

Research article

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On a collection of jumping spiders (Araneae: Salticidae) from the Shendurney Wildlife Sanctuary, India

Ashraf ASIMA¹, John T.D. CALEB^{2,*} & Gopal PRASAD^{3,*}

^{1,3}Department of Zoology, Kariavattom Campus, University of Kerala, 695582, India.

²Department of Anatomy, Saveetha Medical College & Hospital, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai 602105, Tamil Nadu, India.

*Corresponding authors: caleb87woodgate@gmail.com; probios1@gmail.com

¹Email: asimaashrafkh15@gmail.com

¹[urn:lsid:zoobank.org:author:B27F7DC4-E5A9-4E26-8B09-C5AF8536EBF6](https://zoobank.org/author:B27F7DC4-E5A9-4E26-8B09-C5AF8536EBF6)

²[urn:lsid:zoobank.org:author:CFE601A6-E267-4D7F-845E-9A684E14374B](https://zoobank.org/author:CFE601A6-E267-4D7F-845E-9A684E14374B)

³[urn:lsid:zoobank.org:author:A05BEE58-696C-440E-8AF0-581E68982050](https://zoobank.org/author:A05BEE58-696C-440E-8AF0-581E68982050)

Abstract. Two new species, *Habrocestum sahyadri* sp. nov., and *Irura shendurney* sp. nov. are described from the Shendurney Wildlife Sanctuary, Kerala. The unknown female of *Habrocestum kerala* Asima, Caleb, Babu & Prasad, 2022 is described and three other species: *Gelotia lanka* Wijesinghe, 1991, *Phintella accentifera* (Simon, 1901) and *Vailimia jharbari* Basumatary, Caleb & Das, 2020 are recorded from the locality. Detailed descriptions, diagnosis and illustrations of the species are provided.

Keywords. Distribution, new species, taxonomy, Western Ghats, Kerala.

Asima A., Caleb J.T.D. & Prasad G. 2024. On a collection of jumping spiders (Araneae: Salticidae) from the Shendurney Wildlife Sanctuary, India. *European Journal of Taxonomy* 932: 252–270.
<https://doi.org/10.5852/ejt.2024.932.2531>

Introduction

Salticidae Blackwall, 1841 is the most diverse family in the order Araneae representing 6670 species from 686 genera (Metzner 2024). The salticid fauna of India is currently represented by 326 species from 108 genera (Caleb & Sankaran 2024). The Western Ghats (WG) are a chain of mountains on the western edge of Peninsular India spanning 1600 km long and 5 to 25 km in breadth lies parallel to the western coast with an elevation up to 2800 m (Kunte *et al.* 1999). It is one of the world's Biodiversity Hotspots along with Sri Lanka (Myers *et al.* 2000). The WG shelter a belt of wet tropical Evergreen forests stretching from Maharashtra to Kerala which are nourished by rainfall from both the North-East and South-West monsoons. The main mountain chain extends below the Palghat gap as two smaller mountain chains, namely the Anamalais and the Agasthyamalais. The Shendurney Wildlife Sanctuary (SWS) is a part of Agasthyamalai Biosphere Reserve and is one of the richest areas of biodiversity in WG, the biotic richness and distinct biogeographic features making it an ideal gene pool reserve. The SWS has substantial natural vegetation ranging from the southern secondary moist mixed deciduous

forest to the southern subtropical hill forest. The diversity of salticids in the WG is represented by 86 species from 49 genera, with 43% (37 species) of them being endemic to the region (Sen & Sureshan 2020). Recent surveys in the SWS revealed the presence of 18 salticid species belonging to 16 genera (Sudhin *et al.* 2022a; Asima *et al.* 2022, 2023a, 2023b; Sudhin & Sen 2023).

The present study aims to provide an account of jumping species from the Shendurney Wildlife Sanctuary based on new collection efforts: (1) we provide the description of two new species, (2) description of the unknown female of *H. kerala* Asima, Caleb, Babu & Prasad, 2022 and (3) report the occurrence of *Gelotia lanka* Wijesinghe, 1991, *Phintella accentifera* (Simon, 1901) and *Vailimia jharbari* Basumatary, Caleb & Das, 2020 from the study area.

Material and methods

Specimens were hand collected and preserved in 70% alcohol. They were later examined and photographed under the Leica S8APO stereomicroscope. All images were then processed with the aid of Leica ver. 4.2 software. The male left palp was removed, examined in detail and photographed. The epigyne was dissected, cleared in 10% KOH and mounted on a temporary slide, and observed under an Olympus CX31 compound microscope. All measurements are in millimeters (mm). The measurements of legs are given as: total (femur, patella, tibia, metatarsus [except for palps], tarsus). The studied specimens are deposited in the reference section of the museum of the Department of Zoology, University of Kerala, Kariavattom, India (KUDZ).

Abbreviations for taxonomical terms

- I–IV = 1st to 4th leg
- ALE = anterior lateral eye
- AME = anterior median eye
- D = description
- PLE = posterior lateral eye
- PME = posterior median eye
- RTA = retrolateral tibial apophysis

Institutional abbreviations

- SWS = Shendurney Wildlife Sanctuary
- WG = Western Ghats

Results

Taxonomy

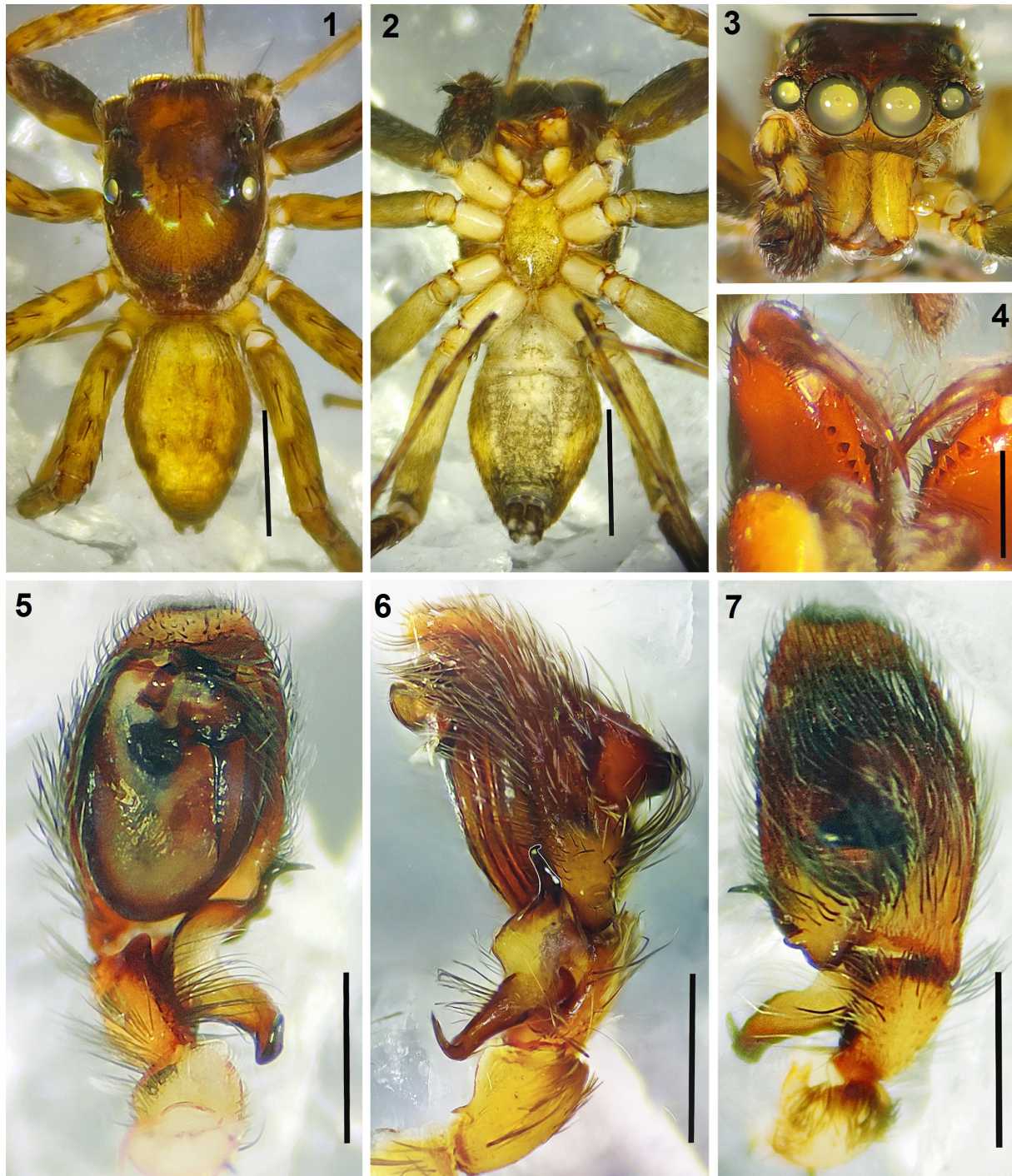
Class Arachnida Lamarck, 1801
Order Araneae Clerck, 1757
Family Salticidae Blackwall, 1841
Genus *Gelotia* Thorell, 1890

Gelotia lanka Wijesinghe, 1991
Figs 1–14

Gelotia lanka Wijesinghe, 1991: 275, figs 1–6 — Jose, Tripathi & Sudhikumar 2023: 4, fig. 2a–f (D♂).

