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15

Survey of Linyphiidae spiders (Arachnida: Araneae) from some Oriental Regions of China

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Abstract

A total of 107 species belonging to 61 genera have been recorded from China (Anhui, Chongqing, Hainan, Hubei, Hunan, Guangdong, Gansu, Guangxi, Guizhou, Sichuan, and Xizang), including 74 new species, and five new genera which are described here: *Acanoides cornutus* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan), *A. ningxiangensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan); *Asiagone xingdouensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hubei); *Auriculaiana yongshunensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan); *Baryphyma xiaoxiense* Irfan, Zhang & Peng, **sp. n.** (♂, Hunan); *Bathyphantes paracymbialis* Tanasevitch, 2014 (♂♀, Chongqing, Guizhou, Hubei and Hunan), *B. pseudogracilis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan); *Bifurcia cochlearis* Irfan, Zhang & Peng, **sp. n.** (♂, Hubei), *B. ramosa* (Li & Zhu, 1987) (♂♀, Guizhou, and Hunan); *Bolyphantes aculeatus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou), *B. arcuatus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou, and Hunan), *B. gladius* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou, and Hunan); *Capsulia tianmushana* (Chen & Song, 1987) (♂♀, Hubei and Hunan); *Collinsia inerrans* (O. Pickard-Cambridge, 1885) (♂♀, Sichuan); *Dicristatus cordatus* Irfan, Zhang & Peng, **sp. n.** (♀, Hubei and Hunan), *D. denticulatus* Irfan, Zhang & Peng, **sp. n.** (♂, Guizhou); *Dicymbium sinofacetum* Tanasevitch, 2006 (♂♀, Hainan); *Diplocephaloides cucullus* Irfan, Zhang & Peng, **sp. n.** (♀, Guizhou); *Diplocephalus circularis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing, Hubei and Hunan), *D. tongrenensis* Irfan, Zhang & Peng, **sp. n.** (♀, Guizhou); *Drapetisca boletus* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan), *D. nanpingensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan), *D. yuelushanensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan); *Erigone kazhiensis* Irfan, Zhang & Peng, **sp. n.** (♂, Sichuan), *E. prominens* Bösenberg & Strand, 1906 (♂♀, Hubei and Hunan); *Frontinella zhui* Li & Song, 1993 (♂♀, Chongqing, Hubei and Hunan); *Gnathonarium dentatum* (Wider, 1834) (♂♀, Chongqing, Hubei and Hunan), *G. gibberum* Oi, 1960 (♂♀, Hunan); *Gonatium absidatum* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou); *Gongylidioides acuminatus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing), *G. ensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing and Hubei), *G. microdontus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hubei); *Gongylidium dawolongense* Irfan, Zhang & Peng, **sp. n.** (♀, Hubei), *G. demersum* Irfan, Zhang & Peng, **sp. n.** (♀, Guizhou), *G. minutum* Irfan, Zhang & Peng, **sp. n.** (♀, Hubei), *G. uncatum* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing and Hubei); *Gracilentus mangshanensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan); *Himalaphantes azumiensis* (Oi, 1979) (♂♀, Chongqing, Guangdong and Hunan); *Houshenzinus rimosus* Tanasevitch, 2006 (♂, Hubei); *Hylyphantes graminicola* (Sundevall, 1830) (♂♀, Chongqing, Guizhou, Hubei and Hunan); *Indophantes wushanensis* Irfan, Wang & Zhang, 2023 (♂♀, Chongqing and Hubei); *Kaestneria bicultrata* Chen & Yin, 2000 (♂♀, Hunan); *Lenis* Irfan, Zhang & Peng, **gen. n.**, *L. longiabdominis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hubei); *Lepthyphantes ellipticus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hubei), *L. frondeus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing, Hubei and Hunan); *Linyphia songziyuanensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hubei); *Mecopisthes rhomboidalis* Gao, Zhu & Gao, 1993 (♀, Hunan); *Micrargus longiembolus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Sichuan); *Microlinyphia zhejiangensis* (Chen, 1991) (♀, Hunan); *Microneta acutalis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan), *M. circumacta* Irfan, Zhang & Peng, **sp. n.** (♂, Xizang), *M. maliuxiensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hubei); *Nasoonaria nonggangensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guangxi); *Nematogmus ligulatus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing and Hubei), *N. sanguinolentus* (Walckenaer, 1841) (♂♀, Chongqing, Hubei and Hunan); *Nippononeta alpina* (Li & Zhu, 1993) (♂♀, Chongqing and Hunan), *N. coreana* (Paik, 1991) (♂♀, Chongqing, Guangdong, Guizhou, Hubei and Hunan); *Oedothorax collinus* Ma & Zhu, 1991 (♂♀, Hubei), *O. fortis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan); *Oia baiyunensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan), *O. lata* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan), *O. yinae* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing and Hunan); *Oilinyphia daxuensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Xizang), *O. wenfengensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan), *O. xinqiaoensis* Irfan, Zhang & Peng, **sp. n.** (♀, Chongqing); *Oilinyphioides* Irfan, Zhang & Peng, **gen. n.**, *O. triangularis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing and Hunan); *Paikiniana lurida* (Seo, 1991) (♂♀, Hubei and Hunan); *Parameioneta bilobata* Li & Zhu, 1993 (♂♀, Hubei and Hunan); *Platyspira tanasevitchi* Song & Li, 2009 (♂♀, Hubei); *Prosoponoides sinensis* (Chen, 1991) (♂♀, Chongqing, Hubei and Hunan); *Ryojius fanjingshanensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou), *R. fodingshanensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou), *R. lianghekouensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hubei and Hunan), *R. nanyuensis* (Chen & Yin, 2000) (♂♀, Hunan); *Scotinotylus guizhouensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing and Guizhou), *S. longiprojectus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou, Hubei and Hunan); *Shaanxinus insectus* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan), *S. longiembolus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hubei and Hunan), *S. ovatus* Irfan, Zhang & Peng, **sp. n.** (♂, Hunan); *Sinogone. puteus* Irfan, Zhang & Peng, **sp. n.** (♂, Hubei); *Sinolinyphia henanensis* (Hu, Wang & Wang, 1991) (♂♀, Chongqing and Hunan); *Spelaeus* Irfan, Zhang & Peng, **gen. n.,** *S. cicatrix* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou); *Syedra yuelushanensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing, Hubei and Hunan); *Taibaishanus badongensis* Irfan, Zhang & Peng, **sp. n.** (♂, Hubei); *Tapinocyba cornuta* Irfan, Zhang & Peng, **sp. n.** (♂♀, Guizhou), *T. pingshanensis* Irfan, Zhang & Peng, **sp. n.** (♀, Guizhou), *T. sulcata* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan); *Tenuiphantes aduncus* (Zhu, Li & Sha, 1986) (♂♀, Gansu), *T. cauda* Irfan, Zhang & Peng, **sp. n.** (♂, Anhui), *T. taipingensis* Irfan, Zhang & Peng, **sp. n.** (♂, Hunan); *Trematocephalus cristatus* (Wider, 1834) (♂♀, Guizhou); *Ummeliata feminea* (Bösenberg & Strand, 1906) (♂♀, Chongqing, Hubei and Hunan), *U. insecticeps* (Bösenberg & Strand, 1906) (♂♀, Chongqing, Guangdong, Hubei and Hunan); *Walckenaeria asymmetrica* Song & Li, 2011 (♂♀, Guizhou), *W. enshiensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hubei), *W. extenuata* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hubei and Hunan), *W. furcillata* (Menge, 1869) **(new to China)** (♀, Xizang), *W. sinuosa* Irfan, Zhang & Peng, **sp. n.** (♂♀, Chongqing), *W. xingdouensis* Irfan, Zhang & Peng, **sp. n.**

(♀, Guizhou, Hubei and Hunan), *W. yanglinensis* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hunan); *Wulinggone* Irfan, Zhang & Peng, **gen. n.,** *W. qizimeiensis* **sp. n.** (♂♀, Chongqing and Hubei); *Wulingnus* Irfan, Zhang & Peng, **gen. n.**, *W. furcatus* Irfan, Zhang & Peng, **sp. n.** (♂♀, Hubei), *W. inversus* Irfan, Zhang & Peng, **sp. n.** (♀, Hubei); *Wuliphantes tongluensis* (Chen & Song, 1988) (♂♀, Chongqing, Hubei and Hunan); *Yuelushannus diaotangensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan); *Y. jinyuanensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan), *Y. wenfengensis* Irfan, Zhang & Peng, **sp. n.** (♀, Hunan). With the description of 74 new species and 5 new genera, the number of Linyphiidae species known from China has increased from 533 in 175 genera to 607 in 180 genera. Among the new species described here, thirty-seven are known by single sex (11 with males and 26 with females). Following new combinations are established *Microneta orthogonia* (Irfan, Wang & Zhang, 2023) **comb. n.** (ex. *Agyneta*); *Oilinyphia pengqi* (Lin & Li, 2024) **comb. n.** (ex. *Chrosiothes*, family Theridiidae); *Shaanxinus griseolineatus* (Schenkel, 1936) **comb. n.** (ex *Gongylidioides*); *Lepthyphantes cultellifer* Schenkel, 1936, transferred to *Acanoides* Sun, Marusik & Tu, 2014, as *Acanoides cultellifer* (Schenkel, 1936) **comb. n.** (ex *Lepthyphantes*); *Baryphyma* Simon, 1884, *Scotinotylus* Simon, 1884, and *Walckenaeria furcillata* (Menge, 1869) have been recorded for the first time in China. Detailed descriptions of genitalic characters and somatic features of new and already known species by means of photographs, as well as comparisons with closely related species, are provided.

Keywords. Description, morphology, new genera, new species, sheet-web spiders, taxonomy, new combination, new country record

Introduction

Linyphiidae is the second-largest spider family, with 4,847 species placed in 634 genera (including 62 fossil species and 11 genera). It has global distribution and represents about 9.31 % of all known spider species (WSC 2024). Out of the 634 genera, about 231 are monotypic, and 67 are known from a single sex only (40 by males, 27 by females). A total of 176 species in 79 genera have been reported from Southeast Asian countries (LSW 2024; WSC 2024). As part of the Sino-American Joint Biodiversity Project from 1988 to 2006, Peng and colleagues conducted an extensive survey in south China to discover, revise, and describe spider diversity. Before the publication of the results of the Sino-American Joint Biodiversity Project, the fauna of Linypiidae in China comprised about 371 species in 75 genera (Li & Lin 2016). Most of the specimens used in these studies were collected under the Sino-American Joint Biodiversity Project, and some were also collected by co-authors. Currently, a total of 280 Linyphiidae species in 90 genera (including 208 new species and 17 new genera) have been recorded from China (Irfan & Peng 2018, 2019a, 2019b; Irfan 2019; Irfan *et al.* 2019, 2021, 2022a, 2022b, 2023a, 2023b; Zhou *et al.* 2018, 2021; Zhang *et al.* 2022; Yang *et al.* 2023). As a result of all the studies cited, the current fauna of Linyphiidae spiders from China reaches 533 species in 175 genera (WSC 2024). Most of the new species documented in previous studies are endemic to the country.

The present survey of Linyphiidae spiders in China has revealed 107 species belonging to 61 genera, including 74 new species, and five new genera are described here. One potential reason for the high number of new species discovered in our survey could be the comprehensive survey we conducted in a large geographical scale, which allowed us to document previously unknown species. In addition, these findings emphasize the need for continual research to document the diversity of Linyphiidae in unsurveyed areas of China.

Material and methods

Specimens were collected by sweeping net, hand picking and sieving leaf litter and were kept in 75% ethanol. After dissection, epigynes were cleared in trypsin enzyme solution before examination and photography. The left male palps were used for description and illustration. Specimens were examined and measured with a Leica M205C stereo microscope. Photos were taken with a digital camera Canon PowerShot G12 mounted on an Olympus BX53 and Leica MC170 HD mounted on a Leica M205C. All images were stacked by using Helicon Focus software (Ver. 3.10. free). Maps were created using ArcMap 10.2, and online mapping software SimpleMappr (Shorthouse 2010), then modified using Adobe Photoshop CS2 Extended. Leg measurements are given in the following order: total length (femur, patella + tibia, metatarsus, tarsus). All measurements are given in millimetrrs (mm). The terminology used in text and figure legends follows Irfan *et al.* (2022). Specimens are deposited in the collection of the College of Life Sciences, Hunan Normal University, Changsha (HNU).

The following abbreviations are used throughout the text:

AER—anterior eye row; **ALE**—anterior lateral eye; **AME–ALE**—distance between AME and ALE; **AME–AME**—distance between AMEs; **AME**—anterior median eye; **HB**—Hubei; **HNDWS**—Hunan Daweishan; **HNHS**—Hunan Hengshan; **MNNR**—mountain national nature reserve; **MSS**—mountain scenic spot; **NFP**—national forest park; **NNR**—national nature reserve; **PER**—posterior eye row; **PLE**—posterior lateral eye; **PME–PLE**—distance between PME and PLE; **PME–PME**—distance between PMEs; **PME**—posterior median eye; **SCDC**—Sichuan Daocheng; **SCLT**—Sichuan Litang; **Tm**—trichobothrium.

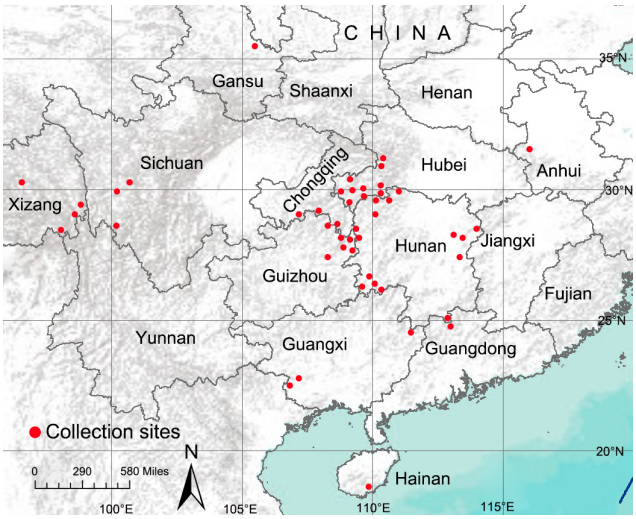


FIGURE 1. Collections sites of Linyphiidae in China from this paper.

Taxonomy

Family Linyphiidae Blackwall, 1859

Genus *Acanoides* Sun, Marusik & Tu, 2014 (类刺皿蛛属)

Type species. *Acanoides beijingensis* Sun, Marusik & Tu, 2014 from Beijing; gender masculine.

Remark. Based on a phylogenetic analysis, Sun *et al.* (2014) erected the genus *Acanoides* for two species: *A. beijingensis* and *A. hengshanensis* (Chen & Yin, 2000) from China (WSC 2024).

Acanoides cornutus Irfan, Zhang & Peng, sp. n. (角状类刺皿蛛)

Figures 2, 3, 315

Types. Holotype ♀ (HNU–HN–IV–1767), **CHINA, Hunan Prov.:** Huaihua City, Huitong Co., Tuanhe Town, Diaotang Vill., Yingzuijie NNR, 26.90186°N, 109.93529°E, 390 m, 29.X.2017, G.C. Zhou *et al.* leg. **Paratypes:** 3♀, with same data as for holotype (HNU–HN–IV–1767).

Etymology. The specific epithet is derived from the Latin adjective "*cornutus, -a, -um*" meaning "horned" and referring to the horn-shaped spermathecae in the vulva.

Diagnosis. *Acanoides cornutus* **sp. n.** resembles *A. beijingensis* and *A. cultellifer* in having the similar ventrally folded extensible epigynal basal part, ventral and dorsal plates longer than wide in epigyne (Figs 2A–D; Sun *et al.* 2014, figs 2F–H; Han *et al.* 2015, figs 7, 8, 11, 12), but can be distinguished by its horn-shaped spermathecae in *A. cornutus* **sp. n.** (Fig. 2D; vs. U-shaped in *A. beijingensis* and kidney-shaped in *A. cultellifer*); somewhat triangular posteriorly ventral part of anterior wall in *A. cornutus* **sp. n.** (Figs 2C, 2D; vs. somewhat tongue-shaped posteriorly both in *A. beijingensis* and *A. cultellifer*); posterior median plate not covered by ventral part of anterior wall in *A. cornutus* **sp. n.** (Fig. 2D; vs. partly covered by ventral part of anterior wall both in *A. beijingensis* and *A. cultellifer*).

Description. Female (holotype, Figs 3A–B): Total length: 1.91, carapace 0.83 long, 0.67 wide, cephalic region slightly elevated, yellowish brown; fovea, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with four promarginal and three retromarginal teeth. Sternum longer than wide, brown. Eyes: AER recurved, PER slightly recurved and slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.08, PME 0.07, PLE 0.07, AME–AME 0.03, PME–PME 0.04, AME–ALE, 0.05, PME–PLE 0.04, AME–PME 0.09, ALE–ALE 0.30, PLE–PLE 0.32 ALE–PLE 0.02. Length of legs: I 3.48 (1.06, 0.96, 0.81, 0.65), II 2.97 (0.92, 0.84, 0.68, 0.53), III 2.31 (0.69, 0.70, 0.48, 0.44), IV 3.1 (0.90, 0.92, 0.73, 0.55). Tibial spine formula: 2-2-2-2. TmI 0.46 and TmIV absent. Opisthosoma 1.21 long, 0.74 wide, oval, dorsally with distinct black pattern extending to base of spinnerets and on lateral sides; ventral side light brown.

Epigyne (Figs 2A–D): Epigynal plate two times longer than wide. Anterior wall (AW) longer than wide, narrowing posteriorly. Posterior median plate (PMP) longer than wide, tongue-shaped; epigynal cavity present. Copulatory openings (CO) situated dorso-posteriorly at the apical end of anterior wall. Spermathecae (S) touches each other.

Male. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Acanoides cultellifer (Schenkel, 1936) comb. n. (刃形类刺皿蛛)

Lepthyphantes cultellifer Schenkel, 1936: 62, fig. 20 (♂); Tanasevitch 1989: 171, fig. 223 (♂); Song *et al.* 1999: 181, fig. 101Q (♂); Han *et al.* 2015: 45, figs 1–12 (♂♀); Zhang *et al.* 2022: 61, fig. 39A–G (♂♀).

Distribution. China (Hebei and Gansu Provinces).

Remarks. Copulatory organs of *Lepthyphantes cultellifer* Schenkel, 1936 Schenkel, 1936 resemble those of the type species *Acanoides beijingensis* in having the similar embolic division of male palp as well as the similar anterior wall of epigyne and wrinkled basal part extensible and ventrally folded in constricted state. On the basis of structural affiliation, we transfer this species to *Acanoides*.

