Zootaxa 5652 (1): 073–077
https://www.mapress.com/zt/
Copyright © 2025 Magnolia Press

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5652.1.8
http://zoobank.org/urn:lsid:zoobank.org:pub:986CFCD8-0719-4C9D-8911-92B506A12EC2

A new species of the spider genus *Mallinella* Strand, 1906 from Yintiaoling Nature Reserve, China (Araneae: Zodariidae)

JIN-ZHEN LU[1,2], MUHAMMAD IRFAN [1,3] & ZHI-SHENG ZHANG[1,*]
[1]*Key Laboratory of Eco-environments in Three Gorges Reservoir Region (Ministry of Education), School of Life Science, Southwest University, Chongqing 400715, China*
[2] *2548851172@qq.com; https://orcid.org/0009-0006-1130-2954*
[3] *irfanuos94@yahoo.com; https://orcid.org/0000-0003-0445-9612*
[*]*Corresponding author: zhangzs327@qq.com; https://orcid.org/0000-0002-9304-1789*

Abstract

A new species belonging to the *Mallinella annulipes*-group of the genus *Mallinella* Strand, 1906, *Mallinella yintiaoling* **sp. nov.** (male, female), is described from Yintiaoling Nature Reserve, China. Its morphological description and photographs are provided.

Key words: ant spiders, description, taxonomy, morphology

Introduction

The genus *Mallinella* Strand, 1906 is the most speciose genus of the family Zodariidae comprises of 233 species distributed worldwide. About 168 species have been reported from Asia, mainly from Myanmar, Nepel, Sri Lanka, Indonesia, Philippines, Japan, Vietnam, and Malaysia, including 35 reported in China (World Spider Catalog 2025). Dankittipakul *et al*. (2012) revised the genus and grouped the species into 22 groups based on their phylogenetic relationships. In addition, they analyzed their relationships to other zodariids by means of cladistic analysis of morphological data.

The *M. annulipes*-group can be diagnosed by the epigyne with digitiform lateral border projecting inwards, which includes *M. annulipes* (Thorell, 1893) (both sexes), *M. calilungae* (Barrion & Litsinger, 1992) (both sexes), *M. shimojanai* (Ono & Tanikawa, 1990) (both sexes), *M. longipoda* (Dankittipakul, Jocqué & Singtripop, 2012) (both sexes), *M. angustata* (Dankittipakul, Jocqué & Singtripop, 2012) (female only), *M. dolichorhyncha* (Dankittipakul, Jocqué & Singtripop, 2012) (male only), *M. kunmingensis* (Wang, Yin, Griswold & Peng, 2009) (male only) and *M. pseudokunmingensis* (Yu & Zhang, 2019) (both sexes). They were reported from some Southeast and East Asian countries, including Borneo, China, Indonesia, Japan, Malaysia, Philippines, and Singapore.

The diversity of spiders in Yintiaoling Nature Reserve has being investigated since 2020. So far, three genera and four species of Zodariidae have been found: *Asceua zijin* Lin & Li, 2023, *Storenomorpha lushanensis* Yu & Chen, 2009, *Mallinella zhui* Zhang, Zhang & Jia, 2012, and a new species of *Mallinella*. This species is described herein. Its photographs and description in detail are given in this paper.

Material and methods

All specimens were preserved in 75% ethanol. The specimens were examined, measured, and photographed using a Leica M205A stereomicroscope equipped a Leica DFC450 Camera, and LAS software (Ver. 4.6). The left male palp was used for photography. The epigyne was cleared immersing in pancreatin solution before examination and photography (Alvarez-Padilla and Hormiga 2007). Leg measurements are shown as: total length (femur, patella and tibia, metatarsus, tarsus). All measurements are in millimeters. All specimens examined here are deposited in the spider collection at the School of Life Sciences, Southwest University, Chongqing, China (SWUC).

Accepted by X.-Y. Liu: 12 Apr. 2025; published: 24 Jun. 2025

Licensed under Creative Commons Attribution-N.C. 4.0 International https://creativecommons.org/licenses/by-nc/4.0/

Abbreviations used in the text: ALE—anterior lateral eye; AME—anterior median eye; MOA—median ocular area; PLE—posterior lateral eye; PME—posterior median eye.

