RESEARCH ARTICLE

A BRIEF STUDY OF JUMPING SPIDER (ARACHNIDA: ARANAE: SALTICIDAE) DIVERSITY AROUND TANDULA DAM, BALOD, CHHATTISGARH, INDIA

Jashavant Nayak*[1], Hitesh Kumar Warte[2] and Minaxi Chaure[1]

[1]Department of Zoology,

Govt. Dudhadhari Bajrang Girls College Raipur, Chhattisgarh, 492001 India

[2]Department of Zoology, Govt. Pt. Shyam Shankar Mishra College,

Deobhog, Gariyaband, Chhattisgarh, 493889 India

*Corresponding author E-mail: jashavant.nayak@dbgirls.org

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Abstract:

The present study is on the diversity of jumping spiders found in the vegetation around Tandula Dam, Balod, Chhattisgarh, India. This research was conducted from 08/11/24 to 13/12/24. During this research, only jumping spider was reported in which 13 species belonging to 12 Genera were found. These spiders roam mostly on the surface of the soil; they do not even need to make a web. The most commonly reported spider during this period is *Plexippus paykulli* Audouuin, 1826, and the least reported spider is *Rhene flavicoman* Simon, 1902.

Keywords: Spider, Aranae, Salticidae, Tandula, Jumping Spider.

Introduction:

Spiders are small, predatory, carnivorous and air breathing creatures, belonging to the phylum Arthropoda, class Arachnida and order Aranae. These are cosmopolitan creatures which are present everywhere in the world except Antarctica (WSC, 2025). Their body is made up of two parts, called cephalothorax and abdomen. Cephalothorax is the fused form of head and thorax, which has compound eyes, mouth part and padipalp and chelicerae. Abdomen is the posterior part of the body, in which all the internal organs and silk producing glands are found (Singh *et al.,* 2023). Four pairs of jointed legs are found in them, which have very small hairs attached to them. There are many different varieties of spiders, they are classified into different families based on their morphology, behaviour and ecology (Singh *et al.*, 2020).

One of which is a family called Salticidae. All spiders under Salticidae Blackwall, 1980 are called jumping spiders or salticids. Their morphology is different from other spiders, they do not make web. They eat their food by attacking insects. Their legs and body are highly adapted to jump and catch their prey.

So far, 222 spider species belonging to 96 Genera and 23 families have been recorded in entire Chhattisgarh. In which maximum 49 spiders species are from Araneidae family (Choudhury *et al.*, 2024).

There are 6750 Salticids or Jumping Spiders under 689 Genera are recorded in the worldwide. In India 352 species under 115 genera are recorded. In Chhattisgarh only 18 jumping spiders under 10 genera are recorded. In Chhattisgarh no more documentation of spider fauna in all districts and regions. Firstly 118 species of 52 Genena under 17 families Identified in Ram Jharna, Raigarh, where only 4 species of Salticidae Are found (Ekka, A. & Kujur A. 2015). Rose Garden Raigarh 20 spider Species belong to 13 genus under 6 families are documented where 2 Salticidae are documented Plexippus paykuli and Rhene (Kujur R. & Ekka A. 2016). In Gomarda Wildlife Senctury 120 species of spider Belong to 49 Genera and 16 families are documented where 4 species of Salticidae are listed Kujur R. & Ekka A. (2016). 63 spider species and 38 Genera under 10 families, where 3 Salticidae are listed from Indra Vihar Park, Raigarh Kujur R. & Ekka A. (2016). In Achankmar Wild Life Sanctuary, Bilaspur 27 species of spider documented,Toppo *et al.* (2020). In Gariyaband district first documented 13 species under 13 Genus and 8 families where only one Salticids was observed, *Plexippus paykuli*. Sen D.L. (2021). In Kharun river region 45 spider species under 9 families where 5 Salticids are observed, Toppo A. k. *et al.* (2022). 55 Spider species under 45 Genera and 13 families observed in Deobhog Region Gariyaband district where most 12 Salticids are observed *Carrhotus viduus* (Koch,1846), Chrysilla volupe (Karsch,1879), *Harmochirus zabkai* (Logunov,2001), *Hasarius adansoni* (Audouuin,1826), *Hyllus semicupreus* (Simon,1885), *Menemerus bivittatus* (Dufour,1831), *Phintella vittata* (Koch,1846), *Plexippus Paykulli* (Audouuin,1826), *Plexippus petersi* (Karsch,1878), *Rhene flavicomans* (Simon,1902), *Telamonia dimidiata* (Simon,1899), Thyene *imperialis* (Rossi, 1846). A few days ago, 69 spiders were recorded from entire Chhattisgarh, in which 28 new spider species were also included (Choudhury *et al.*, 2024). Two jumping spiders *Stenaelurillus jagannathae* Das, Malik & Vidhel, 2015 & *Stenaelurillus metallicus* Caleb & Mathai, 2016 are described in the Chhattisgarh Forest region first time (Nayak *et al.*, & 2025a).