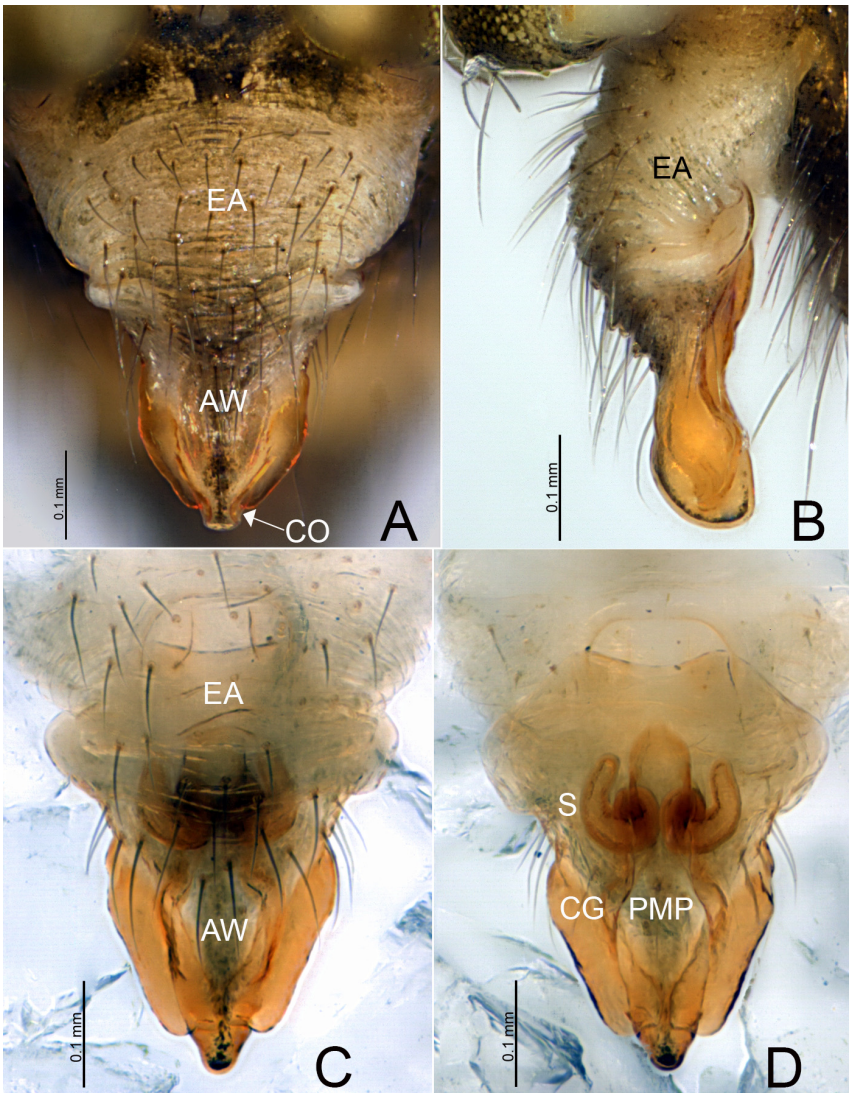


FIGURE 2. *Acanoides cornutus* **sp. n.**, female holotype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Epigyne, dorsal view. Abbreviations: AW—anterior wall of epigyne; CG—copulatory groove; CO—copulatory opening; EA—extensible area of epigynal basal part; PMP—posterior median plate; S—spermatheca.

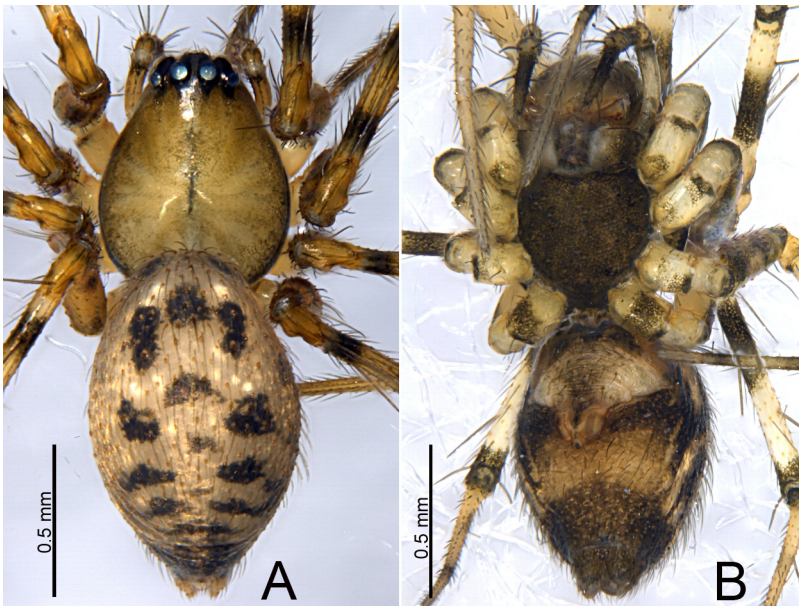


FIGURE 3. *Acanoides cornutus* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

***Acanoides ningxiangensis* Irfan, Zhang & Peng, sp. n. (宁乡类刺皿蛛)**
Figures 4–6, 315

Types. Holotype ♂ (HNU–HN–IV–1779), **CHINA, Hunan Prov.:** Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.10046°N, 112.66057°E, 209 m, 12.XI.2017, G.C. Zhou leg. **Paratypes:** 4♀, with same data as for holotype (HNU–HN–IV–1779); 1♀, Shaoyang City, Chengbu Co., Rulin Town, Lengshuiping Vill., Biyun Cave (specimen was collected at the mouth of the cave from the leaf litter), 26.34273°N, 110.32927°E, 473 m, 10.XI.2017, G.C. Zhou leg. (HNU–HN–IV–1778); 1♂, Hengyang City, Nanyue District, Nanyue Town, Huangzhu Vill., 27.262258°N, 112.73683°E, 160 m, 18.I.2018, G.C. Zhou & L.Y. Wang leg. (HNU–HNHS–18–08); 1♂, 10♀, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.1002°N, 112.5277°E, 187 m, 24.X.2017, G.C. Zhou leg. (HNU–HN–IV–1755).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. The males of *Acanoides ningxiangensis* **sp. n.** resemble those of *A. hengshanensis* in having similar radix and lamella characteristica in male palp (Figs 4A–D; Sun *et al.* 2014, figs 2A–G), but can be distinguished by the proximal cymbial apophysis not curved in *A. ningxiangensis* **sp. n.** (Fig. 4B; vs. apical part slightly curved); ventral part of distal arm of paracymbium round in *A. ningxiangensis* **sp. n.** (Figs 4B, 4C, pointed with red arrows; vs. margin not round); paracymbial lateral tooth horn-shaped in *A. ningxiangensis* **sp. n.** (Fig. 4B; somewhat triangular); distal end of thumb as wide as long in retrolateral view in *A. ningxiangensis* **sp. n.** (Fig. 4B; vs. longer than wide). Females of *A. ningxiangensis* **sp. n.** resembles those of *A. hengshanensis* in having the similar proximal part of anterior wall of epigyne somewhat globular (Figs 5A–C), and can be distinguished by oval spermathecae in *A. ningxiangensis* **sp. n.** (Fig. 5B; vs. beans-like). In male, chelicerae with one promarginal and one retromarginal teeth in *A. ningxiangensis* **sp. n.** (vs. two promarginal and two retromarginal teeth in *A. Hengshanensis*).

Description: Male (holotype, Figs 6A–B): Total length: 2.08, carapace 0.89 long, 0.76 wide, cephalic region slightly elevated, yellow; fovea, cervical and radial grooves distinct; laterally with a black band on each side. Clypeus 0.17 high. high. Chelicerae with one promarginal and one retromarginal teeth. Sternum as wide as long, brown. Eyes: AER recurved, PER slightly recurved and slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.07, PLE 0.06, AME–AME 0.03, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.03, AME–PME 0.07, ALE–ALE 0.28, PLE–PLE 0.30, ALE–PLE contiguous. Length of legs: I 5.04 (1.03, 1.58, 1.32, 0.84), II 4.21 (1.16, 1.28, 1.10, 0.67), III 3.36 (0.93, 0.98, 0.91, 0.54), IV 4.25 (1.11, 1.06, 1.32, 0.76). TmI 0.23 and TmIV absent. Opisthosoma 1.08 long, 0.69 wide, oval, dorsally densely covered with microsetae, with distinct black pattern extending posteriorly to base of spinnerets and on lateral sides; ventral side light brown followed by ventro-laterally with black patches at proximal and distal end.

Palp (Figs 4A–D): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, dorslally with long thick spine. Tibia with two retrolateral and one dorsal trichobothria, ventrally with small outgrowth equipped with spine at tip in prolateral view; cymbium unmodified, with proximal cymbial apophysis (PCA) with blunt tip; paracymbium (PC) large, proximal part broad with patch of 5 spines, lateral tooth reduced in size, situated at proximal part, pointing towards distal margin of tibia in ventral view (best visible in ventral view, Fig. 4C); pit hook (PH) invisible on undissected palp. Embolic division: radix (R) 2/3 the length of cymbium, narrowing towards distal end, Fickert's gland present at distal end; lamella characteristica (LC) unbranched, long and slender, with sharp and strongly sclerotized apex (best visible in ventral view, Fig. 4C); embolus (E) main body short, as wide as apical arm of paracymbium, strongly sclerotized, with serrated area on ventral surface; thumb (TH) horn-shaped, slightly curved with blunt end; embolus proper (EP) half the length of thumb, sharp with pointed end..

Description. Female (paratype, Figs 6C–D): Total length: 1.91, carapace 0.82 long, 0.63 wide; opisthosoma 1.01 long, 0.72 wide, all other morphological characters same as in male. Clypeus 0.15 high. Chelicerae with three promarginal and one retromarginal teeth. Sternum longer than wide, brown. Eyes: AER recurved, PER slightly recurved and slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.07, PLE 0.06, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.02, PME–PLE 0.02, AME–PME 0.05, ALE–ALE 0.26, PLE–PLE 0.28 ALE–PLE contiguous. Length of legs: I 3.93 (1.02, 1.25, 0.9, 0.67), II 3.32 (0.89, 1.01, 0.82, 0.60), III 2.59 (0.72, 0.84, 0.60, 0.43), IV 3.51 (0.89, 1.02, 0.98, 0.62). TmI 0.20.

Epigyne (Figs 5A–C): Epigynal plate two times wider than the length, anteriorly with conspicuous extendible area (EA). Ventral part of anterior wall (AW) of epigyne almost round, dorsal part of anterior wall wider than long forming lateral lobes; copulatory openings (CO) located on dorsal surface of anterior wall posteriorly, slits of epigynal grooves extending laterally, passing from ventral to dorsal surface, then convergent mesally. Posterior median plate, epigynal cavity, scape and stretcher absent; spermathecae finger-shaped.

Distribution. Known from the type localities (Hunan Province, Fig. 315).

Genus *Asiagone* Tanasevitch, 2014 (亚微蛛属)

Type species. *Asiagone signifera* Tanasevitch, 2014 from Laos; gender feminine.

Remark. *Asiagone* was described as a monotypic genus from Laos and based on the holotype only. Currently it includes four species (two species known from males) distributed in China, Laos and Thailand (WSC 2024).

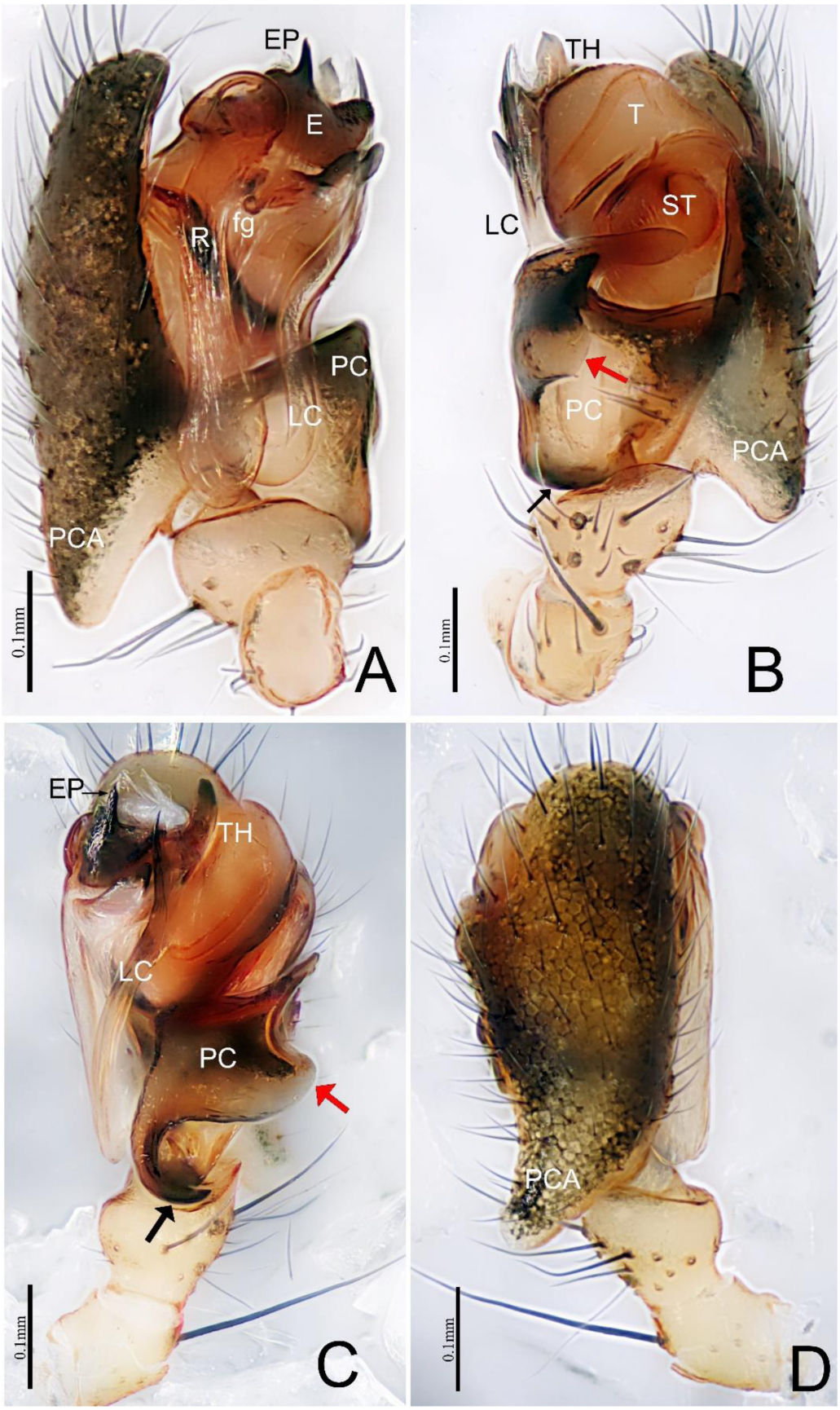


FIGURE 4. *Acanoides ningxiangensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. **A, C** Red arrows indicate the ventral broad part of paracymbium **B, C** black arrow indicates lateral tooth of paracymbium. Abbreviations: EP—embolus proper; fg—Fickert's gland; LC—lamella characteristica; PC—paracymbium; PCA—proximal cymbial apophysis; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis; TH—thumb of embolus.

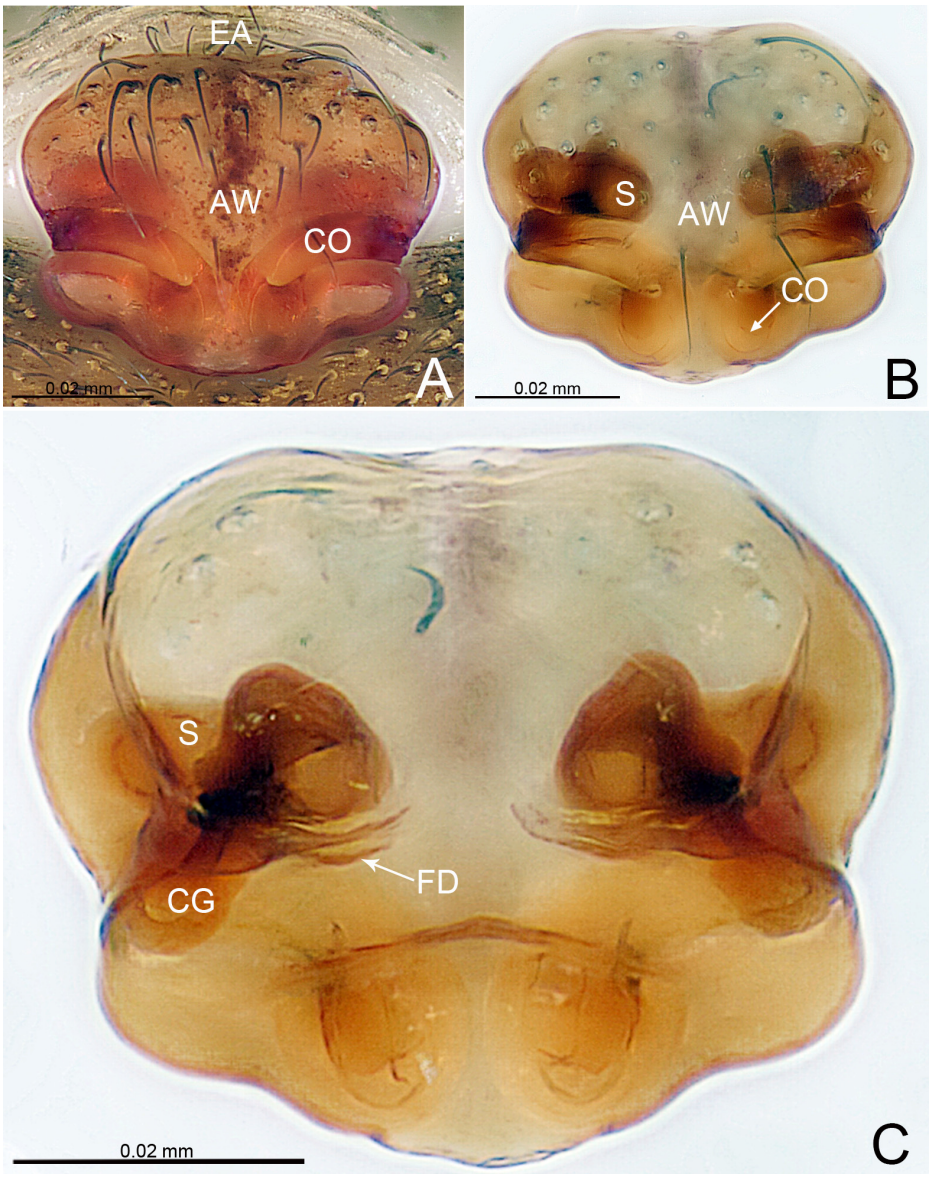


FIGURE 5. *Acanoides ningxiangensis* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: AW—anterior wall of epigyne; CG—copulatory groove; CO—copulatory opening; A—extensible area of epigynal basal part; FD—fertilization duct; S—spermatheca.