Material examined

INDIA • 1 ♂; Kerala, Kulathoopuzha, Kattilappara, Shendurney Wildlife Sanctuary; 8.902778° N, 77.11325° E; 146 m a.s.l.; 22 Mar. 2022; A. Asima leg.; from vegetation, by beating; KUDZ 2022.XII.23a • 3 ♀♀; same collection data as for preceding; KUDZ 2022.XII.23b to 2022.XII.23e.



Figs 1–7. *Gelotia lanka* Wijesinghe, 1991, ♂ (KUDZ 2022.XII.23a). 1–3. Habitus. 1. Dorsal view. 2. Ventral view. 3. Front view. 4. Chelicerae. 5–7. Left palp. 5. Ventral view. 6. Retrolateral view. 7. Dorsal view. Scale bars: 1–2=1 mm; 3=0.5 mm, 4–7=0.2 mm.

Description

For detailed description and diagnosis, see Wijesinghe (1991).

Distribution

Sri Lanka (Wijesinghe 1991) and India (Jose *et al.* 2023 and present study).

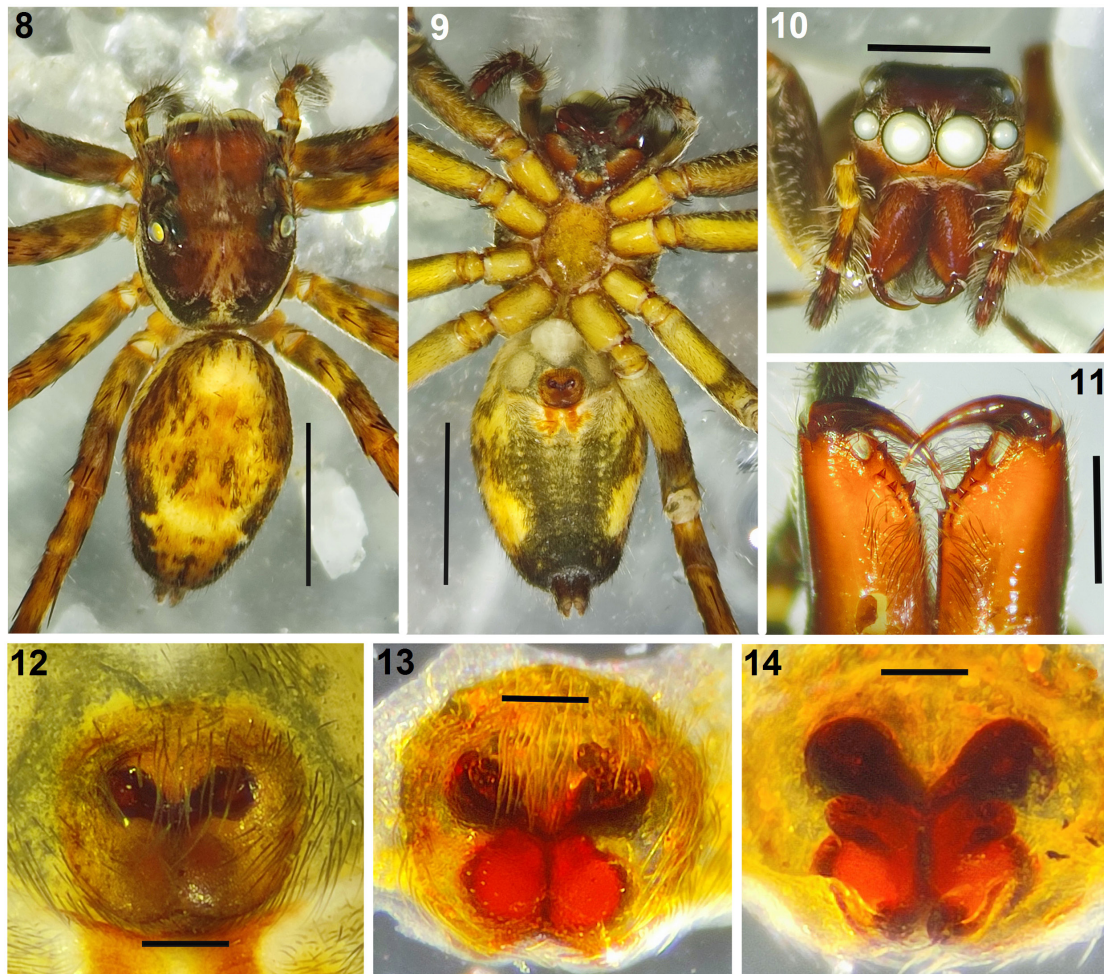
Genus *Habrocestum* Simon, 1876

Habrocestum kerala Asima, Caleb, Babu & Prasad, 2022
Figs 15–23

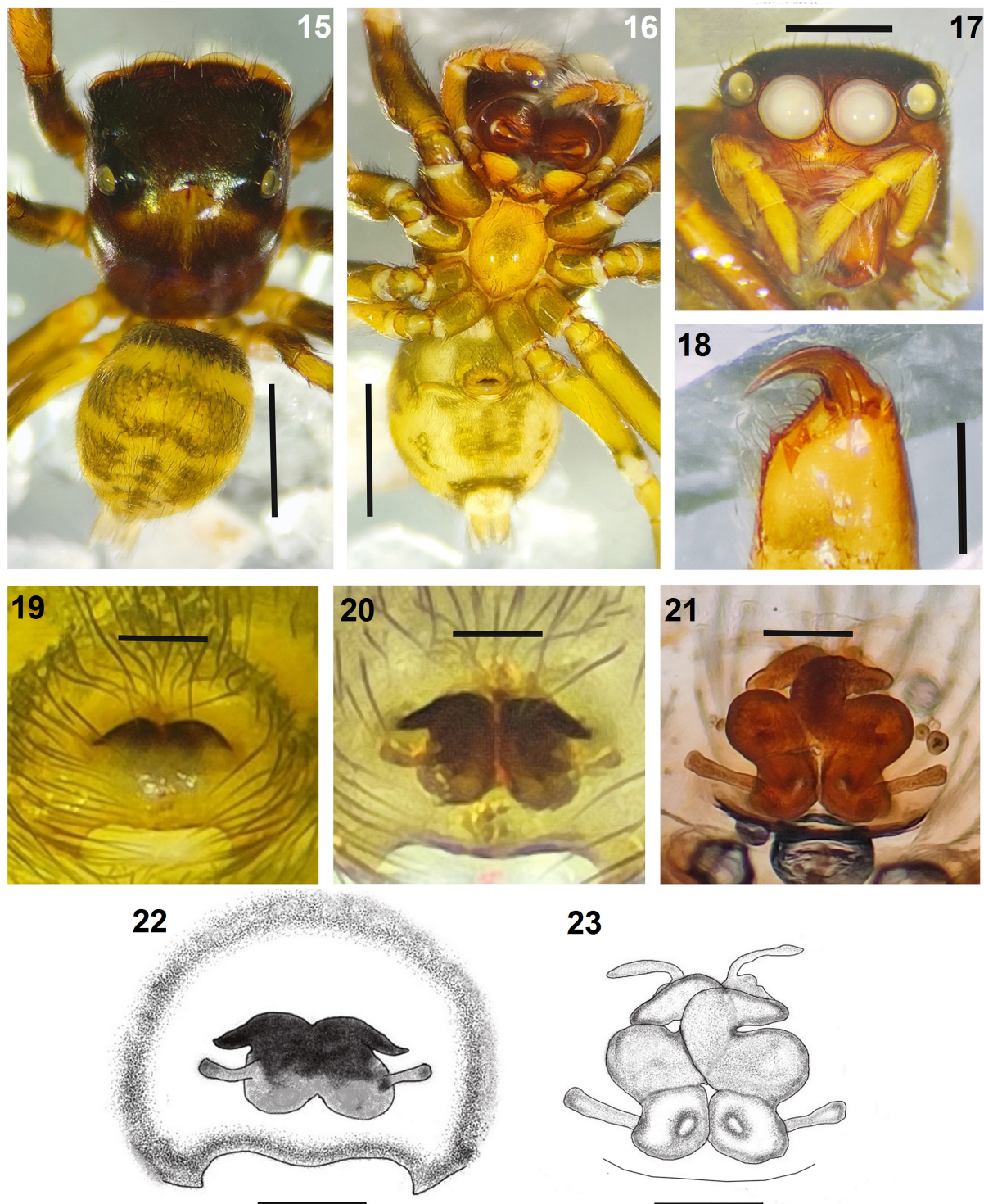
Habrocestum kerala Asima *et al.* 2022: 306, figs 4, 25–33 (D♂).