Taxonomy

Family Zodariidae Thorell, 1881

Genus *Mallinella* Strand, 1906

***Mallinella yintiaoling* sp. nov.**
Figures 1–3

Type material. Holotype male (SWUC-T-ZOD-01-01), **China, Chongqing Municipality, Wuxi County, Yintiaoling Nature Reserve,** Hongqi Administrative Station, 31°31′0″N, 109°49′42″E, elev. 1263m, 28 August 2022, Z.S. Zhang, L.Y. Wang, Q.L. Lu, B. Tan, B. Luo and T.Y. Ren leg.; **Paratypes:** 2 females (SWUC-T-ZOD-01-02~03), Hongqi Administrative Station, Qinglongtan, 31°30′49″N, 109°49′23″E, elev. 1155m, 2 September 2020, Z.S. Zhang, L.Y. Wang, P. Liu, Y. Zhang leg.; 1 male (SWUC-T-ZOD-01-04), Linkouzi Administrative Station, 31°28′28″N, 109°52′40″E, elev. 1289m, 14 August 2022, Q.L. Lu leg.; 1 male, Hongqi Administrative Station, Luomadian, 31°33'2 "N, 109°50'37 "E, elev. 1663m, 14 August 2022, Z.S. Zhang, L.Y. Wang, Q.L. Lu, B. Tan, B. Luo and T.Y. Ren leg.; 1 male (SWUC-T-ZOD-01-05), Luomadian, 31°33'2"N, 109°50'37"E, elev. 1663 m, 3 September 2022, L.Y. Wang, Q.L. Lu, X.L. Chen and H.Y. Chen leg.

Etymology. The specific name refers to the type locality, noun in apposition.

FIGURE 1. Live specimen of *Mallinella yintiaoling* **sp. nov.** (male). Photo courtesy of Qian-Le Lu.

Diagnosis. Male of *M. yintiaoling* **sp. nov.** resemble those of *M. kunmingensis* Wang, Yin, Griswold & Peng, 2009 (Wang *et al*. 2009, figs 13–21) and *M. pseudokunmingensis* Yu & Zhang, 2019 (Yu & Zhang 2019, figs 1–38) in having a similar digitiform retrolateral tibial apophysis (RTA) and elongated median apophysis (MA), but can be differentiated by: the subterminal fold of embolus absent in male pedipalp (Fig. 3A), vs present in *M. kunmingensis* (Wang *et al*. 2009, fig. 21) and *M. pseudokunmingensis* (Yu & Zhang 2019, fig. 9); lateral ramus (LR)