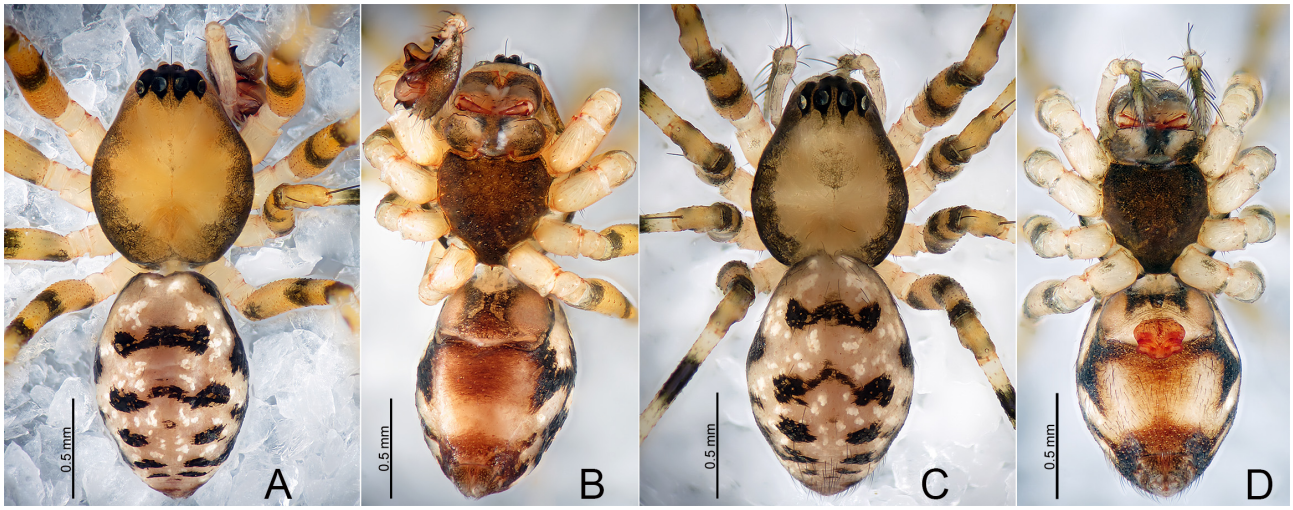


FIGURE 6. *Acanoides ningxiangensis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

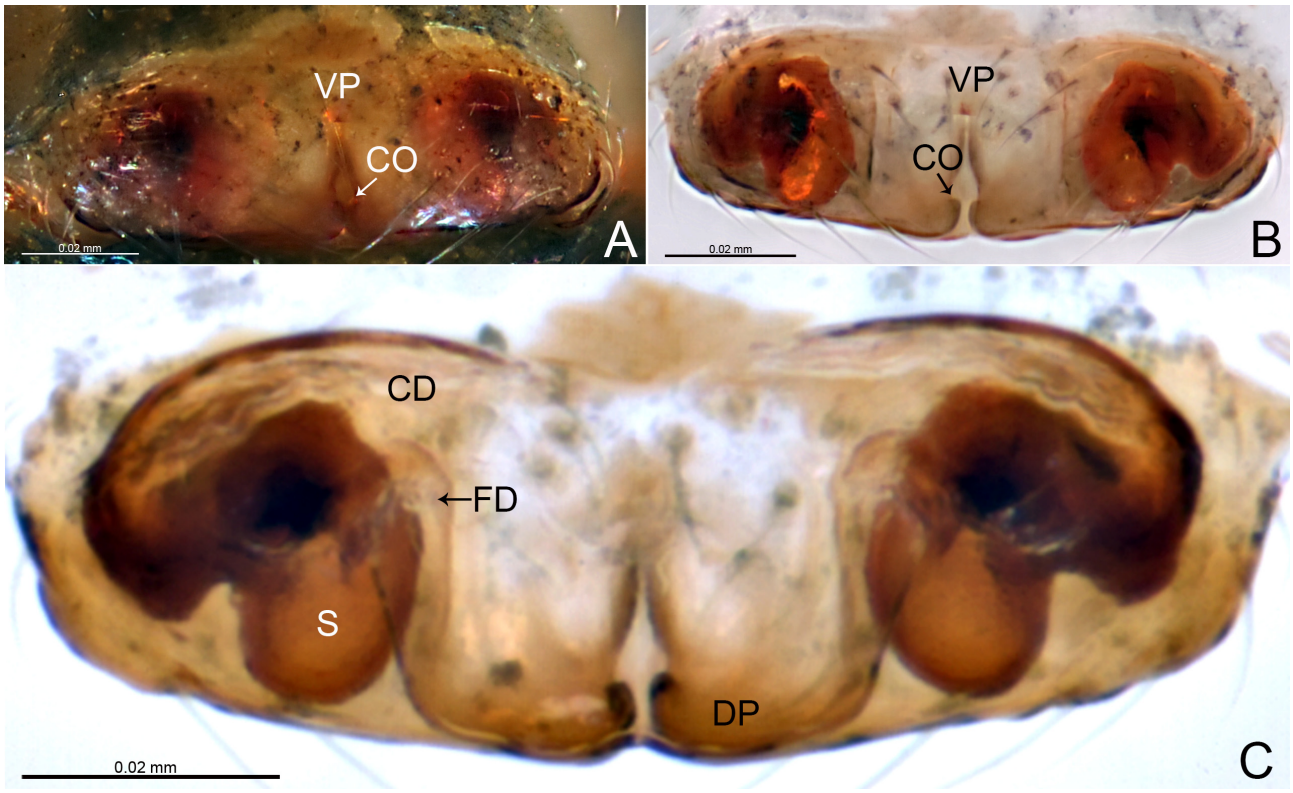


FIGURE 7. *Asiagone xingdouensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

***Asiagone xingdouensis* Irfan, Zhang & Peng, sp. n. (星斗亚微蛛)**
Figures 7, 8, 312

Types: Holotype ♀ (HNU–T20170520), **CHINA, Hubei Prov.:** Enshi Co., Xingdou MNNR, 30.039022°N, 109.14274°E, 1114 m, 20.V.2017, G.C. Zhou *et al.* leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Asiagone xingdouensis* **sp. n.** resembles *A. perforata* Tanasevitch, 2014 in having a notch at the ventral plate and the ventral & dorsal plates are fused in epigyne (Figs 7A–C; Zhao & Li, 2014, fig. 3A), but can be distinguished by the spermathecae present postero-lateral in *A. xingdouensis* **sp. n.** (Figs 7A–C; vs. present antero-laterally) copulatory ducts kidney-shaped in *A. xingdouensis* **sp. n.** (Figs 7A–C; vs. sinuous).

Description: Female (Figs 8A, B): Total length: 1.45. Carapace 0.58 long, 0.53 wide, dark brown, cephalic region dorsally with fovea, cervical and radial grooves distinct. Clypeus 0.11 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum wider than long, dark brown with microsetae. Eyes: AER recurved, PER slightly procurved and wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.06, PME 0.05, PLE 0.05, AME–AME, 0.02, PME–PME 0.03, AME–ALE, 0.03, PME–PLE, 0.03, ALE–ALE 0.24, PLE–PLE, 0.26, ALE–PLE contiguous. Length of legs: I 1.61 (0.48, 0.52, 0.33, 0.28), II 1.51 (0.45, 0.46, 0.31, 0.29), III 1.27 (0.38, 0.39, 0.26, 0.24), IV 1.73 (0.54, 0.59, 0.35, 0.25). Tibial spine formula: 2-2-1-1. TmI 0.19 and TmIV present. Opisthosoma 1.09 long, 0.76 wide, dark greenish, oval.

Epigyne (Figs 7A–C): The ventral plate (VP) rectangular in outline, with a conspicuous opening at the centre of the ventral plate. The ventral and dorsal plates (DP) are fused posteriorly; copulatory ducts (CD) form a long, curved loop before joining the spermathecae. Spermathecae (S) globular, head almost touching the posterior margin of the ventral plate. Fertilization ducts (FD) present mid dorsally.

Male. Unknown.

Distribution. Known only from type locality (Hubei Province, Fig. 312).

Genus *Auriculaiana* Irfan, Zhang & Peng, 2022 (耳叶蛛属)

Type species. *Auricula triangulara* Irfan, Zhang & Peng, 2022 from Yunnan, China; gender feminine.

Remark. *Auriculaiana* was described from Yunnan Prov. with four species (including two species known from males) (WSC 2024).

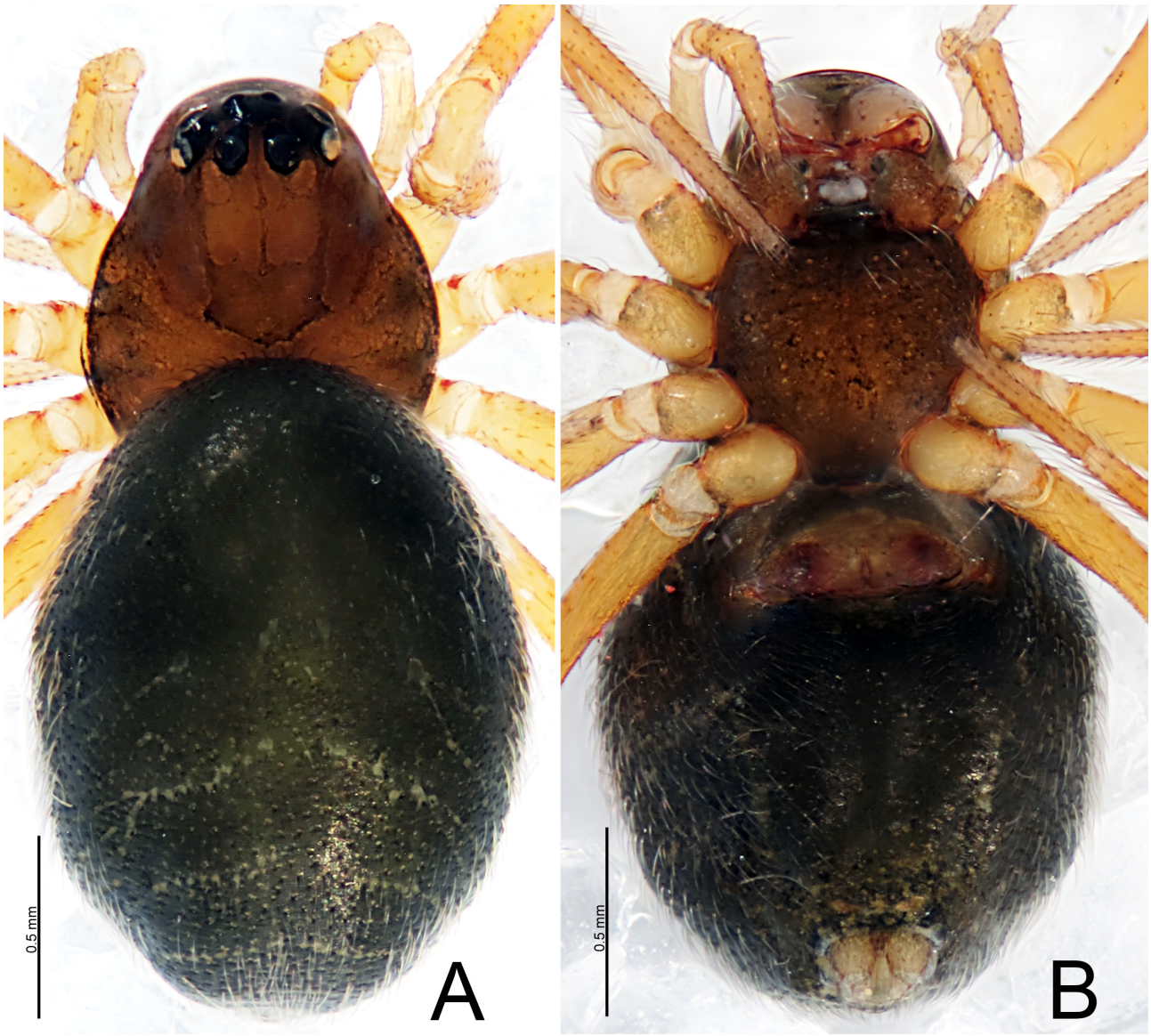


FIGURE 8. *Asiagone xingdouensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

Auriculaiana yongshunensis **Irfan, Zhang & Peng, sp. n. (永顺耳叶蛛)**
Figures 9, 10, 315

Types. Holotype ♀ (HNU–HN–IV–1807), **CHINA, Hunan Prov.:** Yongshun Co., Xiaoxi Town, Xiaoxi Vill., 28.79736°N, 110.26686°E, 583 m, 23.IV.2018, D. Li *et al.* leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Auriculaiana yongshunensis* **sp. n.** resembles *A. triangularis* Irfan, Zhang & Peng, 2022 in having the dorsal plate centrally with a similar depression in ventral view (Figs 9A–C; Irfan *et al.* 2022, figs 27A–C), but can be distinguished by the posterior margin of dorsal plate straight in *A. yongshunensis* **sp. n.** (Figs 9B, C; vs. round in *A. triangularis*).

Description. Female (holotype, Figs 10A, B): Total length: 1.62. Carapace 0.69 long, 0.49 wide, brown, with fovea, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, greenish brown, with microsetae. Eyes; AER straight, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.04, PME 0.03, PLE 0.04, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.01, PME–PLE 0.02, AME–PME 0.02, ALE–ALE 0.18, PLE–PLE 0.20, ALE–PLE contiguous. Length of legs: I 1.65 (0.52, 0.58, 0.31, 0.24), II 1.45 (0.49, 0.48, 0.25, 0.23), III 1.31 (0.42, 0.42, 0.24, 0.23), IV 1.62 (0.53, 0.54, 0.29, 0.26). Tibial spine formula: 2-2-1-1. TmI 0.19 and TmIV present. Opisthosoma 0.92 long, 0.67 wide, oval, blackish brown, dorsally with two pairs of sigillae, ventral side grey with light patches.

Epigyne (Figs 9A–C): Epigynal plate sclerotized, wider than long; ventral plate (VP) concave; copulatory opening (CO) present at the base of septum; dorsal plate (DP) mid ventrally with depression; copulatory ducts (CD) forming large round loop anteriorly; spermathecae (S) globular, present on dorso-lateral side of dorsal plate,

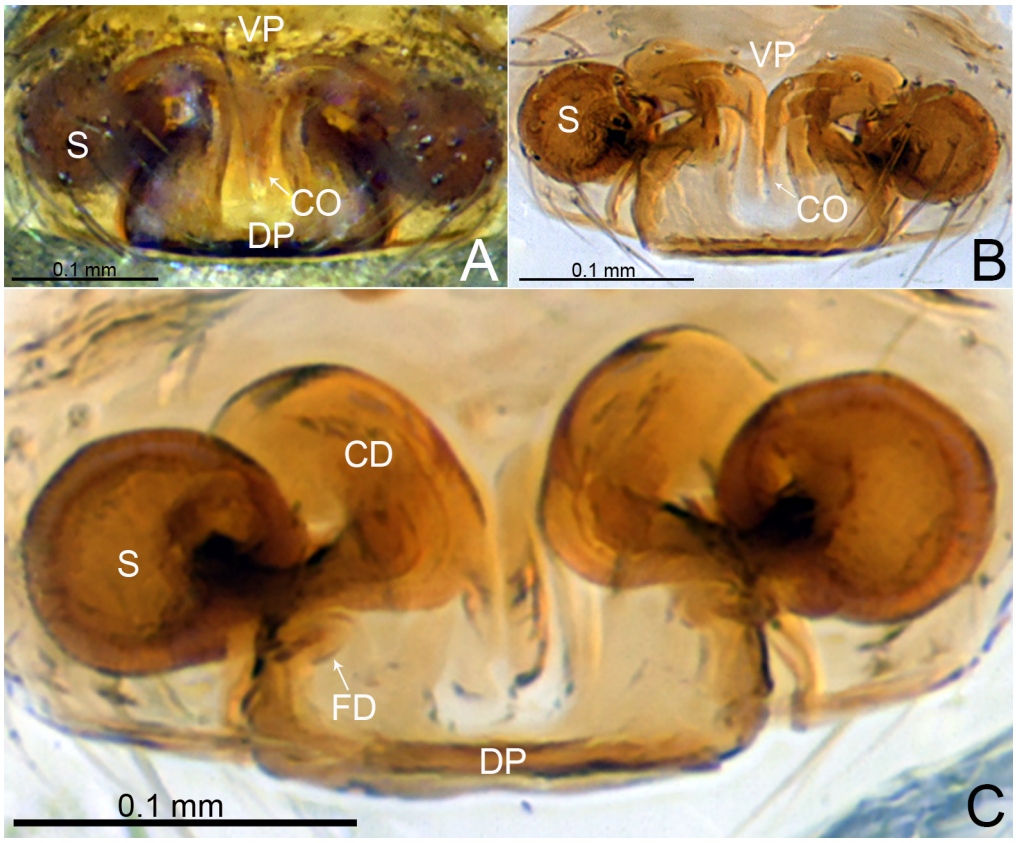


FIGURE 9. *Auriculaiana yongshunensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca.

pointing away from each other, spaced by two-third of diameters. Fertilization ducts (FD) present dorso-laterally, extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Genus *Baryphyma* Simon, 1884 (new to China) (瘤皿蛛属)

Type species. *Walckenaera pratensis* Blackwall, 1861; gender neuter.

Remark. *Baryphyma* comprises six species (including one species known from males and one known from females) distributed across Holarctic (WSC 2024).

Baryphyma xiaoxiense Irfan, Zhang & Peng, sp. n. (小溪瘤皿蛛)

Figures 11–13, 315

Types. Holotype ♂ (HNU-HN-IV-1806), **CHINA, Hunan Prov.:** Yongshun Co., Xiaoxi Town, Xiaoxi Vill., 28.820961°N, 110.253361°E, 533 m, 21.IV.2018, D. Li *et al.* leg. **Paratypes:** 1♂, same data as holotype (HNU-HN-IV-1806).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Baryphyma xiaoxiense* **sp. n.** resembles *B. trifrons* (O. Pickard-Cambridge, 1863) in having the similar long embolus (Figs 11A–D; Paquin & Duperre 2003, figs 788, 790), but can be distinguished by the cephalic lobe rod-like with tapering apical end in *B. xiaoxiense* **sp. n.** (Figs 13A, B; vs. rectangular); dorsal tibial apophysis with bifurcated apex in *B. xiaoxiense* **sp. n.** (Figs 13A, B; vs. not bifurcated); anterior radical apophysis somewhat S-shaped in *B. xiaoxiense* **sp. n.** (Figs 13A, B; vs. column-shaped).

Description. Male (holotype, Figs 13A–C). Total length: 1.56. Carapace 0. 68 long, 0.52 wide, cephalic lobe 0.30 long, longer than wide, gradually narrow towards distal end, PMEs present on the cephalic lobe, cephalic pits absent, ocular quad densely covered with spines. Clypeus 0.21 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum as wide as long, brown, with microsetae. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.03, PME 0.04, PLE 0.05, AME–AME 0.03, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.14, AME–PME 0.20 ALE–ALE 0.22, PLE–PLE 0.24, ALE–PLE 0.01. Length of legs: I 1.75 (0.51, 0.61, 0.37, 0.26), II 1.1.62 (0.49, 0.54, 0.34, 0.25), III 1.40 (0.42, 0.46, 0.31, 0.21), IV 1.77 (0.54, 0.62, 0.38, 0.23). Tibial spine formula: 1-1-1-1. TmI 0.26, TmIV 0.23. Opisthosoma 0.88 long, 0.67 wide, black.

