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COMMUNICATION

SPIDERS OF ODISHA: A PRELIMINARY CHECKLIST

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PLATINUM
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Abstract: The present checklist of spiders of Odisha is the result of the compilation of all published literature on spiders and primary data collected during the present study carried out from July 2016 to March 2017 in Odisha. A total of 138 species of spiders belonging to 95 genera and 33 families were recorded in the present study. Of which, seven families, 36 genera and 80 species of spiders were reported for the first time from Odisha. Of these 80 species, 78 spider species were exclusively reported from the Eastern Ghats of Odisha. With this study, spider diversity of Odisha comprised of 248 species belonging to 139 genera and 39 families. Whereas, Eastern Ghats of Odisha comprised of 181 species belonging to 109 genera and 35 families. Of total spiders from Odisha, 23 species were found to be endemic to southern Asia, 49 species endemic to India and 19 species endemic to Odisha.

Keywords: Araneae, araneomorph, diversity, Eastern Ghats, endemic, mygalomorph, new records.

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Author contribution: SRC did majority of the collection of spiders from the field for the present study. He processed, photographed and identified spiders in the laboratory. He helped in compilation of this paper. MS carried out field surveys for collection of mygalomorphs along with SRC and SKD. She did confirmation of spiders and did help SKD and SRC in writing up this paper. SKD did major writing of this paper. He also carried out field surveys for spider collection in Odisha with SRC and MS.

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भारतीय वन्यजीव संस्थान
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INTRODUCTION

Spiders represent one of the most diversified groups amongst invertebrates and are ranked seventh in the global biodiversity, with 48,143 species under 4,131 genera and 117 families described from the World (Penney et al. 2003; WSC 2019). About 1,909 species belonging to 488 genera and 64 different families have been reported from India (WSC 2019), of which, about 115 species in 33 genera and eight families are of mygalomorph spiders and the rest of the species are of araneomorph spiders (WSC 2019). This number is very much underestimated and many more species are waiting to be discovered in the country because till date spider studies in India have been restricted to a few areas in the absence of systematic spider surveys for most of the states in India (Sebastian & Peter 2009).

Bio-geographically, Odisha (17.802–22.563 °N and 81.383–87.482 °E) is an important region as it has faunal representation from the north-east, the Eastern and Western Ghats (Aditya 2015). The diverse habitat supports a good faunal diversity in the State (Anon. 1987, 1989, 1990, 1993). However, spider fauna of Odisha is poorly studied like other parts of India with obscure and sporadic records of this group from various parts of the state. The first spider reported from Odisha was a mygalomorph spider, *Diplothele walshi* by O. Pickard-Cambridge (1891), later, Gravely (1921, 1931) added 51 species of spiders to it, which included both araneomorphs and mygalomorphs. Subsequent additions to the list of spiders were by Biswas (1975, 1987), Gajbe (1979), Tikader & Malhotra (1980), Tikader (1982), Majumder & Tikader (1991), Ramakrishna et al. (2006), Molur et al. (2008), Siliwal & Molur (2008), Siliwal et al. (2009a,b, 2010), Panda et al. (2011), Gupta et al. (2013, 2015), and Mohapatra et al. (2014), adding almost 100 species to Gravely's (1921, 1931) contribution. Considering the shortcomings of previous studies, systematic surveys were carried out to document spider diversity from different parts of Odisha.

MATERIALS AND METHODS

Study area

The present study was carried out mainly in the Eastern Ghats of Odisha with a few surveys outside the Eastern Ghats (Fig. 1, Table 1).

The Eastern Ghats represent a discontinuous range of mountains (also known as Malyadri) situated along the eastern coast of India and is one of the important

physiographic units with great environmental, socio-economic, cultural and spiritual significance in the peninsular region of our country (Sinha 1971). The Eastern Ghats start in West Bengal and the mountain range continues to pass through Odisha, Andhra Pradesh, Karnataka, and Tamil Nadu. The Eastern Ghats of Odisha (Fig. 1) represent the northern Eastern Ghats. Based on geological and tectonic considerations, the Eastern Ghats in Odisha start from north of Similipal in Mayurbhanj District and run through Malkangiri covering 18 districts of Odisha (Dash et al. 2009). Mountain peaks and foot hills have contrasted weather resulting into a humid habitat in high altitudes to a semiarid habitat in foot hills. Vegetation of this region comes under the northern tropical moist deciduous forests. Physio-geographically, this region is divided into five sub regions: 1. the Similipal and Meghasani mountain, 2. the Mankarnacha-Malaygiri and Gandhamardan mountains of the Baitarani and the Brahmani interfluvium, 3. the watershed between the Brahmani and the Mahanadi, 4. the common interfluvium of the Mahanadi, the Rushikulya and the Vamsadhara, and 5. the Potangi and Chandragiri mountain ranges. The highest mountain peak is Deomali (1672m), which is situated in the Koraput District of southern Odisha. It is part of the Chandragiri-Pottangi mountain system that forms part of the Indian Peninsula and was a part of the ancient land mass of Gondwana land. Being physio-geographically heterogeneous, the Eastern Ghats of Odisha represent one of the biodiversity-important ecoregion. It is also rich in iron ore and minerals and supports a rich ethnic diversity (Sinha 1971; Dash et al. 2009).

Methods

Spider collection was done from July 2016 to March 2017 covering all seasons (monsoon: July to October; winter: November to February; and summer: March to June). Various sampling methods, viz., vegetation beating, pitfall trapping, sweep-netting, hand-picking, and leaf litter sampling (Koh & Ming 2013) were used to collect spiders. Two to four persons were engaged in active searching for spiders and a total of 1,000 man-hours were spent on collecting spiders in the study area during the entire study period. All possible habitats, viz., dense forest, open forest, wetlands, scrub lands, hill forests, agricultural fields and human settlements were covered in the present study. Specimens, after collecting were preserved in 70% alcohol. All mygalomorph specimens were deposited at Wildlife Information Liaison Development Society (WILD) museum, Coimbatore and all araneomorph specimens were

