

## DIVERSITY OF SPIDERS IN THE MULTIPLE USED AREA FROM SATPUDA REGION, MAHARASHTRA, INDIA

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### ABSTRACT

Spiders are among the most abundant insectivorous predators of Terrestrial ecosystem. Spiders are widespread and diverse predators that are part of terrestrial Arthropod assemblages. Spiders are one of the most diverse animal groups in the World. Their presence in an ecosystem may well influence the population dynamics of other arthropods present. Spider plays an important role in regulating insect pests in the Agricultural Ecosystem. They mostly feed on insects, even though they may also feed on various other kinds of prey. Spider species abundance in everywhere can be high as undisturbed natural ecosystem. Spiders act as pest control creature, which feeds on crop destructive insects. Spiders are beneficial bio-control agent of insect pest in agro-ecosystem. A survey of Spiders was carried out in Multiple Used Area of Satpuda region. The present studies, embodied 518 spider species which are from 27 Families and from 100 Genera. An exhaustive survey of spiders from selected habitats of Satpuda was carried out from 2006 to 2009.

**Keywords:** Diversity, Spider, Satpuda.

### Introduction

Spiders are among the earliest animals to live on land. Despite this, their fossil record is relatively poor. They probably evolved about 400 million years ago from thick-waisted arachnid ancestors that were not long emerged from life in water. The first definite spiders, thin-waisted arachnids with abdominal segmentation and silk producing spinnerets, are known from fossils like *Attercopus fimbriungus*. This spider lived 380 million years ago during the Devonian Period, more than 150 million years before the dinosaurs.

Most spiders are small, inconspicuous arthropods, which are harmless to humans. Their beneficial role in keeping insect populations in check far outweighs the hazard posed by the few spiders that occasionally bite humans. Only two groups-recluse spiders and widow spiders- are considered venomous to humans. Spiders make up a considerable portion of the biodiversity of this vast and diversified nation. They are widespread and are found in all types of habitats and occupy all places.

### Materials and Methods

#### Study area

Satpuda hills are defined as the Central Indian Highlands, characterised by steep ridges,

narrow valleys and deep grooves. The name, which is modern, originally belonged to the hills which divide the Narmada and Tapi valleys in Nimar, Madhya Pradesh and were styled the *Sat Putra* or seven sons of the Vindhyan mountains. Another derivation is from Satpud (seven folds), referring to the numerous parallel ridges of the range. The local interpretation placed on the Satpuda refers the word to the seven district ridges that a traveller from the Berar valley has to cross before he reaches the Narmada. Taking Amarkantak in Reva, Central India (20° 40' N. 81° 46' E.) as the eastern boundary, the Satpudas extend from east to west for about 965 km. (600 miles) and in their greatest depth exceed 161 km. (100 miles) from north to south.

The shape of the range is almost triangular. The western prolongation of the Satpuda hills, which falls in the northern frontier of Berar, lies chiefly in Amravati district and is sometimes spoken of as the Gavilgad range, from the fort of that name which stands on one of its highest huttresses directly overlooking the plains below. The range is almost coterminous with Melghat tahsil so called not from *ghat*, a mountain, but from Melghat a small village and ford on its northern side; and forms the watershed between the Tapi on the north and the Purna and the Wardha rivers on the south. Its greatest length through the Betul,

Amravati and Nimar districts is probably about 257.440 km. (160 miles). The hills rise abruptly from the plains of Berar on one side and from the banks of the Tapi on the other, the summits reaching an elevation of about 610 metres to 1220 metres (two thousand to four thousand feet). Plateaux, rather than isolated peaks are the rule, interspersed with precipitous ravines.

Satpuda lies in the catchment area of two major rivers the Narmada in the North and the Tapi in the South and from East to West in Central India from Pench Tiger Reserve, border of Seoni district of Madhya Pradesh on east and up to Bharuch district of Gujarath on West. North side is up to Pachmari, a famous hill station in Madhya Pradesh. Central part of Satpuda mountains forms various good protected areas spread into two state encompassing roughly an area of 7000 sq. km. The cluster of 3 protected areas includes the Pachmari Wildlife Sanctuary (417 sq. km), a Bori Wildlife Sanctuary (480 sq. km.) and Satpuda National Park (524 sq km.). Melghat Tiger reserve in Maharashtra includes Gugamal National Park and Melghat Wildlife Sanctuary and the neighboring protected area of Melghat is Narnala Wildlife Sanctuary, Wan Wildlife Sanctuary and Ambabarwa Wildlife Sanctuary. Yawal Wildlife Sanctuary is also a good protected pocket of Satpuda range in Jalgaon district of Maharashtra.

### Methodology

Collection of spider specimens was carried out by standard techniques suggested by Tikader (1987). Repetition of collection of specimens is avoided. The collected specimens are carefully observed after capturing their images with the camera Fuji (Model - S5700). Morphological characters and diagrams of Male Palp; Female Epigyne were drawn with the help of stereo zoom microscope.

The following are basic methods

#### 1. Visual search:

Walked through the habitat and searched visually for spiders, their webs or retreats (curled leaves, silken cases). Spiders were collected from branches, leaves, flowers, on the ground, under the stones and grasses.

#### 2. Sweeping:

Using a heavy insect net swept through the soft vegetation or tall grasses. After a few sweeps, dumped the content of the net into an open umbrella and captured the spiders.

