



Three new species of the sac spider genus *Clubiona* Latreille, 1804 from the Yintiaoling Nature Reserve, Chongqing, China


XIANG-YUN ZHANG^{1,3}, ZHAO-YI LI^{2,4} & ZHI-SHENG ZHANG^{1,*}

¹Key Laboratory of Eco-environments in Three Gorges Reservoir Region (Ministry of Education), School of Life Sciences, Southwest University, Chongqing 400715, China.

²Key Laboratory of Zoological Systematics and Application, Hebei Basic Science Center for Biotic Interaction, College of Life Sciences, Hebei University, Baoding, Hebei 071002, China

³✉ 487963338@qq.com;  <https://orcid.org/0009-0007-1627-3360>

⁴✉ zhaoyili0204@163.com;  <https://orcid.org/0000-0001-6303-6041>

*Corresponding author: ✉ zhangzs327@qq.com;  <https://orcid.org/0000-0002-9304-1789>

Abstract

Three new species belonging to two species groups of the genus *Clubiona* Latreille, 1804 are described from the Yintiaoling Nature Reserve, Chongqing, China: *C. lui* **sp. nov.** (male) and *C. yintiaoling* **sp. nov.** (male) assigned into the *C. corticalis* species-group, *C. tricuspidata* **sp. nov.** (male, female) assigned into the *C. pallidula* species-group. Diagnoses, detailed descriptions and illustrations of these three species are provided.

Key words: new species, description, morphology, taxonomy

Introduction

The genus *Clubiona* Latreille, 1804 currently includes 531 species distributed worldwide, except for the Antarctica. Nine species from Chile, a South American country, were recorded by Nicolet (1849) with only simple description of females and without any image (World Spider Catalog 2025). *Clubiona* is the most diverse genus in the family Clubionidae and one of the most diverse spider genera (Marusik & Omelko 2018; Yu & Li 2019a, 2019b; Zhang *et al.* 2021). However, the diversity of this genus in China is still insufficiently known and new species have been described in the last few years (Li *et al.* 2023; Wu *et al.* 2023; Zhang *et al.* 2024; Guo *et al.* 2025).

This paper blends to a series dealing with the spider diversity of Yintiaoling Nature Reserve. In previous publications, two new species of Nesticidae (Wang *et al.* 2022), one new species of Segestriidae (Wang & Zhang 2022), one new genus and nine new species of Linyphiidae (Irfan *et al.* 2023) and four new species of Sparassidae (Deng *et al.* 2023) etc., have been described. Here we deal with species of *Clubiona*. There are three new species found and they are described here.

Material and methods

All specimens are preserved in 75% ethanol and were examined. Photographs and measures were taken using a Leica M205A. Palps and epigynes were examined and illustrated after they were dissected. Epigynes were removed and cleared in a pancreatin solution and then transferred to 75% ethanol for images captured (Álvarez-Padilla & Hormiga 2007). Leg measurements are shown as: total length (femur, patella, tibia, metatarsus, tarsus). All measurements are in millimetres. Specimens examined here are deposited in the School of Life Sciences, Southwest University, Chongqing, China (SWUC).

Abbreviations used in the text and figures: ALE, anterior lateral eye; AME, anterior median eye; AME–AME, the distance between AMEs; AME–ALE, the distance between AME and ALE; ALE–PLE, distance between ALE and PLE; B, bursae; C, conductor; CD, copulatory duct; CO, copulatory opening; EB, embolic base; Em, embolus;

FA, femoral apophysis; MOA, median ocular area; PA, patella apophysis; PLE, posterior lateral eye; PME, posterior median eye; PME–PLE, distance between PME and PLE; PME–PME, distance between PMEs; RTA, retrolateral tibial apophysis; S, spermathecae; SD, sperm duct; St, subtegulum; TA, tegulum apophysis; Te, tegulum; VTA, ventral tibial apophysis.

Taxonomy

Family Clubionidae Wagner, 1887

Genus *Clubiona* Latreille, 1804

Clubiona lui sp. nov.