Palp (Figs 11A–D, 12A, B): Femur unmodified, almost as long as both patella and tibia. Patella short, ventrally grooved. Tibia with one retrolateral trichobothria, with

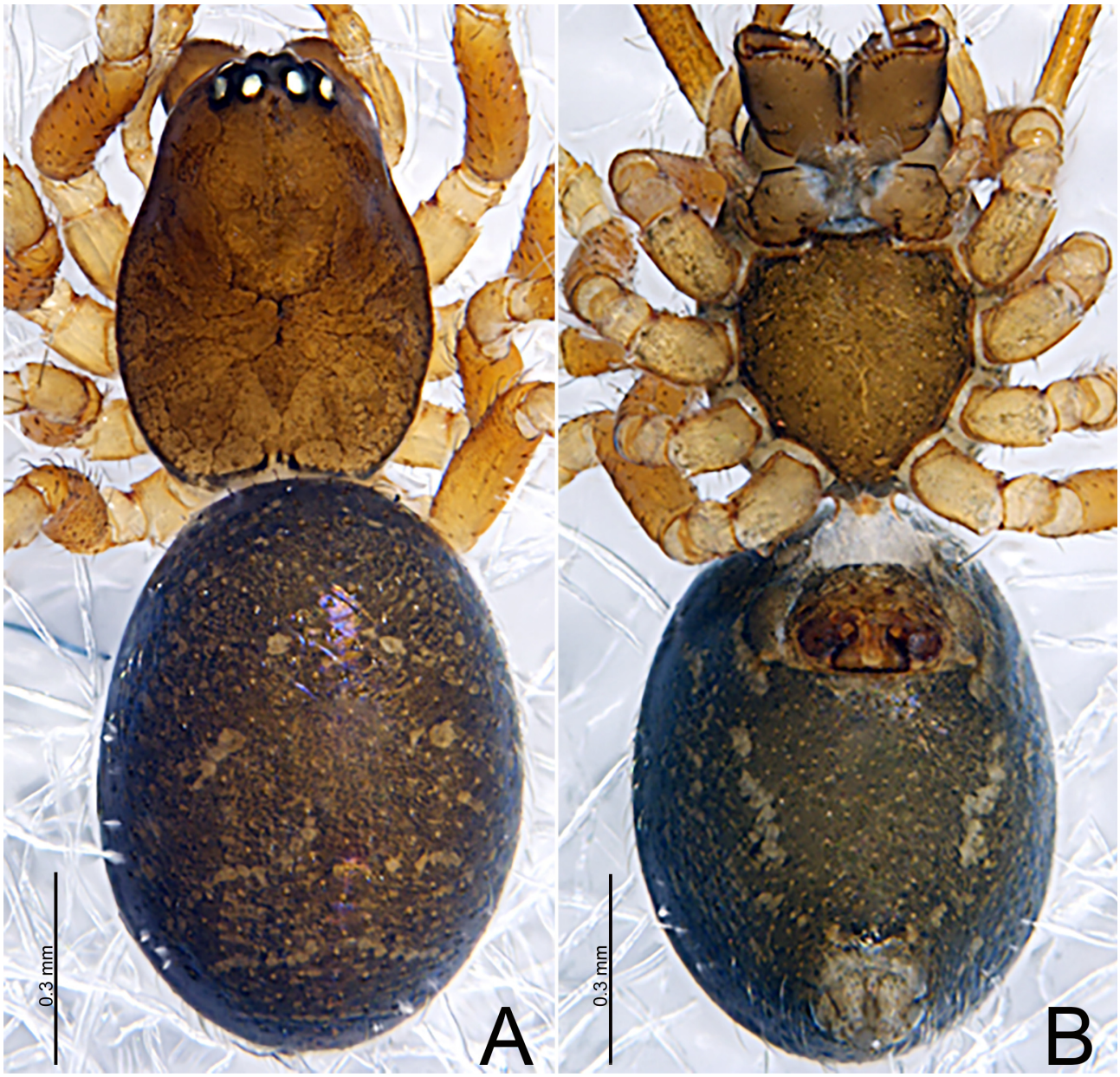


FIGURE 10. *Auriculaiana yongshunensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

two apophyses, retrolateral tibial apophysis (RTA) with round ventral margin, ventrally with a sclerotized small tooth (best visible in dorsal view, Fig. 11C). Cymbium unmodified, distal end broad, mid dorsally slightly grooved forming a pocket for distal part of dorsal tibial apophysis; dorsal tibial apophysis (DTA) longer than wide, slightly curved, distal end bifurcated; paracymbium (PC) J-shaped; tegulum covered by the embolic division, visible in prolateral view; distal suprategular apophysis (DSA) distal part unmodified, C-shaped with pointed end. Tailpiece (TP) with of embolic division blunt tip; anterior radical apophysis (ARP) sinuous; embolic membrane (EM) transparent, running along the embolus; embolus (E) long, filiform, almost forming 1.5 circles.

Female. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Genus *Bathyphantes* Menge, 1866 (指蛛属)

Type species. *Bathyphantes longipes* Menge, 1866; gender masculine.

Remark. *Bathyphantes* comprises 63 species (including ten species known from females and four species known from males) distributed worldwide (WSC 2024).

Bathyphantes paracymbialis Tanasevitch, 2014 (副舟指蛛)

Figures 14–16, 315

Bathyphantes paracymbialis Tanasevitch, 2014: 73, figs 15–23 (♂♀); Zhao & Li 2014: 11, figs 5A–D, 6A–E, 7A–F, 8A–D (♂♀).

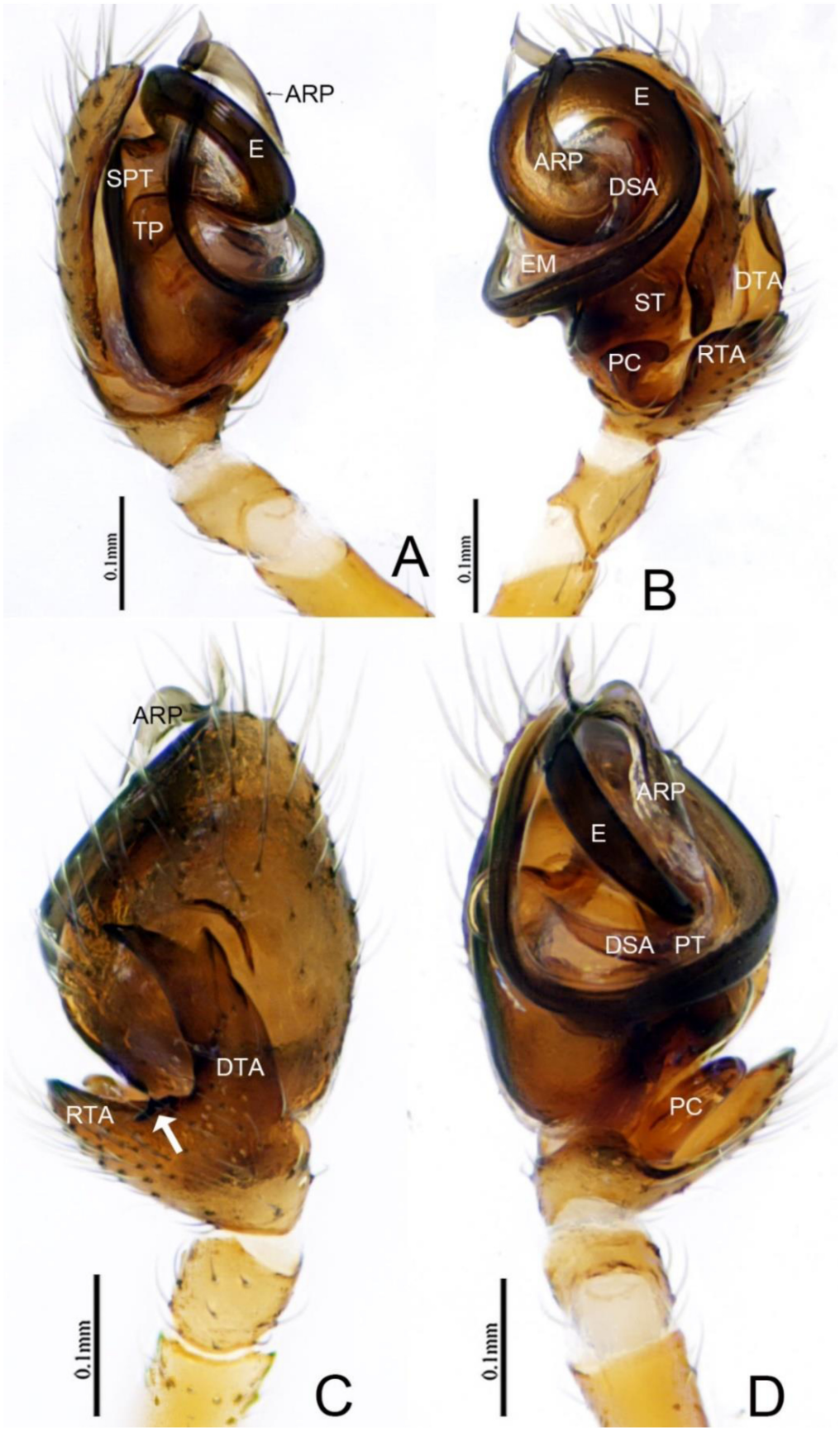


FIGURE 11. *Baryphyma xiaoxiense* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; EM—embolic membrane; PC—paracymbium; PT—protegulum; RTA—retrolateral tibial apophysis; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

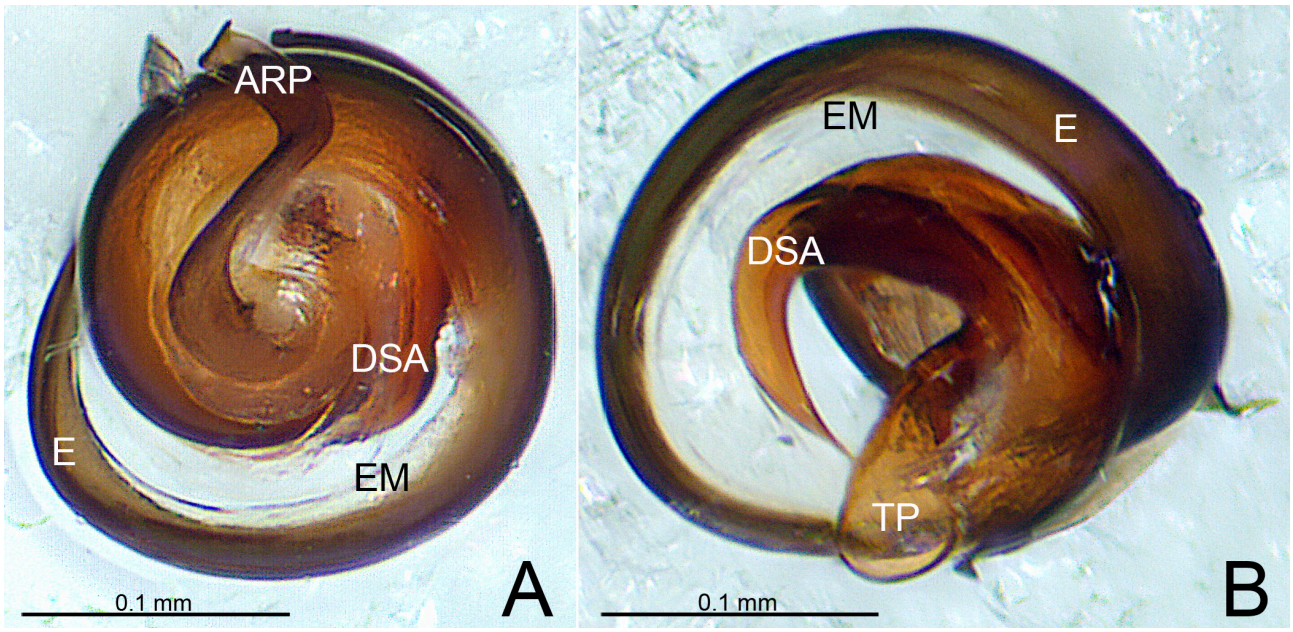


FIGURE 12. *Baryphyma xiaoxiense* **sp. n.**, male paratype palp. **A** Embolic division, ventral view; **B** Embolic division, dorsal view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; E—embolus; EM—embolic membrane; TP—tailpiece.



FIGURE 13. *Baryphyma xiaoxiense* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, lateral view; **C** Habitus, ventral view.

Material examined. 2♂, **CHINA, Hunan Prov.:** Hengyang City, Nanyue District, Hengshan NNR, Xiangnan Temple, 27.281136°N, 112.69919°E, 981 m, 19.I.2018, G.C. Zhou *et al.* leg.; 5♂1♀, Hengyang City, Nanyue District, Hengshan NNR, Guanjing Villa, 27.290263°N, 112.70072°E, 1186 m, 19.I.2018, G.C. Zhou *et al.* leg.; 2♂1♀, Shaoyang City, Chengbu Co., Rulin Town, Lengshuiping Vill., Biyun Cave, 26.34273°N, 110.39927°E, 473 m, 10.XI.2017, G.C. Zhou leg.; 2♂1♀, Shaoyang City, Chengbu Co., Dajiang Town, Taiping Vill., 26.34007°N, 110.24947°E, 553 m, 09.XI.2017, G.C. Zhou leg.; 1♂1♀, Huaihua City, Qianxi Co., Yanling Co., Xuezongxi Vill., Muxi NNR, 28.87690°N, 110.44164°E, 399 m, 10.VIII.2017, X.J. Peng *et al.* leg.; **Hubei Prov.:** 1♀, Enshi Co. Huangjindong Town, Maliuxi Vill., 29.95008°N, 109.02562°E, 863 m, 20.V.2017, G.C. Zhou *et al.* leg.; 1♂1♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95008°N, 109.02562°E, 863 m, 20.V.2017, G.C. Zhou *et al.* leg.; **Chongqing:** 1♂3♀, Pengshui Co., Mowei MSS, 29.18643°N, 108.050811°E, 1568 m, 25.VII.2017, M. Irfan & G.C. Zhou leg.; **Guizhou Prov.:** 1♀, Tongren City, Shiqian Co., Pingshan Town, Fodingshan Vill.,

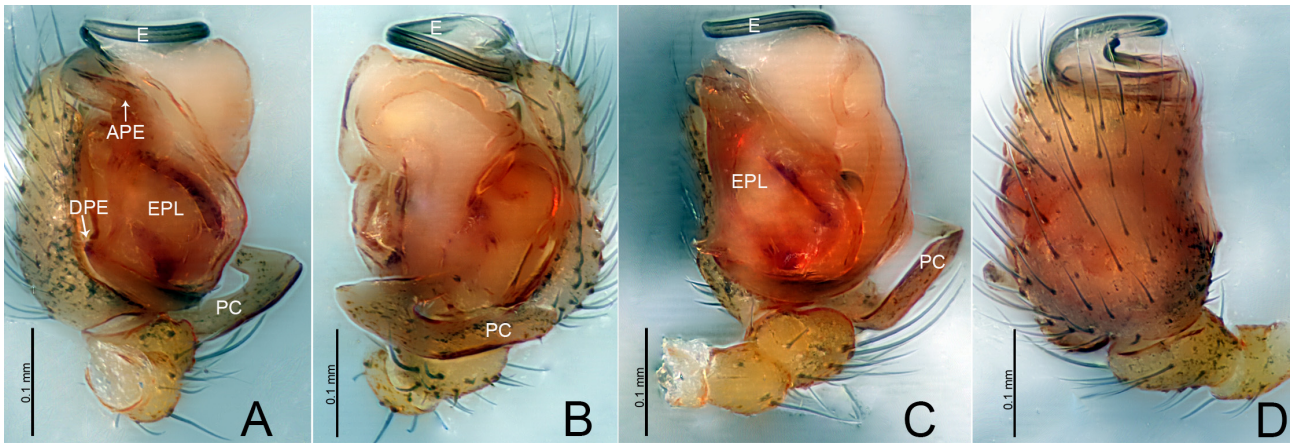


FIGURE 14. *Bathyphantes paracymbialis* Tanasevitch, 2014, male. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: ALP—anterior projection of lamella; APE—anterior projection of embolic; E—embolus; EPL—embolic plate; PC—paracymbium.

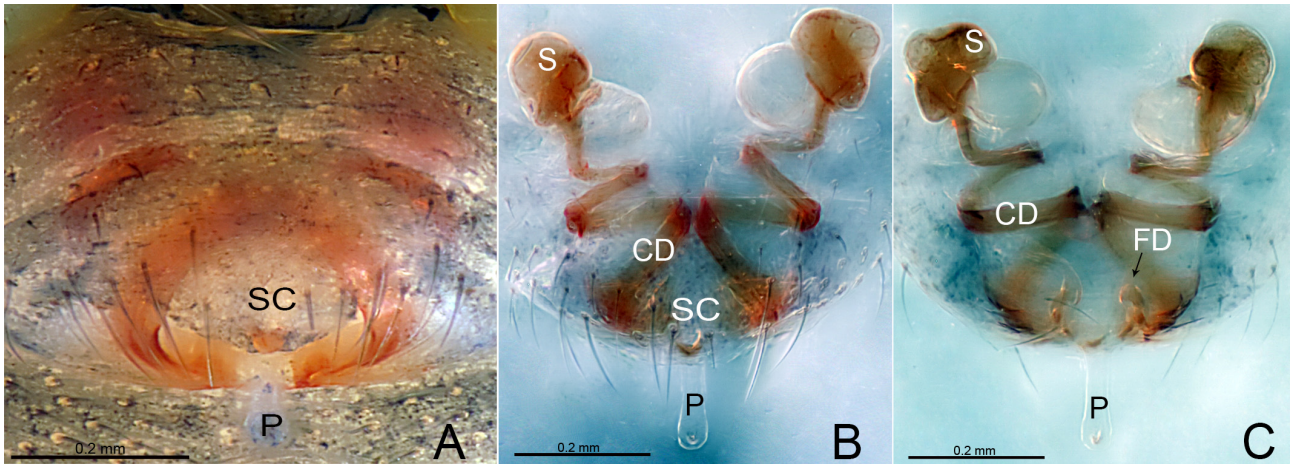


FIGURE 15. *Bathyphantes paracymbialis* Tanasevitch, 2014, female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; SC—scape; P—parmula; FD—fertilization duct; S—spermatheca.

Fodingshan NNR, 27.33287°N, 108.15597°E, 644 m, 31.X.2017, G.C. Zhou *et al.* leg.

Distribution. China (Chongqing, Guizhou, Hubei, Hunan and Yunnan Provinces, Figs 307, 310, 312, 315), Indonesia (Sumatra), Laos, Malaysia, Myanmar, Thailand.