Material and Methods:

Study Area: Tandula Dam is located in Balod district of Chhattisgarh state of India. This dam is two kilometers away from the district headquarters. The reservoir is located at Latitude 20° 43’ 50.92” N and longitude 81° 12’ 20.81” E. There are small mountains, highly dense vegetation and some picnic spots around this reservoir. Various types of fish species are found in it.

Sample Collection Methods: All spider samples have been collected by direct visual observation method. All the small plants, wooden bundles, cement blocks and land found around the dam were thoroughly checked. All the specimens found were photographed without causing any harm to them. All photographs are taken from INFINIX SMART HD camera version 10 and GPS MAP Camera version 1.4.22.

Preservation: Photographs of all the samples were taken so that there was no need for preservation but the exoskeleton of a spider was also found which was preserved in 80% alcohol so that it could be studied in future.

Identification: Identification of all spiders has been done on the basis of their body pattern, color and morphological characteristics. Taxonomic key Indian Spider fauna, Tikader (1982,1987), Planknick (1989), Biswas & Biswas (1992), Gajbe (2003), Recently Published research literature (2000 to current time) has been used to identify them along with some online resources were referred.

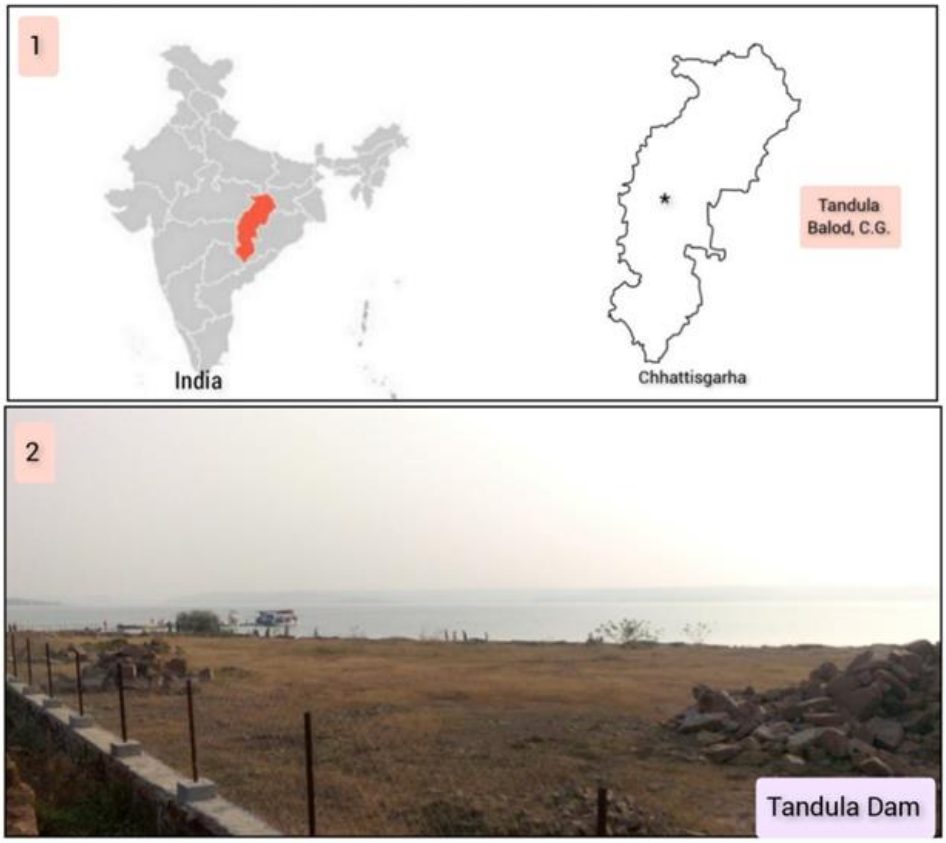

Figure 1: Study area, 1. Location of Tandula Dam, Balod in Chhattisgarh, 2. View of Tandula Dam in sunset time.

Results and Discussion:

A research study was conducted from November 2024 to January 2025, to analyse the diversity of jumping spiders in Tandula Dam, Balod, Chhattisgarh India. In this current study, 13 species of spiders belonging to 12 genera under family Salticidae, Blackwell, 1841 were recorded from the area around the reservoir. *Plexippus* is a genus in which two species, *Plexippus paykulli* Audouuin, 1825 and *Plexippus petersi* Karsch, 1878, have been reported and all the rest have only one species reported. In this area, most of the Plexippus paykuli Audouuin 1825 spiders are seen in trees, small shrubs, ground and walls, while *Rhene flavicoman*s Simon, 1902 is the only spider which is observed only in the ground. A total of 13 jumping spiders has been mentioned in this current study, which have already been found in different districts of Chhattisgarh. Maximum number of *Phintella vittata* C.L. Koch 1846 has been reported in six districts Bilashpur, Korba, Sarguja, Raigarh, Gariaband and now Balod also and least number is in *Bianor angulosus* Karsch, 1879 Raigarh and *Rhene flavicoman* Simon 1902 in Gariyaband.