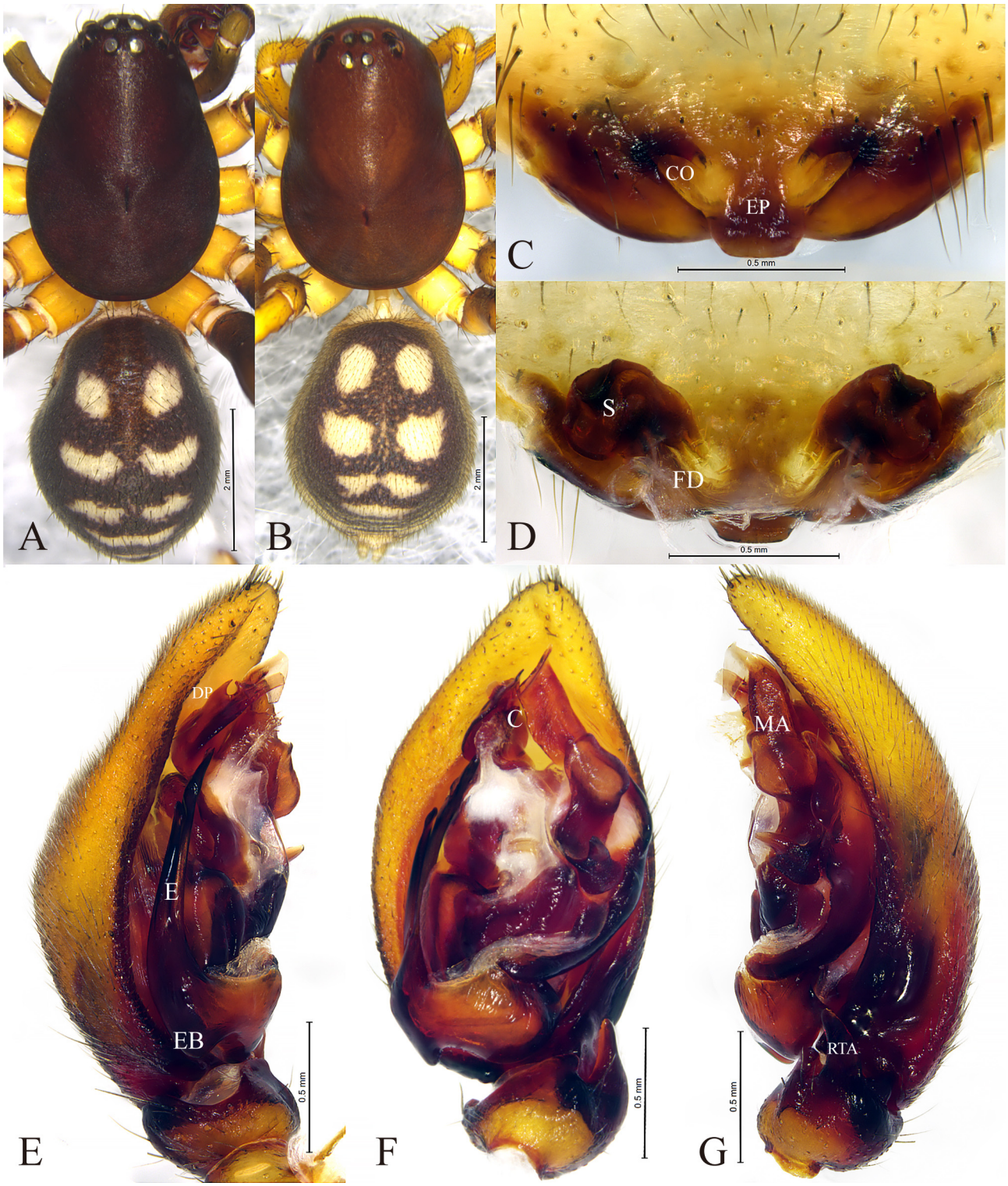

FIGURE 2. *Mallinella yintiaoling* **sp. nov.**, holotype male (A, E–G) and paratype female (B–D). A. Male habitus, dorsal view; B. Female habitus, dorsal view; C. Epigyne, ventral view; D. Vulva, dorsal view; E. Left male palp, prolateral view; F. Same, ventral view; G. Same, retrolateral view. Abbreviations: C-conductor, CO-copulatory opening, E-embolus, EP-epigynal plate, EB-embolic base, FD-fertilization duct, MA-median apophysis, RTA-retrolateral tibial apophysis, S-spermathecae.

as thick as the apical part of embolus (Figs 2E, 2F, 3A), vs needle-shaped in *M. kunmingensis* (Wang *et al*. 2009, fig. 21) and *M. pseudokunmingensis* (Yu & Zhang 2019, fig. 9). Female of *M. yintiaoling* **sp. nov.** resembles those of *M. pseudokunmingensis* in having the similar appearance of epigyne (Yu & Zhang 2019, figs 19, 20), but can be differentiated by the epigynal plate (EP) inverted T-shaped (Fig. 2C), vs V-shaped in *M. pseudokunmingensis* (Yu & Zhang 2019, fig. 19); the apical part of both lateral borders of epigyne extending below the epigynal plate (EP) (Fig. 2C), vs overlapping the epigynal plate (EP) in *M. pseudokunmingensis* (Yu & Zhang 2019, fig. 20); the spermathecae (S) subspherical (Fig. 2C), vs reniform in *M. pseudokunmingensis* (Yu & Zhang 2019, figs 21–23).

Description. Male holotype (Fig. 2A) total length 7.92. Carapace 4.14 long, 2.74 wide; opisthosoma 3.66 long, 2.86 wide. Carapace pear-shaped, blackish brown, fovea black. Eye sizes and interdistances: AME 0.29, ALE 0.20, PME 0.19, PLE 0.22; AME–AME 0.12, AME–ALE 0.11, PME–PME 0.16, PME–PLE 0.32, ALE–PLE 0.05. MOA long 0.67, anterior width 0.64, posterior width 0.58. Clypeus height 0.95. Chelicerae brownish, without teeth. Leg measurements: I 13.57 (3.39, 4.07, 3.35, 2.76); II 12.73 (3.20, 3.65, 3.39, 2.49); III 12.26 (3.17, 3.46, 3.56, 2.07); IV 15.81 (3.71, 4.42, 4.94, 2.74). Leg formula: 4123.