陆氏管巢蛛

Figures 1, 2A–C, 5A

Type material. Holotype male (SWUC-T-CL-07-01), China, Chongqing, Wuxi County, Yintiaoling Nature Reserve, Linkouzi Administrative Station, 31°28'29"N, 109°52'40"E, elev. 1257 m, 24 June 2022, Q.L. Lu leg.

Paratype: 1 male, (SWUC-T-CL-07-02), with same data as for holotype.

Etymology. The specific name comes from the given name of the collector, Qianle Lu.

Diagnosis. The new species belongs to the *C. corticalis*-group. The new species is similar to *C. cochleata* Wang, Wu & Zhang, 2015 (Wang *et al.* 2015: 88, figs 15–26) in having triangular and short embolus, swollen tegulum, but differs from the latter by the tibia as long as patella (vs. tibia 3 times longer than patella), distinct sperm ducts (SD) (vs. indistinct), and conductor (C) membranous and finger-shaped (vs. non-membranous with a lateral process on its tip).

Description. Male holotype (SWUC-T-CL-07-01; Figs 1, 5A) total length 5.42. Prosoma 2.36 long, 1.85 wide; opisthosoma 2.79 long, 1.68 wide. Eye sizes and interdistances: AME 0.11, ALE 0.14, PME 0.12, PLE 0.15; AME–AME 0.06, AME–ALE 0.04, PME–PME 0.19, PME–PLE 0.13, ALE–PLE 0.06. MOA 0.32 long, anterior width 0.28, posterior width 0.43. Clypeus height 0.05. Chelicerae with 5 or 4 promarginal and 4 or 3 retromarginal teeth. Leg measurements: I 4.91 (1.46, 1.92, 0.95, 0.58); II 5.15 (1.48, 2.08, 1.00, 0.59); III 4.60 (1.35, 1.54, 1.20, 0.51); IV 6.82 (1.99, 2.25, 1.92, 0.66). Leg formula: 4213.



FIGURE 1. Photo of *Clubiona lui* sp. nov., holotype.