#### 3. Beating:

Open umbrella (inverted) was kept under a bush or the low branches of tree. Grabed the branches and gave them a vigorous shaking, alternatively struck them with a stick. Spiders were dislodged from their location from branches/leaves and were fallen in the umbrella.

#### 4. Pitfall trapping:

This method is effective for capturing ground-living spiders. Smooth sided container was buried within the ground in a pit. Inside the pit, placed a second container so that the captured/fallen spiders can be removed without disturbing the edge of the pit. This edge is the crucial key to success. If a spider detects a ridge of the container, it is likely to walk around rather than tumble into the trap. Every morning the traps were examined and the trapped spiders were collected.

#### 5. Litter sampling:

With the help of gloves, collected a large amount of leaf litter and placed them over a cloth. The litter was searched for spiders. Spiders of families like Araneidae, Salticidae, Oxyopidae, Lycosidae, Gnaphosidae and Thomisidae were easily collected by above different methods.

**Identification:** The keys of Anonymous (2002), Barrison and Litsingerm (1995), Kaston (1970); Roberts (1985); Tikader (1987); Gajbe (2005) were used for species identification and classification.

### Observations and Results

The present studies, embodied 518 spider species which are from 27 Families and from 100 Genera. The family wise list of spiders is given as Table 1. These spiders are recorded from different selected habitats which includes Ripperian habitat, Grasslands, Dry deciduous vegetation, Mixed forest with tall trees and shrubs. Survey was also carried out for ground spiders and spiders from slow flowing shallow streams, spiders from decaying barks of trees, debris and crevices of rocks.

The list of 518 spider species recorded from Satpuda is given below as a checklist.

• Checklist of Spiders in Satpuda.

i) FAMILY: - ARANEIDAE

1. *Araneus bilunifera* Pocock ♀
2. *Araneus cucurbitinus* Clerck ♀
3. *Araneus mitifica* (Simon) ♀
4. *Araneus mitifica* (Simon) ♂
5. *Araneus pachganiensis* Tikader and Bal ♀
6. *Araneus pahalgaonensis* Tikader and Bal ♀
7. *Araneus pahalgaonensis* Tikader and Bal ♂
8. *Araneus* sp. nov. ♀
9. *Araneus* sp. nov. ♀
10. *Araneus* sp. nov. ♀
11. *Araneus* sp. nov. ♂
12. *Argiope aemula* (Walckenaer) ♀
13. *Argiope aemula* (Walckenaer) ♂
14. *Argiope* sp. nov. ♀
15. *Argiope* sp. nov. ♂
16. *Chorizopes anjanis* Tikader. ♂
17. *Chorizopes calciope* (Simon) ♀
18. *Chorizopes khanjanis* Tikader. ♀
19. *Cyclosa bifida* (Doleschall) ♀
20. *Cyclosa bifida* (Doleschall) ♂
21. *Cyclosa confraga* (Thorell) ♀
22. *Cyclosa fissicauda* Simon ♀
23. *Cyclosa hexatuberculata* ♀
24. *Cyclosa insulana* (Costa) ♂
25. *Cyclosa moonduensis* Tikader ♀
26. *Cyclosa moonduensis* ♂
27. *Cyclosa mulmeinensis* (Thorell) ♀
28. *Cyclosa neilensis* Tikader. ♀
29. *Cyclosa simoni* ♀
30. *Cyclosa* sp. nov. ♀
31. *Cyclosa* sp. nov. ♀
32. *Cyclosa* sp. nov. ♀
33. *Cyclosa* sp. nov. ♂
34. *Cyclosa spirifera* Simon. ♀
35. *Cyrtarachne bengalensis* Tikader ♀
36. *Cyrtarachne* sp. nov. ♀
37. *Cyrtophora bidenta* Tikader ♀
38. *Cyrtophora cicatrosa* (Stoliczka) ♀
39. *Cyrtophora citricola* (Forsk.) ♀
40. *Cyrtophora moluccensis* (Doleschall) ♀
41. *Cyrtophora* sp. nov. ♀
42. *Cyrtophora* sp. nov. ♀
43. *Cyrtophora* sp. nov. ♂
44. *Gasteracantha* sp. nov. ♀
45. *Gasteracantha* sp. nov. ♀
46. *Larinia chloris* (Audouin) ♀
47. *Larinia chloris* (Audouin) ♂
48. *Larinia phtisica* (L. Koch) ♂
49. *Larinia phtisica* (L. Koch) ♀
50. *Larinia* sp. nov. ♀
51. *Larinia* sp. nov. ♂
52. *Neoscona achine* (Simon) ♀
53. *Neoscona achine* (Simon) ♂
54. *Neoscona bengalensis* Tikader and Bal ♀
55. *Neoscona bengalensis* Tikader and Bal ♂
56. *Neoscona chrysanthusi* Tikader and Bal ♀
57. *Neoscona excelsus* (Simon) ♀
58. *Neoscona laglaizei* (Simon) ♀
59. *Neoscona lugubris* (Walckenaer) ♀
60. *Neoscona molemensis* Tikader and Bal ♀
61. *Neoscona mukerjei* Tikader ♀
62. *Neoscona mukerjei* Tikader ♂
63. *Neoscona nautica* (L. Koch) ♀
64. *Neoscona nautica* (L. Koch) ♂
65. *Neoscona odites* (Simon) ♀
66. *Neoscona odites* (Simon) ♂
67. *Neoscona pavida* (Simon) ♀
68. *Neoscona rumpfi* (Thorell) ♀
69. *Neoscona rumpfi* (Thorell) ♂
70. *Neoscona shillongensis* Tikader and Bal ♂
71. *Neoscona sinhagadensis* (Tikader) ♀
72. *Neoscona sinhagadensis* (Tikader) ♂
73. *Neoscona* sp. nov. ♀
74. *Neoscona* sp. nov. ♀
75. *Neoscona* sp. nov. ♂
76. *Neoscona* sp. nov. ♂
77. *Neoscona shillongensis* Tikader and Bal ♀
78. *Neoscona theis* (Walckenaer) ♀
79. *Neoscona theis* (Walckenaer) ♂
80. *Poltys nagpurensis* ♀
81. *Poltys* sp. nov. ♀
82. *Zygiella indica* Tikader and Bal ♀
83. *Zygeilla indica* Tikader and Bal ♂
84. *Zygeilla melanocrania* (Thorell) ♀
85. *Zygeilla melanocrania* (Thorell) ♂
86. *Zygiella* sp. nov. ♀
87. *Zygiella* sp. nov. ♀