Palp (Figs 2E–G, 3A–C). Tibia short, about 1/4 of cymbium length. Retrolateral tibial apophysis (RTA) strongly sclerotized, about as long as tibia, digitiform, slightly wider at base, gradually tapering towards blunt tip. Median apophysis very long, with rostrate and folded apico-prolateral process (APP) terminally; the base of meso-prolateral fold (MPF) enlarged and extends laterally with a sharp tip; baso-retrolateral fold (BRF) wide, somewhat triangular, tip sharped. Conductor (C) with large and beak-shaped apex and small extended dorsal process. Embolus (E) arising at approximately 7 o'clock position, terminating at approximately 11 o'clock position; embolus with one lateral ramus (LR), half the length of embolus, extending forward, tip slightly enlarged and hook-shaped.

Female (SWUC-T-ZOD-01-02) (Figs 2B–D) total length 8.30. Carapace 4.36 long, 2.98 wide; opisthosoma 4.07 long, 2.97 wide. Carapace oval, pars cephalica slightly narrowed, uniformly reddish-brown, except cephalic region: lighter than other area, without distinct pattern. Eye sizes and interdistances: AME 0.21, ALE 0.19, PME 0.18, PLE 0.21; AME–AME 0.14, AME–ALE 0.24, PME–PME 0.17, PME–PLE 0.42, ALE–PLE 0.09. MOA long 0.66, anterior width 0.51, posterior width 0.56. Clypeus height 1.22. Chelicerae brownish, without teeth. Leg measurements: I 9.10 (2.38, 2.90, 1.95, 1.87); II 8.65 (2.38, 2.61, 1.97, 1.69); III 8.69 (2.20, 2.64, 2.18, 1.67); IV 11.77 (2.80, 3.49, 3.41, 2.07). Leg formula: 4132.