Diagnosis

The epigyne of *H. kerala* is similar to that of *H. hantaneensis* Kanesharatnam & Benjamin, 2016 known from Sri Lanka but can be distinguished by the straight accessory gland without any special structures (curved with pin-like structures at the tip in *H. hantaneensis*); fertilization ducts arising from



Figs 8–14. *Gelotia lanka* Wijesinghe, 1991, ♀ (KUDZ 2023.VI.23b). **8–10.** Habitus. **8.** Dorsal view. **9.** Ventral view. **10.** Front view. **11.** Chelicerae. **12.** Intact epigyne, ventral view **13–14.** Cleared epigyne. **13.** Ventral view. **14.** Dorsal view. Scale bars: 8–9=1 mm, 10=0.8 mm, 11=0.5 mm, 12–14=0.2 mm.



Figs 15–23. *Habrocestum kerala* Asima, Caleb, Babu & Prasad, 2022, ♀ (KUDZ 2022.VII.6c), habitus and copulatory organ. **15–17.** Habitus. **15.** Dorsal view. **16.** Ventral view. **17.** Front view. **18.** Chelicera. **19.** Intact epigyne, ventral view. **20, 22.** Cleared epigyne, ventral view. **21, 23.** Vulva, dorsal view. Scale bars: 15–16=1 mm; 17=0.85 mm; 18=0.38 mm; 19–23= 0.2 mm.

anteroventral side of receptacles (vs arising from anterodorsal side of receptacles) (cf. Figs 19–23; Kanesharatnam & Benjamin 2016: figs 5e–f, 6c–d). The spermathecae of *H. kerala* is somewhat similar to that of *H. longispinum* Sankaran, Malamel, Joseph & Sebastian, 2019, but can be distinguished by conical spermathecae (vs globular) (cf. Figs 19–23; Sankaran *et al.* 2019: fig. 3h).

Material examined

INDIA • 3 ♀♀; Kerala, Kulathoopuzha, Kattilappara, Shendurney Wildlife Sanctuary; 8.902778° N, 77.11325° E; 146 m a.s.l.; 11 May 2022; A. Asima leg.; from ground; by hand; KUDZ 2022.VII.6c to 2022.VII.6e • 2 ♂♂; same collection data as for preceding; KUDZ 2022.VII.6f to 2022.VII.6g.

Description

Female (KUDZ 2022.VII.6c; Figs 15–23)

GENERAL MORPHOLOGY. Cephalothorax brown with pairs of white spots behind each posterior eyes and small vertical white band behind fovea; white patch of hairs present along lateral sides (Fig. 15). Chelicerae reddish-brown with two promarginal teeth and single bicuspid retromarginal tooth (Fig. 18). Sternum oval, dark brown. Leg I dark brown except yellow tarsus, white spot present on proximal portion of tibiae; leg II dark brown, part of femora, patellae and tibiae sparsely covered with white hairs dorsally; legs III–IV light brown with dark annulations. Abdomen small, oval, dorsum brown with three horizontal white bands with the posterior one being discontinuous; median light brown chevron pattern (Fig. 15). Venter creamy yellow with black patches and lateral stripes. Spinnerets creamy yellow (Fig. 16).

MEASUREMENTS. Body length: 3.94; carapace 2.10 long, 1.82 wide; abdomen 1.84 long, 1.30 wide. Eye diameters: AME 0.55, ALE 0.33, PME 0.06, PLE 0.21. Eye inter-distances: AME-AME 0.03, AME-ALE 0.06, PME-PME 0.10, PME-PLE 0.12, PLE-PLE 0.89. Clypeus height at AME 0.23, at ALE 0.81. Clypeus yellowish brown (Fig. 15). Measurement of legs: I 6.25 (1.57, 1.90, 1.32, 1.00, 0.46), II 4.50 (1.43, 0.66, 1.00, 0.90, 0.51), III 5.65 (2.00, 0.93, 1.18, 1.20, 0.34), IV 6.09 (1.62, 0.54, 0.97, 1.36, 0.60). Leg formula: 1432.

COPULATORY ORGAN (Figs 19–23). Copulatory openings mid-laterally placed, initial portion of copulatory ducts less sclerotized, narrow, tubular and straight; spermathecae elongated, conical, multi-chambered with thick walls, fertilization duct originates from anterior part of spermathecae, diverging from each other.

Male

See Asima *et al.* (2022).

Distribution

India (Asima *et al.* 2022 and present study).

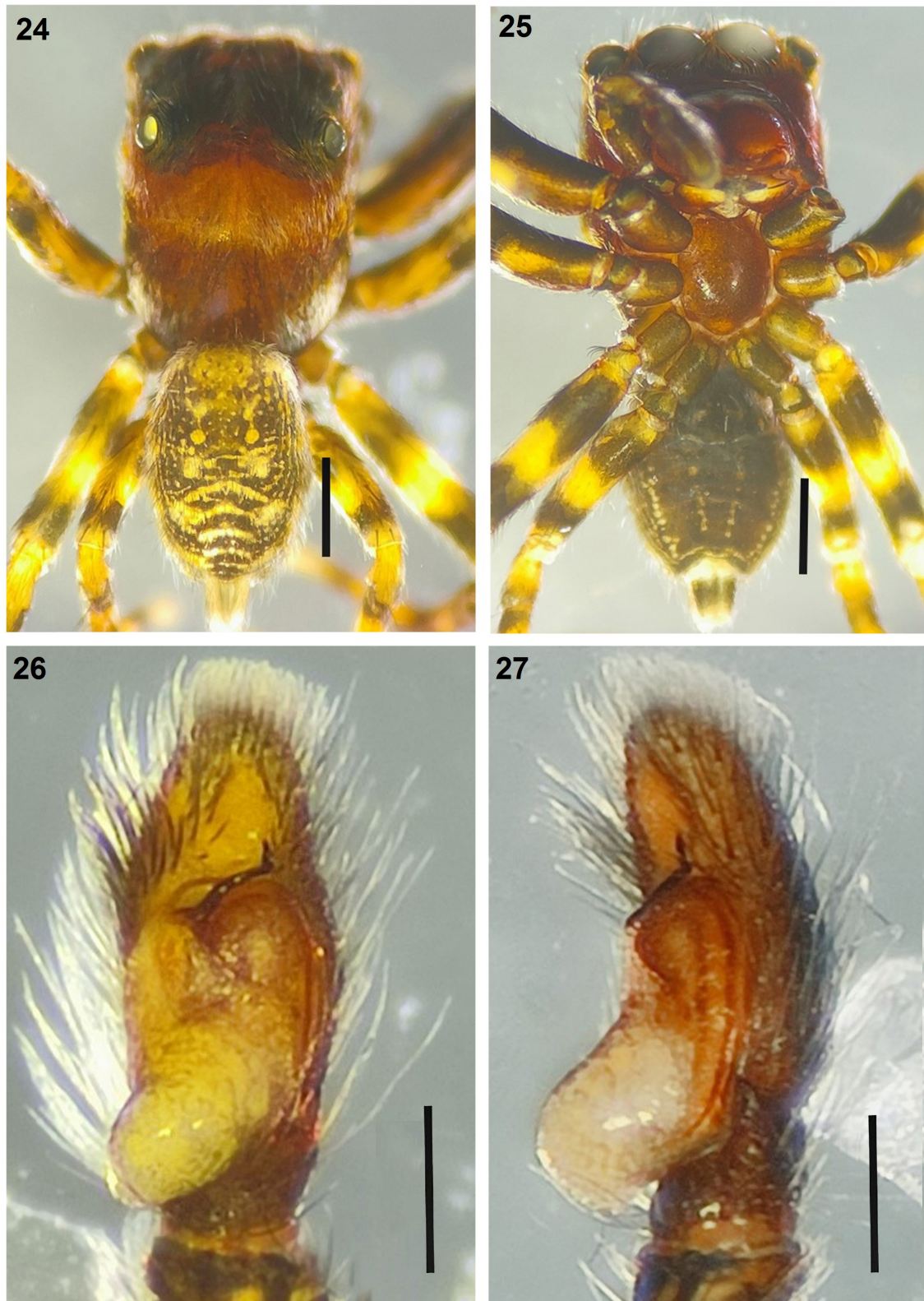
Habrocestum sahyadri sp. nov.