ii) FAMILY :- CLUBIONIDAE

88. *Clubiona acanthochemis* Simon ♀
89. *Clubiona analis* Thorell ♀
90. *Clubiona analis* Thorell ♂
91. *Clubiona anadamanensis* Tikader ♀

92. *Clubiona atwali* Singh ♀  
 93. *Clubiona drassodes* Cambridge ♂  
 94. *Clubiona filicate* Cambridge ♀  
 95. *Clubiona filicate* Cambridge ♂  
 96. *Clubiona nicobarensis* Tikader ♀  
 97. *Clubiona nicobarensis* Tikader ♂  
 98. *Clubiona nilgherinal* Simon ♀  
 99. *Clubiona pashabaii* Patel and Patel ♀  
 100. *Clubiona sillongensis* ♀  
 101. *Clubiona* sp. nov. ♀  
 102. *Clubiona tikaderi* ♀  
 103. *Oedignatha microsculata* Reimoser ♀  
 104. *Oedignatha poonaensis* ♀
- iii) FAMILY :- CORINNIDAE
105. *Castianeira albopicta* Gravely ♀  
 106. *Castianeira albopicta* Gravely ♂  
 107. *Castianeira himalayensis* Gravely ♀  
 108. *Castianeira indica* Tikader ♀  
 109. *Castianeira indica* Tikader ♂  
 110. *Castianeira zetes* Simon ♂  
 111. *Castianeira zetes* Simon ♀
- iv) FAMILY :- DICTYNIDAE
112. *Dictyna bedeshai* Tikader. ♀  
 113. *Dictyna shiprai* ♀
- v) FAMILY :- DYSDERIDAE
114. *Dysdera* sp. nov. ♂
- vi) FAMILY :- ERESIDAE
115. *Stegodyphus mirandus* Pocock ♀  
 116. *Stegodyphus mirandus* Pocock ♂  
 117. *Stegodyphus pacificus* Pocock ♀  
 118. *Stegodyphus sarasinorum* Karsch ♀  
 119. *Stegodyphus sarasinorum* Karsch ♂  
 120. *Stegodyphus* sp. nov. ♀  
 121. *Stegodyphus* sp. nov. ♀  
 122. *Stegodyphus* sp. nov. ♀  
 123. *Stegodyphus* sp. nov. ♀
- vii) FAMILY :- GNAPHOSIDAE
124. *Callilepis chakanensis* ♀  
 125. *Callilepis rukminiae* ♀  
 126. *Calliepis rukhminiae* Tikader and Gajbe ♀  
 127. *Drassodes deoprayagensis* Tikader and Gajbe ♀  
 128. *Drassodes gangeticus* Tikader and Gajbe ♀  
 129. *Drassodes lubrica* Simon ♀
130. *Drassodes sagarensis* ♀  
 131. *Drassyllus khajuriai* Tikader and Gajbe ♀  
 132. *Gnaphosa Jodhpurensis* Tikader and Gajbe ♀  
 133. *Gnaphosa kailana* Tikader ♀  
 134. *Gnaphosa kailana* Tikader ♂  
 135. *Gnaphosa poonaensis* Tikader ♀  
 136. *Gnaphosa poonaensis* Tikader ♂  
 137. *Gnaphosa pauriensis* Tikader and Gajbe ♀  
 138. *Gnaphosa pauriensis* Tikader and Gajbe ♂  
 139. *Haplodrassus sataraensis* Tikader and Gajbe ♀  
 140. *Megamyrmecon ashae* Tikader and Gajbe ♀  
 141. *Nomisia harpax* O. P. Cambridge ♀  
 142. *Phaeocedus nicobarensis* Tikader ♀  
 143. *Phaeocedus poonaensis* ♀  
 144. *Poecilochroa* sp. nov. ♀  
 145. *Scopodes maitraiae* Tikader and Gajbe ♀  
 146. *Scopodes pritiae* ♀  
 147. *Sergiolus singhi* Tikader and Gajbe ♀  
 148. *Sosticus nainitalensis* Gajbe ♀  
 149. *Sosticus poonaensis* ♀  
 150. *Zelotes chandosiensis* Tikader and Gajbe ♀  
 151. *Zelotes choubeyi* Tikader and Gajbe ♀  
 152. *Zelotes desioi* Caporiacco ♀  
 153. *Zelotes kusumae* ♀  
 154. *Zelotes mandae* Tikader and Gajbe ♀  
 155. *Zelotes mandlaensis* Tikader and Gajbe ♀  
 156. *Zelotes poonaensis* Tikader and Gajbe ♂  
 157. *Zelotes sajali* Tikader and Gajbe ♀  
 158. *Zelotes sataraensis* Tikader and Gajbe ♀  
 159. *Zelotes* sp. nov. ♀  
 160. *Zelotes surekhae* Tikader and Gajbe ♀
- viii) FAMILY :- HERSILIIDAE
161. *Hersilia savignyi* Lucas ♀  
 162. *Hersilia savignyi* Lucas ♂  
 163. *Hersilia* sp. nov. ♀  
 164. *Hersilia* sp. nov. ♀  
 165. *Hersilia* sp. nov. ♀  
 166. *Hersilia* sp. nov. ♂