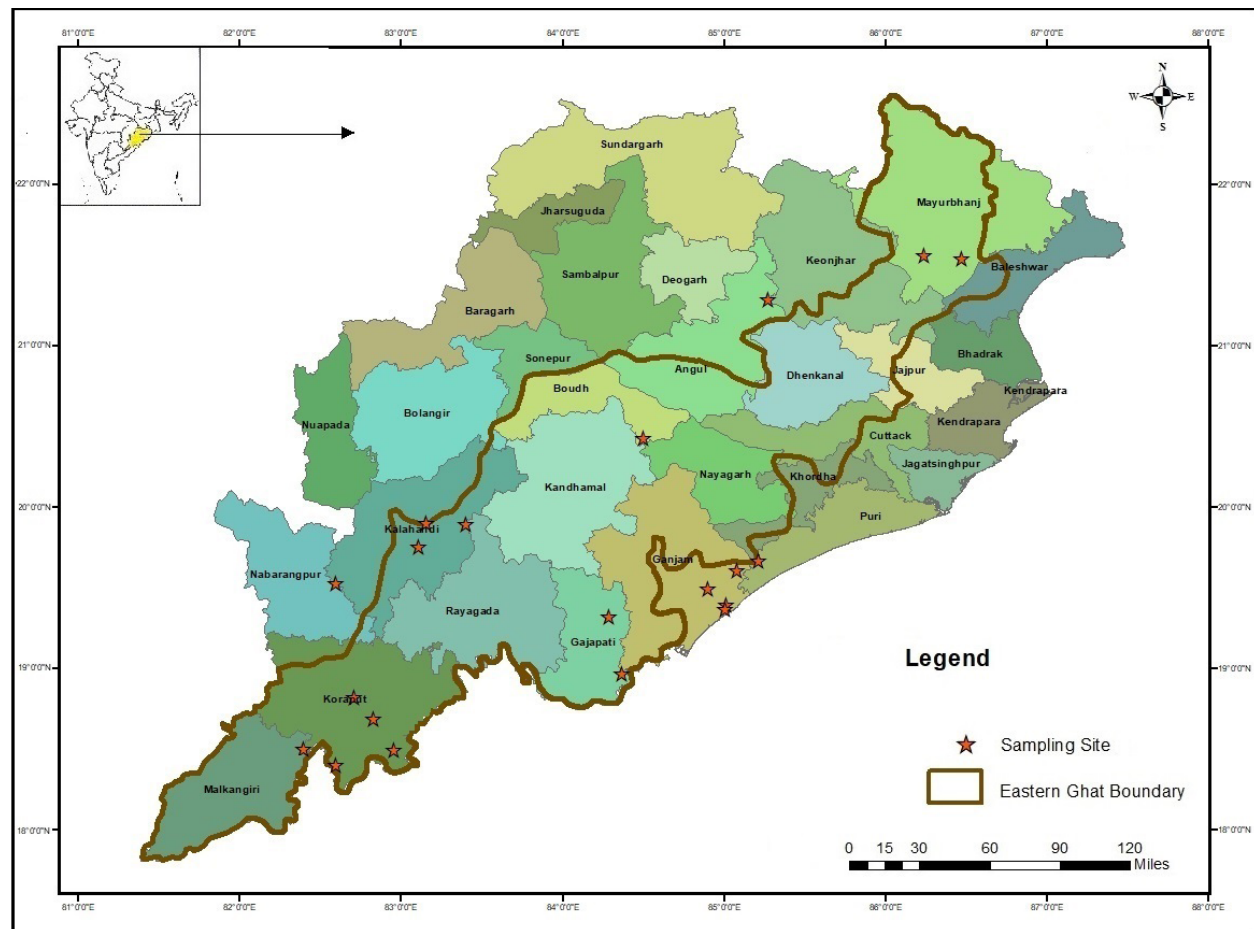


Figure 1. Study area (Source: <http://eptrienvic.nic.in>).

Table 1. Sampling sites during the present study.

	District	Sampling sites
1	Anugul	Satakosia Wildlife Sanctuary
2	Gajapati	Chandragiri, Mahendragiri
3	Ganjam	Ardheswar Temple, Chilika Lake, Guptheswer Temple (Near Balugaon), Kholikot, Makerswer Temple, Ramchandi Temple, Tampara, Taratarini.
4	Kalahandi	Ampanighati, Bhawanipatna, Karlapat Wildlife Sanctuary
5	Keonjhar	Kanjipanighati
6	Koraput	Deomali, Guptheswer Temple, Jeypore Ghati, Koraput Town, Semiliguda
7	Mayurbhanj	Baripada, Similipal National Park
8	Rayagada	Muniguda

deposited at Indraprastha University (IPU) museum, Delhi. Spiders were identified examining the specimens under Olympus SZ10 stereozoom microscope. For identification, female genitalia were dissected and cleaned in concentrated lactic acid for 15–20 minutes. Identification was done using different publications

by Tikader (1980, 1982, 1987), Tikader & Malhotra (1980), Barrion & Litsinger (1995), Song et al. (1999), Jocqué & Dippenaar-Schoeman (2006), Gajbe (2008), Sebastian & Peter (2009), and Metzner (2017).

Checklist of spiders of Odisha was prepared from the present study data and compiling the species from published literature (peer-reviewed journals) from the state on spiders. Papers published in predatory journals, or unpublished literature like Ph.D. thesis, post-graduation dissertations and newspaper articles were not included in the compilation of the present checklist.

RESULTS AND DISCUSSIONS

Before the present study, 168 species of spiders belonging to 103 genera and 32 families were reported from Odisha and of these, 103 species belonging to 68 genera and 24 families were reported from Eastern Ghats of Odisha (Pickard-Cambridge 1891; Walsh 1891; Gravely 1921, 1931; Biswas 1975, 1987; Gajbe 1979;