[urn:lsid:zoobank.org:act:71B97C85-5C98-4781-811A-5EB36A4FAF19](https://zoobank.org/act:71B97C85-5C98-4781-811A-5EB36A4FAF19)

Figs 24–35

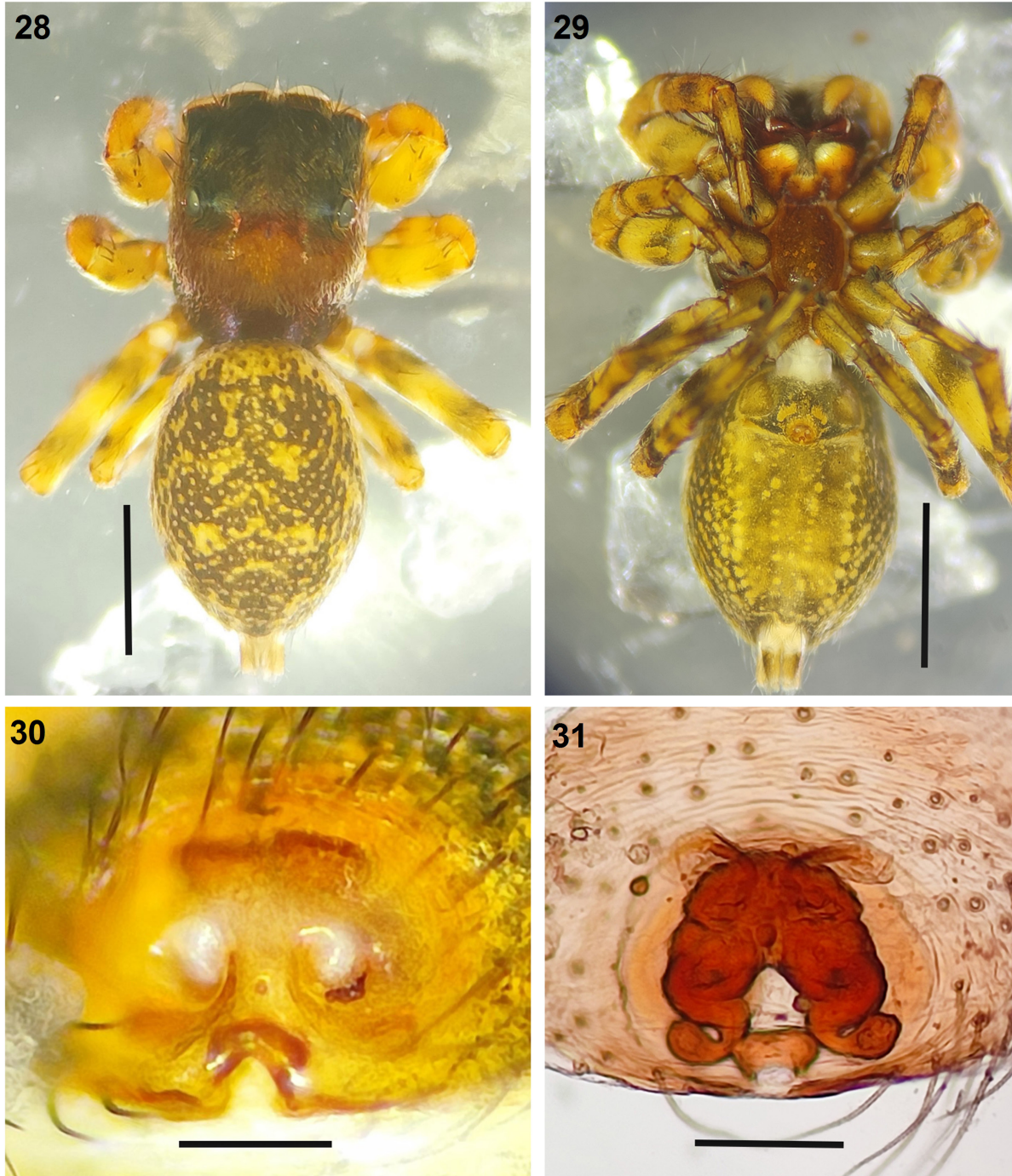
Diagnosis

The male of *H. sahyadri* sp. nov. is very similar to *H. liptoni* Kanesharatnam & Benjamin, 2020 and can be distinguished by the narrow embolus directed at 1 o'clock position (vs broad, flattened and directed at 11 o'clock position), well developed posterior rounded bulbal process (vs irregular) and RTA with broad base, triangular (vs RTA narrow) (cf. Figs 26–27, 32–33; Kanesharatnam & Benjamin 2020: figs 1d, 3a,



Figs 24–27. *Habrocestum sahyadri* sp. nov., holotype, ♂ (KUDZ 2023.VI.23a). **24–25.** Habitus. **24.** Dorsal view. **25.** Ventral view. **26–27.** Left palp. **26.** Ventral view. **27.** Retrolateral view. Scale bars: 24–25=0.6 mm; 26–27=0.2 mm.

1c–e, 3a–b). The female of *H. sahyadri* is very similar to that of *H. dubium* Wesolowska & van Harten, 2002, but can be distinguished by the placement of the copulatory openings, placed mid-laterally (vs placed posteriorly), copulatory duct wide (vs narrow) (cf. Figs 30–31, 34–35; Wesolowska & van Harten 2002: figs 11–13).



Figs 28–31. *Habrocestum sahyadri* sp. nov., paratype, ♀ (KUDZ 2023.VI.23b). **28–29.** Habitus. **28.** Dorsal view. **29.** Ventral view. **30.** Intact epigyne, ventral view. **31.** Vulva, dorsal view. Scale bars: 28–29=1 mm; 30–31=0.2 mm.

Etymology

The specific epithet refers to the Sanskrit word for the Western Ghats, from where the species was collected.

Type material

Holotype

INDIA • ♂; Kerala, Kulathupuzha, Pandimotta, Shendurney Wildlife Sanctuary; 8.827582° N, 77.217172° E; 1235 m a.s.l.; 11 May 2022; A. Asima leg.; from ground, by hand; KUDZ 2023.VI.23a.

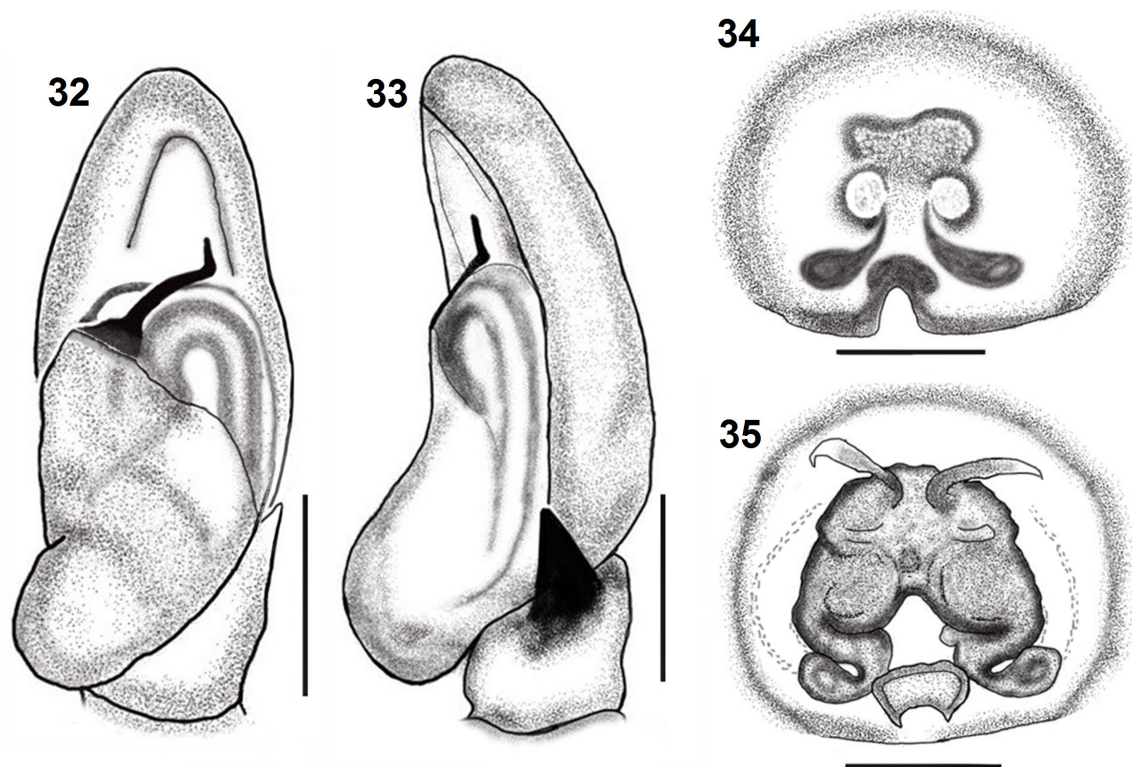
Paratype

INDIA • 4 ♀♀; same collection data as for holotype; 25 Apr. 2023; KUDZ 2023.VI.23b to KUDZ 2023.VI.23e.