The list of all the spiders recorded from Tandula is given in the table below and photographs of all the spiders are also given below.

Table 1: Diversity of spiders recorded from Tandula

Family – Salticidae, Blackwall, 1841

S.N.	Genus	Species	Reported From	References
1.	*Bianor* G.W Pecham & E.G. Peckham,1886	*Bianor angulosus* Karsch, 1879	Raigarh	Kujur & Kujur (2016a);
2.	*Carrhotus* Thorell, 1891	*Carrhotus viduus* Koch, 1846	Mungeli, Bilaspur, Gariaband	Toppo *et al.*, (2020); Nichat *et al.* (2024); Chaudhuri *et al.* (2024)
3.	*Chrysilla* Thorell, 1887	*Chrysilla volupe* Karsch, 1879	Bilaspur,Raigarh, Korba, Gariaband	Chaudhuri *et al.* (2024); Nichat *et al.* (2024)
4.	*Harmochirus* Simon, 1886	*Harmochirus brachiatus* Thorell, 1877	Korba	Chaudhuri *et al.*(2024)
5.	*Hasarius* Simon, 1871	*Hasarius adansoni (*Audouin, 1825*)*	Mungeli, Raipur, Bastar, Gariaband	Toppo *et al.*, 2020; Nichat *et al.* (2024); Chaudhuri *et al.* (2024)
6.	*Hyllus C.L.* Koch, 1846	*Hyllus semicupreus (*Simon, 1885*)*	Mungeli, Bilaspu, Gariaband	Toppo *et al.*, 2020; Nichat *et al.* (2024); Chaudhuri *et al.* (2024)
7.	*Menemerus* Simon, 1868	*Menemerus bivittatus (*Dufour, 1831*)*	Mungeli, Sarguja, Korba, Gariaband	Toppo *et al.*, 2020; Nichat *et al.* (2024); Chaudhuri *et al.* (2024)
8.	*Phintella* Strand, *1906*	*Phintella vittata* (C.L. Koch, 1846)	Bilaspur, Korba, Sarguja, Raigarh, Gariaband	Nichat *et al.* (2024); Chaudhuri *et al.* (2024)
9.	*Plexippus* C.L. Koch, 1846	*Plexippus paykulli (*Audouin, 1825*)*	Raigarh, Mungeli, Gariaband	Kujur & Ekka, 2016a,2016b; Toppo *et al.*, (2020); Nichat *et al.* (2024); Chaudhuri *et al.* (2024)
10.		*Plexippus petersi (*Karsch, 1878*)*	Raipur, Gariaband	Nichat *et al.* (2024); Chaudhuri *et al.* (2024)
11.	*Rhene* Thorell,1869	*Rhene flavicomans* Simon, 1902	Gariyaband	Nichat *et al.* (2024)
12.	*Telamonia* Thorell, 1887	*Telamonia dimidiata (*Simon,1899*)*	Mungeli, Korba, Bilaspur, Gariaband	Toppo *et al.*, 2020; Nichat *et al.* (2024); Chaudhuri *et al.* (2024)
13.	*Thyene* Simon, 1885	*Thyene imperialis (*Rossi,1846*)*	Bilaspur, Gariaband	Nichat *et al.* (2024);Chaudhuri *et al.* (2024)