167. *Hersilia* sp. nov. ♂
- ix) FAMILY :- LYCOSIDAE
168. *Arctosa himalayensis* (Tikader and Malhotra) ♀
169. *Arctosa indicus* ♀
170. *Arctosa khudiensis* (Sinha) ♀
171. *Evippa praelongipes* (Cambridge) ♀
172. *Evippa shivaji* ♀
173. *Evippa shivaji* ♂
174. *Evippa sohani* ♀
175. *Evippa solanensis* ♀
176. *Evippa* sp. nov. ♀
177. *Evippa* sp. nov. ♀
178. *Hippasa agelenoides* (Simon) ♀
179. *Hippasa agelenoides* (Simon) ♂
180. *Hippasa greenalliae* (Blackwall) ♀
181. *Hippasa greenalliae* (Blackwall) ♂
182. *Hippasa himalayensis* Gravely ♂
183. *Hippasa holmerae* Thorell ♀
184. *Hippasa holmerae* Thorell ♂
185. *Hippasa loundesi* Gravely ♀
186. *Hippasa loundesi* Gravely ♂
187. *Hippasa lycosina* Pocock ♀
188. *Hippasa lycosina* Pocock ♂
189. *Hippasa madhuae* ♀
190. *Hippasa madhuae* ♂
191. *Hippasa mahabaleshwariensis* ♀
192. *Hippasa olivacea* (Thorell) ♂
193. *Hippasa olivacea* (Thorell) ♀
194. *Hippasa partita* (Cambridge) ♀
195. *Hippasa partita* (Cambridge) ♂
196. *Hippasa pisaurina* Pocock ♀
197. *Hippasa pisaurina* Pocock ♂
198. *Lycosa barnesi* Gravely ♀
199. *Lycosa bistrata* Gravely ♀
200. *Lycosa carmichaeli* Gravely ♀
201. *Lycosa choudhuryi* ♀
202. *Lycosa fuscana* Pocock ♀
203. *Lycosa goliathus* Pocock ♀
204. *Lycosa himalayensis* Gravely ♀
205. *Lycosa irani* Pocock ♀
206. *Lycosa lambai* (Tikader and Malhotra) ♀
207. *Lycosa lambai* (Tikader and Malhotra) ♂
208. *Lycosa madani* Pocock ♂
209. *Lycosa mahabaleshwariensis* ♀
210. *Lycosa pictula* Pocock ♂
211. *Lycosa poonaensis* ♀
212. *Lycosa poonaensis* ♂
213. *Lycosa prolifica* Pocock ♀
214. *Lycosa shillongensis* ♀
215. *Lycosa shillongensis* ♂
216. *Lycosa* sp. nov. ♀
217. *Ocyale atalanta* Audouin ♀
218. *Pardosa altitudus* ♀
219. *Pardosa amkhasensis* Tikader and Malhotra ♀
220. *Pardosa annandalei* (Gravely) ♀
221. *Pardosa annandalei* (Gravely) ♂
222. *Pardosa birmanica* Simon ♀
223. *Pardosa birmanica* Simon ♂
224. *Pardosa burasantiensis* Tikader and Malhotra ♀
225. *Pardosa Chambaensis* Tikader and Malhotra ♀
226. *Pardosa fletcheri* (Gravely) ♂
227. *Pardosa kupupa* (Tikader) ♂
228. *Pardosa ladakhensis* ♀
229. *Pardosa ladakhensis* Tikader ♀
230. *Pardosa minutus* Tikader and Malhotra ♀
231. *Pardosa minutus* Tikader and Malhotra ♂
232. *Pardosa mukundi* ♀
233. *Pardosa oakleyi* Gravely ♂
234. *Pardosa pusiola* (Thorell) ♀
235. *Pardosa* sp. nov. ♀
236. *Pardosa* sp. nov. ♀
237. *Pardosa shyamae* (Tikader) ♀
238. *Pardosa songosa* Tikader and Malhotra ♀
239. *Pardosa sumatrana* (Thorell) ♀
240. *Pardosa sumatrana* (Thorell) ♂
241. *Pardosa sutherlandi* (Gravely) ♀
242. *Pardosa timida* (Simon) ♀
243. *Pardosa timida* (Simon) ♂
244. *Trochosa himalayensis* ♂
- x) FAMILY :- MITURGIDAE
245. *Cheiracanthium danieli* Tikader. ♀
246. *Cheiracanthium denieli* Tikader ♂
247. *Cheiracanthium himalayensis* Gravely ♀
248. *Cheiracanthium indicus* Cambridge ♀
249. *Cheiracanthium inornatum* Cambridge ♀
250. *Cheiracanthium insigne* Cambridge ♂
251. *Cheiracanthium melanostoma* Thorell ♀
252. *Cheiracanthium pauriensis* ♀