Description

Male (holotype, KUDZ 2023.VI.23a; Figs 24–27, 32–33)

GENERAL MORPHOLOGY. Carapace brown with black eye field, sparsely covered with light hairs (Fig. 24). Anterior eyes surrounded with reddish-orange orbital setae. Clypeus black. Chelicerae reddish brown; promargin with two closely spaced teeth; retromargin with single bifurcated tooth. Sternum dark brown. Legs I–IV yellow brown with black annulations near joints (Figs 24–25). Femur I–IV sparsely covered with white hairs. Abdomen oval, dorsum brownish with chevron shaped markings (Fig. 24). Venter



Figs 32–35. *Habrocestum sahyadri* sp. nov. **32–33.** Holotype, ♂ (KUDZ 2023.VI.23a). **34–35.** Paratype, ♀ (KUDZ 2023.VI.23b). **32–33.** Left palp. **32.** Ventral view. **33.** Retrolateral view. **34.** Epigyne, ventral view. **35.** Vulva, dorsal view. Scale bars = 0.2 mm.

dark brown (Fig. 25). Spinnerets yellow in dorsal view and with dark brown patches in ventral view (Figs 24–25).

MEASUREMENTS. Body length 3.50; carapace 2.00 long, 2.53 wide; abdomen 1.50 long, 1.21 wide. Eye sizes and interdistances: AME 0.49, ALE 0.30, PME 0.041, PLE 0.20; AME-AME 0.04, AME-ALE 0.07, PME-PME 0.10, PME-PLE 0.13, PLE-PLE 0.97. Clypeus height at AME 0.20, at ALE 0.82. Measurement of palp and legs: palp 1.76 (0.38, 0.32, 0.17, 0.89), I 3.45 (1.03, 0.45, 0.80, 0.67, 0.50), II 3.15 (1.00, 0.40, 0.66, 0.50, 0.59), III 3.79 (1.19, 0.43, 1.00, 0.65, 0.52), IV 3.98 (1.38, 0.30, 0.81, 0.98, 0.51). Leg formula 4312.

PALP (Figs 26–27, 32–33). Yellowish with dark brown femur, patella, tibia and cymbium; RTA short and hook shaped with pointed tip; cymbium short with broad anterior end, covered with dark hairs dorsally and white hairs prolaterally (Figs 26–27); tegulum long with well-developed proximal lobe, oval bulbus, part of sperm duct is clearly visible at distal tegular region, apicomedial tegular lobe present near base of embolus; embolus long, originate from under tegular ledge, directed above sperm duct and then curved towards the cymbial groove.

Female (Paratype, KUDZ 2023.VI.23b; Figs 28–29, 34–35)

GENERAL MORPHOLOGY. Similar to male in colour except having venter yellowish brown (Figs 28–29).

MEASUREMENTS. Body length 5.13; carapace 2.76 long, 2.00 wide; abdomen 2.37 long, 2.30 wide. Eye sizes and interdistances: AME 0.82, ALE 0.48, PME 0.12, PLE 0.40; AME-AME 0.09, AME-ALE 0.07, PME-PME 2.17, PME-PLE 0.40, PLE-PLE 1.96. Clypeus height at AME 0.27, ALE 0.76. Measurements of palp and legs: palp 3.94 (1.38, 0.82, 0.73, 1.01), I 4.46 (1.32, 0.88, 1.00, 0.76, 0.50), II 8.03 (2.54, 1.62, 1.68, 1.21, 0.98), III 9.10 (3.30, 1.55, 1.83, 1.70, 0.72), IV 8.15 (2.53, 1.18, 1.70, 1.78, 0.96).

COPULATORY ORGAN (Figs 30–31, 34–35). Moderately sclerotized; initial portion of copulatory ducts membranous, joins at posterior region of spermathecae; long, multi-chambered spermathecae with thick walls; fertilization duct arise from anterior end of spermathecae, diverging from each other.

Distribution

Known only from the type locality.

Genus *Irura* Peckham & Peckham, 1901

Irura shendurney sp. nov.

[urn:lsid:zoobank.org:act:27627C82-1031-459E-AF9E-8EC30CA494A3](https://zoobank.org/act:27627C82-1031-459E-AF9E-8EC30CA494A3)

Figs 36–39, 43–45

Diagnosis

Irura shendurney sp. nov. is similar to *I. bidenticulata* Guo, Zhang & Zhu, 2011, but can be distinguished by the relatively longer embolus arising at 9 o'clock position (vs 11 o'clock position); conical RTA in retrolateral view (vs subquadrate) and relatively shorter retrolateral cymbial process (vs curved and longer) (cf. Figs 39–45; Guo *et al.* 2011: figs 8–10; Logunov 2022: figs 7–8). The new species is also similar to *I. uniprocessa* Mi & Wang, 2016, but can be distinguished by the presence of palpal tibia with membranous RTA (vs palpal tibia without distinct apophysis); basal cymbial process broad and triangular, directed ventrad in retrolateral view (vs narrow and finger-like directed dorsally) (cf. Figs 39–45; Mi & Wang 2016: figs 1c–e, 2a–b).

Etymology

The specific epithet refers to the Shendurney Wildlife Sanctuary from where the species was collected.



Figs 36–42. *Irura shendurney* sp. nov., holotype, ♂ (KUDZ 2022.VI.20). **36–38.** Habitus. **36.** Dorsal view. **37.** Ventral view. **38.** Front view. **39.** Bulb and embolus, ventral view. **40–42.** Left palp. **40.** Ventral view. **41.** Retrolateral view. **42.** Dorsal view. Scale bars: 36–37=1 mm; 38=0.8 mm; 40–42=0.5 mm. Note: The bulb has rotated clockwise from its original place. Red arrow indicates the retro-dorsal extension on the palpal tibia.

Type material

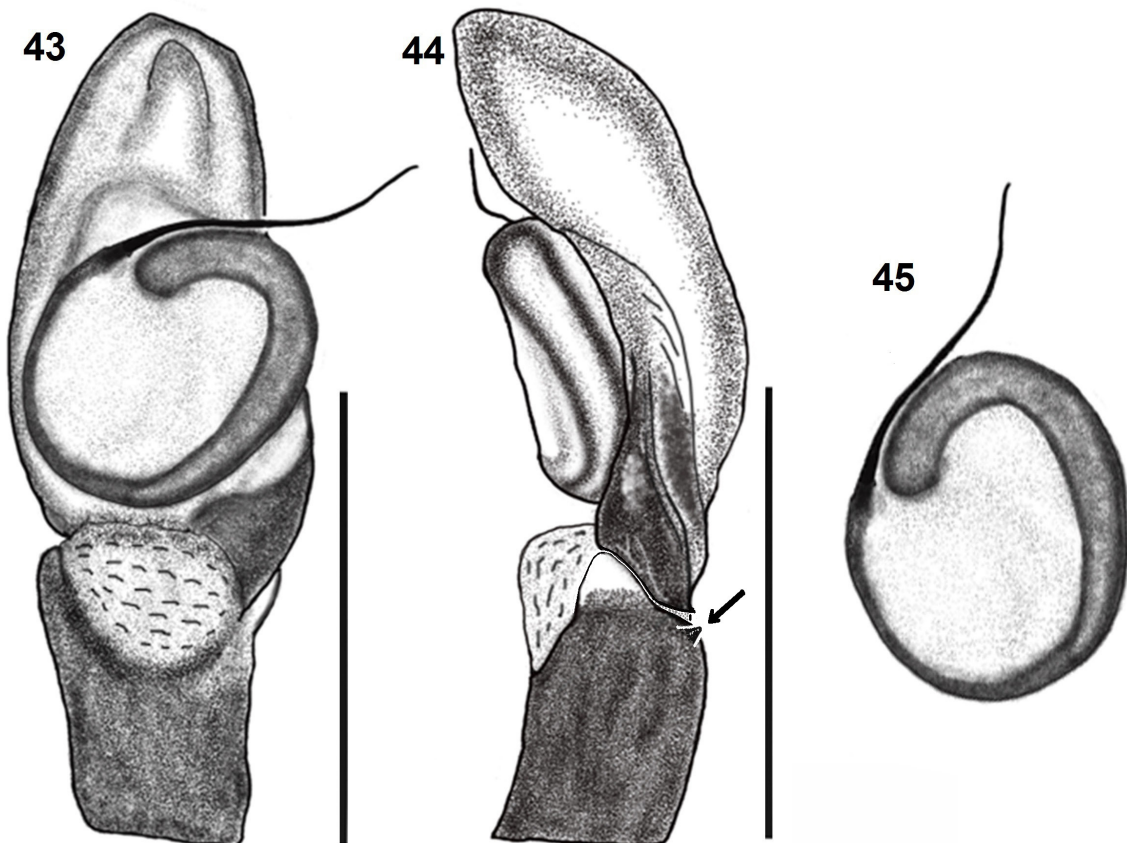
Holotype

INDIA • ♂; Kerala, Kulathoopuzha, Kallar, Shendurney Wildlife Sanctuary; 8.913028° N, 77.102833° E; 1235 m a.s.l.; 10 Nov. 2022; A. Asima leg.; from vegetation, by beating; KUDZ 2022.VI.20.