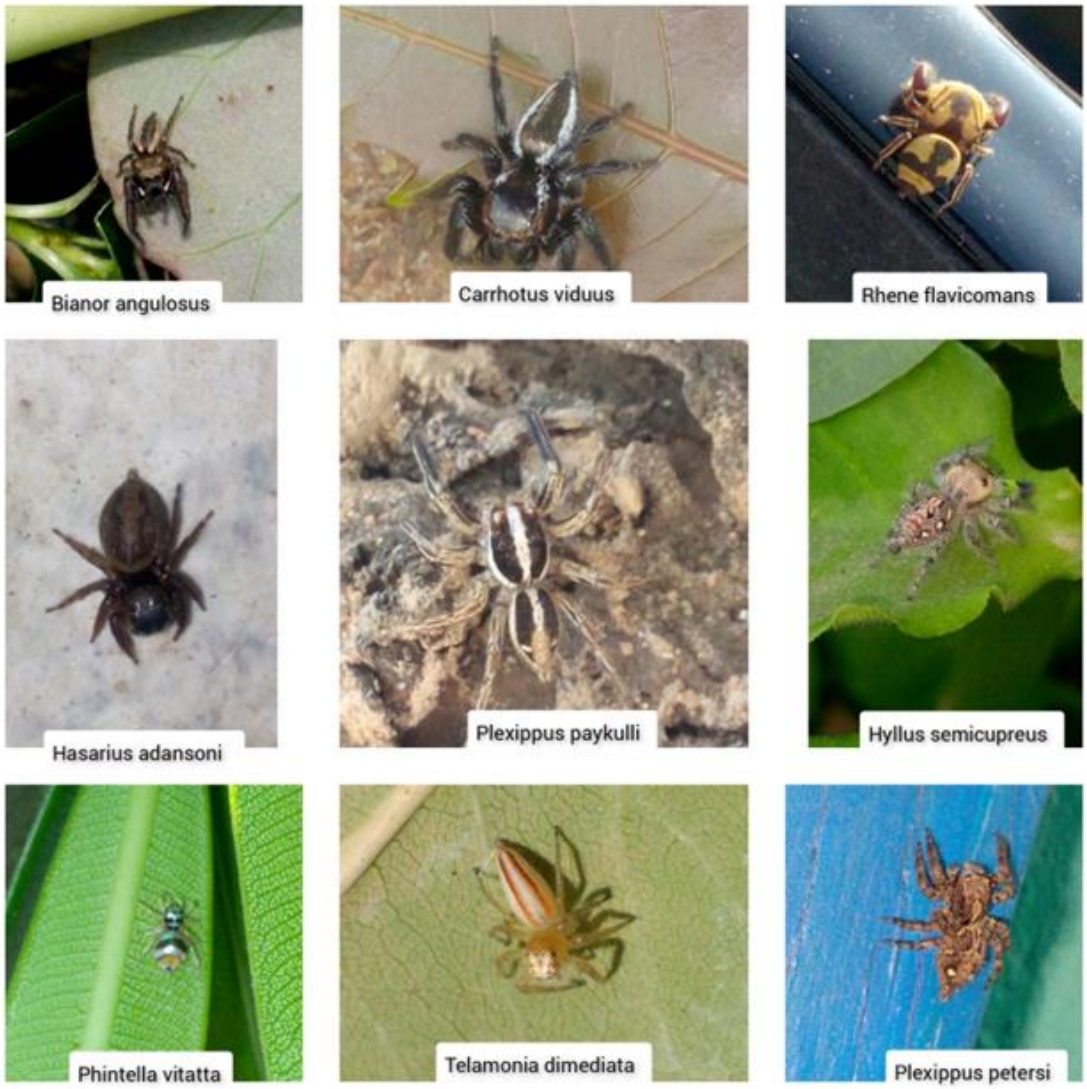

Plate 1: Jumping spiders of Tandula, Balod, Chhattisgarh

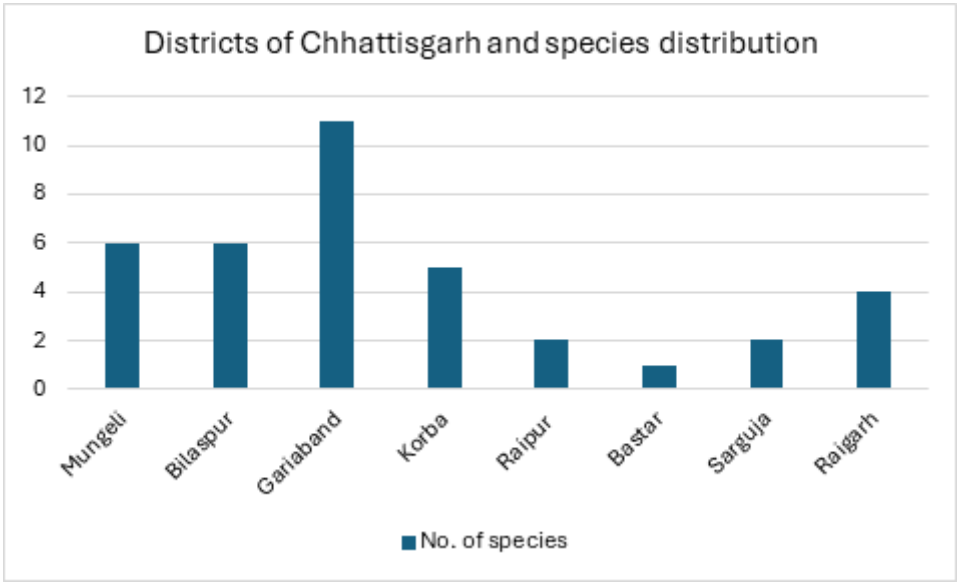

Figure 2: Graphical representation of