253. *Cheiracanthium poonaensis* ♀  
 254. *Cheiracanthium trivialis* (Thorell) ♀  
 255. *Cheiracanthium saraswati* Tikader ♂  
 256. *Cheiracanthium sikkimensis* ♀  
 257. *Cheiracanthium* sp. nov. ♀  
 258. *Trachelas fronto* Simon ♀
- xi) FAMILY :- NEPHILIDAE
259. *Nephila clavata* ♀  
 260. *Nephila kuhlii* Doleschall ♀  
 261. *Nephila pilips* ♀  
 262. *Nephila robusta* Tikader ♀  
 263. *Nephila robusta* Tikader ♂  
 264. *Nephila* sp. nov. ♀  
 265. *Nephila* sp. nov. ♂  
 266. *Nephila* sp. nov. ♂
- xii) FAMILY :- NEW FAMILY (PROPOSED NAME FAMILY GAJBESIDAE)
267. Gen. nov. ♀
- xiii) FAMILY :- OECOBIIDAE
268. *Oecobius marathaus* ♀  
 269. *Oecobius marathaus* ♂  
 270. *Oecobius putus* O.P. Cambridge ♀  
 271. *Oecobius putus* O.P. Cambridge ♂
- xiv) FAMILY :- OONOPIIDAE
272. *Inschnothyreus deccanensis* ♀  
 273. *Triaeris melghaticus* (Bastawade) ♀  
 274. *Triaeris nagpurensis* ♀  
 275. *Triaeris nagarensis* ♀
- xv) FAMILY :- OXYOPIIDAE
276. *Hamataliwa* sp. nov. ♀  
 277. *Hamataliwa* sp. nov. ♀  
 278. *Oxyopes assamensis* Tikader ♀  
 279. *Oxyopes ashae* Gajbe ♀  
 280. *Oxyopes bharratae* Gajbe ♀  
 281. *Oxyopes biharensis* Gajbe ♀  
 282. *Oxyopes burmenicus* (Thorell) ♀  
 283. *Oxyopes chittrae* Tikader ♀  
 284. *Oxyopes chittrae* Tikader ♂  
 285. *Oxyopes elongatus* Biswas et al. ♀  
 286. *Oxyopes gurjanti* Sadana and Gupta ♀  
 287. *Oxyopes jabalpurensis* Gajbe and Gajbe ♀  
 288. *Oxyopes jabalpurensis* Gajbe and Gajbe ♂  
 289. *Oxyopes kamalae* Gajbe ♀
290. *Oxyopes minutus* Biswas et al. ♀  
 291. *Oxyopes pankaji* Gajbe and Gajbe ♀  
 292. *Oxyopes pankaji* Gajbe and Gajbe ♂  
 293. *Oxyopes pawani* Gajbe ♀  
 294. *Oxyopes pawani* Gajbe ♂  
 295. *Oxyopes* sp. nov. ♀  
 296. *Oxyopes* sp. nov. ♀  
 297. *Oxyopes* sp. nov. ♀  
 298. *Oxyopes* sp. nov. ♀  
 299. *Oxyopes* sp. nov. ♀  
 300. *Oxyopes shwetae* Tikader ♀  
 301. *Oxyopes shakuntalae* Tikader ♀  
 302. *Oxyopes subhadrae* Tikader ♀  
 303. *Peucetia ashae* Gajbe and Gajbe ♀  
 304. *Peucetia gauntietia* Saha and Rayachaudhuri ♀  
 305. *Peucetia latikae* Tikader ♀  
 306. *Peucetia jabalpurensis* Gajbe and Gajbe. ♀  
 307. *Peucetia rajani* Gajbe ♀  
 308. *Peucetia* sp. nov. ♂  
 309. *Peucetia viridana* Pocock ♀  
 310. *Peucetia viridana* Pocock ♂  
 311. *Peucetia viveki* Gajbe ♀  
 312. *Peucetia yogeshi* Gajbe ♂
- xvi) FAMILY :- PALPIMANIDAE
313. *Palpimanus vultuosus* (Simon)
- xvii) FAMILY :- PHILODROMIDAE
314. *Philodromus betrabatai* Tikader ♀  
 315. *Philodromus chambaensis* ♀  
 316. *Philodromus decoratus* Tikader ♀  
 317. *Philodromus devhutai* Tikader ♀  
 318. *Philodromus domesticus* Tikader ♀  
 319. *Philodromus jabalpurensis* ♀  
 320. *Philodromus mohiniae* ♀  
 321. *Thanatus dhakuricus* Tikader ♀  
 322. *Thanatus jabalpurensis* ♀  
 323. *Thanatus mandali* Tikader ♀  
 324. *Thanatus* sp. nov. ♀  
 325. *Thanatus stripatus* ♀  
 326. *Tibellus chaturshingi* Tikader ♀  
 327. *Tibellus elongates* Tikader ♀  
 328. *Tibellus jabalpurensis* ♀  
 329. *Tibellus pashanensis* ♀  
 330. *Tibellus pateli* ♀  
 331. *Tibellus poonaensis* Tikader ♀  
 332. *Tibellus* sp. nov. ♀