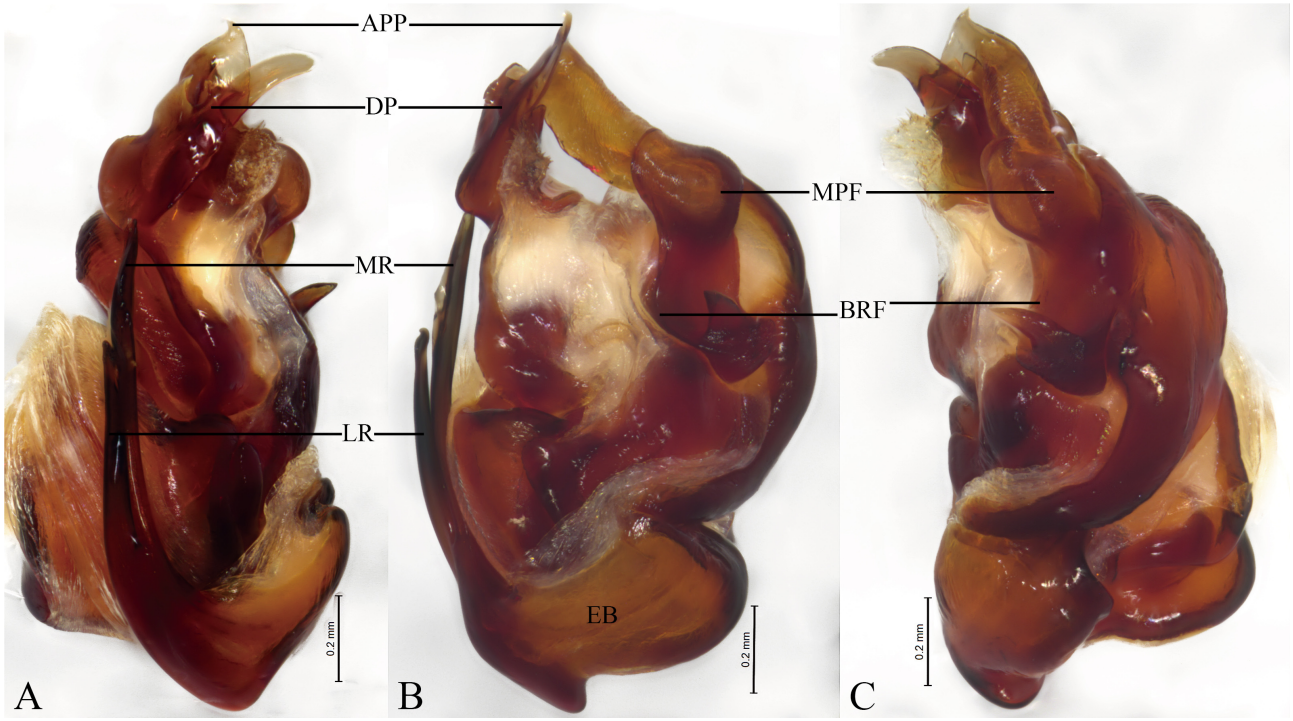

FIGURE 3. *Mallinella yintiaoling* **sp. nov.**, bulb (A–C). A. Prolateral view; B. Ventral view; C. Retrolateral view. Abbreviations: APP-apico-prolateral process, BRF-baso-retrolateral fold, DP-dorsal process, EB-embolic base, LR-lateral ramus, MPF-meso-prolateral fold, MR-mesal ramus, RTA-retrolateral tibial apophysis.

Epigyne (Figs 2C–D). Epigynal plate (EP) inverted T-shaped, flanked with triangular lateral borders; lateral borders wider anteriorly and narrower posteriorly, extending towards the epigynal plate posteriorly. Copulatory openings (CO) conspicuous, situated on anteromedial margin of epigynal furrow, situated at the medial margin of lateral margins. Copulatory ducts about as long as epigynal plate width, anteriorly thin, posteriorly thick, running transversely and then connecting with spermathecae. Spermathecae (S) approximately spherical.

Distribution. Known only from the type locality, Yintiaoling Natural Reserve, Chongqing, China.

Acknowledgements

We sincerely thank the subject editor, Prof. Liu Xingyue, and two reviewers, Dr. Alireza Zamani and Prof. Baoshi Zhang for their valuable suggestions on improving the manuscript. We are grateful to Lu Qianle for supplying photographs of live specimen. This study was supported by the Fund on 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

Barrion, A.T. & Litsinger, J.A. (1992) Three new ant-eating spiders (Araneae: Zodariidae) from upland ricefields in the Philippines. *Asia Life Sciences*, 1, 45–60.

Dankittipakul, P., Jocqué, R. & Singtripop, T. (2012) Systematics and biogeography of the spider genus *Mallinella* Strand, 1906, with descriptions of new species and new genera from Southeast Asia (Araneae, Zodariidae). *Zootaxa*, 3369 (1), 1–327.
https://doi.org/10.11646/zootaxa.3395.1.4

Van Hove, M. & Bosmans, R. (1984) Description of five new *Suffucioides* species (Araneae, Zodariidae): Scientific report of the Belgian Mount Cameroon Expedition 1981 no. 10. *Biologisch Jaarboek Dodonaea*, 52, 76–94.

Jocqué, R. (1991) A generic revision of the spider family Zodariidae (Araneae). *Bulletin of the American Museum of Natural History*, 201, 1–160.

Zhang, B.S. & Zhang, F. (2019) Four new species of the genus *Mallinella* (Araneae: Zodariidae) from Malaysia. *Zootaxa*, 4568 (2), 242–260.
https://doi.org/10.11646/zootaxa.4568.2.2

Yu, H. & Zhang, J.S. (2019) A new species of *Mallinella* Strand, 1906 (Araneae: Zodariidae) from Guizhou Province, China. *Acta Zoologica Bulgarica*, 71 (1), 3–8.

Wang, Q.B., Yin, C.M., Griswold, C. & Peng, X.J. (2009) Three new species of the genus *Mallinella* (Zodariidae: Araneae) from Yunnan Province, China. *Zootaxa*, 2005 (1), 47–56.
https://doi.org/10.11646/zootaxa.2005.1.4

WSC (2025) *World Spider Catalog. Version 26.0*. Natural History Museum Bern, Bern. Available from: http://wsc.nmbe.ch (accessed 11 March 2025)
https://doi.org/10.24436/2