jumping spiders diversity in different districts of Chhattisgarh

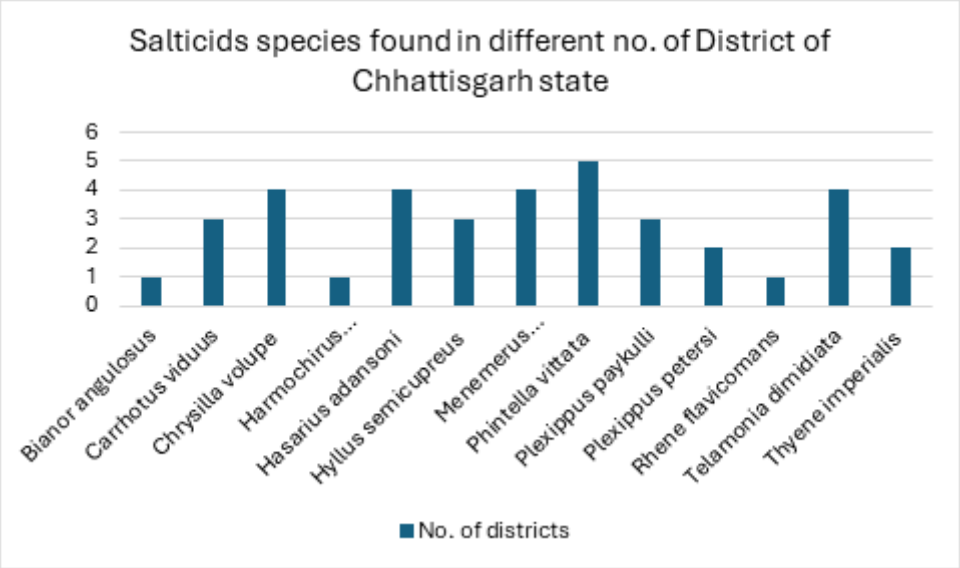

Figure 3: Graphical representation of Jumping spider Species

Conclusion:

There are many types of vegetation around Tandula Dam, which also includes different types of plant species. There is biological interaction between animals and these plant species, that is, plants help the animals directly or indirectly. Spiders are somehow related to plants for their survival, shelter and food. Spiders included in the family Salticidae are called jumping spiders. This order is the largest family of Aranae. Their numbers are much higher than other families. There is a lot of diversity in jumping spiders. Its strength, survival capacity, predatory behaviour and mating pattern are higher than other spiders. The presence of jumping spiders maintains balance in the ecosystem, as there is a high density of plant species around the dam. Here the requirement of food and demand for shelter is also fulfilled.

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References:

1. Chaudhary, S. R., Siliwal, M., & Das, S. K. (2019). Spider of Odisha: A preliminary checklist. *Journal of Threatened Taxa, 11*(9), 14144–14157.
2. Choudhury, S. R., Nirmalkar, Y., Singh, A. K., & Anand, A. (2024). Spider fauna of Chhattisgarh: An updated checklist of spiders of Chhattisgarh, India with new additions. *Serket, 20*(3), 311–334.
3. Kujur, R., & Ekka, A. (2015). Spider diversity of Ram Jharna, Raigarh District, Chhattisgarh, India. *Research Journal of Pharmacy and Technology, 8*(7), 813–819.
4. Kujur, R., & Ekka, A. (2016a). Inventorization of spider fauna of Indra Vihar Park, Raigarh, Chhattisgarh, India. *IOSK-JESTFT, 1*(2), 20–26.

5. Kujur, R., & Ekka, A. (2016b). Spatial diversity of spiders of Rose Garden, Raigarh, Chhattisgarh, India. *International Journal of Advanced Research in Science and Engineering, 5*(11), 139–144.
6. Kujur, R., & Ekka, A. (2016c). Exploring the spider fauna of Gomarda Wildlife Sanctuary, Chhattisgarh, India. *International Research Journal of Biological Sciences, 5*(6), 31–36.
7. Gajbe, P. (2003). Checklist of spiders (Arachnida: Araneae) of Madhya Pradesh and Chhattisgarh. *Zoos' Print Journal, 18*(10), 1223–1226.
8. Nayak, J., Sori, P., & Sahu, L. (2024). Thanatosis behaviour in *Indoxysticus minutus* Tikader, 1960 (Araneae: Thomisidae) in Gariyaband, Chhattisgarh, India. *International Journal of Research in Academic World, 3*(12), 94–95. https://academicjournal.ijraw.com/media/post/IJRAW-3-12-24.1.pdf
9. Nayak, J., Sori, P., & Bharti, D. (2025a). A new observational record of jumping spider (Araneae: Salticidae: Aelurillini: Aelurillina) *Stenaelurillus metallicus* Caleb & Mathai, 2016 in Chhattisgarh, India. *International Journal of Biology Research, 10*(1), 19–21. https://www.biologyjournal.in/assets/archives/2025/vol10issue1/10007-1740555118544.pdf
10. Nayak, J., Sori, P., & Bharti, D. (2025b). Description of a new spider *Meotipa sahyadri* Kulkarni, Vartak, Deshpande & Halali, 2017 (Araneae: Theridiidae) in Chhattisgarh, India. *International Journal of Research Publication and Reviews, 6*(2), 4518–4521. https://doi.org/10.55248/gengpi.6.0225.1026
11. Nayak, J., & Sori, P. (2025c). *Hamadruas hieroglyphica* Thorell, 1887 (Araneae: Oxyopidae): First description of a lynx spider in Chhattisgarh, India. *International Research Journal of Modernization in Engineering Technology and Science, 7*(3), 632–634. https://doi.org/10.56726/IRJMETS68434
12. Nayak, J., Warte, H. K., Sori, P., & Sahu, L. (2025d). Study on jumping spiders (Araneae: Araneomorphae: Salticidae) diversity in Shraddha Public School campus, Gariaband, Chhattisgarh, India. *International Journal of Latest Technology in Engineering, Management & Applied Science, 14*(3), 350–353. https://doi.org/10.51583/IJLTEMAS.2025.140300037
13. Nayak, J., Warte, H. K., Sori, P., & Sahu, L. (2025e). Study on jumping spiders (Araneae: Araneomorphae: Salticidae) diversity in Shraddha Public School campus, Gariaband, Chhattisgarh, India. *International Journal of Latest Technology in Engineering, Management & Applied Science, 14*(3), 350–353. https://doi.org/10.51583/IJLTEMAS.2025.140300037
14. Nayak, J. (2025f). *Stenaelurillus jagannathae* Das, Malik & Vidhel, 2015: First description in Chhattisgarh, India. *Bioscience Discovery, 16*(3), 37–40. http://biosciencediscovery.com/Archive.html#
15. Prasanna, G. S. S., Sarasa, D., Yamunadevi, R., & Joshi, J. L. (2024). Assessment of ecological functionality and biodiversity trends in plants, butterfly and spider species at Adyar Ecological Park. *Uttar Pradesh Journal of Zoology, 45*(21), 243–252. https://doi.org/10.56557/upjoz/2024/v45i214633