***Bathyphantes pseudogracilis* Irfan, Zhang & Peng, sp. n. (拟柔弱指蛛)**

Figures 17–19, 315

Types. Holotype ♂ (HNU–HN–IV–1718), **CHINA, Hunan Prov.:** Ningxiang Co., Huaminglou Town, Tanzi Vill., 28.032005°N, 112.640872°E, 72 m, 09.V.2017, G.C. Zhou *et al.* leg. **Paratypes:** 1♀, with same data as for holotype; 1♂, Ningxiang Co., Huaminglou Town, Shili Vill., 28.09017°N, 112.66843°E, 146 m, 09.V.2017, G.C. Zhou *et al.* leg. (HNU–HN–IV–1702).

Etymology. The specific name is based on the similarity of most morphological characteristics of the new species to those of *B. gracilis* (Blackwall, 1841).

Diagnosis. *Bathyphantes pseudogracilis* **sp. n.** resembles *B. gracilis*, and *B. parvulus* in having a similar paracymbium in male palp and epigyne with similar scape in females (Figs 17A–C, 18A; Roberts 1987, figs 70b, c), but can be distinguished by the tibia species 1.6 times longer than wide in *B. pseudogracilis* **sp. n.** (Figs 17A–C; vs. as long as wide in *B. gracilis*); embolus semicircular in *B. pseudogracilis* **sp. n.** (Figs 17A–C; vs. almost forming a complete circle in *B. gracilis*). Female can be distinguished by the globular spermathecae in *B. pseudogracilis* **sp. n.** (Figs 18A–C; vs. elongated in *B. gracilis* and C-shaped in *B. parvulus*).

Description. Male (holotype, Figs 19A, B): Total length: 1.72. Carapace 0.78 long, 0.66 wide, the cephalic region slightly elevated, yellowish brown, fovea, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with four promarginal and two retromarginal teeth. Sternum longer than wide, brown, with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.07, PLE 0.08, AME–AME 0.02, PME–PME

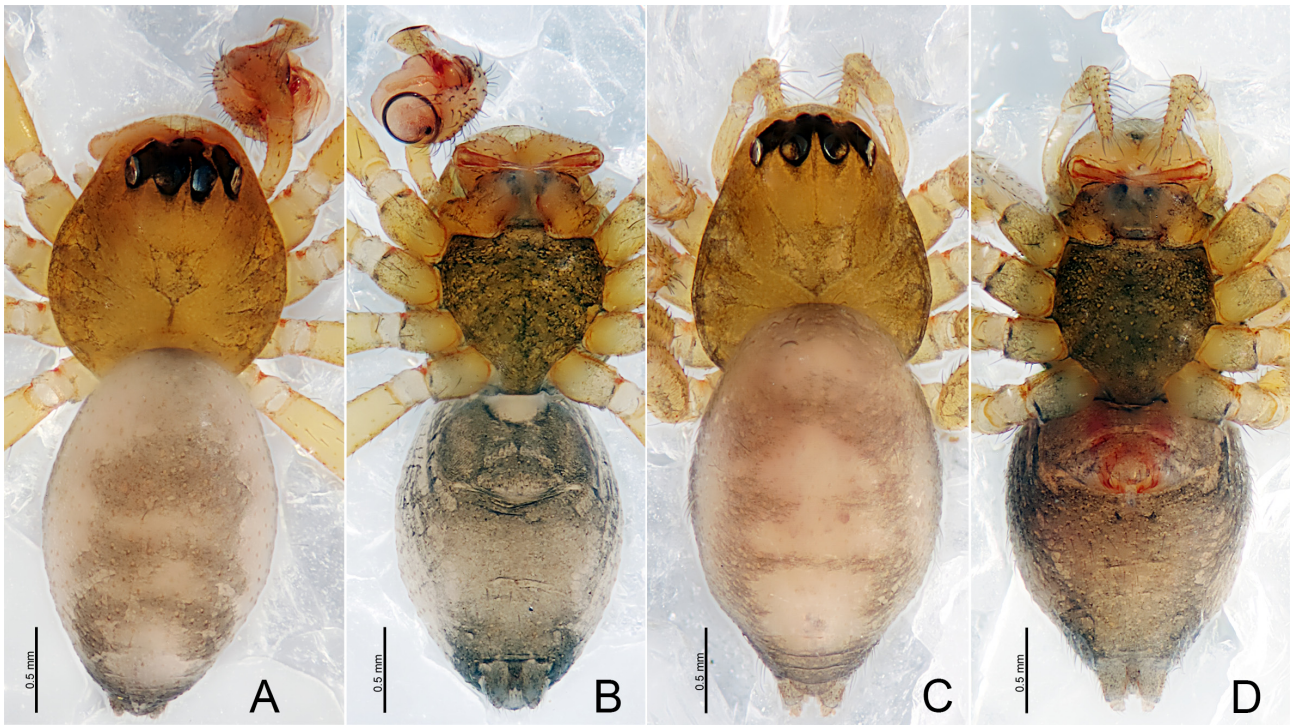


FIGURE 16. *Bathyphantes paracymbialis* Tanasevitch, 2014, male (A, B), female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

0.05, AME–ALE, 0.04, PME–PLE 0.06, ALE–ALE 0.33, PLE–PLE 0.36, ALE–PLE contiguous. Length of legs: I 5.87 (1.61, 1.76, 1.62, 0.88), II 4.7 (1.28, 1.42, 1.24, 0.76), III 3.05 (0.89, 0.92, 0.76, 0.48), IV 4.13 (1.23, 1.29, 1.07, 0.54). Tibial spine formula: 2-2-2-2. TmI 0.69 and TmIV absent. Opisthosoma 0.94 long, 0.52 wide, oval, dorsally grey with distinct pattern of alternative greenish patches extending posteriorly; lateral sides black, ventral side greenish, mid ventrally with broad grey patch.

Palp (Figs 17A–D): Femur unmodified, almost longer than patella, tibia and cymbium. Patella almost as long as tibia, ventrally grooved. Tibia conic, with two retrolateral and i dorsal trichobothria. Cymbium unmodified, retrolateral margin with small projection; paracymbium (PC) sclerotized, U-shaped; tegulum (T) with a prominent bulge on ectal side; distal suprategular apophysis (DSA) simple, slightly curved with blunt end. Median membrane (MM) extending out through the base of embolic plate and thread-like projections on prolateral surface of apical portion; embolic plate (EPL) highly sclerotized, broad; dorsal projection of embolic plate (DPE) slightly touches the cymbium in prolateral view; anterior projection of embolic plate (APE) thick with blunt end, ventral process of embolic plate (VPE) slightly curved; embolus (E) gradually narrowed to end, slightly curved, not forming transverse loop at distal end.

Female (paratype, Figs 19C, D): Total length: 2.09. Carapace 0.78 long, 0.62 wide, the cephalic region slightly elevated, pale, fovea, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with five promarginal and three retromarginal teeth. Sternum longer than wide, dark brown, with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.07, PLE 0.07, AME–AME 0.03, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.04, ALE–ALE 0.29, PLE–PLE 0.31, ALE–PLE contiguous. Length of legs: I 4.34 (1.15, 1.44, 1.09, 0.66), II 3.68 (1.08, 1.17, 0.93, 0.5), III 2.55 (0.78, 0.79, 0.59, 0.39), IV 3.5 (1.03, 1.12, 0.82, 0.53). Tibial spine formula: 2-2-2-2. TmI 0.59 and TmIV absent. Opisthosoma 1.31 long, 0.83 wide, oval, all other morphological characters same as in male except darker in color.

Epigyne (Figs 18A–C): Ventral plate (VP) simple, broad, scape (SC) wider than long, posterior end round; parmula (P) short, globular; copulatory ducts (CD) forming 2 loops before joining the spermathecae; spermathecae (S) large, present anteriorly on dorsal plate, pointing away from each other; fertilization ducts (FD) extending mesally.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Genus *Bifurcia* Saaristo, Tu & Li, 2006 (叉蛛属)

Type species. *Arcuphantes ramosus* Li & Zhu, 1987; gender feminine.

Remark. *Bifurcia* comprises ten species (including two species known from females) distributed in eastern China and far east Russia (WSC 2024).

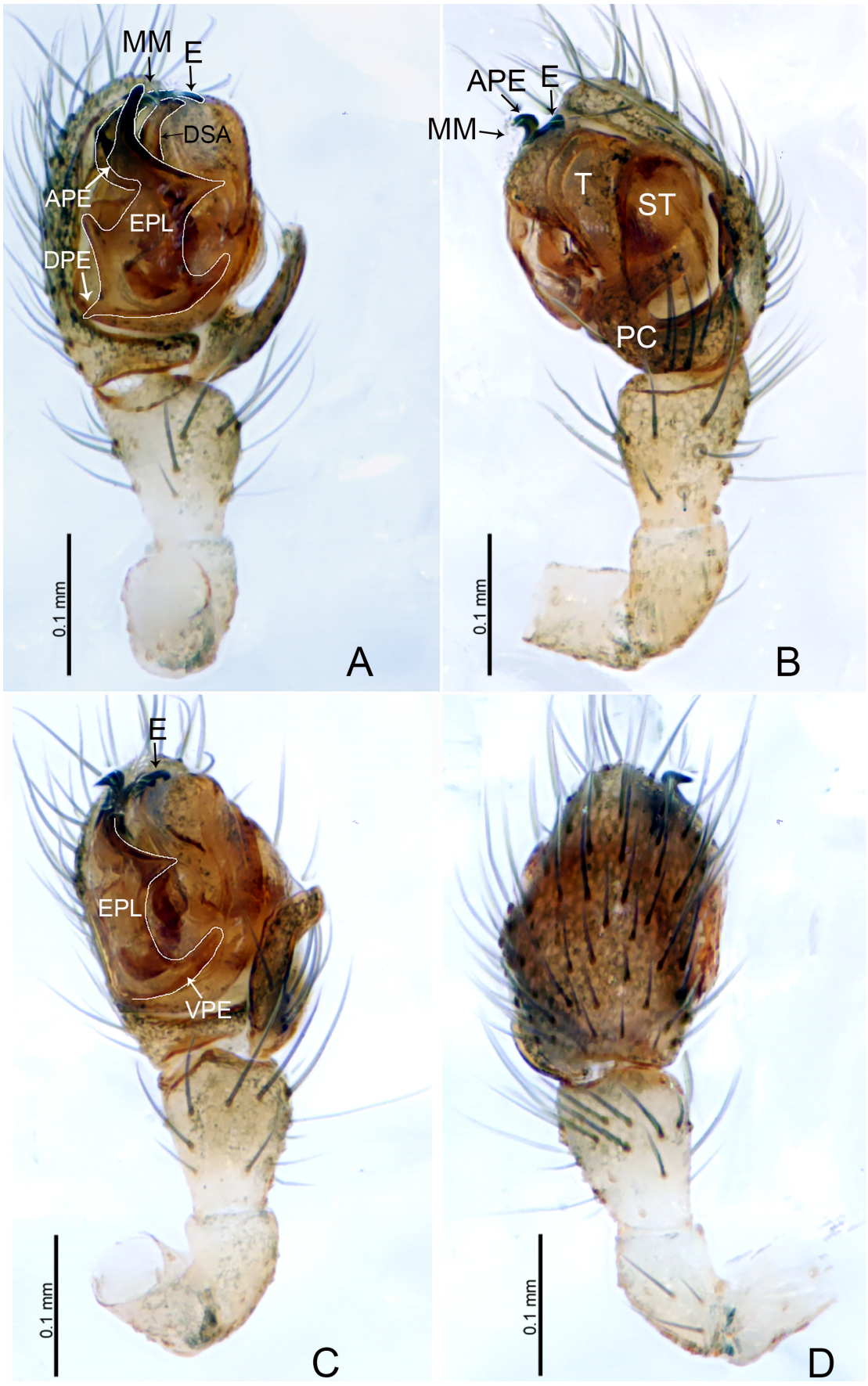


FIGURE 17. *Bathyphantes pseudogracilis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: APE—anterior projection of embolic; DPE—dorsal projection of embolic plate; DSA—distal suprategular apophysis; E—embolus; EPL—embolic plate; PC—paracymbium; ST—subtegulum; T—tegulum; VPL—ventral projection of embolic plate.

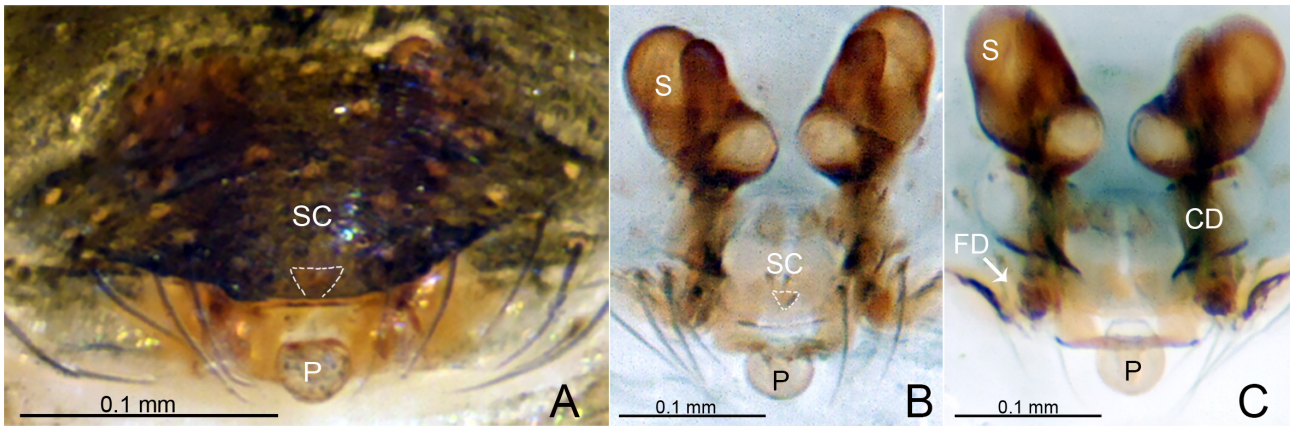


FIGURE 18. *Bathyphantes pseudogracilis* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; SC—scape; P—parmula; FD—fertilization duct; S—spermatheca.

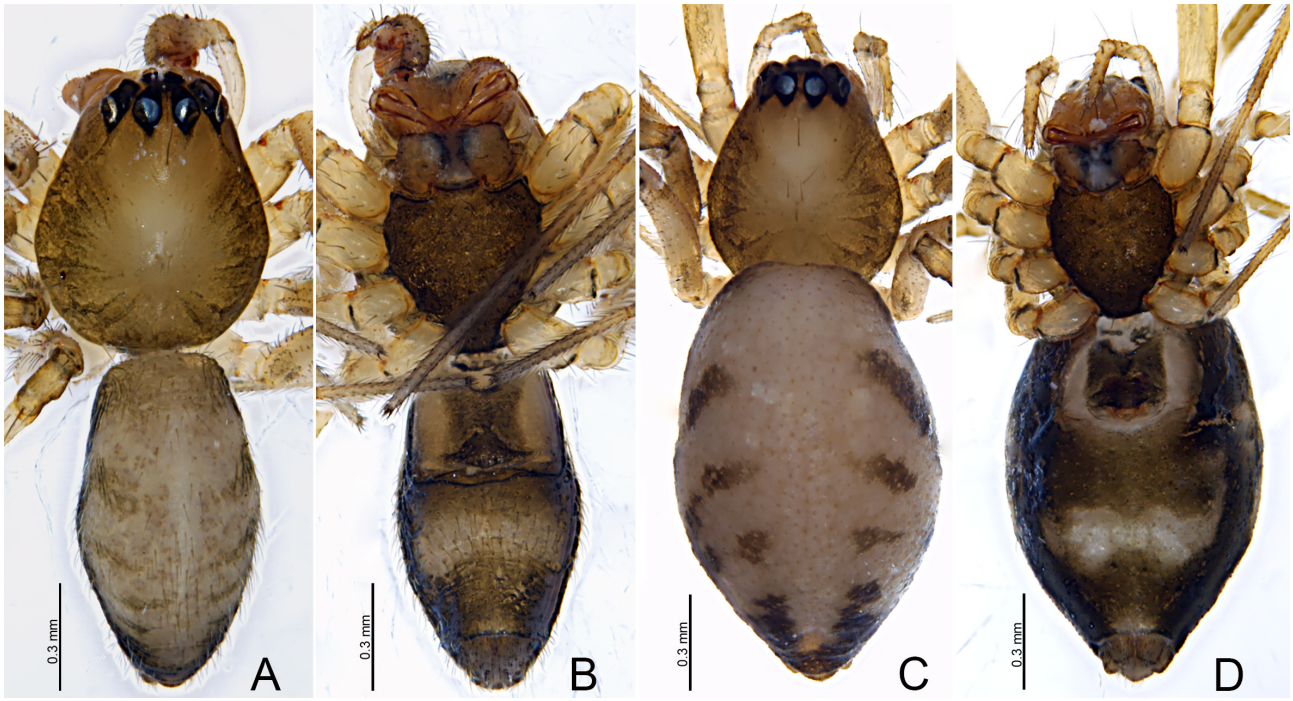


FIGURE 19. *Bathyphantes pseudogracilis* **sp. n.**, male holotype (A, B), female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

***Bifurcia cochlearis* Irfan, Zhang & Peng, sp. n. (匙叉蛛)**

Figures 20, 21, 312

Types. Holotype ♂ (HNU–20160426), **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.3406°N, 110.4131°E, 1320 m, 08.XI.2017, W. Liu *et al.* leg.

Etymology. The specific epithet is derived from the Latin adjective "*cochlearis*" meaning "spoon" and referring to the spoon-like paracymbium in male palp.

Diagnosis. The male of *Bifurcia cochlearis* **sp. n.** can be distinguished from those of all other congeners by the paracymbium spoon-like, 2/3 length of cymbium, proximal end ventrally with three small projections; embolus thumb-shaped (Figs 20B–D).