333. *Tibellus* sp. nov. ♂
- xviii) FAMILY :- PHOLCIDAE
334. *Artema atlenta* walckenaer ♀  
 335. *Crossopriza lyoni* (Blackwall) ♀  
 336. *Crossopriza* sp. nov. ♂  
 337. *Pholcus phalangioides* ♀  
 338. *Pholcus* sp. nov. ♀  
 339. *Pholcus walckenaer* ♀  
 340. *Pholcus walckenaer* ♂
- xix) FAMILY :- PISAURIDAE
341. *Dolomedes (Thalassius)* sp. nov. ♀  
 342. *Pisaura gitae* ♀  
 343. *Pisaura* sp. nov. ♀  
 344. *Pisaura* sp. nov. ♂  
 345. *Thalassius albocinctus* (Doleschall) ♀  
 346. *Thalassius marginellus* ♂
- xx) FAMILY :- SALTICIDAE
347. *Euophrys chiriatapuensis* Tikader ♀  
 348. *Euophrys* sp. nov. ♀  
 349. *Harmochirus* sp. nov. ♂  
 350. *Marpissa andamanensis* ♀  
 351. *Marpissa anusuae* Tikader and Biswas ♀  
 352. *Marpissa bengalensis* Tikader ♀  
 353. *Marpissa decorata* Tikader ♀  
 354. *Marpissa dhakuriensis* Tikader ♀  
 355. *Marpissa kalapani* ♀  
 356. *Marpissa ludhianaensis* ♀  
 357. *Marpissa mandali* ♀  
 358. *Marpissa* sp. nov. ♀  
 359. *Marpissa tigrina* ♀  
 360. *Myrmarachne bengalensis* Tikader ♀  
 361. *Myrmarachne maratha* ♀  
 362. *Myrmarachne maratha* ♂  
 363. *Myrmarachne orientales* Tikader ♀  
 364. *Myrmarachne orientales* Tikader ♂  
 365. *Myrmarachne poonaensis* Tikader ♀  
 366. *Myrmarachne* sp. nov. ♀  
 367. *Myrmarachne* sp. nov. ♀  
 368. *Myrmarachne* sp. nov. ♂  
 369. *Phidippus bengalensis* Tikader ♀  
 370. *Phidippus bhimrakshiti* ♀  
 371. *Phidippus indicus* Tikader ♀  
 372. *Phidippus pateli* Tikader ♀  
 373. *Phidippus paykulli* ♀  
 374. *Phidippus* sp. nov. ♀
375. *Phidippus* sp. nov. ♀  
 376. *Phidippus yashodharae* ♂  
 377. *Phlegma dhakuriensis* Tikader ♀  
 378. *Plexippus paykullii* ♀  
 379. *Plexippus paykullii* ♂  
 380. *Rhene indicus* Tikader ♀  
 381. *Rhene decoratus* Tikader ♀  
 382. *Rhene sanghrakshiti* ♀  
 383. *Rhene khandalensis* ♀  
 384. *Rhene* sp. nov. ♀  
 385. *Salticus ranjitus* Tikader ♂  
 386. *Telamonia dimidiata* (Simon) ♀  
 387. *Telamonia dimidiata* (Simon) ♂  
 388. *Telamonia* sp. nov. ♀  
 389. *Thiania* sp. nov. ♂
- xxi) FAMILY :- SCYTODIDAE
390. *Scytodes alfredi* ♀  
 391. *Scytodes alfredi* ♂  
 392. *Scytodes propinqua* Stoliczka ♀  
 393. *Scytodes* sp. nov. ♀  
 394. *Scytodes* sp. nov. ♀  
 395. *Scytodes thoracica* (Latreillae) ♀  
 396. *Scytodes thoracica* (Latreillae) ♂
- xxii) FAMILY :- SICARIIDAE
397. *Loxosceles rufescens* ♀  
 398. *Siccarus* sp. nov. ♀
- xxiii) FAMILY :- SPARASSIDAE
399. *Heteropoda* sp. nov. ♀  
 400. *Heteropoda* sp. nov. ♂  
 401. *Heteropoda venatoria* ♀  
 402. *Heteropoda venatoria* ♂  
 403. *Olios* sp. nov. ♀  
 404. *spariolenus* sp. nov. ♀
- xxiv) FAMILY :- TETRAGNATHIDAE
405. *Eucta javana* Thorell ♀  
 406. *Leucauge celebesiana* (Walckenaer) ♀  
 407. *Leucauge culta* (O. P. Cambridge) ♀  
 408. *Leucauge* sp. nov. ♀  
 409. *Leucauge* sp. nov. ♀  
 410. *Leucauge decorata* (Blackwall) ♀  
 411. *Leucauge fastigata* (Simon) ♀  
 412. *Leucauge tessellata* (Thorell) ♀  
 413. *Tetragnatha andamanensis* sp. nov. ♀  
 414. *Tetragnatha geniculata* Karsch ♀  
 415. *Tetragnatha mandibulata* Walckenaer ♀