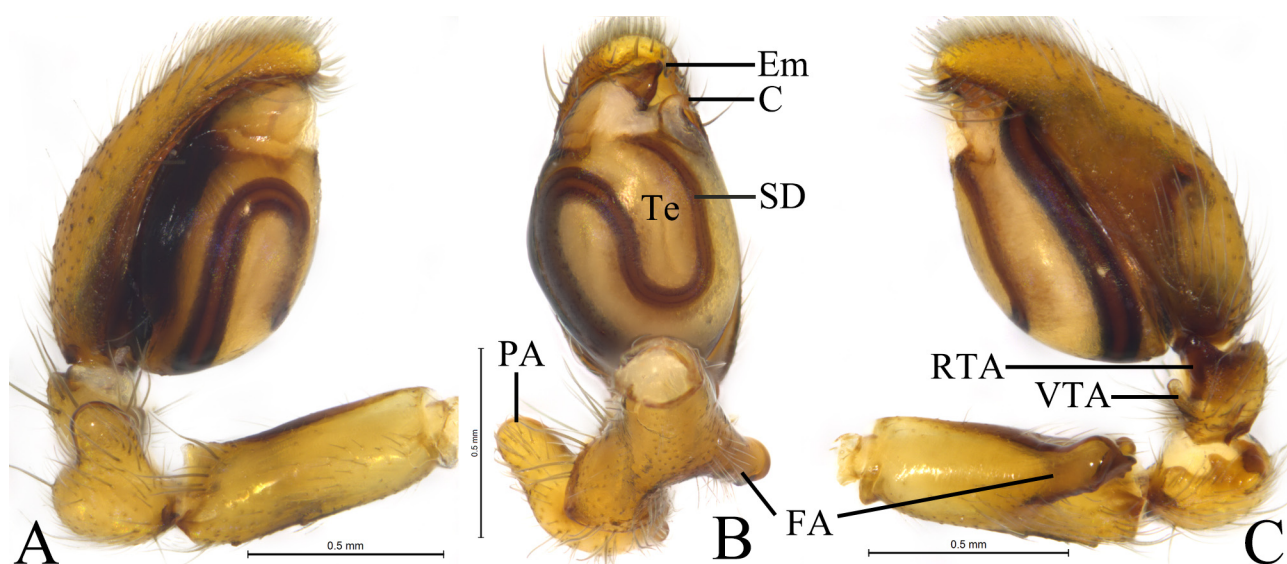


FIGURE 2. *Clubiona lui* sp. nov., holotype male. A. Left male palp, prolateral view; B. Same, ventral view; C. Same, retrolateral view.

Palp (Fig. 2). Femoral apophysis strong, 3 times longer than basal width. Patella with blunt and wide prolateral apophysis, its width about 1/2 of patellar diameter. Tibia as long as wide, with retrolateral apophysis and ventral apophysis; retrolateral tibial apophysis (RTA) short and blunt, located distally; ventral tibial apophysis (VTA) short and rod-shaped, 3 times longer than wide. Tegulum (Te) oval and relatively swollen, ca. 1.5 times longer than wide; sperm duct (SD) distinct with two strong bends. Embolus arising from tegulum distally, short and triangle. Conductor (C) short and membranous, finger-shaped, originating from anterior portion of tegulum, with approximately one-eighth the length of tegulum.

Female. Unknown.

Distribution. Known only from the type locality, Chongqing, China.

Clubiona tricuspidata sp. nov.

三尖管巢蛛

Figures 3A–F, 5B–C

Type material. Holotype male (SWUC-T-CL-08-01), China, Chongqing, Wuxi County, Yintiaoling Nature Reserve, Zhuanping Administrative Station, 31°29'56"N, 109°56'59"E, elev. 1973 m, 1 July 2022, H.L. Zhu leg.

Paratypes: 4 males and 3 females, (SWUC-T-CL-08-02~08), with same data as for holotype; 2 males (SWUC-T-CL-08-09~10), Zhuanping, 11 July 2022, H.L. Zhu leg.; 1 male (SWUC-T-CL-08-11), Lanying Administrative Station, Huangcaoping, 31°24'58"N, 109°55'24"E, elev. 2043 m, 16 July 2022, Y.X. Zhu leg.; 1 male and 1 female (SWUC-T-CL-08-12~13), Huangcaoping, 26 July 2022, Y.X. Zhu leg.

Etymology. The specific name is a Latin adjective, derived from “tri” and “cuspidatus” (meaning “three” and “pointed”), referring to the presence of three points of RTA in the retrolateral view of left male palp; adjective.

Diagnosis. The new species belongs to the *C. pallidula*-group. Males of *C. tricuspidata* sp. nov. are similar to those of *C. manshanensis* Zhu & An, 1988 (Wang *et al.* 2018: 326, figs 12C–D) in having short and arc-shaped embolus, but differs from the latter by the trifurcate retrolateral tibial apophysis (vs. C-shaped). Females of this new species resemble those of *C. mandschurica* Schenkel, 1953 (Zhu & Zhang, 2011: 363, figs 261A–B) in the general shape of epigyne, but differs from the latter by the slit-like copulatory openings (vs. roundish) and elongate-oval spermathecae (vs. nearly globular).

Description. Males total length 7.25–9.28. Male holotype (SWUC-T-CL-08-01; Fig. 5B) total length 7.25. Prosoma 3.38 long, 2.40 wide; opisthosoma 3.87 long, 1.82 wide. Eye sizes and interdistances: AME 0.19, ALE

0.19, PME 0.16, PLE 0.18; AME–AME 0.14, AME–ALE 0.09, PME–PME 0.34, PME–PLE 0.26, ALE–PLE 0.15. MOA 0.49 long, anterior width 0.49, posterior width 0.66. Clypeus height 0.05. Chelicerae with 3 promarginal and 3 retromarginal teeth. Leg measurements: I 9.23 (2.46, 3.71, 1.91, 1.15); II 9.25 (2.52, 3.58, 1.99, 1.16); III 7.74 (2.10, 2.73, 2.02, 0.89); IV 10.56 (2.67, 3.65, 3.25, 0.99). Leg formula: 4213.