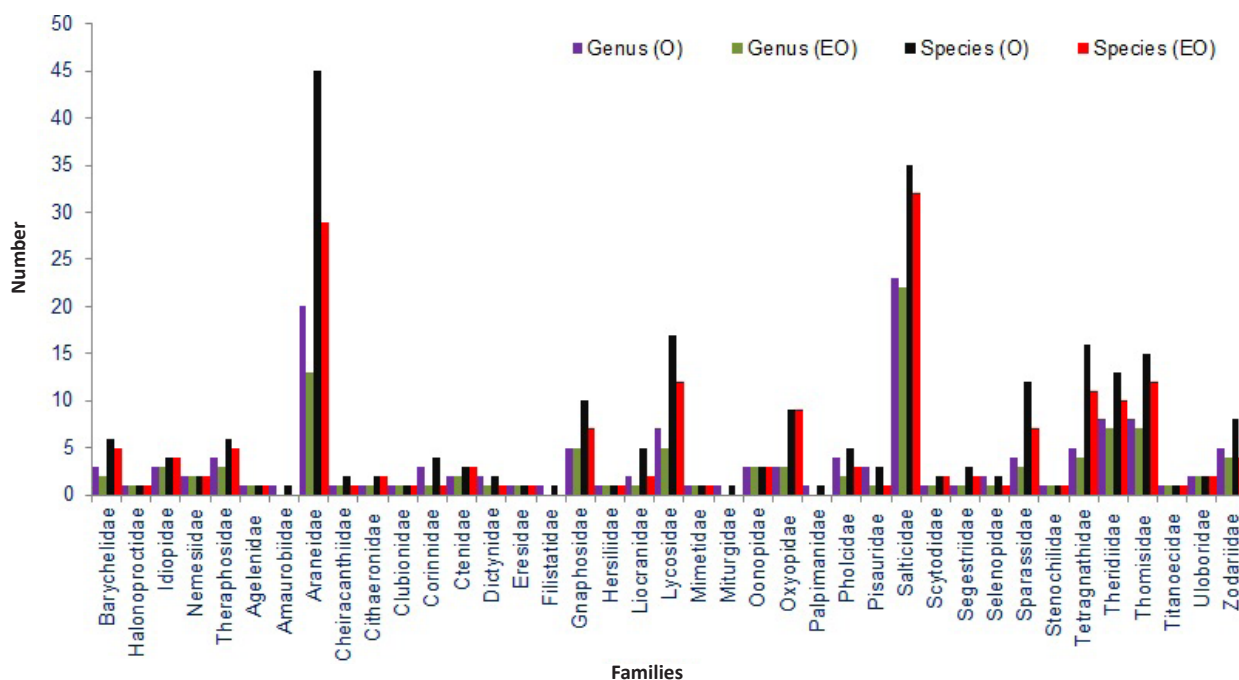


Figure 2. Spider diversity: Odisha (O) vs. Eastern Ghats of Odisha (EO).

Tikader & Malhotra 1980; Tikader 1982; Majumder & Tikader 1991; Ramakrishna et al. 2006; Molur et al. 2008; Siliwal & Molur 2008; Siliwal et al. 2009a,b, 2010; Panda et al. 2011; Gupta et al. 2013; Mohapatra et al. 2014) (Table 2, Figs. 2). Four species—*Cheiracanthium inclusum* (Hentz, 1847), *Oxyopes lineatipes* (C.L. Koch, 1847), *Oxyopes papuanus* Thorell, 1881, and *Uloborus barbipes* L. Koch, 1872—reported from the state by Panda et al. (2011) and Mohapatra et al. (2014), were probably identified based on photographs and seems to be a clear case of misidentification. So far, these species are known from outside India only. Hence, the present checklist did not consider these species in our checklist and these species need further taxonomic verification.

During the present study, 138 species of spiders belonging to 95 genera and 33 families were reported from Odisha. Of which, seven families, 36 genera and 80 species of spiders were reported for the first time from Odisha. Of these 80 species, 78 spider species were exclusively reported from the Eastern Ghats of Odisha. Here, we would like to make a note that in the present checklist 77 spiders are identified only up to genus level only (Table 2).

Based on all the compilation of previous reports and data from present study, the spider diversity of Odisha comprises 248 species belonging to 139 genera and 39 families and Eastern Ghats of Odisha 181 species belonging to 109 genera and 35 families (Table 2; Fig. 2,

Image 1A–L). The study shows that over 72% of spiders reported from Odisha are found in the Eastern Ghats of Odisha (Table 2) and hence, the Eastern Ghats contribute largely to the spider diversity of Odisha.

Among the spiders reported in the present study, *Parasteatoda kompirensis* (Bösenberg & Strand, 1906) was reported for the first time from India (Malik et al. 2018) (Table 2). The study also reported two rare spiders—*Inthaeron* spp.—from Odisha, which will be published in different paper. Amongst these spiders reported in Odisha, species richness of family Araneidae (45 spp.) was found to be highest followed by Salticidae (35 spp.) and Lycosidae (17 spp.) (Table 2; Fig. 2). Of the total spiders from Odisha, 23 species were found to be endemic to South Asia and 49 species endemic to India. Of the spiders endemic to India, 19 species are reported from Odisha State only (Table 2).

Though the present study was for a short period and mostly restricted to the Eastern Ghats of Odisha, the findings of this study are significant, as during the study, 80 species for Odisha and one for India were added to the existing list for the first time. Therefore, there is a need to carry out systematic surveys in the entire state covering all the seasons to get an optimum estimate of spider diversity.

Table 2. Checklist of spiders of Odisha

	Species	Catalogue no.	Reference	Remarks
MYGALOMORPHAE				
Family Barychelidae Simon, 1889 (Trapdoor spiders)				
1	<i>Diplothele graveleyi</i> Siliwal et al., 2009	WILD-17-ARA-1482	Siliwal et al. 2009b; PS	#, E _O
2	<i>Diplothele</i> sp.	WILD-17-ARA-1463, 1486	PS	#, F ₃ , E _{SA}
3	<i>Diplothele tenebrosus</i> Siliwal et al., 2009	WILD-16-ARA-1380	Siliwal et al. 2009b; PS	#, E _O
4	<i>Diplothele walshi</i> O. Pickard-Cambridge, 1891		Walsh 1891, Gravely 1921; Siliwal & Molur 2008; Siliwal et al. 2009b	#, E _O
5	<i>Sasonichus</i> sp.	WILD-16-ARA-1381	Siliwal & Molur 2008; PS	#, E _I
6	<i>Sipalolasma arthropophys</i> (Gravely, 1915)		Gravely 1921; Siliwal & Molur 2008	E _O
Family Halonoproctidae Pocock, 1901 (Trapdoor spiders)				
7	<i>Conothele varvarti</i> Siliwal et al., 2009	WILD-17-ARA-1472, 1473, 1474	Siliwal et al. 2009a; PS	#, E _O
Family Idiopidae Simon, 1889 (Trapdoor spiders)				
8	<i>Heligmomerus barkudensis</i> (Gravely, 1921)	WILD-17-ARA-1454, 1455, 1457, 1481	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Siliwal et al. 2010; PS	#, E _I
9	<i>Idiops oriya</i> Siliwal, 2013		Gupta et al. 2013, 2015.	#, E _O
10	<i>Idiops</i> sp.	WILD-16-ARA-1400	PS	#, F ₃
11	<i>Scalidognathus</i> sp.	WILD-16-ARA-1408; WILD-17-ARA-1453, 1456	PS	#, F ₃ , E _O
Family Nemesiidae Simon, 1889 (Wishbone spiders)				
12	<i>Damarchus</i> sp.	WILD-16-ARA-1382, 1383; WILD-17-ARA-1468	PS	#, F ₃
13	<i>Gravelyia excavatus</i> (Gravely, 1921)	WILD-16-ARA-1396, 1397, 1398	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; PS	#, E _O
Family Theraphosidae Thorell, 1869 (Tarantula spiders)				
14	<i>Chilobrachys hardwickei</i> (Pocock, 1896)		Panda et al. 2011	#, E _I
15	<i>Chilobrachys</i> sp.	WILD-16-ARA-1410, 1411	PS	#, F ₃
16	<i>Heterophrius</i> sp.	WILD-16-ARA-1406, 1407, 1413, 1467	PS	#, F ₃ , E _I
17	<i>Plesiophrius</i> sp.		Gravely 1921; Siliwal & Molur 2008	
18	<i>Poecilotheria miranda</i> Pocock, 1900		Molur et al. 2008; Siliwal & Molur 2008; Siliwal et al. 2008	#, E _I , En
19	<i>Poecilotheria tigrinawesseli</i> Smith, 2006		Siliwal & Molur 2008	#, E _{SA}
ARANEOMORPHAE				
Family Agelenidae C.L. Koch, 1837 (Funnel web spiders)				
20	<i>Agelena</i> sp.	IPU-16-ARA-237	PS	#, F ₃
Family Amaurobiidae Thorell, 1870 (Funnel web spiders)				
21	<i>Amaurobius</i> sp.		Gravely 1921	
Family Araneidae Clerck, 1757 (Orb web or tent web spiders)				
22	<i>Anepsion maritatum</i> (O. Pickard-Cambridge, 1877)		Gravely 1921	
23	<i>Arachnura</i> sp.		Siliwal & Molur 2008	
24	<i>Araneus bilunifer</i> Pocock, 1900	IPU-16-ARA-189	Siliwal & Molur 2008; PS	#, E _I
25	<i>Araneus ellipticus</i> (Tikader & Bal, 1981)	IPU-17-ARA-318, 319	Panda et al. 2011; PS	#
26	<i>Araneus mitificus</i> (Simon, 1886)	IPU-16-ARA-250	Mohapatra et al. 2014; PS	#
27	<i>Araneus viridisomus</i> Gravely, 1921		Gravely 1921; Biswas 1987	E _I
28	<i>Araniella cucurbitina</i> (Clerck, 1757)		Siliwal & Molur 2008	
29	<i>Argiope aemula</i> (Walckenaer, 1842)	IPU-16-ARA-108	Siliwal & Molur 2008; PS	#
30	<i>Argiope anasuja</i> Thorell, 1887	IPU-16-ARA-58, 349, 350; IPU-17-ARA-362	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014; PS	#