Description. Male (holotype, Figs 21A, B): Total length: 2.22. Carapace 1.02 long, 0.87 wide, light green, fovea, cervical and radial grooves distinct. Clypeus 0.12 high. Chelicerae with one promarginal and one retromarginal tooth. Sternum wider than long, greenish, with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.07, PLE 0.06, AME–AME 0.03, PME–PME 0.02, AME–ALE, 0.06, PME–PLE 0.06, AME–PME 0.07, ALE–ALE 0.35, PLE–PLE 0.38, ALE–PLE 0.02. Legs long and with alternative light and green patches. Length of legs: I 6.56 (1.84, 2.31, 1.58, 0.83), II 5.71 (1.49, 1.89, 1.55, 0.78), III 4.11 (1.19, 1.27, 1.24, 0.41), IV 5.33 (1.63, 1.65, 1.4, 0.65). Tibial spine formula: 2-2-2-2. TmI 0.69, TmIV absent. Opisthosoma 1.19 long, 0.73 wide, oval, dorsally with distinct pattern of alternative transverse dark and grey patches starting from the proximal part of opisthosoma to extending to base of

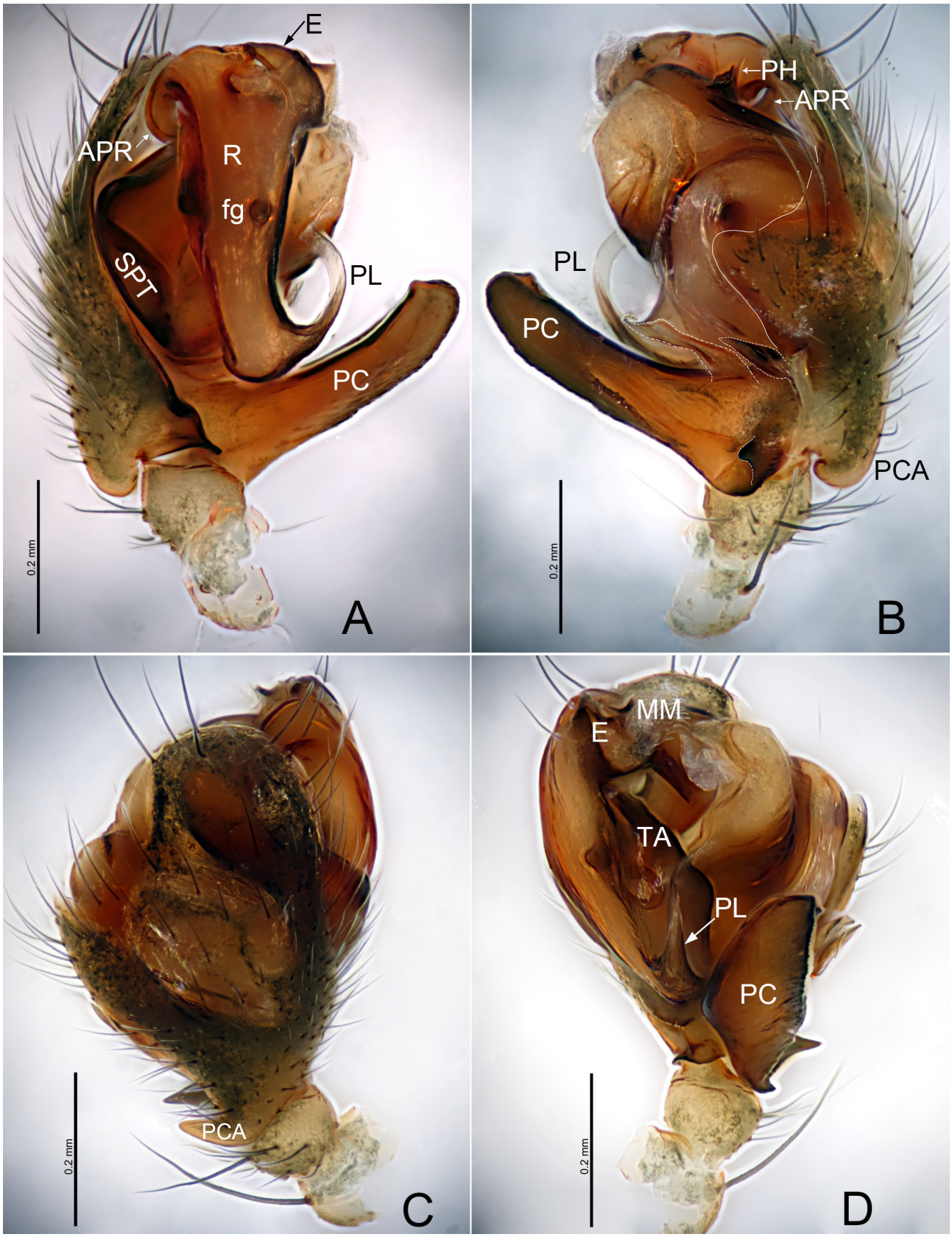


FIGURE 20. *Bifurcia cochlearis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: ARP—anterior radical process; E—embolus; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PCA—proximal cymbial apophysis; PL—pseudolamella; R—radix; TA—terminal apophysis.

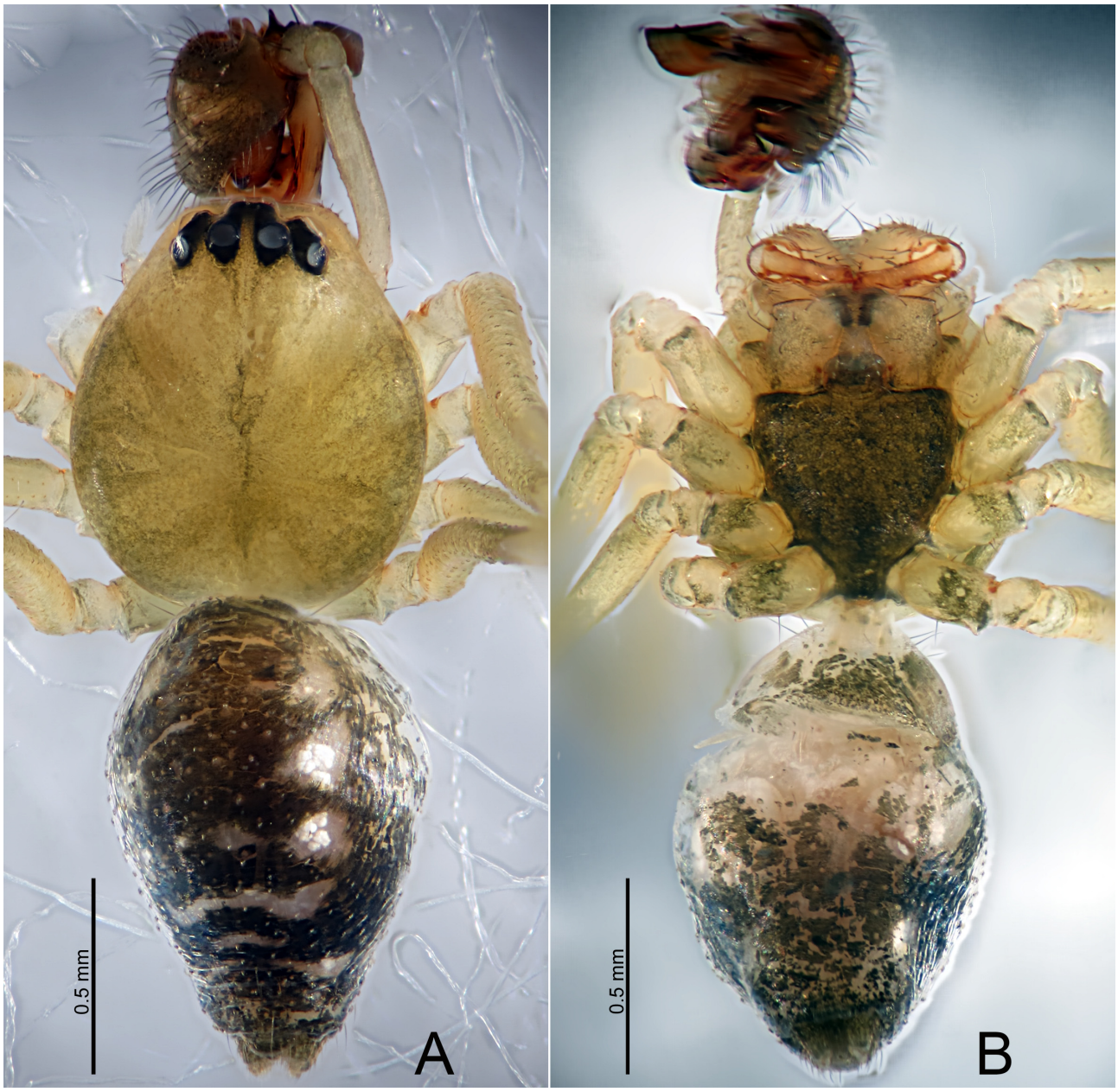


FIGURE 21. *Bifurcia cochlearis* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

spinnerets, grey patches laterally with white markings; ventral side greenish.

Palp (Figs 20A–D): Femur unmodified, almost longer than patella, tibia and cymbium. Patella almost as long as tibia, ventrally grooved. Tibia conic, with one retrolateral trichobothria; cymbium retrolateral margin with a shallow depression at the base, retrolateral margin with a broad outgrowth extending towards subtegulum, prolateral margin proximally somewhat triangular with blunt end, dorsally with tail-like proximal cymbial apophysis (PCA), with blunt tip; paracymbium (PC) sclerotized, elongated, proximal end slightly curved inward with two small projections and with additional median branch, gradually tapering towards distal end with blunt tip. Median membrane (MM) extending out through the base of embolic plate; radix (R) longer than wide with Fickert's gland (fg); pseudolamella (PL) distally membranous, almost half the length of paracymbium; terminal apophysis (TA) sclerotized, longer than wide, extending forward; embolus (E) short, slightly curved.

Female. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 312).

Remarks. After carefully comparing *Bifurcia cochlearis* **sp. n.** with both genera *Arcuphantes* (Ma, Marusik & Tu, 2016) and *Bifurcia* (Saaristo, Tu & Li, 2006), we determined that, based on the characteristics of the male palp, it belongs to the genus *Bifurcia*. The discovery of a female specimen in the future will provide further clarity on its status. For now, the *B. cochlearis* **sp. n.** is classified under the genus *Bifurcia*.

***Bifurcia ramosa* (Li & Zhu, 1987) (多枝叉蛛)**
Figures 22–24, 310, 315

Arcuphantes ramosus Li & Zhu, in Li *et al.* 1987: 45, figs 3A–E (♀).

Bifurcia ramosa Saaristo *et al.* 2006: 387, figs 1–8 (Transfered ♂♀ from *Arcuphantes*); Tu & Hormiga 2010: 61, figs 3a–h, 9C, D (♀); Yin *et al.* 2012: 481, figs 220a–h (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♂1♀, **Hunan Prov.:** Shaoyang City, Chengbu Co., Rulin Town, Daqiao Vill., 26.34077°N, 110.27790°E, 527 m, 08.XI.2017, G.C. Zhou leg.; 1♀, Changde City, Taoyuan Co., Shaping Town, Saiyang Vill., Wuyunjie NNR, 28.610935°N, 110.40597°E, 135 m, 07.VIII.2017, X.J. Peng *et al.* leg.; **Guizhou Prov.:** 1♀, Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 28.00130°N, 108.80578°E, 1160 m, 06.XI.2017, G.C. Zhou leg.; 1♀, Tongren City, Shiqian Co., Pingshan Town, Fodingshan Vill., Fodingshan NNR, 27.33157°N, 108.15597°E, 672 m, 01.XI.2017, G.C. Zhou *et al.* leg.; 2♀, Tongren City, Shiqian Co., Pingshan Town, Pingshan NNR, 27.34480°N, 108.16684°E, 616 m, 02.XI.2017, G.C. Zhou *et al.* leg.

Distribution. China (Hubei, Hunan and Guizhou Provinces, Fig. 310, 315).

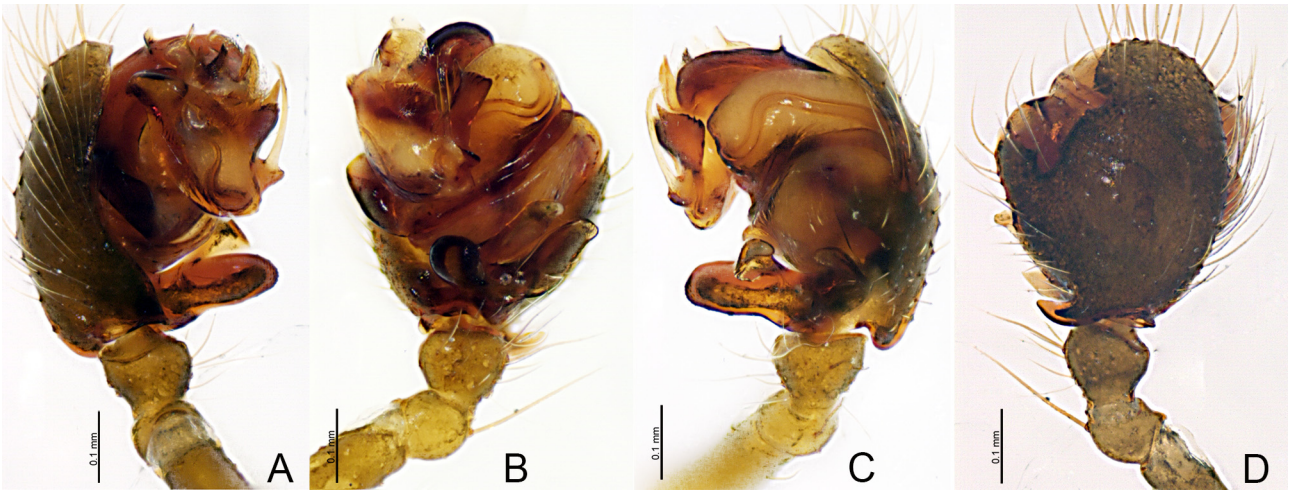


FIGURE 22. *Bifurcia ramosa* (Li & Zhu, 1987), male. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

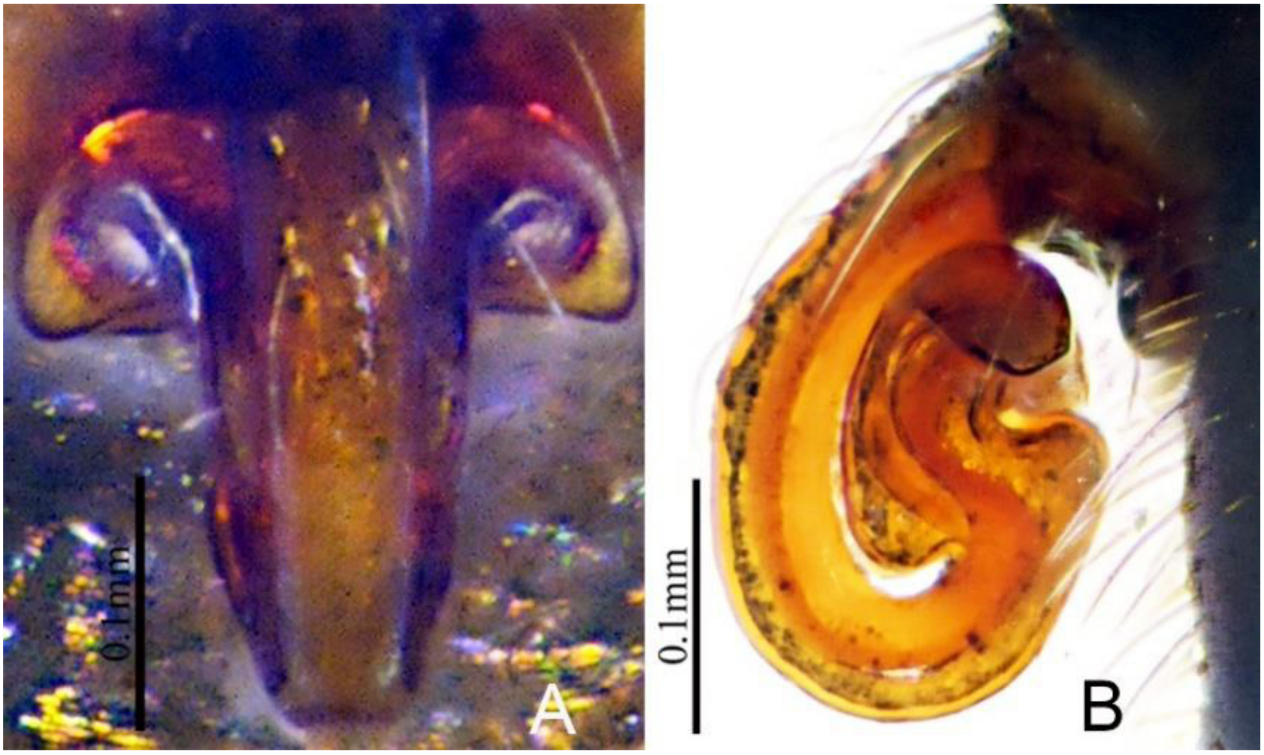


FIGURE 23. *Bifurcia ramosa* (Li & Zhu, 1987), female. **A** Epigyne, ventral view; **B** Epigyne, lateral view.

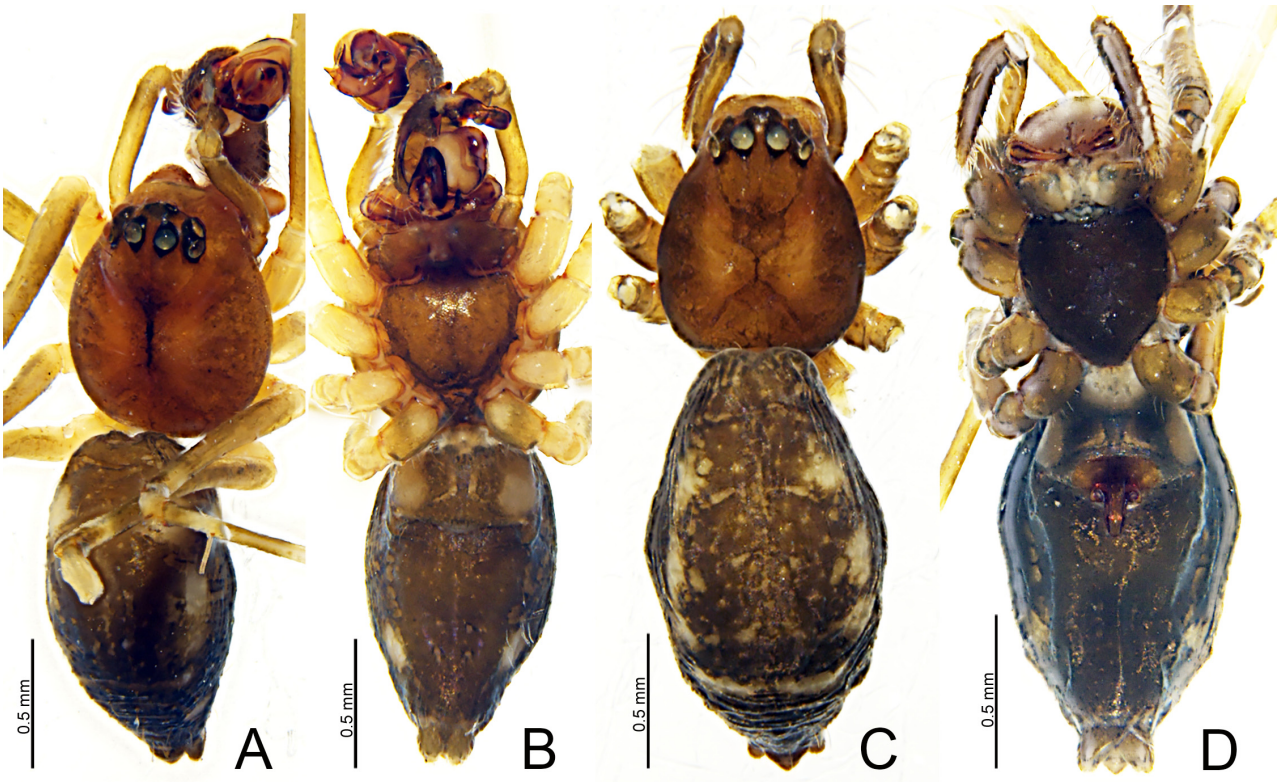


FIGURE 24. *Bifurcia ramosa* (Li & Zhu, 1987), male (A, B), female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

Genus *Bolyphantes* C.L. Koch, 1837 (齿刺蛛属)

Type species. *Bolyphantes alpestris* C.L. Koch, 1837 (=*B. luteolus* [Blackwall, 1833]); gender masculine.