Palp (Figs 3A–C). Femur and patella unmodified. Tibia short, with single retrolateral apophysis; retrolateral tibial apophysis (RTA) short, nearly as long as tibia, with three arms, prolateral and retrolateral arm arc-shaped, middle arm finger-shaped. Tegulum (Te) oval and relatively flat, ca. twice longer than wide; sperm duct (SD) distinct and sinuous; subtegulum (St) small, ca. 2/5 tegulum length, located posterior-prolaterally to tegulum. Embolic base (EB) represented by a wide and flat sclerite, situated at ca. 9–10 o'clock position of tegulum. Free part of embolus (Em) sickle-shaped, nearly as long as tegulum width, apex sharp and terminating at ca. 1 o'clock position of tegulum. Conductor (C) area relatively small, oval, with approximately three-tenths the length of tegulum.

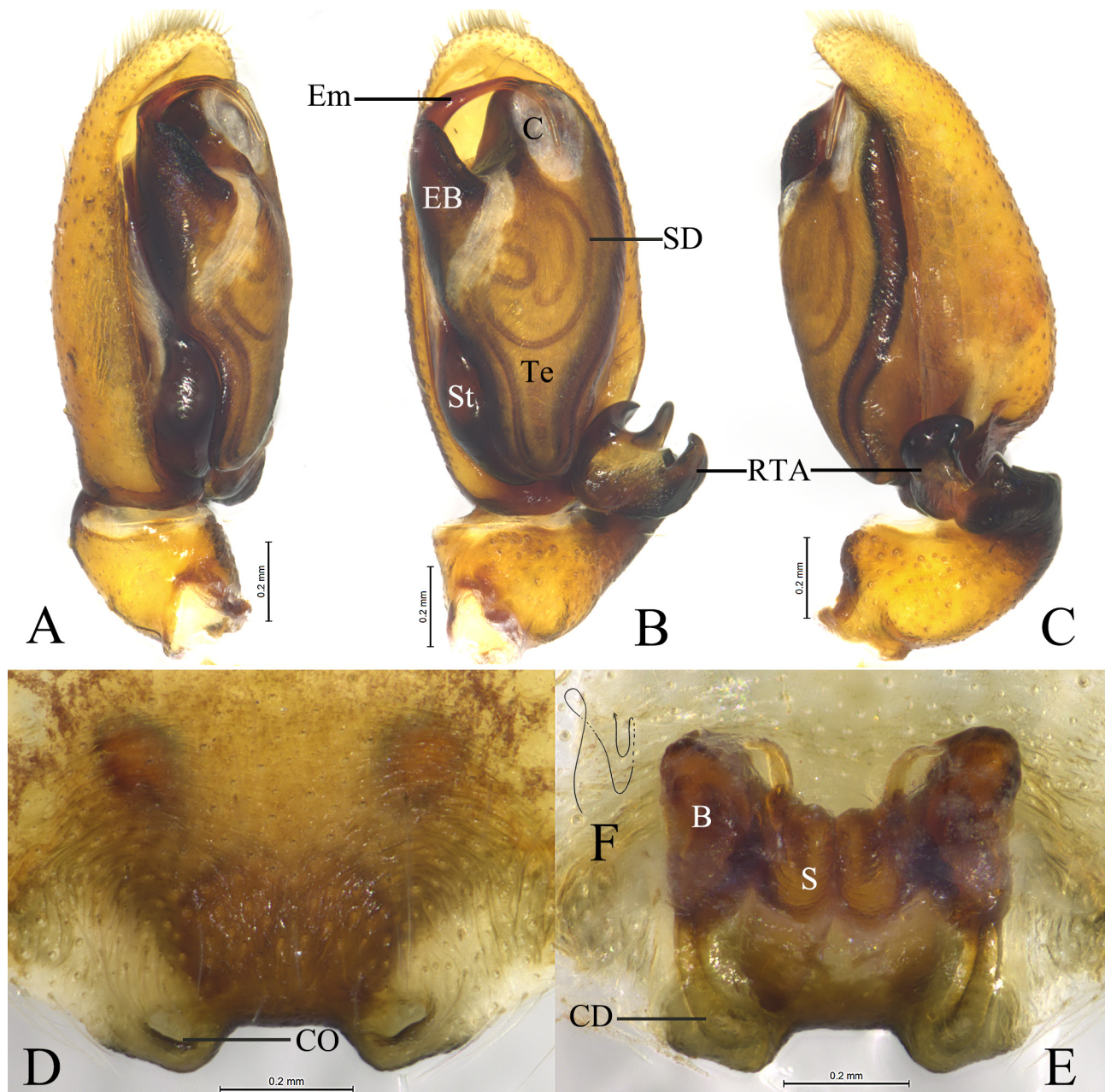


FIGURE 3. *Clubiona tricuspidata* sp. nov., holotype male (A–C) and female paratype (D–E). A. Left male palp, prolateral view; B. Same, ventral view; C. Same, retrolateral view; D. Epigyne, ventral view; E. Vulva, dorsal view; F. Schematic course of internal duct system, dorsal view.

Females total length 8.42–10.22. One female paratype (SWUC-T-CL-08-02, Fig. 5C) total length 9.70. Prosoma 4.45 long, 3.16 wide; opisthosoma 5.16 long, 3.36 wide. Eye sizes and interdistances: AME 0.19, ALE 0.22, PME 0.20, PLE 0.19; AME–AME 0.16, AME–ALE 0.19, PME–PME 0.51, PME–PLE 0.39, ALE–PLE 0.22. MOA 0.63 long, anterior