic to India

Genus.X.b. *Monoeses* Thorell, 1869

1. *Monoesesjabalpurensis* (Gajbe & Rane, 1992)

Comment : Endemic to India

Genus.X.c. *Oxytate* Koch, 1878

Comment : Genus *Dieta* Simon, 1880 was synonymised with Genus *Oxytate* by Song et al. 1982

1. *Oxytateelongata* (Tikader, 1980)  
Comment: *Dietaelongata* (Tikader, 1980) was synonymised with *Oxytateelongata* (Tikader, 1980)

Genus.X.d. *Ozyptila* Simon, 1864

Comment : According to Platnick (2011), genus name *Oxyptila* used by Indian Authors is unjustified emendation

1. *Ozyptilajabalpurensis* (Bhandari & Gajbe, 2001)  
Comment : Endemic to India

Genus.X.e. *Thomisus* Walckenaer, 1805

1. *Thomisusmanishae* (Gajbe, 2005)  
Comment : Endemic to India
2. *Thomisuspateli* (Gajbe, 2004)  
Comment : Endemic to India
3. *Thomisusrajani* (Bhandari & Gajbe, 2001)  
Comment : Endemic to India
4. *Thomisusviveki* (Gajbe, 2004)

Genus.X.f. *Tmarus* Simon, 1875

1. *Tmarusjabalpurensis* (Gajbe & Gajbe, 1999)  
Comment : Endemic to India

Genus.X.g. *Xysticus* Koch, 1835

1. *Xysticustikaderi* (Bhandari & Gajbe, 2001)  
Comment : Endemic to India

#### **IV. Result and Discussion**

Present study on diversity of spider fauna was done during 2013-2014 in Indra Vihar Park, Raigarh, Chhattisgarh, India. Total 163 samples were collected, the result reveals presence of 63 species representing 38 genera under 10 families, 2 species were unidentified. Among all these 10 families Predominant diversity was examined in the family Araneidae (15 species) followed by Gnaphosidae (13 species), Thomisidae (10 species), Lycosidae (9 species), Oxyopidae (5 species).