Remark. *Bolyphantes* comprises 19 species (including five species known from females) distributed across the Palaearctic (WSC 2024).

Bolyphantes aculeatus Irfan, Zhang & Peng, sp. n. (尖刺齿刺蛛)

Figures 25–28, 310

Types. Holotype ♂ (HNU–GZ–IV–1703), **CHINA, Guizhou Prov.:** Tongren City, Shiqian Co., Pingshan Town, Fodingshan Vill., Fodingshan NNR, 27.33086°N, 108.15612°E, 655 m, 01.XI.2017 G.C. Zhou leg. **Paratypes:** 2♂11♀, with same data as for holotype male (HNU–GZ–IV–1703); 8♂11♀, Tongren City, Shiqian Co., Pingshan Town, Fodingshan Vill., Fodingshan NNR, 27.34899°N, 108.16272°E, 666 m, 01.XI.2017 G.C. Zhou leg. (HNU–GZ–IV–1706).

Etymology. The specific epithet is derived from the Latin adjective "*aculeatus*" meaning "pointed" and referring to pointed end of the patellar spine in male palp.

Diagnosis. The male of *Bolyphantes aculeatus* **sp. n.** resembles that of *B. luteolus* in having the patella with a unique long thick spine, stands on a conical elevation (Figs 25A–D, 26C, D; Roberts 1998, p. 367; Wiehle 1956 figs 263–267), but can be distinguished by the paracymbium distal thumb-shaped in *B. aculeatus* **sp. n.** (Figs. 25B, C, 26B; vs. V-shaped); proximal cymbia apophysis absent in *B. aculeatus* **sp. n.** (Fig. 25D; vs. present). Female can be distinguished from *B. luteolus* by the stretcher tongue shaped in *B. aculeatus* **sp. n.** (Fig. 27C; vs. round); spermathecae oval in *B. aculeatus* **sp. n.** (Fig. 27C; vs. rod-like slightly curved).

Description. Male (holotype, Figs 28A–C): Total length: 2.57. Carapace 1.14 long, 0.89 wide, mid dorsally slightly elevated, yellowish with grey pattren, fovea, cervical and radial grooves distinct. Clypeus 0.26 high. Chelicerae with three promarginal and three retromarginal teeth. Sternum wider than long, yellowish with black patches, with microsetae. Eyes: AER recurved, PER slightly procurved and wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.09, PME 0.08, PLE 0.08, AME–AME 0.03, PME–PME 0.03, AME–ALE, 0.04, PME–PLE 0.06, AME–PME 0.06, ALE–ALE 0.34, PLE–PLE 0.37, ALE–PLE contiguous. Legs with alternative light and dark bands. Length of legs: I 4.19 (1.13, 1.45, 0.91, 0.70), II 3.92 (1.12, 1.31, 0.84, 0.65), III 3.36 (0.96, 1.09, 0.73, 0.58), IV 4.51 (1.29, 1.47, 1.01, 0.74). Tibial spine formula: 2-2-2-2. TmI 0.56 and TmIV absent. Opisthosoma 1.43 long, 0.77 wide, oval, dorsally with distinct pattern of alternative blackish and light patches starting from the proximal part of opisthosoma to extending to base of spinnerets, densely covered with fine setae, and ventral side black with light patches.

Palp (Figs 25A–D, 26A–D): Femur unmodified, almost longer than both patella and tibia. Patella half the length of tibia, ventrally grooved, dorsally with long spine, distal end hook-shaped with pointed end.

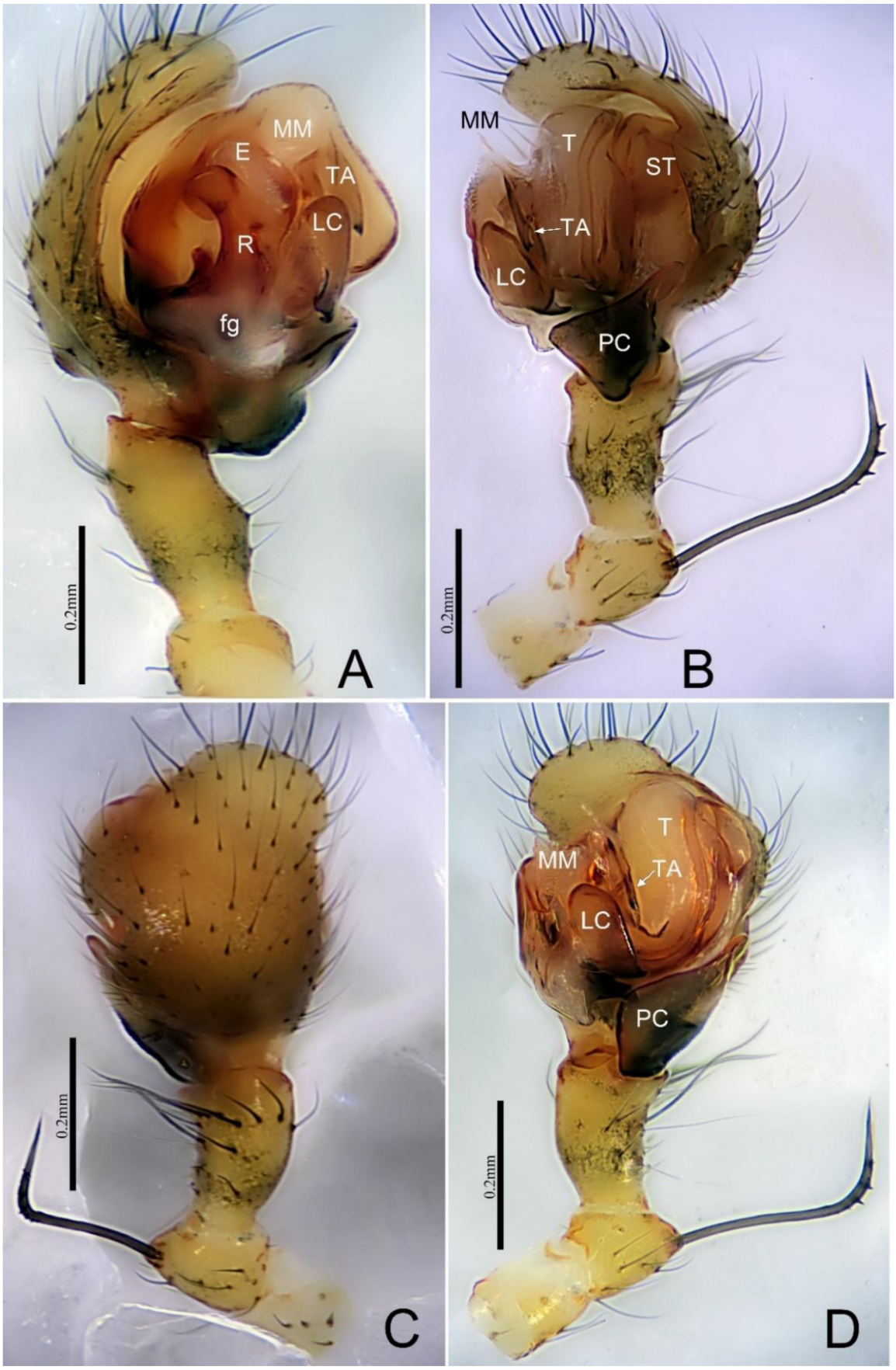


FIGURE 25. *Bolyphantes aculeatus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: E—embolus; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis.

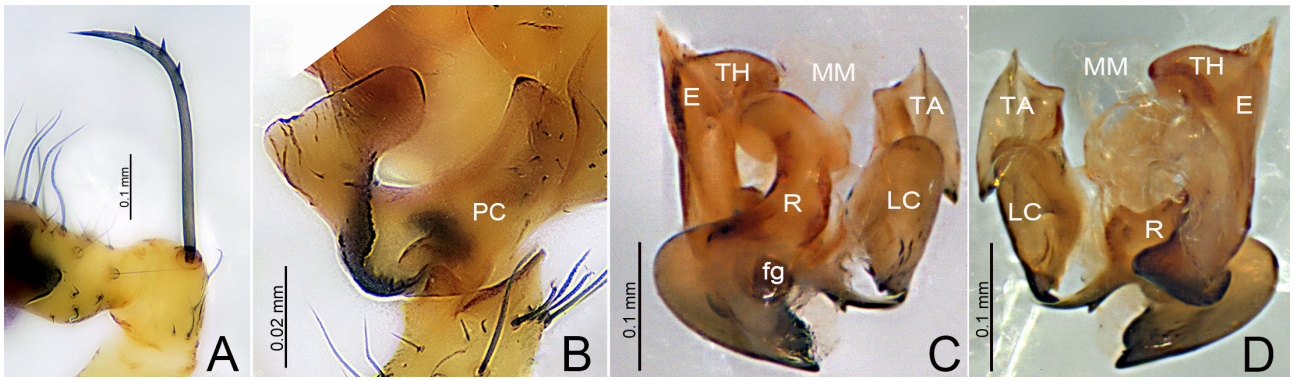


FIGURE 26. *Bolyphantes aculeatus* **sp. n.**, male paratype palp. **A** Dorsal tibial spine **B** Paracymbium **C** Embolic division, prolateral view; **D** Embolic division, retrolateral view. Abbreviations: E—embolus; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; R—radix; TA—terminal apophysis; TH—thumb.

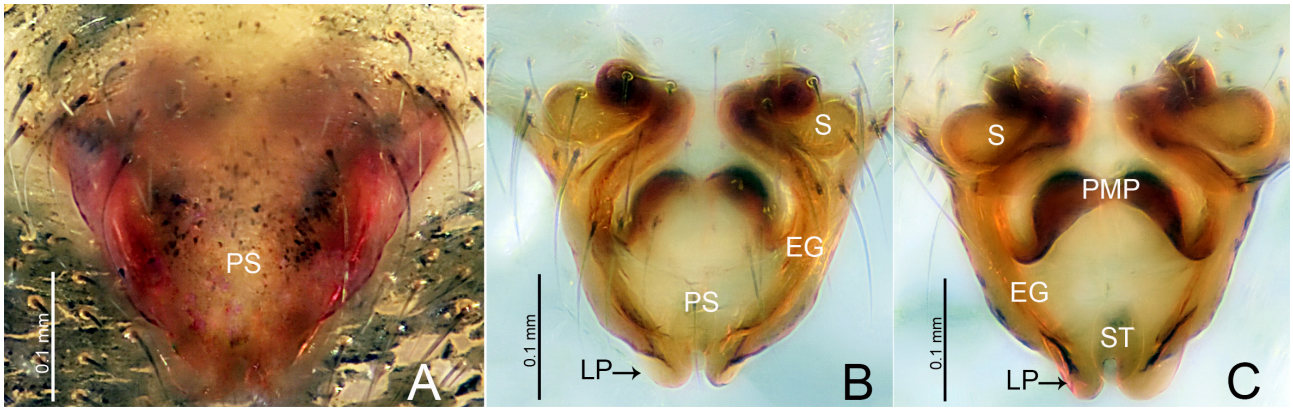


FIGURE 27. *Bolyphantes aculeatus* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Epigyne, dorsal view. Abbreviations: EG—entrance groove; LP—lateral pocket; PMP—posterior median plate; PS—pseudoscape; S—spermatheca; ST—stretcher.

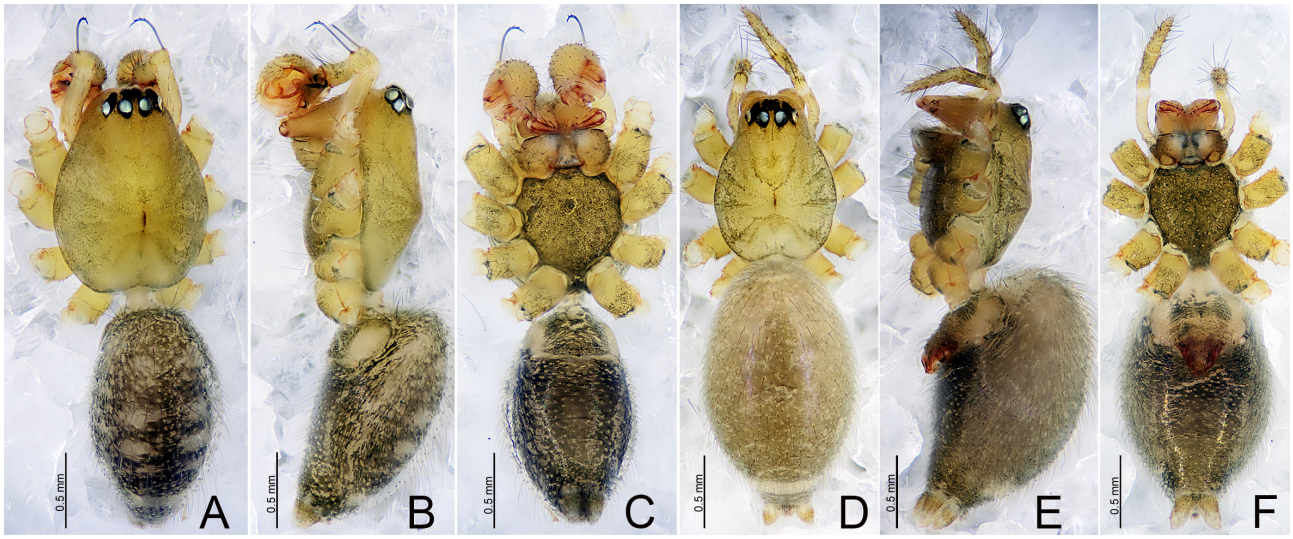


FIGURE 28. *Bolyphantes aculeatus* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

Tibia two times the length of patella, unmodified, with one retrolateral and one dorsal trichobothria. Cymbium unmodified, retrolateral margin with a shallow depression at the base, retrolateral margin with an outh growth; paracymbium (PC) U-shaped, ventro-lateral margin with small projection, ventral margin serrated, distal arm tip with blunt end. Radix (R) sclerotized, long, S-shaped; ; Fickert's gland (fg) present at proximal end of radix; m edian membrane (MM) originating from the dorsal margin of radix; terminal apophysis (TA) extending above with pointed tip; lamella charactristica (LC) sclerotized, robust, distal end round; embolus (E) longer than wide, apex somewhat triangular with pointed end; thumb (TH) somewhat D-shaped.

Female (one of paratype, Figs 28D–F): Total length: 2.31. Carapace 0.93 long, 0.71 wide, mid dorsally slightly elevated, yellowish with grey pattern, fovea, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with four promarginal and three retromarginal teeth. Sternum wider than long, yellowish with black patches, with microsetae. Eyes: AER recurved, PER slightly procurved and wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.08, PME 0.07, PLE 0.07, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.05, ALE–ALE 0.27, PLE–PLE 0.31, ALE–PLE contiguous. Legs with alternative light and dark bands. Length of legs: I 3.29 (0.92, 1.11, 0.69, 0.57), II 3.05 (0.87, 1.03, 0.61, 0.54), III 2.67 (0.77, 0.89, 0.58, 0.43), IV 3.44 (0.87, 1.23, 0.73, 0.61). Tibial spine formula: 2-2-2-2. TmI 0.62 and TmIV absent. Opisthosoma 1.38 long, 0.84 wide, oval, grey, densely covered with fine setae, and ventral side greyish black.

Epigyne (Figs 27A–D): Protruding, pseudoscape (PS) narrowing posteriorly, posterior margin with well-developed stretcher; stretcher (ST) short with small pit, entrance groove arch-shaped, originating inside lateral pockets (LP); posterior median plate (PMP) ear lobe-shaped, wider than long; spermathecae (S) present antero-laterally, pointing towards lateral sides.

Distribution. Known only from the type localities (Guizhou Province, Fig. 310).

Bolyphantes arcuatus Irfan, Zhang & Peng, sp. n. (曲状齿刺蛛)

Figures 29–32, 310, 315

Types. Holotype ♂ (HNU–HNDWS–18–05), **CHINA, Hunan Prov.:** Liuyang City, Mudu Vill., Daweishan NFP, 28.43388°N, 114.03376°E, 379 m, 14.I.2018, G.C. Zhou *et al.* leg. **Paratypes:** 2♂11♀, with same data as for holotype male (HNU–HNDWS–18–05); 1♀, Liuyang City, Liuyang City, Daweishan Town, Zhongduan Vill., 28.45404°N, 113.96450°E, 193 m, 14.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–06); 1♂, Liuyang City, Mudu Vill., Daweishan NFP, 28.43416°N, 114.04668°E, 315 m, 13.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–03); 1♂4♀, Liuyang City, Mudu Vill., Daweishan NFP, 28.43567°N, 114.04928°E, 286 m, 14.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–03); **Guizhou Prov.:** 3♂8♀, Tongren City, Shiqian Co., Pingshan Town, Pingshan NNR, 27.33086°N, 108.15612°E, 655 m, 01.XI.2017, G.C. Zhou leg. (HNU–GZ–IV–1703); 1♂, Tongren City, Shiqian Co., Pingshan Town, Pingshan NNR, 27.331575°N, 108.15597°E, 672 m, 01.XI.2017, G.C. Zhou leg. (HNU–GZ–IV–1704).

Etymology. The specific epithet is derived from the Latin adjective "*arcuatus*" meaning "curved" and referring to slightly curved lamella charactristica in male palp.

Diagnosis. *Bolyphantes arcuatus* **sp. n.** resembles *B. alticeps* in having the similar patellar spine stands on a conical elevation, densely covered with denticales from base to the tip (Helsdingen *et al.* 2001, figs 3, 4; Tao *et al.* 1995, figs 11–20), but can be distinguished by the the lamella charactristica almost as long as cymbium, apex with two teeth with pointed in *B. arcuatus* **sp. n.** (Figs 29A–C, 30A, B; vs. half the length of patellar spine with bifurcated tip); tip of distal arm of paracymbium bifurcated in *B. arcuatus* **sp. n.** (Figs 29A–C, 30A, B; vs. not bifurcated); thumb horn-shaped with pointed end in *B. arcuatus* **sp. n.** (Figs 29A, 30A, B; vs. globular with membranous ventral margin). Epigyne can also be distinguished from all other congeners by the spermathecae J-shaped (Figs 31A–C).