width 0.59, posterior width 0.89. Clypeus height 0.11. Leg measurements: I 8.75 (2.46, 3.56, 1.72, 1.01); II 9.04 (2.55, 3.60, 1.80, 1.09); III 8.48 (2.59, 2.84, 2.12, 0.93); IV 12.03 (3.37, 4.15, 3.35, 1.16). Leg formula: 4213.

Epigyne (Figs 3D–E). Copulatory openings (CO) located posteriorly, close to epigastric furrow. Copulatory ducts (CD) short and nearly straight, ascending parallel, connecting to bursae. Spermathecae (S) elongate-oval, close together. Bursae (B) oblong and separated, 2 times longer than wide, surface membranous.

Distribution. Known only from the type locality, Chongqing, China.

Clubiona yintiaoling sp. nov.

阴条岭管巢蛛

Figures 4A–C, 5D

Type material. Holotype male (SWUC-T-CL-09-01), China, Chongqing, Wuxi County, Yintiaoling Nature Reserve, Hongqi Administrative Station, Qinglongtan, 31°30'49"N, 109°49'23"E, elev. 1155 m, 2 September 2020, Z.S. Zhang, L.Y. Wang, Y. Zhang and P. Liu leg. **Paratype:** 1 male, (SWUC-T-CL-09-02), with same data as for holotype.

Etymology. The specific name is derived from the type locality; noun in apposition.

Diagnosis. The new species belongs to the *C. corticalis*-group. It is similar to *C. kurosawai* Ono, 1986 (Zhang, Yu & Li 2021: 21, figs 3A–E) in having short retrolateral tibial apophysis and general shape of the tegulum, but differs from the latter by the retrolateral tibial apophysis hook-like (vs. T-shaped) and embolus originating ca. 8-o'clock (vs. 6-o'clock).