416. *Tetragnatha mandibulata* Walckenaer ♂  
 417. *Tetragnatha* sp. nov. ♀  
 418. *Tetragnatha* sp. nov. ♀  
 419. *Tetragnatha* sp. nov. ♀  
 420. *Tetragnatha* sp. nov. ♂  
 421. *Guizygiella melanocrania* (Thorell) ♀  
 422. *Guizygiella melanocrania* (Thorell) ♂
- xxv) FAMILY :- THERIDIIDAE
423. *Achaearanae budana* ♀  
 424. *Argyrodes ambalikae* ♀  
 425. *Argyrodes carnicobarensis* ♀  
 426. *Argyrodes carnicobarensis* ♂  
 427. *Argyrodes chiriatapuensis* ♀  
 428. *Argyrodes cyrtophora* ♀  
 429. *Argyrodes dipali* ♀  
 430. *Argyrodes gazedes* ♀  
 431. *Argyrodes gouri* ♀  
 432. *Argyrodes gouri* ♂  
 433. *Argyrodes gazingensis* ♀  
 434. *Argyrodes jamkhedes* ♀  
 435. *Argyrodes jamkhedes* ♂  
 436. *Argyrodes projeles* ♀  
 437. *Argyrodes projeles* ♂  
 438. *Argyrodes* sp. nov. ♀  
 439. *Argyrodes* sp. nov. ♀  
 440. *Argyrodes* sp. nov. ♂  
 441. *Romphaea* sp. nov. ♀  
 442. *Romphaea* sp. nov. ♀  
 443. *Theridion manjithar* ♀  
 444. *Theridion* sp. nov. ♀  
 445. *Theridion* sp. nov. ♀  
 446. *Theridion* sp. nov. ♀  
 447. *Theridula angula* ♀
- xxvi) FAMILY :- THERIDIOSOMATIDAE
- Theridiosoma* sp. nov. ♀
- xxvii) FAMILY :- THOMISIDAE
448. *Amyciaea* sp. nov. ♀  
 449. *Bomis khajurjai* ♀  
 450. *Camaricus khandalaensis* ♀  
 451. *Misumena annapurna* Tikader ♀  
 452. *Misumena decorata* ♀  
 453. *Misumena decorata* ♂  
 454. *Misumena menoka* Tikader ♀  
 455. *Misumena mridulai* Tikader ♀  
 456. *Misumena* sp. nov. ♀  
 457. *Misumena* sp. nov. ♂
458. *Misumenoides deccanes* Tikader ♀  
 459. *Misumenoides deccanes* Tikader ♂  
 460. *Misumenoides gwarighatensis* ♂ and ♀  
 461. *Misumenops kumaonensis* Tikader ♀  
 462. *Misumenops khandalaensis* Tikader ♀  
 463. *Oxylate elongate* ♀  
 464. *Oxylate greenae* ♀  
 465. *Oxylate* sp. nov. ♀  
 466. *Oxyptila chandosiensis* ♀  
 467. *Oxyptila maratha* Tikader ♂  
 468. *Oxyptila renae* Basu ♀  
 469. *Pistius robusta* Basu ♀  
 470. *Pistius robusta* Basu ♂  
 471. *Pistius roonawali* Basu ♀  
 472. *Regillus elephantus* Tikader ♀  
 473. *Regillus* sp. nov. ♀  
 474. *Runcinia chauhani* Sen and Basu ♀  
 475. *Strigoplus* sp. nov. ♀  
 476. *Synaema decorata* Tikader ♀  
 477. *Thomisus andamanensis* ♀  
 478. *Thomisus andamanensis* ♂  
 479. *Thomisus beautifularis* Basu ♀  
 480. *Thomisus bulani* Tikader ♀  
 481. *Thomisus dhakuriensis* Tikader ♀  
 482. *Thomisus elongates* Stoliczka ♀  
 483. *Thomisus memae* Sen and Basu ♀  
 484. *Thomisus pathaki* ♀  
 485. *Thomisus pooneus* Tikader ♂  
 486. *Thomisus projectus* Tikader ♀  
 487. *Thomisus projectus* Tikader ♂  
 488. *Thomisus pugillis* Stoliczka ♀  
 489. *Thomisus pugillis* Stoliczka ♂  
 490. *Thomisus sikkimensis* Tikader ♀  
 491. *Thomisus shivajiensis* Tikader ♀  
 492. *Thomisus shivajiensis* Tikader ♂  
 493. *Thomisus sorajaii* Basu ♀  
 494. *Thomisus* sp. nov. ♀  
 495. *Thomisus* sp. nov. ♀  
 496. *Thomisus* sp. nov. ♀  
 497. *Thomisus* sp. nov. ♂  
 498. *Thomisus whitakeri* ♀  
 499. *Tmarus pachpediensis* ♀  
 500. *Xysticus jayantius* Tikader ♀  
 501. *Xysticus jayantius* Tikader ♂  
 502. *Xysticus kali* Tikader and Biswas.  
 503. *Xysticus kamakhyai* Tikader ♀  
 504. *Xysticus minutes* Tikader ♀  
 505. *Xysticus minutes* Tikader ♂  
 506. *Xysticus roonwali* Tikader ♀