	Species	Catalogue no.	Reference	Remarks
31	<i>Argiope catenulata</i> (Doleschall, 1859)		Biswas 1987; Ramakrishna et al. 2006	#
32	<i>Argiope minuta</i> Karsch, 1879		Siliwal & Molur 2008	
33	<i>Argiope pulchella</i> Thorell, 1881	IPU-16-ARA-307	Tikader 1982; Biswas 1987; Ramakrishna et al. 2006; Panda et al. 2011; Mohapatra et al. 2014; PS	#
34	<i>Cyclosa bifida</i> Doleschall, 1859	IPU-16-ARA-211, 212	Panda et al. 2011; Mohapatra et al. 2014; PS	#
35	<i>Cyclosa confraga</i> (Thorell, 1892)		Siliwal & Molur 2008	
36	<i>Cyclosa hexatuberculata</i> Tikader, 1982	IPU-17-ARA-357	Siliwal & Molur 2008; PS	#, E _{SA}
37	<i>Cyclosa insulana</i> (Costa, 1834)		Gravely 1921; Biswas 1987; Siliwal & Molur 2008	
38	<i>Cyclosa</i> sp.	IPU-16-ARA-150, IPU-17-ARA-400	Siliwal & Molur 2008; PS	#
39	<i>Cyclosa spirifera</i> Simon, 1889		Siliwal & Molur 2008	E _{SA}
40	<i>Cyrtarachne</i> sp.		Siliwal & Molur 2008; Mohapatra et al. 2014	
41	<i>Cyrtophora cicatrosa</i> (Stoliczka, 1869)		Gravely 1921; Biswas 1987; Siliwal & Molur 2008	
42	<i>Cyrtophora citricola</i> (Forsk., 1775)		Biswas 1987; Panda et al. 2011; Mohapatra et al. 2014	#
43	<i>Eriovixia excelsa</i> (Simon, 1889)	IPU-16-ARA-28	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Mohapatra et al. 2014; PS	#
44	<i>Eriovixia laglaizei</i> (Simon, 1877)	IPU-16-ARA-294	PS	#, F ₃
45	<i>Eriovixia poonaensis</i> (Tikader & Bal, 1981)		Ramakrishna et al. 2006	#
46	<i>Gasteracantha geminata</i> (Fabricius, 1798)	IPU-16-ARA-185, 186	PS	#, F ₃ , E _{SA}
47	<i>Gasteracantha hasselti</i> C.L. Koch, 1837	IPU-16-ARA-204, IPU-16-ARA-205	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Panda et al. 2011; PS	#
48	<i>Gasteracantha kuhli</i> C.L. Koch, 1837		Biswas 1987	
49	<i>Gasteracantha unguifera</i> Simon, 1889	IPU-17-ARA-325	Siliwal & Molur 2008; PS	#
50	<i>Gea spinipes</i> C.L. Koch, 1843	IPU-16-ARA-155	PS	#, F ₃
51	<i>Herennia multipuncta</i> (Doleschall, 1859)		Siliwal & Molur 2008	
52	<i>Larinia phthisica</i> (L. Koch, 1871)		Biswas 1987; Mohapatra et al. 2014	
53	<i>Neoscona bengalensis</i> Tikader & Bal, 1981		Mohapatra et al. 2014	E _{SA}
54	<i>Neoscona molemensis</i> Tikader & Bal, 1981		Biswas 1987	
55	<i>Neoscona muketjei</i> Tikader, 1980	IPU-16-ARA-13, 94, 97; IPU-17-ARA-445	Biswas 1987; Siliwal & Molur 2008; Panda et al. 2011; PS	#, E _{SA}
56	<i>Neoscona nautica</i> (L. Koch, 1875)		Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014	#
57	<i>Neoscona</i> sp.	IPU-16-ARA-293	Siliwal & Molur 2008; PS	#
58	<i>Neoscona theisi</i> (Walckenaer, 1841)	IPU-16-ARA-80	Tikader 1982; Biswas 1987; PS	#
59	<i>Neoscona vigilans</i> (Blackwall, 1865)		Tikader 1982; Biswas 1987; Panda et al. 2011; Mohapatra et al. 2014	#
60	<i>Nephila kuhli</i> (Doleschall, 1859)	IPU-16-ARA-115	Panda et al. 2011; PS	#
61	<i>Nephila pilipes</i> (Fabricius, 1793)	IPU-16-ARA-257, 258, 259	Biswas 1987; Ramakrishna et al. 2006; Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014; PS	#
62	<i>Parawixia dehaani</i> (Doleschall, 1859)		Panda et al. 2011; Mohapatra et al. 2014	#
63	<i>Phonognatha</i> sp.		Siliwal & Molur 2008	
64	<i>Plebs himalayaensis</i> (Tikader, 1975)	IPU-17-ARA-384, 385	PS	#, F ₃ , E _{SA}
65	<i>Polys nagpurensis</i> Tikader, 1982	IPU-17-ARA-429	PS	#, F ₃ , E ₁
66	<i>Thelacantha brevispina</i> (Doleschall, 1857)	IPU-16-ARA-116, 187	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; PS	#
Family Cheiracanthiidae Wagner, 1887 (Sac or tube spiders)				
67	<i>Cheiracanthium danieli</i> Tikader, 1975	IPU-17-ARA-417	Panda et al. 2011; Mohapatra et al. 2014; PS	#, E ₁