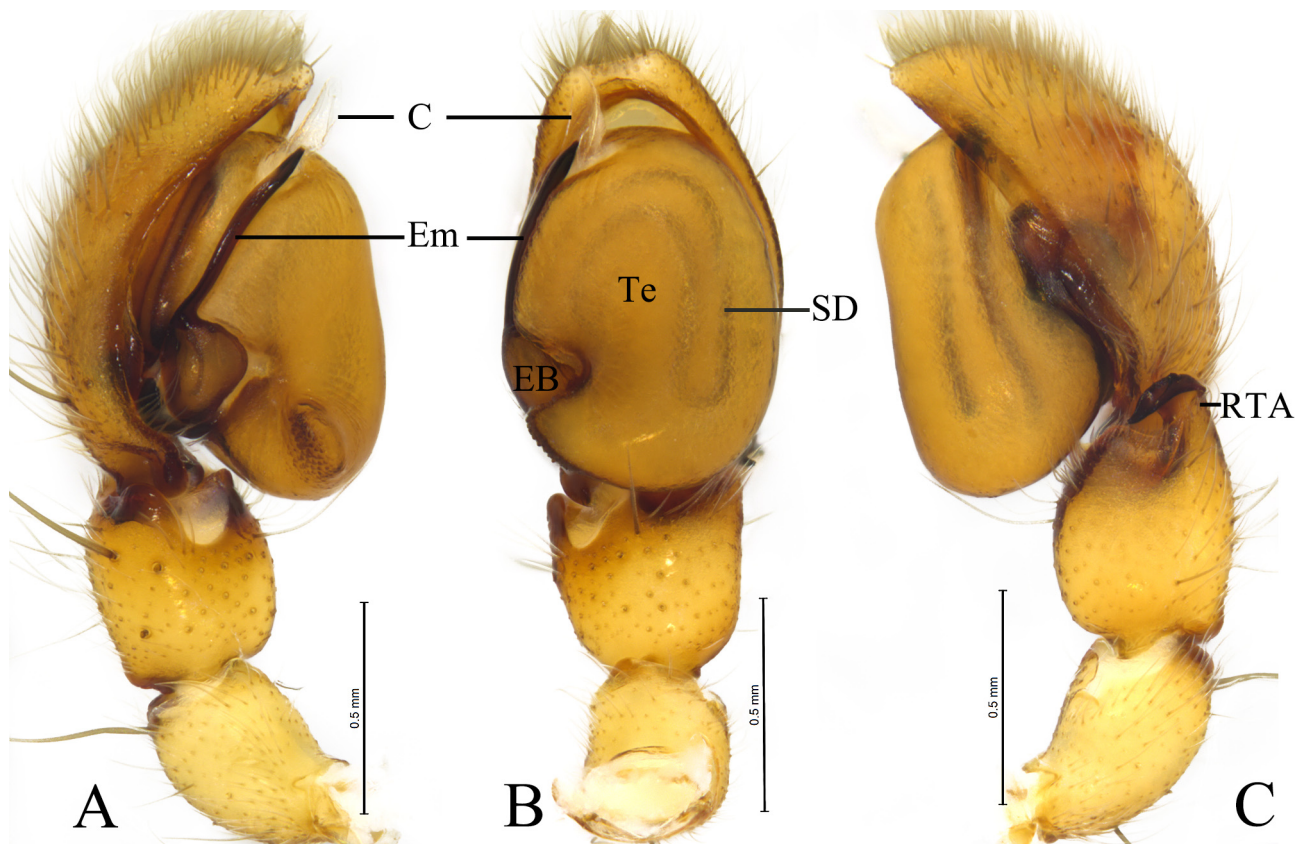


FIGURE 4. *Clubiona yintiaoling* sp. nov., holotype male. A. Left male palp, prolateral view; B. Same, ventral view; C. Same, retrolateral view.



FIGURE 5. Photos of *Clubiona* spp., habitus, dorsal view. A. *C. lui* **sp. nov.** (male); B–C. *C. tricuspidata* **sp. nov.** (B, male; C, female); D. *C. yintiaoling* **sp. nov.** (male).