16. Raji, R., Brinesh, R., Aja, M., & Jaya, M. (2024). Study on the diversity and distribution of spider fauna at Sree Krishna College campus of Thrissur District, Kerala, India. *Uttar Pradesh Journal of Zoology, 45*(12), 14–24. https://doi.org/10.56557/upjoz/2024/v45i124099
17. Sen, D. L. (2021). Biodiversity of spider fauna at Gariaband, Chhattisgarh, India. *International Research Journal of Modernization in Engineering Technology and Science, 3*(10), 953–962.
18. Singh, K., & Kaur, K. (2020). Spatial mapping of spiders (Araneae) in the Gomarda Wildlife Sanctuary, Chhattisgarh, India. *Journal of Critical Reviews, 7*(9), 3608–3613.
19. Singh, R., Singh, B. B., & Singh, G. (2023). *Spider Fauna of India.* Prayagraj, India: Asian Biological Research Foundation; Pune: Nature Light Publications. ISBN 978-81-959483-4-5.
20. Shraddha, K. K., & Chaturved, S. R. (2020). A preliminary study on diversity of spiders at Amanikere Park in Tumakuru District, Karnataka. *International Journal of Science and Research, 9*(5), 570–581.
21. Sumesh, N. V., & Sudhikumar, A. V. (2020). Checklist of spiders from the sacred groves of Northern Kerala, India. *Uttar Pradesh Journal of Zoology, 41*(9), 104–115.
22. Tikader, B. K. (1987). *Handbook of Indian Spiders.* Zoological Survey of India, Calcutta, 251 pp.
23. Toppo, A. K., Sahu, K. R., & Nishad, H. (2020). Diversity of spiders in Achankmar Wildlife Sanctuary District Bilaspur, Chhattisgarh. *Life Sciences Bulletin, 17*(1–2), 117–119.
24. Toppo, A. K., Sahu, K. R., & Nishad, H. (2022). Diversity of spider fauna of Kharun River at Khutaghat Dam, District Bilaspur, Chhattisgarh, India. *International Journal of Food and Nutritional Sciences, 11*(12), 14170–14176.
25. Tripathi, R., Joshi, P., Kasambe, R., & Sudhikumar, A. V. (2023a). A new species of *Hasarius* Simon, 1871 (Araneae: Salticidae) from Mumbai, India. *Arthropoda Selecta, 32*(2), 213–219.
26. Trivedi, V. (2009). Diversity of spiders in groundnut crop fields in village area of Saurashtra region. *Journal of the Bombay Natural History Society, 106*(2), 184–189.
27. World Spider Catalog. (2025). *World Spider Catalog* (Version 26). Natural History Museum Bern. http://wsc.nmbe.ch. https://doi.org/10.24436/2