	Species	Catalogue no.	Reference	Remarks
68	<i>Cheiracanthium melanostomum</i> (Thorell, 1895)		Biswas 1987; Majumder & Tikader 1991	
Family Cithaeronidae Simon, 1893 (Curly legged spiders)				
69	<i>Inthaeron</i> sp. (1)	IPU-16-ARA-111	PS	#, F ₃ , E ₀
70	<i>Inthaeron</i> sp. (2)	IPU-17-ARA-388	PS	#, F ₃ , E ₁
Family Clubionidae Wagner, 1887 (Sac or tube spiders)				
71	<i>Clubiona</i> sp.	IPU-16-ARA-225, 227	Siliwal & Molur 2008; PS	#
Family Corinnidae Karsch, 1880 (Antmimic spiders)				
72	<i>Castianeira zetes</i> Simon, 1897		Biswas 1987; Majumder & Tikader 1991; Mohapatra et al. 2014	E _{SA}
73	<i>Cambalida flavipes</i> (Gravely, 1931)		Biswas 1987; Majumder & Tikader 1991	E _I
74	<i>Cambalida</i> sp.	IPU-17-ARA-395	PS	#, F ₃
75	<i>Corinnomma</i> sp.		Gravely 1921	
Family Ctenidae Keyserling, 1877 (Wandering spiders)				
76	<i>Anahita smythiesi</i> (Simon, 1897)	IPU-16-ARA-89	PS	#, F ₃ , E ₁
77	<i>Ctenus narashinhai</i> Patel & Reddy, 1988	IPU-16-ARA-241	PS	#, F ₃ , E ₁
78	<i>Ctenus</i> sp.	IPU-16-ARA-134	PS	#, F ₃
Family Dictynidae O. Pickard-Cambridge, 1871 (Mesh web spiders)				
79	<i>Dictyna</i> sp.		Gravely 1921	
80	<i>Nigma</i> sp.	IPU-16-ARA-179	PS	#, F ₃
Family Eresidae C. L. Koch, 1845 (Velvet spiders)				
81	<i>Stegodyphus sarasinorum</i> Karsch, 1891	IPU-16-ARA-71, 72	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Panda et al. 2011; PS	#
Family Filistatidae Ausserer, 1867 (Crevice weaver spiders)				
82	<i>Filistata</i> sp.		Gravely 1921	
Family Gnaphosidae Pocock, 1898 (Ground spiders)				
83	<i>Drassodes astrologus</i> (O. Pickard-Cambridge, 1874)	IPU-17-ARA-399, 413	PS	#, F ₃ , E ₁
84	<i>Drassodes pashanensis</i> Tikader & Gajbe, 1977		Biswas 1987	E ₁
85	<i>Gnaphosa pauriensis</i> Tikader & Gajbe, 1977		Biswas 1987	#, E ₁
86	<i>Gnaphosa</i> sp.	IPU-17-ARA-366	PS	#, F ₃
87	<i>Sosticus dherikanalensis</i> Gajbe, 1979		Gajbe 1979; Tikader 1982; Biswas 1987	#, E ₀
88	<i>Sosticus sundargarhensis</i> Gajbe, 1979		Gajbe 1979; Tikader 1982; Biswas 1987	E ₀
89	<i>Setaphis parvula</i> (Lucas, 1846)	IPU-16-ARA-15	PS	#, F ₃
90	<i>Setaphis subtilis</i> (Simon, 1897)		Biswas 1987	
91	<i>Zelotes satarensensis</i> Tikader & Gajbe, 1979	IPU-17-ARA-398	PS	#, F ₃ , E ₁
92	<i>Zelotes</i> sp.	IPU-17-ARA-378, 403	PS	#, F ₃
Family Hersiliidae Thorell, 1870 (Two-tailed spiders)				
93	<i>Hersilia savignyi</i> Lucas, 1836	IPU-16-ARA-33, 48; IPU-17-ARA-420, 422	Gravely 1921; Biswas 1987; Ramakrishna et al. 2006; Panda et al. 2011; Mohapatra et al. 2014; PS	#
Family Liocranidae Simon, 1897 (Spiny-legged sac spiders)				
94	<i>Oedignatha microscutata</i> Reimoser, 1934		Majumder & Tikader 1991; Biswas 1987; Ramakrishna et al. 2006	#, E ₁
95	<i>Oedignatha scrobiculata</i> Thorell, 1881		Gravely 1921; Biswas 1987; Majumder & Tikader 1991	
96	<i>Oedignatha</i> sp.	IPU-16-ARA-243, 282; IPU-17-ARA-390	Siliwal & Molur 2008; PS	#
97	<i>Sphingius barkudensis</i> Gravely, 1931		Biswas 1987; Gravely 1931; Majumder & Tikader 1991	E _{SA}
98	<i>Sphingius</i> sp.		Gravely 1921	