Description. Males total length 5.87–7.25. Male holotype (SWUC-T-CL-09-01; Fig. 5D) total length 7.25. Prosoma 3.47 long, 2.49 wide; opisthosoma 3.77 long, 2.06 wide. Eye sizes and interdistances: AME 0.14, ALE 0.17, PME 0.14, PLE 0.16; AME–AME 0.15, AME–ALE 0.08, PME–PME 0.31, PME–PLE 0.22, ALE–PLE 0.17. MOA 0.44 long, anterior width 0.46, posterior width 0.61. Clypeus height 0.09. Chelicerae with 3 promarginal and 2 retromarginal teeth. Leg measurements: I 9.66 (2.81, 3.97, 1.89, 0.99); II 11.41 (3.40, 4.62, 2.27, 1.12); III 7.97 (2.34, 2.56, 2.24, 0.83); IV 11.01 (2.99, 3.72, 3.32, 0.98). Leg formula: 2413.

Palp (Fig. 4). Tibia cylindrical, with single retrolateral apophysis; retrolateral tibial apophysis (RTA) short and hook-like, nearly 1/2 of tibia length, with a sharp end. Tegulum (Te) nearly circular and relatively swollen, ca. 1.4 times longer than wide; sperm duct (SD) indistinct and inverted U-shaped in ventral view. Embolic base (EB) represented by a triangular sclerite, situated at ca. 8 o'clock position of tegulum. Free part of embolus (Em) slender, approximately 1/2 of tegulum length, apex sharp and terminating at ca. 11 o'clock position of tegulum. Conductor (C) relatively small, membranous, with approximately three-tenths the length of tegulum, situated at ca. 11 o'clock position of tegulum.

Female unknown.

Distribution. Known only from the type locality, Chongqing, China.

Acknowledgements

Many thanks are given to the guest editor, Prof. Xingyue Liu and two reviewers, Prof. Kirill G. Mikhailov and Prof. Hao Yu for their valuable comments. Thanks are also given to Mr. Yu Zhang (SWUC), Qianle Lu (Shenzhen), Houlin Zhu and Yuanbin Zhu (Yintiaoling Nature Reserve), and Ms. Piao Liu (SWUC) for their assistance during the field work and collection. This study was supported by the Funding on the survey of invertebrates from Yintiaoling Nature Reserve (CQS21C00739, CQS24C00333).