Description

Male (Holotype, KUDZ 2022.VI.20; Figs 36–45)

GENERAL MORPHOLOGY. Carapace brown, covered with metallic pink recumbent scales; square, pair of black patches behind AMEs (Fig. 36); anterior eyes covered with yellowish brown orbital setae; black colour around eyes except AMEs. Clypeus covered with dense white hairs; outer rim of carapace with row of white scales (Fig. 38). Sternum yellowish brown. Labium and endites reddish brown (Fig. 37). Chelicerae reddish brownish. Leg I robust and longer than rest, brownish red, covered with black and white hairs; legs II–IV coxae, trochanter and femora brownish red, remaining segments yellow with brown annulations near joints, sparsely covered with black and white hair. Abdomen oval, flat; dorsum brown with yellowish orange markings, covered sparsely with metallic green recumbent scales; patch of pinkish scales present mid anterior region followed by three pairs posteriorly (Fig. 36). Venter dark brown with lateral creamy white longitudinal stripes. Spinnerets brown (Fig. 37).



Figs 43–45. *Irura shendurney* sp. nov., holotype, ♂ (KUDZ 2022.VI.20). **43–44.** Left palp. **43.** Ventral view. **44.** Retrolateral view. **45.** Bulb and embolus, ventral view. Scale bars: 43–44=0.5 mm. Arrow indicates the retro-dorsal extension on the palpal tibia.

MEASUREMENTS. Body length 4.20. Carapace 2.00 long, 2.37 wide. Abdomen 2.20 long, 1.80 wide. Eye diameter and interdistances. AME 0.42, ALE 0.26, PME 0.13, PLE 0.21; AME-AME 0.05, AME-ALE 0.07, PME-PME 0.16, PME- PLE 0.11. Measurement of palp and legs: palp 2.18 (0.81, 0.34, 0.42, 0.61), I 5.06 (1.50, 1.00, 1.04, 0.80, 0.72), II 3.20 (1.18, 0.50, 0.61, 0.50, 0.41), III 3.00 (1.00, 0.36, 0.58, 0.48, 0.58), IV 3.29 (1.04, 0.44, 0.92, 0.50, 0.39). Leg formula 1423.

PALP (Figs 39–45). Reddish brown; ventro-distal portion of tibia with membranous area; cymbium with retrolateral ledge extended, with large, conical basal cymbial process; tibia with membranous RTA; short, conical, spine-like retro-dorsal extension present just beyond RTA (Figs 41, 44); tegulum flat and oval; tegular lobe absent; sperm duct clearly visible; embolus thin, long, originates at about 9 o'clock position.

Female

Unknown.

Distribution

Known only from the type locality.

Genus *Phintella* Strand, 1906

Phintella accentifera (Simon, 1901)

Figs 46–49, 52–56, 59–62

Telamonia accentifera Simon, 1901: 548 (D♂). — Prószyński 1978: 336, fig. 7.

Phintella accentifera – Prószyński 1984: 156 (♂♀).

Diagnosis

The species can be recognized by the short simple spine-like embolus; triangular lamellar process and conical RTA bent at the tip. Females can be readily distinguished by the placement of copulatory openings which are closely placed to each other (Figs 52–56, 59–62).

Material examined

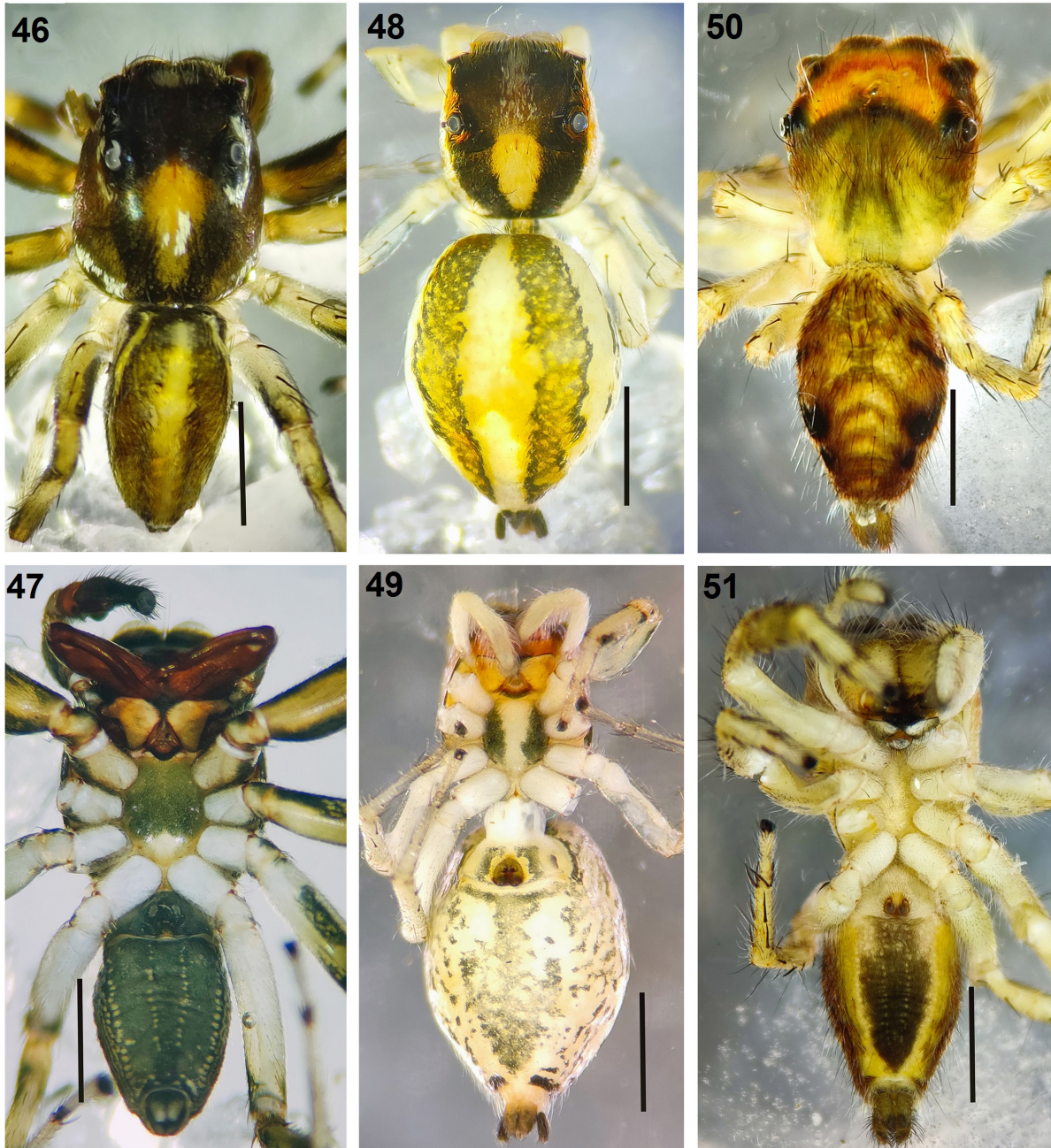
INDIA • 1 ♂; Kerala, Kulathoopuzha, Pandimotta, Shendurney Wildlife Sanctuary; 8.827582° N, 77.217172° E; 1235 m a.s.l.; 11 May 2022; A. Asima leg.; from ground, by hand; KUDZ 2022.VI.20a • 2 ♀♀; same collection data as for preceding; KUDZ 2022.VI.20b to KUDZ 2022.VI.20c.

Description

Male (KUDZ 2022.VI.20a; Figs 46–47, 52–53, 59–60)

GENERAL MORPHOLOGY. Carapace brown with patch of white scales laterally and behind fovea; black longitudinal band behind each PLEs (Fig. 46). Anterior eyes surrounded by white orbital setae. Eye field dark, decorated with white band on anterior margin of prosoma behind AME; bracket-shaped white scales lateral to PLEs. Lateral sides of prosoma with white belts. Clypeus brown with white hairs at margin. Chelicerae light brown. Sternum oval, cream with black patch. Legs I–IV light yellow with black annulations. Abdomen moderately long and slightly narrower than prosoma, tapering posteriorly, dorsum brownish with pale yellow median band delimited by narrow yellow lateral bands extending longitudinally from anterior to posterior end (Fig. 46). Venter brownish (Fig. 47). Spinnerets black (Figs 46–47).

MEASUREMENTS. Body length 2.84; prosoma 1.37 long, 1.30 wide; abdomen 1.47 long, 0.80 wide. Eye sizes and inter distances: AME 0.32, ALE 0.14, PME 0.09, PLE 0.02; AME-AME 0.02, AME-ALE 0.03, PME-PME 0.74, PME-PLE 0.18, PLE-PLE 0.93. Clypeus height at AME 0.08, at ALE 0.33. Measurement of palp and legs: palp 2.77 (0.73, 0.62, 0.40, 1.02) I 6.19 (1.77, 0.90, 1.77, 1.07, 0.68), II 4.94 (1.41, 0.34, 1.56, 1.00, 0.63), III 5.33 (1.62, 0.57, 1.12, 1.38, 0.64), IV 5.39 (1.66, 0.51, 1.30, 1.42, 0.50).