	Species	Catalogue no.	Reference	Remarks
Family Lycosidae Sundevall, 1833 (Wolf spiders)				
99	<i>Arctosa</i> sp.		Siliwal & Molur 2008	
100	<i>Draposa atropalpis</i> (Gravely, 1924)	IPU-16-ARA-106	Gravely 1924; Tikader & Malhotra 1980; Biswas 1987; PS	#, E _{SA}
101	<i>Draposa lyrivulva</i> (Bösenberg & Strand, 1906)		Gravely 1924; Tikader & Malhotra 1980; Biswas 1987	E _{SA}
102	<i>Draposa oakleyi</i> (Gravely, 1924)	IPU-16-ARA-135	PS	#, F ₃
103	<i>Evippa</i> sp.	IPU-16-ARA-147	PS	#, F ₃
104	<i>Hippasa agelenoides</i> (Simon, 1884)		Panda et al. 2011; Mohapatra et al. 2014	#
105	<i>Hippasa greenalliae</i> (Blackwall, 1867)	IPU-16-ARA-158	Gravely 1921; Tikader & Malhotra 1980; Biswas 1987; Panda et al. 2011; PS	#, E _{SA}
106	<i>Hippasa</i> sp.	IPU-16-ARA-264	Siliwal & Molur 2008; PS	#
107	<i>Lycosa iranii</i> Pocock, 1901	IPU-17-ARA-424, 425	PS	#, F ₃ , E _I
108	<i>Lycosa mackenziei</i> Gravely, 1924		Panda et al. 2011	#, E _{SA}
109	<i>Lycosa madani</i> Pocock, 1901		Biswas 1987	E _I
110	<i>Lycosa prolifica</i> Pocock, 1901	IPU-16-ARA-50	PS	#, F ₃ , E _I
111	<i>Ocyale pilosa</i> (Roewer, 1960)		Biswas 1987; Tikader & Malhotra 1980	
112	<i>Pardosa birmanica</i> Simon, 1884		Tikader & Malhotra 1980; Biswas 1987; Panda et al. 2011	#
113	<i>Pardosa mukundi</i> Tikader & Malhotra, 1980	IPU-16-ARA-84	PS	#, F ₃ , E _I
114	<i>Pardosa pseudoannulata</i> (Bösenberg & Strand, 1906)		Mohapatra et al. 2014	
115	<i>Pardosa sumatrana</i> (Thorell, 1890)	IPU-16-ARA-110	PS	#, F ₃
Family Mimetidae Simon, 1881 (Pirate spiders)				
116	<i>Mimetes</i> sp.	IPU-16-ARA-206	PS	#, F ₃
Family Miturgidae Simon, 1886 (Prowling spiders)				
117	<i>Systaria barkudensis</i> (Gravely, 1931)		Gravely 1931; Biswas 1987	E _O
Family Oonopidae Simon, 1890 (Goblin spiders)				
118	<i>Brignolia</i> sp.	IPU-17-ARA-511, 513, 514	PS	#, F ₃ , E _O
119	<i>Gamasomorpha</i> sp.	IPU-17-ARA-324, 374, 375, 500	PS	#, F ₃ , E _O
120	<i>Pelcinus</i> sp.	IPU-17-ARA-512	PS	#, F ₃ , E _O
Family Oxyopidae Thorell, 1870 (Lynx spiders)				
121	<i>Hamadruas</i> sp.	IPU-16-ARA-6	PS	#, F ₃
122	<i>Oxyopes bharatae</i> Gajbe, 1999	IPU-16-ARA-5, 24	PS	#, F ₃ , E _I
123	<i>Oxyopes birmanicus</i> Thorell, 1887		Panda et al. 2011; Mohapatra et al. 2014	#
124	<i>Oxyopes javanus</i> Thorell, 1887		Panda et al. 2011; Mohapatra et al. 2014	#
125	<i>Oxyopes shweta</i> Tikader, 1970	IPU-16-ARA-25	Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014; PS	#
126	<i>Oxyopes sunandae</i> Tikader, 1970		Panda et al. 2011	#, E _{SA}
127	<i>Peucetia harishankarensis</i> Biswas, 1975		Biswas 1975; Biswas 1987	#, E _O
128	<i>Peucetia</i> sp.	IPU-16-ARA-19, 230	Siliwal & Molur 2008; PS	#
129	<i>Peucetia viridana</i> (Stoliczka, 1869)		Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014	#
Family Palpimanidae Thorell, 1870 (Palp-footed spiders)				
130	<i>Sarascelis raffrayi</i> Simon, 1893		Gravely 1921	
Family Pholcidae C.L. Koch, 1850 (Cellar spiders)				
131	<i>Artema atlanta</i> Walckenaer, 1837		Gravely 1921; Biswas 1987	

	Species	Catalogue no.	Reference	Remarks
132	<i>Crossopriza lyoni</i> (Blackwall, 1867)	IPU-16-ARA-20, 88	Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014; PS	#
133	<i>Pholcus fragillimus</i> Strand, 1907	IPU-16-ARA-249, 272, 273	PS	#, F ₃
134	<i>Pholcus</i> sp.	IPU-16-ARA-274	Siliwal & Molur 2008; PS	#
135	<i>Smeringopus</i> sp.		Gravely 1921	
Family Pisauridae Simon, 1890 (Nursery web spiders)				
136	<i>Dendrolycosa gitae</i> (Tikader, 1970)		Siliwal & Molur 2008	E ₁
137	<i>Nilus albocinctus</i> (Doleschall, 1859)		Panda et al. 2011	#
138	<i>Perenethis venusta</i> L. Koch, 1878		Mohapatra et al. 2014	
Family Salticidae Blackwall, 1841 (Jumping spiders)				
139	<i>Bianor narmadaensis</i> (Tikader, 1975)		Biswas 1987; Ramakrishna et al. 2006	#, E ₁
140	<i>Bianor pashanensis</i> (Tikader, 1975)		Biswas 1987	#, E ₁
141	<i>Carrhotus</i> sp.	IPU-17-ARA-402	PS	#, F ₃
142	<i>Carrhotus viduus</i> (C.L. Koch, 1846)		Panda et al. 2011; Mohapatra et al. 2014	#
143	<i>Epeus</i> sp.		Panda et al. 2011	#
144	<i>Epocilla</i> sp.	IPU-16-ARA-196	PS	#, F ₃
145	<i>Habrocestoides</i> sp.	IPU-17-ARA-372	PS	#, F ₃ , E _{SA}
146	<i>Harmochirus brachiatus</i> (Thorell, 1877)	IPU-16-ARA-59	PS	#, F ₃
147	<i>Hasarius adansoni</i> (Audouin, 1826)	IPU-16-ARA-21	Mohapatra et al. 2014; PS	#
148	<i>Hyllus semicupreus</i> (Simon, 1885)	IPU-16-ARA-81, 148	Biswas 1987; Panda et al. 2011; Mohapatra et al. 2014; PS	#, E _{SA}
149	<i>Hyllus</i> sp.	IPU-16-ARA-203	PS	#, F ₃
150	<i>Marpissa decorata</i> Tikader, 1974		Biswas 1987	#, E ₁
151	<i>Menemerus bivittatus</i> (Dufour, 1831)	IPU-17-ARA-360	Panda et al. 2011; PS	#
152	<i>Menemerus fulvus</i> (L. Koch, 1878)	IPU-17-ARA-423	PS	#, F ₃
153	<i>Myrmaplata plateleoides</i> (O. Pickard-Cambridge, 1869)	IPU-16-ARA-218, 222	Biswas 1987; Mohapatra et al. 2014; PS	#
154	<i>Myrmarachne melanocephala</i> MacLeay, 1839		Panda et al. 2011; Mohapatra et al. 2014	#
155	<i>Myrmarachne ramunni</i> Narayan, 1915	IPU-17-ARA-356	PS	F ₂ , E _{SA}
156	<i>Myrmarachne</i> sp.	IPU-16-ARA-303	Siliwal & Molur 2008; PS	#
157	<i>Phidippus bengalensis</i> Tikader, 1977		Biswas 1987	E ₁
158	<i>Phintella bifurcata</i> Prószyński, 1992	IPU-17-ARA-408	PS	#, F ₃ , E ₁
159	<i>Phintella vittata</i> (C.L. Koch, 1846)	IPU-16-ARA-31, 32, 51, 87	Mohapatra et al. 2014; PS	#
160	<i>Phlegra dhakuriensis</i> (Tikader, 1974)		Biswas 1987	#, E _{SA}
161	<i>Plexippus paykulli</i> (Audouin, 1826)	IPU-16-ARA-8, 86; IPU-17-ARA-317	Biswas 1987; Ramakrishna et al. 2006; Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014; PS	#
162	<i>Plexippus petersi</i> (Karsch, 1878)		Panda et al. 2011; Mohapatra et al. 2014	#
163	<i>Portia</i> sp. (1)	IPU-16-ARA-219	PS	#, F ₃
164	<i>Portia</i> sp. (2)	IPU-16-ARA-157	Gravely 1921; Siliwal & Molur 2008; PS	#
165	<i>Rhene danieli</i> Tikader, 1973		Biswas 1987; Panda et al. 2011	#, E ₁
166	<i>Rhene indica</i> Tikader, 1973		Biswas 1987	
167	<i>Siler semiglaucus</i> Simon, 1901		Panda et al. 2011	#
168	<i>Stenaelurillus gabrieli</i> Prajapati et al., 2016	IPU-17-ARA-428	PS	#, F ₃ , E ₁
169	<i>Stenaelurillus arambagensis</i> (Biswas & Biswas, 1992)	IPU-17-ARA-421	PS	#, F ₃ , E ₁
170	<i>Stenaelurillus</i> sp.	IPU-16-ARA-82, 238	PS	#, F ₃ , E ₁