References

- Álvarez-Padilla, F. & Hormiga, G. (2007) A protocol for digesting internal soft tissues and mounting spiders for scanning electron microscopy. *Journal of Arachnology*, 35 (3), 538–542.
<https://doi.org/10.1636/Sh06-55.1>
- Deng, M.Q., Zhong, Y., Irfan, M. & Wang, L.Y. (2023) Four new species of the spider genus *Pseudopoda* Jäger, 2000 (Sparassidae) from Yintiaoling Natural Reserve of Chongqing, China. *Zootaxa*, 5257 (1), 5–16.
<https://doi.org/10.11646/zootaxa.5257.1.3>
- Guo, M.H., Li, Z.Y. & Zhang, F. (2025) Two new species of the *Clubiona corticalis* group (Araneae, Clubionidae) from Yunnan, China. *ZooKeys*, 1224, 175–186.
<https://doi.org/10.3897/zookeys.1224.135572>
- Irfan, M., Wang, L.Y. & Zhang, Z.S. (2023) One new genus and nine new species of Linyphiidae spiders from Yintiaoling Nature Reserve, Chongqing of China. *Zootaxa*, 5257 (1), 82–114, [incl. Erratum: *Zootaxa*, 5263 (4), 575–600].
<https://doi.org/10.11646/zootaxa.5257.1.7>
<https://doi.org/10.11646/zootaxa.5263.4.9>
- Li, L.F., Liu, P., Li, B. & Peng, X.J. (2023) Two new species of the sac-spider genus *Clubiona* Latreille, 1804 (Araneae, Clubionidae) and the female of *C. subcylindrata* from China. *Zootaxa*, 5263 (4), 520–530.
<https://doi.org/10.11646/zootaxa.5263.4.3>
- Marusik, Y.M. & Omelko, M.M. (2018) A survey of the *Porrhoclubiona* Lohmander, 1944 from Central Asia (Araneae, Clubionidae [sic]). *ZooKeys*, 802, 19–38.
<https://doi.org/10.3897/zookeys.802.30236>
- Nicolet, H. (1849) Aracnidos. In: Gay, C. (Ed.), *Historia física y política de Chile. Zoología*, 3, 319–543.
- Wang, L.Y., Chen, H.M., Wu, P.L., Zhang, F. & Zhang, Z.S. (2018) Spider diversity in Fanjing Mountain Nature Reserve, Guizhou, China, II: Clubionidae (Araneae). *Zoological Systematics*, 43 (4), 317–333.
<https://doi.org/10.1186/zs.201827>
- Wang, L.Y. & Zhang, Z.S. (2022) Three new species of *Ariadna* Audouin, 1826 from China (Araneae: Segestriidae). *Acta Arachnologica Sinica*, 31 (2), 81–86.
<https://doi.org/10.3969/j.issn.1005-9628.2022.02.003>
- Wang, L.Y., Zheng, C.B. & Zhang, Z.S. (2022) Three new species of *Nesticella* Lehtinen & Saaristo, 1980 from Chongqing (Araneae: Nesticidae). *Acta Arachnologica Sinica*, 31 (1), 11–16.
<https://doi.org/10.3969/j.issn.1005-9628.2022.01.002>
- Wang, M., Wu, P.L. & Zhang, F. (2015) Descriptions of two new species of the *Clubiona corticalis*-group (Araneae: Clubionidae) from China. *Acta Arachnologica*, 64 (2), 83–89.
<https://doi.org/10.2476/asjaa.64.83>
- World Spider Catalog (2025) *World Spider Catalog. Version 26*. Natural History Museum Bern, Bern. Available from: <http://wsc.nmbe.ch> (accessed 20 April 2025)
<https://doi.org/10.24436/2>
- Wu, P.L., Chen, Y. & Zhang, F. (2023) Three new species of the *Clubiona corticalis* group (Araneae, Clubionidae) from China. *ZooKeys*, 1157, 163–176.
<https://doi.org/10.3897/zookeys.1157.99674>
- Yu, H. & Li, S.Q. (2019a) Eight new species of the genus *Clubiona* Latreille, 1804 from Xishuangbanna Rainforest, southwestern China (Araneae, Clubionidae). *Zootaxa*, 4545 (2), 151–178.
<https://doi.org/10.11646/zootaxa.4545.2.1>
- Yu, H. & Li, S.Q. (2019b) On further species of the spider genus *Clubiona* Latreille, 1804 (Araneae, Clubionidae) from Xishuangbanna Rainforest, southwestern China. *Zootaxa*, 4679 (2), 201–230.
<https://doi.org/10.11646/zootaxa.4679.2.1>
- Zhang, J.S., Yu, H. & Li, S.Q. (2021) Taxonomic studies on the sac spider genus *Clubiona* (Araneae, Clubionidae) from Xishuangbanna Rainforest, China. *ZooKeys*, 1034, 1–163.
<https://doi.org/10.3897/zookeys.1034.59413>
- Zhang, M.G., Zhong, Y. & Gong, L.J. (2024) One new species of the *Clubiona trivialis*-group from Jiugong mountains, Central China (Araneae: Clubionidae). *Acta Arachnologica Sinica*, 33 (1), 38–42.
<https://doi.org/10.3969/j.issn.1005-9628.2024.01.005>
- Zhu, M.S. & Zhang, B.S. (2011) *Spider Fauna of Henan: Arachnida: Araneae*. Science Press, Beijing, 558 pp.