Figs 46–51. 46–47. *Phintella accentifera*, (Simon, 1901), ♂ (KUDZ 2022.VI.20a). 48–49. *Phintella accentifera* (Simon, 1901), ♀ (KUDZ 2022.VI.20b). 50–51. *Vailimia jharbari* Basumatary, Caleb & Das, 2020, ♀ (KUDZ 2022.VI.21). 46–47. Habitus. 46. Dorsal view. 47. Ventral view. 48–51. Habitus. 48, 50. Dorsal view. 49, 51. Ventral view. Scale bars=0.7 mm.

PALP (Figs 52–53, 59–60). Dark brown femur, patella, tibia, and cymbium; tibia short, RTA small, claw-like, curving inwards at tip; cymbium long, narrowing towards apex, covered with dark hairs dorsally and prolateral; tegulum long with long posterior lobe; embolus beak-like arising at 10 to 11 o'clock position, curving apically at 12 o'clock position, tapering toward tip; embolus accompanied with broad and flat lamellar process; sperm duct clearly visible at shoulder of tegulum.

Female (KUDZ 2022.VI.20b; Figs 48–49, 54–56, 61–62)

GENERAL MORPHOLOGY. Carapace creamy yellow with patch of white scales above fovea; black longitudinal dark band behind each PLEs (Fig. 48). Anterior eyes surrounded by white orbital setae. Eye field dark. Clypeus yellow with white hairs at margin. Chelicerae yellow. Sternum oval, creamy white with black patches on laterally (Fig. 49). Legs I–IV creamy white. Abdomen wide, tapering posteriorly, dorsum creamy yellow with two submarginal broad streaks with dark scales along edges (Fig. 48). Venter creamy



Figs 52–58. 52–53. *Phintella accentifera* (Simon, 1901), ♂ (KUDZ 2022.VI.20a). 54–56. *Phintella accentifera* (Simon, 1901), ♀ (KUDZ 2022.VI.20b). 57–58. *Vailimia jharbari* Basumatary, Caleb & Das, 2020. 52–53. Left palp. 52. Ventral view. 53. Retrolateral view. 54–55, 57. Epigyne, ventral view. 56, 58. Vulva, dorsal view. Scale bars: 52–53 = 0.35 mm; 54–58 = 0.2 mm.

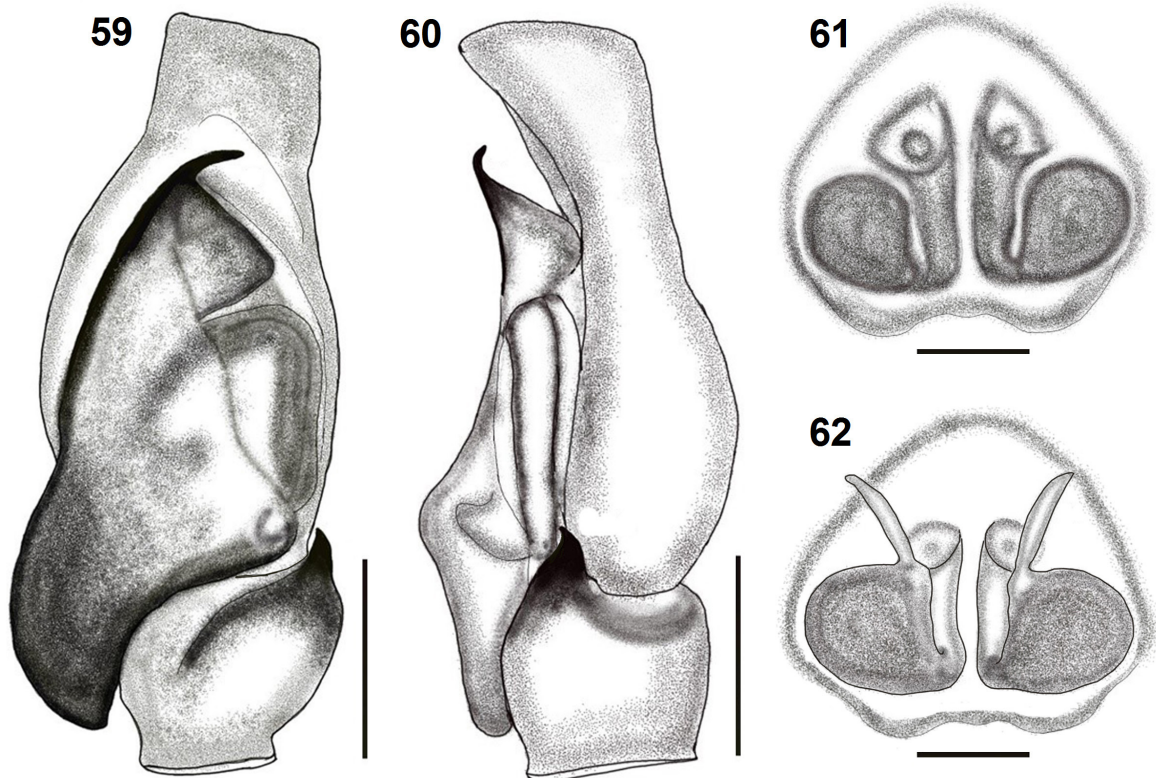
white with irregularly arranged dark patches (Fig. 49). Posterior spinnerets greyish, anterior spinnerets yellowish brown with distinct pair of dark wedge-shaped lines above spinnerets (Fig. 49).

MEASUREMENTS. Body length 3; prosoma 1.25 long, 0.96 wide; abdomen 1.75 long, 1.28 wide. Eye sizes and inter distances: AME 0.26, ALE 0.13, PME 0.01, PLE 0.10; AME-AME 0.02, AME-ALE 0.03, PME-PME 0.64, PME-PLE 0.14, PLE-PLE 0.65. Clypeus height at AME 0.03, at ALE 0.18. Leg measurements: I 3.1 (1.01, 0.41, 0.74, 0.51, 0.43), II 2.9 (1.01, 0.30, 0.76, 0.43, 0.40), III 3.78 (1.18, 0.47, 0.81, 0.90, 0.42), IV 4.28 (1.32, 0.52, 1.00, 1.01, 0.43).

COPULATORY ORGAN (Figs 54–56, 61–62). Copulatory openings antero-medially placed, copulatory ducts broad, tubular and straight; spermathecae oval, conical, fertilization duct originates from anterior part of spermathecae, diverging from each other.

Distribution

India: Tamil Nadu (Simon 1901) and Kerala (present study). The species was originally described from Tamil Nadu (Simon 1901). The specimens identified as *P. accentifera* from Northeast India, China and Vietnam were misidentified and have been assigned to a different species by Sudhin *et al.* (2024). *P. accentifera* is thus known only from southern India.



Figs 59–62. *Phintella accentifera* (Simon, 1901). **59–60.** ♂ (KUDZ 2022.VI.20a), left male palp. **59.** Ventral view. **60.** Retrolateral view. **61.** ♀ (KUDZ 2022.VI.20b), epigyne, ventral view. **62.** ♀ (KUDZ 2022.VI.20b), vulva, dorsal view. Scale bars: 59– 60=0.35 mm; 61–62=0.1 mm.

Genus *Vailimia* Kammerer, 2006

Vailimia jharbari Basumatary, Caleb & Das, 2020
Figs 50–51, 57–58

Vailimia jharbari Basumatary, Caleb & Das, 2020 in Basumatary *et al.* 2020: figs 12–27.

Material examined

INDIA • 1 ♀; Kerala, Kulathoopuzha, Kallar, Shendurney Wildlife Sanctuary; 8.915889° N, 77.102278° E; 146 m a.s.l.; 2 Dec. 2021; A. Asima leg.; from vegetation, by beating; KUDZ 2022.VI.21.

Description

For detailed description and diagnosis, see Basumatary *et al.* (2020).

Distribution

Assam (Basumatary *et al.* 2020) and Kerala (new record).

Discussion

The salticid fauna of the Western Ghats (WG) unfolds a rich diversity nestled within this biodiverse region. Recent studies have added many new discoveries of salticids from the WG in Kerala (e.g., Sebastian *et al.* 2015; Sudhin *et al.* 2017; 2019a, 2019b; 2021; 2022; 2023; Asima *et al.* 2022; 2023a, 2023b; Jose & Sudhikumar 2022). The present study adds five more species of jumping spiders to the diversity of the Shendurney Wildlife Sanctuary: *Habrocestum sahyadri* sp. nov., *Gelotia lanka* Wijesinghe, 1991, *Irura shendurney* sp. nov., *Phintella accentifera* (Simon, 1901), and *Vailimia jharbari* Basumatary, Caleb & Das, 2020. The genera *Irura* and *Vailimia* are represented for the first time in Kerala. *Phintella accentifera* known earlier from Tamil Nadu State is recorded for the first time in Kerala. Further explorations and research into the salticid fauna of the Western Ghats promises to unravel more species, which will add to our understanding of their diversity. This knowledge will be useful to undertake conservation measures by governmental bodies to ensure the continued existence of these remarkable species within the fragile ecosystem of the WG.