	Species	Catalogue no.	Reference	Remarks
171	<i>Telamonia dimidiata</i> (Simon, 1899)	IPU-16-ARA-143	Biswas 1987; Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014; PS	#
172	<i>Thiania bhomoensis</i> Thorell, 1887		Biswas 1987	#
173	<i>Thyene imperialis</i> (Rossi, 1846)	IPU-16-ARA-99	PS	#, F ₃
Family Scytodidae Blackwall, 1864 (Spitting spiders)				
174	<i>Scytodes pallida</i> Doleschall, 1859		Gravely 1921, Panda et al. 2011	#
175	<i>Scytodes thoracica</i> Latreille, 1802		Panda et al. 2011	#
Family Segestriidae Simon, 1893 (Tube-dwelling spiders)				
176	<i>Ariadna nebulosa</i> Simon, 1906		Gravely 1921	E ₁
177	<i>Ariadna</i> sp. (1)	IPU-17-ARA-447, 448	PS	#, F ₃ , E ₀
178	<i>Ariadna</i> sp. (2)	IPU-17-ARA-455, 456	PS	#, F ₃ , E ₀
Family Selenopidae Simon, 1897 (Giant wall crab spiders)				
179	<i>Makdiops</i> sp.	IPU-17-ARA-430	PS	#, F ₃ , E ₁
180	<i>Selenops radiatus</i> Latreille, 1819		Biswas 1987	
Family Sparassidae Bertkau, 1872 (Giant crab spiders)				
181	<i>Heteropoda hampsoni</i> Pocock, 1901	IPU-16-ARA-145	PS	#, F ₃ , E ₁
182	<i>Heteropoda kandiana</i> Pocock, 1899		Biswas 1987	E _{SA}
183	<i>Heteropoda phasma</i> Simon, 1897	IPU-16-ARA-305, 312	PS	#, F ₃ , E ₁
184	<i>Heteropoda sexpunctata</i> Simon, 1885	IPU-16-ARA-90	Gravely 1921; Biswas 1987; PS	#
185	<i>Heteropoda venatoria</i> (Linnaeus, 1767)		Gravely 1921; Siliwal & Molur 2008; Mohapatra et al. 2014; Panda et al. 2011	#
186	<i>Olios iranii</i> (Pocock, 1901)	IPU-16-ARA-301	PS	F ₂
187	<i>Olios lamarcki</i> (Latreille, 1806)		Gravely 1921; Biswas 1987	
188	<i>Olios milleti</i> (Pocock, 1901)		Gravely 1931; Biswas 1987; Mohapatra et al. 2014; Panda et al. 2011	#, E _{SA}
189	<i>Olios punctipes</i> Simon, 1884		Biswas 1987	
190	<i>Olios</i> sp.	IPU-16-ARA-191	Siliwal & Molur 2008; PS	#
191	<i>Palystes flavidus</i> Simon, 1897		Gravely 1921; Biswas 1987	E ₁
192	<i>Spariolenus tigris</i> Simon, 1880		Biswas 1987	#
Family Stenochilidae Thorell, 1873 (Diamond-headed. Spiders)				
193	<i>Stenochilus hobsoni</i> O. Pickard-Cambridge, 1871	IPU-16-ARA-575	PS	#, F ₃ , E ₁
Family Tetragnathidae Menge, 1866 (Long jawed spiders)				
194	<i>Guizygiella melanocrania</i> (Thorell, 1887)		Gravely 1921; Biswas 1987	
195	<i>Guizygiella</i> sp.	IPU-17-ARA-329	Panda et al. 2011; Mohapatra et al. 2014; PS	#
196	<i>Leucauge celebesiana</i> (Walckenaer, 1841)		Biswas 1987	#
197	<i>Leucauge decorata</i> (Blackwall, 1864)	IPU-16-ARA-120	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Mohapatra et al. 2014; PS	#
198	<i>Leucauge</i> sp.	IPU-16-ARA-55	PS	#, F ₃
199	<i>Leucauge tessellata</i> (Thorell, 1887)	IPU-16-ARA-121, 122	PS	#, F ₃
200	<i>Opadometa fastigata</i> (Simon, 1877)		Gravely 1921; Biswas 1987; Siliwal & Molur 2008	
201	<i>Tetragnatha ceylonica</i> O. Pickard-Cambridge, 1869		Gravely 1921; Biswas 1987	
202	<i>Tetragnatha cochinesis</i> Gravely, 1921		Panda et al. 2011	#, E ₁
203	<i>Tetragnatha hasselti</i> Thorell, 1890	IPU-17-ARA-336	PS	#, F ₃
204	<i>Tetragnatha javana</i> (Thorell, 1890)		Biswas 1987	