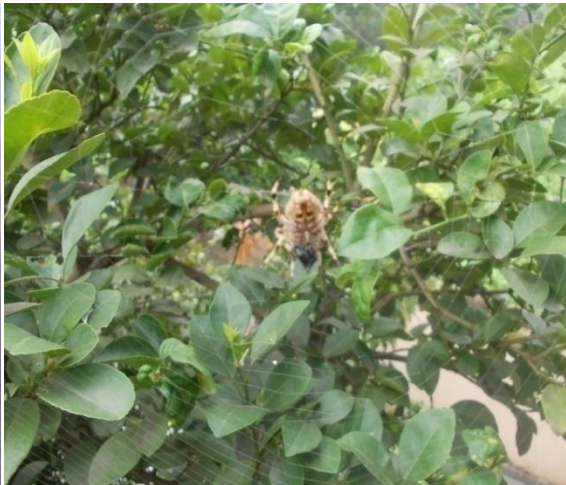
*Hippasa agelenoids*



*Nephila pilipes*



*Neoscana bengalensis*



*Neoscana sp.*



*Argiope pulchella*

### References

- [1] Bhandari, R. and Gajbe, P. (2001). A study of three new species of spiders of the genera *Chorizopes* Cambridge, *Larinia* Simon and *Neoscana* Simon (Araneae :Araneidae) from Madhya Pradesh, India. Records of Zoological survey of India, **99** : 59-63
- [2] Bhandari, R. and Gajbe, P. (2000). Description of four new species of spiders of the families Uloboridae, Philodromidae, Gnaphosidae and Lycosidae (Arachnida : Araneae) from Madhya Pradesh, India. Records of Zoological survey of India, **99** : 87- 83
- [3] Biswas, B., Biswas, K., (2004). Araneae: Spiders In Fauna of Manipur, State Fauna Series 10, Zoological survey of India
- [4] Chandra, K., Sharma, M. and Ojha, P. (2010). A Compendium on the Faunal Resources of Narmada River Basin in Madhya Pradesh, Records of Zoological survey of India, Occasional paper No., **310** : 25-29
- [5] Ekka, A., Kujur, R. (2015). Spider diversity of Ram Jharna, Raigarh district, Chhattisgarh, India, Research Journal of Pharmacy and Technology, **8**: 813-819
- [6] Gajbe, P. (2003). Checklist of spiders (Arachnida :Araneae) of Madhya Pradesh and Chhattisgarh, Zoos' Print Journal, **18** : 1223-1226
- [7] Gajbe, P. (2009). Araneae, Fauna of Panchmarhi Biosphere Reserve (Madhya Pradesh), Conservation Area Series, Records of Zoological survey of India, **39** : 187-207
- [8] Gajbe, U.A. (1987). A new scopodes spiders from India (Araneae :Gnaphosidae). Bulletin of Zoological Survey of India, **8**:285 – 287
- [9] Gajbe, U.A. (1988). On a collection of spiders of family Gnaphosidae from India (Araneae : Arachnida). Records of Zoological survey of India, **85** : 59 – 74
- [10] Gajbe, U.A. (1999). Studies on some spiders of the family Oxyopidae (Araneae:Arachnida) from India:Records of Zoological survey of India, **97** : 31-79
- [11] Gajbe, U.A. (2007). Araneae: Arachnida, Fauna of Madhya Pradesh (including Chhattisgarh), State Fauna Series, No. **15** : 419-540
- [12] Gajbe, U.A. (2008). Fauna of India and the adjacent countries - spiders (Arachnida :Araneae : Oxyopidae), Records of Zoological survey of India, Volume-**III** : 1-117
- [13] Keshwani, S., Hadole , P., and Rajoria, A. (2012). Checklist of spiders (Arachnida :Araneae) from India- 2012, Indian journal of Arachnology, **1** : 1-129
- [14] Patil, S.R. (2011). Spiders of the states of Madhya Pradesh and Chhattisgarh (Arachnida: Araneae): Updated Checklist, The Indian Forester, **137** : 1217-1224
- [15] Patil, S.R. (2012). Spiders of Jabalpur district (Arachnida :Araneae): updated checklist 2011, Indian Journal of Arachnology, **1** : 143-149
- [16] Patil, S.R. (2013). Preliminary investigation on spiders (Arachnida :Araneae) in Rani Veerangana Durgawati Wild Life Sanctuary, Damoh, Madhya Pradesh, India, The Indian Forester, **139** : 943-946
- [17] Platnick, N.I. (2014). The world spider catalog, Version 15.0. American Museum of Natural History, <http://research.amnh.org/entomology/spiders/catalog/index.html>
- [18] Ramakrishna, Chandra, K., Nema, D.K., Ahirwar, S.C and Alfred, J.R.B. (2006). Faunal Resources of National Parks of Madhya Pradesh and Chhattisgarh, Conservation Area Series, Records of Zoological survey of India, **30**:12-15
- [19] Sebastian, P.A. and Peter, K.V. (2009). Spiders of India, Universities Press : 1-614
- [20] Sharma, S., Vyas, A., and Sharma, R. (2010). Diversity and abundance of spider fauna of Narmada River at Rajghat (Barwani) (Madhya Pradesh) India, Researcher, <http://www.sciencepub.net/researcher> , **2** : 1-5
- [21] Siliwal, M., Molur, S., and Biswas, B.K. (2005). Indian Spiders (Arachnida :Araneae): Updated checklist 2005, Zoos' Print Journal, **20** : 1999-2049
- [22] Sorensen, L.L., Coddington, J.A., & Scharaff, N. (2002). Inventorying and estimating subcanopy spider diversity using semiquantitative sampling methods in an afro-montane forest. Environmental Entomology, **31**, 319-330
- [23] Tikader, B.K. and Malhotra, M.S. (1980). Lycosidae (Wolf Spiders) Fauna of India (Araneae) **1**: 248-447 Tikader, B.K. (1980). Thomisidae (Crab Spiders) Fauna of India (Araneae) **1**: 1-247
- [24] Tikader, B.K. (1982a). Family Araneidae (Argiopidae), Typical orbweavers. Fauna of India (Araneae) **2** : 1-203
- [25] Tikader, B.K. (1982b). Family Gnaphosidae. Fauna of India (Araneae) **2**: 295-536
- [26] Tikader, B.K. (1987). Handbook Indian Spiders (Anan. Ed.). Zoological Survey of India, Calcutta