Acknowledgements

We thank the Council of Scientific and Industrial Research (CSIR), New Delhi, for providing funding support as Senior Research Fellowship to the first author. Thanks to the Chief Wildlife Warden of Kerala for issuing the collecting permit (KFDHQ-2846/2020-CWW/WL10) and the Wildlife warden and field watchers of the Shendurney Wildlife Sanctuary for their support. Merin Elizabeth George, Muhammad Suhail, Rahul Krishnan and Christopher John Isaac are thanked for their assistance during the field collection. Our sincere thanks go to the two anonymous reviewers and the Section editor, Dr Arnaud Henrard for the constructive suggestions which improved the manuscript.

References

- Asima A., Caleb J.T.D., Babu N. & Prasad G. 2022. Two new species of *Habrocestum* Simon, 1876 (Araneae: Salticidae: Hasariini) from Western Ghats, India. *Arthropoda Selecta* 31 (3): 305–311. <https://doi.org/10.15298/arthsel.31.3.06>
- Asima A., Caleb J.T.D. & Prasad G. 2023a. A new species of *Thiania* C.L. Koch, 1846 from the Western Ghats, India (Araneae: Salticidae: Euophryini). *Arachnology* 19 (4): 699–701. <https://doi.org/10.13156/arac.2023.19.4.699>

- Asima A., Caleb J.T.D. & Prasad G. 2023b. A new species of *Pancorius* Simon, 1902 (Araneae: Salticidae) from the Western Ghats, India. *Arachnology* 19(6): 931–935. <https://doi.org/10.13156/ arac.2023.19.6.931>
- Basumatary P., Caleb J.T.D., Das S., Jangid A.K., Kalita J. & Brahma D. 2020. First record of the genus *Vailimia* Kammerer, 2006 from India, with the description of two new species (Araneae: Salticidae: Plexippina). *Zootaxa* 4790 (1): 178–186. <https://doi.org/10.11646/zootaxa.4790.1.11>
- Caleb J.T.D. & Sankaran P.M. 2024. *Araneae of India. Version 2023*. Available from <https://www.indianspiders.in> [accessed 23 Apr. 2024].
- Jose A. & Sudhikumar A.V. 2022. A new ant mimicking spider of the genus *Toxeus* C.L. Koch, 1846 (Araneae: Salticidae: Salticinae) from the Western Ghats, India. *Peckhamia* 256.1: 1–9.
- Jose A., Tripathi R. & Sudhikumar A.V. 2023. First records of the genera *Anarrhotus* Simon, 1902 and *Gelotia* Thorell, 1890 from India (Araneae: Salticidae). *Peckhamia* 299.1: 1–7.
- Kanesharatnam N. & Benjamin S.P. 2016. Three new generic records and descriptions of four new species of jumping spiders (Araneae, Salticidae) from Sri Lanka. *European Journal of Taxonomy* 228: 1–23. <https://doi.org/10.5852/ejt.2016.228>
- Kunte K., Joglekar A., Ghate U. & Padmanabhan P. 1999. Patterns of butterfly, bird and tree diversity in the Western Ghats. *Current Science* 77: 577–586.
- Metzner H. 2024. Jumping spiders (Arachnida: Araneae: Salticidae) of the world. Available from <https://www.jumping-spiders.com> [accessed 23 Apr. 2024].
- Mi X.Q. & Wang C. 2016. A new species of *Irura* Peckham & Peckham, 1901 (Araneae: Salticidae) from Yunnan Province, China. *Sichuan Journal of Zoology* 35 (3): 400–403.
- Myers N., Mittermeier R.A., Mittermeier C.G., Da Fonseca G.A. & Kent J. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853–858. <https://doi.org/10.1038/35002501>
- Prószyński J. 1984. Atlas rysunków diagnostycznych mniej znanych Salticidae (Araneae). *Zeszyty Naukowe Wyższej Szkoły Rolniczo-Pedagogicznej w Siedlcach* 2: 1–177
- Sankaran P.M., Malamel J.J., Joseph M.M. & Sebastian P.A. 2019. New species of *Habrocestum* Simon, 1876 and a redescription of *Curubis tetrica* Simon, 1902 (Araneae: Salticidae: Salticinae: Hasariini) from India. *Journal of Natural History*: 53 (1–2): 1–15. <https://doi.org/10.1080/00222933.2019.1567856>
- Sebastian P.A., Sankaran P.M., Malamel J.J. & Joseph M.M. 2015. Description of new species of *Stenaelurillus* Simon, 1886 from the Western Ghats of India with the redescription of *Stenaelurillus lesserti* Reimoser, 1934 and notes on mating plug in the genus (Arachnida, Araneae, Salticidae). *ZooKeys* 491: 63–78. <https://doi.org/10.3897/zookeys.491.8218>
- Sen S. & Sureshan P.M. 2020. Arachnida: Araneae. In: Chandra K., Raghunathan C., Sureshan P.M., Subramanian K.A. & Rizvi A.N. (eds) *Faunal Diversity of Biogeographic Zones of India: Western Ghats*: 141–158. Zoological Survey of India, Kolkata.
- Sudhin P.P., Nafin K.S. & Sudhikumar A.V. 2017. Revision of *Hindumanes* Logunov, 2004 (Araneae: Salticidae: Lyssomaninae), with description of a new species from the Western Ghats of Kerala, India. *Zootaxa* 4350 (2): 317–330. <https://doi.org/10.11646/zootaxa.4350.2.7>
- Sudhin P.P., Nafin K.S., Sumesh N.V. & Sudhikumar A.V. 2019a. A new spider species of the genus *Cocalus* C.L. Koch, 1846 (Araneae: Salticidae: Spartaeinae) from Western Ghats of India. *Arthropoda Selecta* 28 (1): 125–130. <https://doi.org/10.15298/arthsels.28.1.10>
- Sudhin P.P., Nafin K.S., Benjamin S.P. & Sudhikumar A.V. 2019b. Two new species of the genus *Marengo* Peckham et Peckham, 1892 (Araneae: Salticidae) from Western Ghats of India. *Arthropoda Selecta* 28 (3): 435–444. <https://doi.org/10.15298/arthsels.28.3.08>

- Sudhin P.P., Nafin K.S., Caleb J.T.D. & Sudhikumar A.V. 2021. A new spider species of the genus *Carrhotus* Thorell, 1891 (Aranei: Salticidae: Salticini) from Western Ghats of India. *Arthropoda Selecta* 30 (4): 551–556. <https://doi.org/10.15298/arthsel.30.4.11>
- Sudhin P.P., Sen S., Caleb J.T.D. & Hegde V.D. 2022a. New species of *Cocalus* C.L. Koch, 1846 and *Habrocestum* Simon, 1876 (Araneae: Salticidae) from the south Western Ghats of India. *Arthropoda Selecta* 31: 486–492. <https://doi.org/10.15298/arthsel.31.4.09>
- Sudhin P.P., Nafin K.S., Tripathi R., Jangid A.K., Prajapati D.A., Siliwal M. & Sudhikumar A.V. 2022b. Description of two new species of the genus *Afraflacilla* Berland et Millot, 1941 (Araneae: Salticidae) from India. *Arthropoda Selecta* 31 (3): 326–334. <https://doi.org/10.15298/arthsel.31.3.09>
- Sudhin P.P., Sen S. & Caleb J.T.D. 2023. A new spider species of the genus *Colopsus* Simon, 1902 (Araneae: Salticidae) from the Western Ghats of India. *Revue Suisse de Zoologie* 130 (2): 285–289. <https://doi.org/10.35929/RSZ.0102>
- Sudhin P.P., Caleb J.T.D. & Sen S. 2024. Additions to the knowledge on the genus *Phintella* Strand, 1906 (Araneae, Salticidae, Chrysillini) from India. *Zoosystematics and Evolution* 100 (1): 31–48. <https://doi.org/10.3897/zse.100.113049>
- Sudhin P.P. & Sen S. 2023. Spiders (Arachnida: Araneae) of the Shendurney Wildlife Sanctuary, Kerala, India. *Records of the Zoological Survey of India* 123 (iS2): 419–429.
- Wijesinghe D.P. 1991. A new species of *Gelotia* (Araneae: Salticidae) from Sri Lanka. *Journal of the New York entomological Society* 99: 274–277.
- Wesołowska W. & Harten A. van. 2002. Contribution to the knowledge of the Salticidae (Araneae) of the Socotra Archipelago, Yemen. *Fauna of Arabia* 19: 369–389.

Manuscript received: 11 December 2023

Manuscript accepted: 19 Feb. 2024

Published on: 10 May 2024

Topic editor: Magalie Castelin

Section editor: Arnaud Henrard

Desk editor: Eva-Maria Levermann

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