	Species	Catalogue no.	Reference	Remarks
205	<i>Tetragnatha mandibulata</i> Walckenaer, 1841	IPU-16-ARA-129	Gravely 1921; Biswas 1987; Siliwal & Molur 2008; Panda et al. 2011; Mohapatra et al. 2014; PS	#
206	<i>Tetragnatha maxillosa</i> Thorell, 1895	IPU-16-ARA-193, 194	PS	#, F ₃
207	<i>Tetragnatha</i> sp.	IPU-17-ARA-340, 341, 343	PS	#, F ₃
208	<i>Tetragnatha viridorufa</i> Gravely, 1921		Gravely 1921; Biswas 1987	E ₁
209	<i>Tylorida</i> sp.	IPU-16-ARA-126, 168	PS	#, F ₃
Family Theridiidae Sundevall, 1833 (Comb-footed spiders)				
210	<i>Argyrodus argentatus</i> O. Pickard-Cambridge, 1880		Gravely 1921	
211	<i>Argyrodus scintillulanus</i> O. Pickard-Cambridge, 1880		Gravely 1921	E _{SA}
212	<i>Argyrodus</i> sp.	IPU-16-ARA-69, 91	Siliwal & Molur 2008; PS	#
213	<i>Episinus</i> sp.	IPU-17-ARA-434	PS	#, F ₃
214	<i>Meotipa andamanensis</i> (Tikader, 1977)		Mohapatra et al. 2014;	E ₁
215	<i>Nihonhimea mundula</i> (L. Koch, 1872)	IPU-16-ARA-66	Siliwal & Molur 2008; Panda et al. 2011; PS	#
216	<i>Parasteatoda kompirensis</i> (Bösenberg & Strand, 1906)	IPU-16-ARA-271	PS	#, F ₁ , F ₃
217	<i>Parasteatoda</i> sp. (2)	IPU-16-ARA-138	Siliwal & Molur 2008; PS	#
218	<i>Parasteatoda</i> sp. (3)	IPU-16-ARA-235, 236	PS	#, F ₃
219	<i>Rhomphaea</i> sp.	IPU-17-ARA-335	Gravely 1921; PS	#
220	<i>Steatoda</i> sp. (1)	IPU-16-ARA-215	PS	#, F ₃
221	<i>Steatoda</i> sp. (2)	IPU-16-ARA-236, IPU-17-ARA-370	PS	#, F ₃
222	<i>Theridion</i> sp.	IPU-17-ARA-469, IPU-16-ARA-36	Siliwal & Molur 2008; PS	#
Family Thomisidae Sundevall, 1833 (Crab spiders)				
223	<i>Amyciaea forticeps</i> (O. Pickard-Cambridge, 1873)	IPU-16-ARA-112	PS	#, F ₃
224	<i>Amyciaea</i> sp.	IPU-16-ARA-23	PS	#, F ₃
225	<i>Bomis</i> sp.	IPU-16-ARA-27	PS	#, F ₃
226	<i>Camaricus formosus</i> Thorell, 1887		Panda et al. 2011; Mohapatra et al. 2014	#
227	<i>Camaricus khandalaensis</i> Tikader, 1980		Panda et al. 2011; Mohapatra et al. 2014	#, E ₁ , F ₃
228	<i>Camaricus</i> sp.	IPU-16-ARA-109	PS	#, F ₃
229	<i>Indoxysticus minutus</i> (Tikader, 1960)		Mohapatra et al. 2014	E _{SA}
230	<i>Indoxysticus</i> sp.	IPU-17-ARA-401, 439	PS	#, F ₃
231	<i>Oxytate</i> sp.	IPU-16-ARA-76	PS	#, F ₃
232	<i>Runcinia</i> sp.	IPU-16-ARA-181	PS	#, F ₃
233	<i>Thomisus lobosus</i> Tikader, 1965		Mohapatra et al. 2014	E ₁
234	<i>Thomisus projectus</i> Tikader, 1960		Mohapatra et al. 2014	E ₁
235	<i>Thomisus pugilis</i> Stoliczka, 1869		Panda et al. 2011	#, E ₁
236	<i>Thomisus sikkimensis</i> Tikader, 1962		Panda et al. 2011	#, E ₁
237	<i>Thomisus</i> sp.	IPU-16-ARA-74	Siliwal & Molur 2008; PS	#
Family Titanoecidae Lehtinen, 1967 (Rock weaver spiders)				
238	<i>Pandava laminata</i> (Thorell, 1878)	IPU-16-ARA-139, 244, 361	PS	#, F ₃
Family Uloboridae Thorell, 1869 (Feather-legged lace weavers)				
239	<i>Uloborus</i> sp.	IPU-16-ARA-118, 119	Gravely 1921; Mohapatra et al. 2014; PS	#
240	<i>Zosis geniculata</i> (Olivier, 1789).	IPU-16-ARA-224	PS	#, F ₃

	Species	Catalogue no.	Reference	Remarks
Family Zodariidae Thorell, 1881 (Ant spiders)				
241	<i>Asceua cingulata</i> (Simon, 1905)		Gravely 1921; Biswas 1987	E ₁
242	<i>Asceua</i> sp.	IPU-17-ARA-353, 354	PS	#, F ₃
243	<i>Hermippus arjuna</i> (Gravely, 1921)		Gravely 1921; Biswas 1987; Siliwal & Molur 2008	E ₁
244	<i>Hermippus</i> sp.	IPU-16-ARA-286	Panda et al. 2011; PS	#
245	<i>Mallinella</i> sp.	IPU-16-ARA-103, 173, 280	PS	#, F ₃
246	<i>Storena birenifer</i> Gravely, 1921		Gravely 1921; Biswas 1987; Siliwal & Molur 2008	E ₀
247	<i>Storena</i> sp.		Gravely 1921	
248	<i>Suffasia</i> sp.	IPU-16-ARA-162	PS	#, F ₃

Note: PS - Present Study | # - Report from Eastern Ghats of Odisha | F₁ - First report from India | F₂ - First report from Odisha (outside Eastern Ghats portion of Odisha) | F₃ - First report from Odisha (within Eastern Ghats portion of Odisha) | E_{sa} - Endemic to South Asia | E₁ - Endemic to India | E₀ - Reported from Odisha State only | En - Endangered | IPU - Indraprastha University | WILD - Wildlife Information Liaison Development Society.

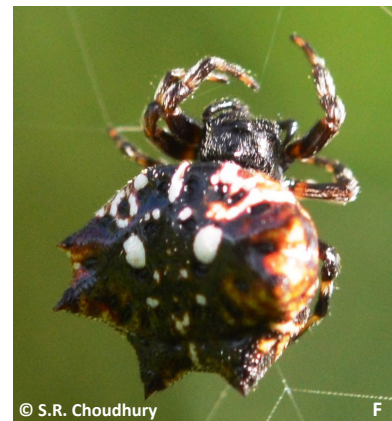


Image 1. A - *Conothele varvarti* | B - *Araneus mitificus* | C - *Gasteracantha geminata* | D - *Argiope anasuja* | E - *Nephila pilipes* | F - *Thelacantha brevispina*.



Image 1. G - *Hersilia savignyi* | H - *Oxyopes bhartae* | I - *Peucetia viridana* | J - *Myrmaplata plataleoides* | K - *Stenaelurillus arambagensis* | L - *Stenochilus hobsoni*.

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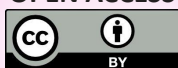
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