507. *Xysticus roonwali* Tikader ♂  
 508. *Xysticus shyamrupus* Tikader ♀  
 509. *Xysticus sikkimus* Tikader ♀  
 510. *Xysticus* sp. nov. ♀  
 511. *Xysticus sujatai* ♀
512. *Uloborus danolius* Tikader ♀  
 513. *Uloborus danolius* Tikader ♂  
 514. *Uloborus khasiensis* ♀  
 515. *Uloborus krishnae* ♂  
 516. *Uloborus* sp. nov. ♀  
 517. *Uloborus* sp. nov. ♀  
 518. *Zosis* sp. nov. ♀

xxviii) FAMILY :- ULOBORIDAE

Table 1 : Spider Records from India and Satpuda.

Sr. No.	Family	India*		Satpuda**	
		Genera	Species	Genera	Species
1	Agelenidae	2	10	...	...
2	Amaurobiidae	2	4	...	...
3	Anyphaenidae	1	1	...	...
4	Araneidae	29	154	11	87
5	Atypidae	1	1	...	...
6	Barychelidae	4	5	...	...
7	Cithaeronidae	2	2	...	...
8	Clubionidae	3	23	2	17
9	Corinnidae	9	36	1	7
10	Cryptothelidae	1	2	...	...
11	Ctenidae	2	14	...	...
12	Ctenzidae	1	1	...	...
13	Deinopidae	1	1	...	...
14	Desidae	1	2	...	...
15	Dictynidae	8	11	1	2
16	Dipluridae	2	4	...	...
17	Dysderidae	...	...	1	1
18	Eresidae	1	4	1	9
19	Filistatidae	3	10	...	...
20	Gajbesidae (Proposed New Family)***	1	1	1	1
21	Gnaphosidae	28	139	13	37
22	Hahniidae	3	4	...	...
23	Hersiliidae	3	6	1	7
24	Hexathelidae	1	1	...	...
25	Homalonychidae	1	1	...	...
26	Idiopidae	3	11	...	...
27	Linyphiidae	16	28	...	...
28	Liocranidae	1	8	...	...
29	Lycosidae	17	126	7	77
30	Mimetidae	2	3	...	...
31	Miturgidae	3	31	2	14
32	Mysmenidae	1	1	...	...
33	Nemesiidae	1	3	...	...

34	Nephilidae	3	8	1	8
35	Ochyroceratidae	1	1	...	...
36	Oecobiidae	2	6	1	4
37	Oonopidae	5	15	2	4
38	Oxyopidae	4	69	3	37
39	Palpimanidae	3	4	1	1
40	Philodromidae	7	48	3	20
41	Pholcidae	6	9	3	7
42	Pimoidae	1	3	...	...
43	Pisauridae	9	20	2	6
44	Prodidomidae	2	9	...	...
45	Psechridae	2	5	...	...
46	Salticidae	66	192	11	43
47	Scytodidae	1	9	1	7
48	Segestriidae	2	2	...	...
49	Selenopidae	1	6	...	...
50	Sicariidae	1	1	2	2
51	Sparassidae	11	85	3	6
52	Stenochilidae	1	1	...	...
53	Tetrablemmidae	4	8	...	...
54	Tetragnathidae	10	47	4	18
55	Theraphosidae	10	53	...	...
56	Theridiidae	19	58	4	25
57	Theridiosomatidae	1	1	...	...
58	Thomisidae	38	164	15	64
59	Titanoecidae	1	1	...	...
60	Trochanteriidae	1	5	...	...
61	Uloboridae	5	22	2	7
62	Zodariidae	7	21	...	...
	<b>Total</b>	<b>378</b>	<b>1521</b>	<b>100</b>	<b>518</b>

\* Sebastian, P.A. and Peter, K.V. (2009): Spiders of India, Universities Press.

\*\* Result of present survey.

\*\*\* Named after the renowned arachnologist of India.

### Discussion and Conclusions

An exhaustive survey of spiders from selected habitats of Satpuda was carried out from 2006 to 2009. Only new species are describe in the thesis.

In all 518 species from 100 genera of 27 families are reported.

The spider from family – Dysderidae is reported from Satpuda for the first time in India. This observations has added one family in India.

The spider, *Gajbesa melghatensis* is recorded from Satpuda and its morphological characters are not matching with any of the existing arachnid family, and hence it is proposed as a new family.

With reference to family, the occurrence of spiders species in Satpuda is in the order of Araneidae (84) > Lycosidae (77) > Thomisidae (64) > Salticidae (42) > Oxyopidae (37).

The present survey indicates, maximum genera from family Thomisidae (15) followed by

Gnaphosidae (13) then Araneidae (11) and Salticidae (11).

The studies also showed that the genus like, *Dysdera*, *Polys*, *Romphea* and *Hharmochirus*, are exclusively endemic to Satpuda.

*Romphea* and *Argyrodes* showed kleptoparasitism on the golden web of *Nephila pilipes*.

In addition to *Neoscona*, *Nephila pilipes* exhibited morphological variations. Riparian and grass land ecosystems are rich in spider fauna.

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