Description. Male (holotype, Figs 32A–C): Total length: 2.21. Carapace 0.96 long, 0.83 wide, cephalic region slightly elevated, yellowish, fovea, cervical and radial grooves distinct. Clypeus 0.24 high. Chelicerae with three retromarginal and promarginal teeth absent. Sternum wider than long, dark grey, with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.06, PLE 0.07, AME–AME 0.03, PME–PME 0.05, AME–ALE, 0.06, PME–PLE 0.05, AME–PME 0.07, ALE–ALE 0.31, PLE–PLE 0.33, ALE–PLE contiguous. Legs with alternative light and dark bands. Length of legs: I 6.33 (1.71, 2.04, 1.73, 0.85), II 5 (1.38 1.55, 1.36, 0.71), III 3.69 (1.11, 1.15, 0.94, 0.49), IV 4.89 (1.41, 1.51, 1.33, 0.64). Tibial spine formula: 2-2-2-2. TmI 0.69 and TmIV absent. Opisthosoma 1.25 long, 0.73 wide, oval, dusky grey, dorsally with six black cheverons extending posteriorly to the base of spinnerets; lateral sides black with white patches, ventral side dusky grey with broad greenish black patch anteriorly.

Palp (Figs 29A–D, 30A–D): Femur unmodified, almost longer than both patella and tibia. Patella almost as long as tibia, dorsal spine morelonger than both patella and tibia length, with several teeth extending forward. Tibia with two retrolateral and one dorsal trichobothria and a prominent ventral outgrowth equipped with seta. Cymbium retrolateral margin with a shallow depression at the base, retrolateral margin extending above the subtegulum; dorsally with a small tubercle (PCA) with blunt tip; paracymbium (PC) U-shaped, ventro-lateral margin with small horn-shaped projection, distal arm tip bifurcated. radix (R) sclerotized, long; median membrane (MM) sheet-like, originating from the base of terminal apophysis and from the dorsal margin of radix, with frayed margin; terminal apophysis (TA) short, half the length of embolus, with blunt tip; lamella charactristica

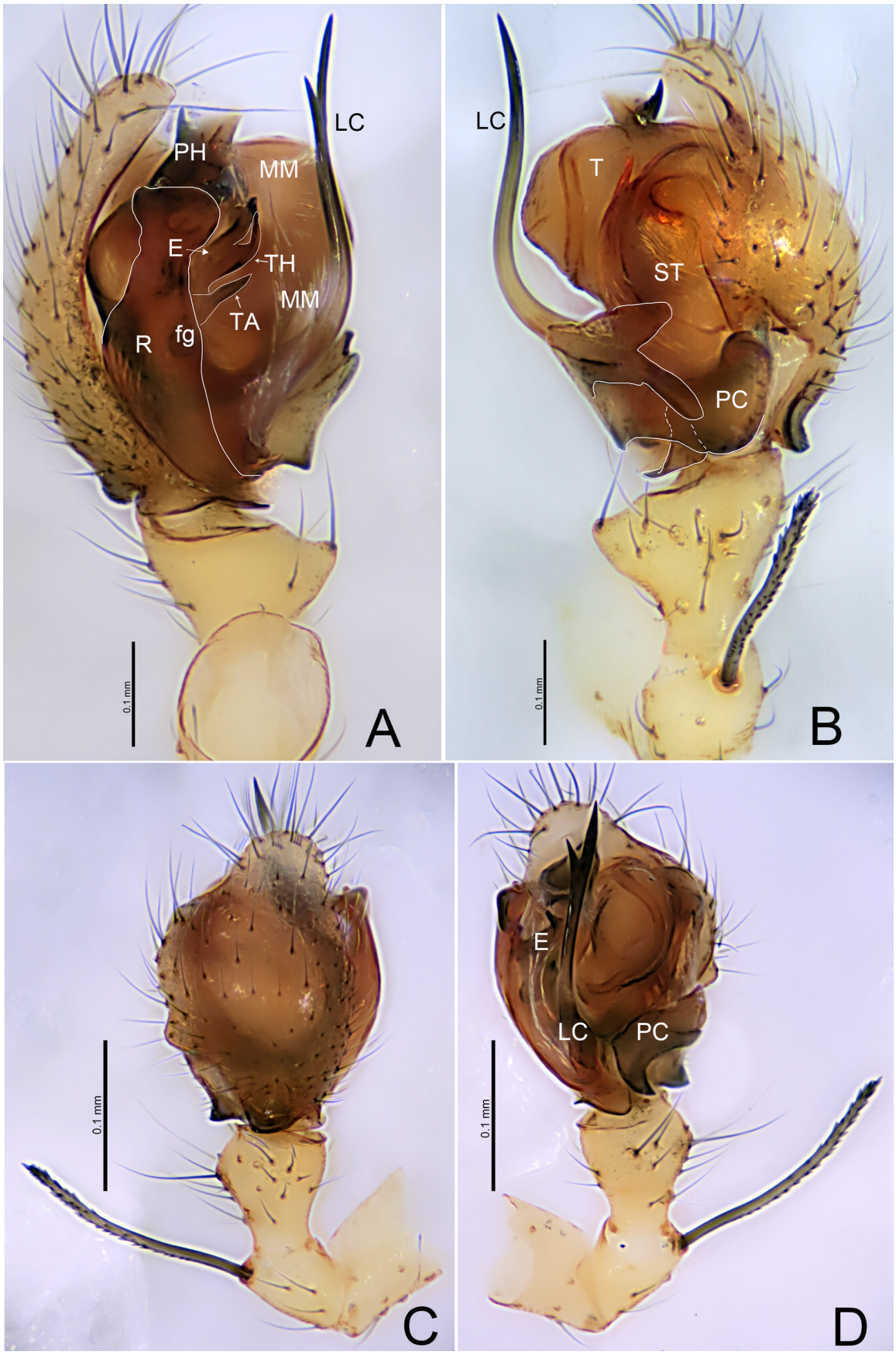


FIGURE 29. *Bolyphantes arcuatus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: E—embolus; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis.

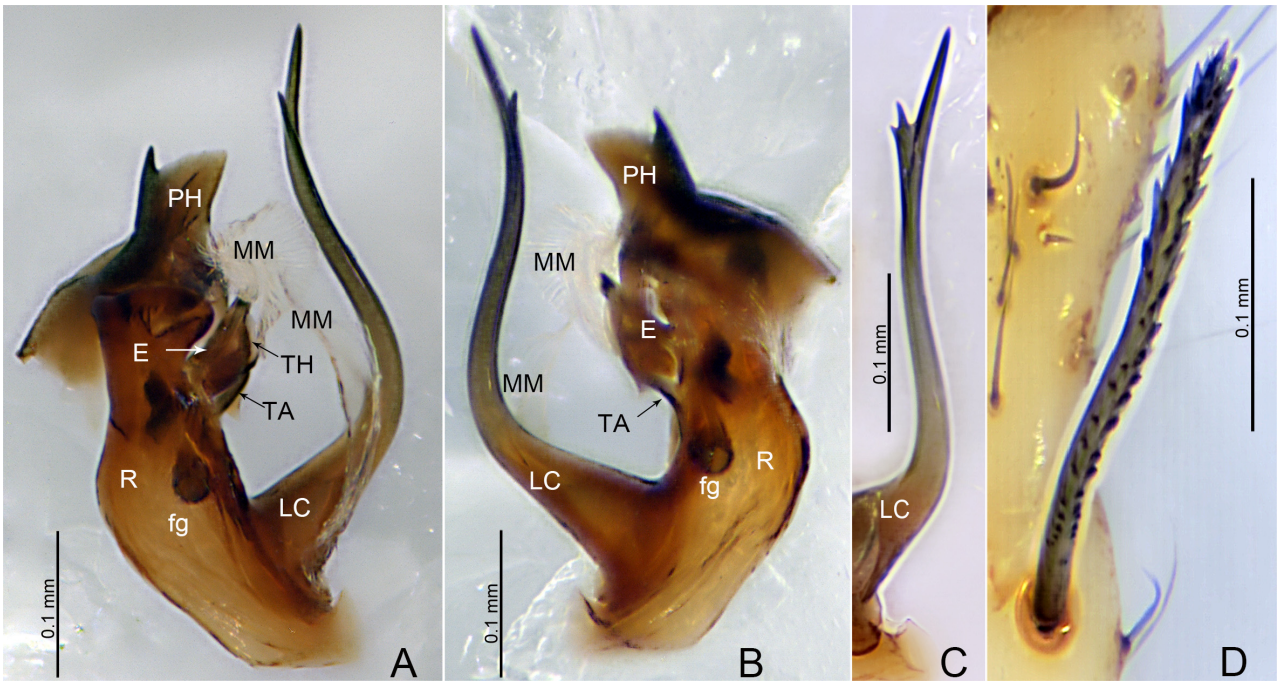


FIGURE 30. *Bolyphantes arcuatus* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, retrolateral view; **C** Terminal apophysis **D** Dorsal tibial spine. Abbreviations: E—embolus; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PH—pit hook; R—radix; TA—terminal apophysis.

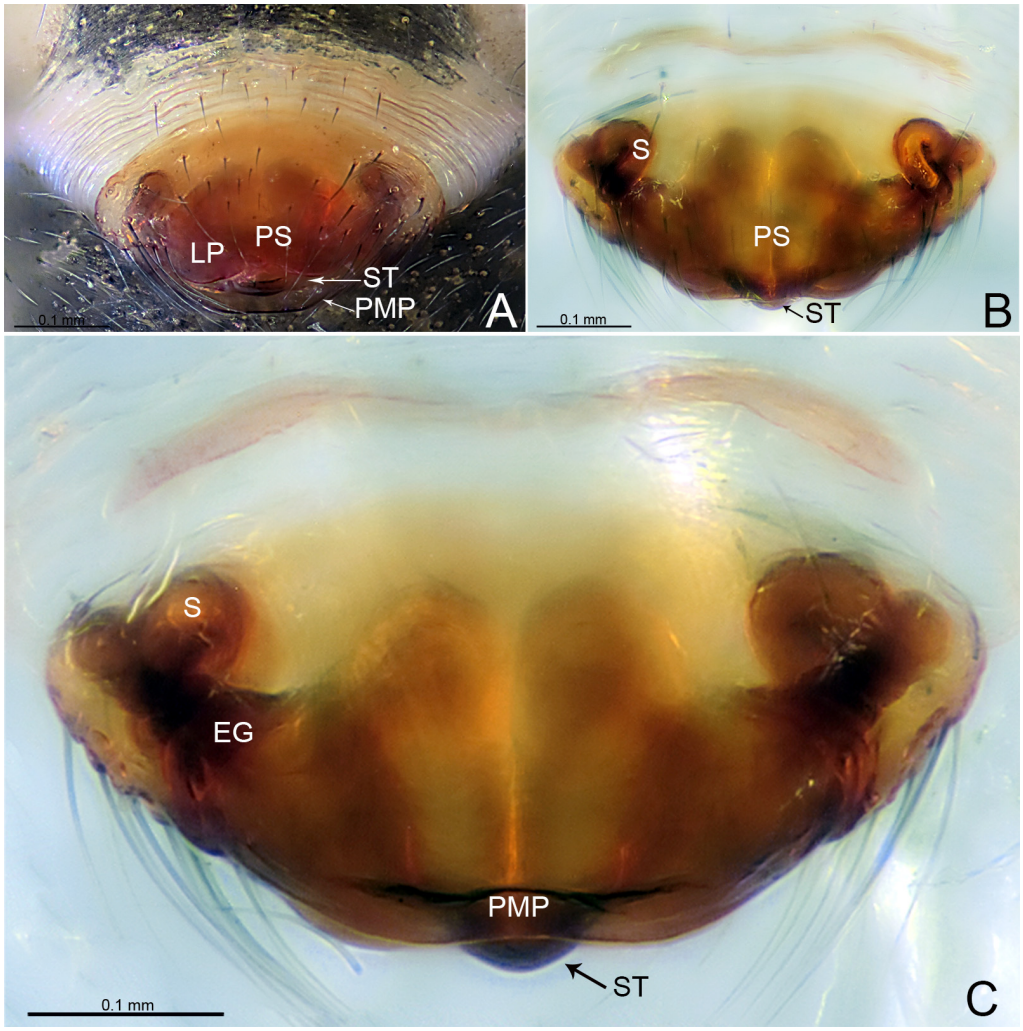


FIGURE 31. *Bolyphantes arcuatus* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Epigyne, dorsal view. Abbreviations: EG—entrance groove; LP—lateral pocket; PMP—posterior median plate; PS—pseudoscape; S—spermatheca; ST—stretcher.

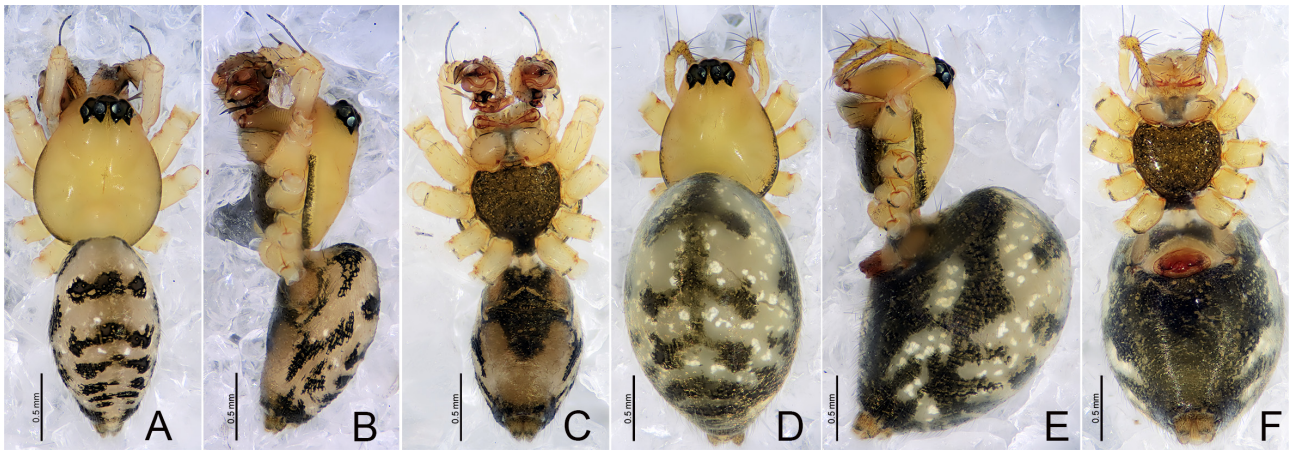


FIGURE 32. *Bolyphantes arcuatus* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

(LC) long, highly sclerotized, basally curved, extending forward pointed end; embolus proper (E) short, tapering towards tip.

Female (paratype, Figs 32D–F): Total length: 2.04. Carapace 0.72 long, 0.71 wide, cephalic region slightly elevated, yellowish, fovea, cervical and radial grooves distinct. Clypeus 0.21 high. Chelicerae with four promarginal and three retromarginal teeth. Sternum wider than long, dark gray, with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.04 ALE 0.07, PME 0.07, PLE 0.06, AME–AME 0.03, PME–PME 0.04, AME–ALE, 0.04, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.29 PLE–PLE 0.31, ALE–PLE contiguous. Legs with alternative light and dark bands. Length of legs: I 3.36 (0.91, 1.11, 0.76, 0.58), II 2.95 (0.84, 0.93, 0.66, 0.52), III 2.32 (0.69, 0.71, 0.53, 0.39), IV 3.01 (0.87, 0.93, 0.69, 0.52). Tibial spine formula: 2-2-2-2. TmI 0.62 and TmIV absent. Opisthosoma 1.31 long, 0.0.89 wide, oval, dorsally with six cheverons extending to the base of spinnerets, lateral sides also with longitudinal black bands with white patches, ventral side greenish black.

Epigyne (Figs 31A–D): Protruding, pseudoscape (PS) wider than long, with well-developed stretcher (ST) with pit ventrally; entrance groove (EG) inside lateral pockets (LP) at their median edges; posterior median plate (PMP) broad, wider than long, completely covering the stretcher, spermathecae (S) strongly curved, pointing towards the postero-lateral margin.

Distribution. Known from type localities (Hunan and Guizhou Provinces, Figs 310, 315).

Bolyphantes gladius Irfan, Zhang & Peng, sp. n. (剑状齿刺蛛)

Figures 33–35, 310, 315

Types. Holotype ♂ (HNU–HN–IV–1773), **CHINA, Hunan Prov.:** Shaoyang City, Chengbu Co., Rulin Town, Daqiao Vill., 26.34097°N, 110.27828°E, 168 m, 08.IX.2017, G.C. Zhou *et al.* leg.. **Paratypes:** 1♂14♀, with same data as for holotype male (HNU–HN–IV–1773); 1♀, Huaihua City, Huitong Co., Tuanhe Town, Xiangyan Vill., Yingzuijie NNR, 26.83700°N, 109.88804°E, 684 m, 28.X.2017, G.C. Zhou leg. (HNU–HN–IV–1764); 2♀, Huaihua City, Huitong Co., Tuanhe Town, Diaotang Vill., Yingzuijie NNR, 26.89206°N, 109.93273°E, 168 m, 30.X.2017, G.C. Zhou leg. (HNU–HN–IV–1770); 2♂17♀, Hengyang City, Nanyue District, Nanyue Town, Anle Chong, 27.23389°N, 112.71862°E, 145 m, 18.I.2018, G.C. Zhou & L.Y. Wang leg. (HNU–HNHS–18–07); 1♀, Huangzhu Vill., Nanyue Town, Nanyue District, Hengyang City, 27.26225°N, 112.73683°E, 160 m, 18.I.2018, G.C. Zhou & L.Y. Wang leg. (HNU–HNHS–18–08); **Guizhou Prov.:** 3♂8♀, Tongren City, Shiqian Co., Pingshan Town, Pingshan NNR, 27.33086°N, 108.15612°E, 655 m, 01.XI.2017 G.C. Zhou leg. (HNU–GZ–IV–1703); 2♂3♀, Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 28.00130°N, 108.80578°E, 1160 m, 06.XI.2017, G.C. Zhou leg. (HNU–GZ–IV–1715).

Etymology. The specific epithet is derived from the Latin noun "*gladius*" meaning "sword" and referring to sword-shaped lamella charactristica in ventral view of male palp.

Diagnosis. The male of *Bolyphantes gladius* **sp. n.** resembles that of *B. kolosvaryi* in having similar patellar spine, thick, densely covered with denticles (Figs 33B–D, 34C; Helsdingen *et al.*, 2001, figs 37–43), but can be distinguished by the lower proximal part of paracymbium with horn-shaped projection, extending above the tibia in *B. gladius* **sp. n.** (Figs 33B–D; vs. proximal part without any projection); retrolateral margin of tibia with small projection in *B. gladius* **sp. n.** (Figs 33B–D; vs. tibia without any projection); terminal apophysis half the length of embolus in *B. gladius* **sp. n.** (Figs 33B–D; vs. almost as long as embolus); lamella charactristica as long as radix, tapering towards tip in *B. gladius* **sp. n.** (Figs 33B–D; vs. two-third the length of radix, distal end broad with furcated tip); thumb rod-like, almost as long as embolus in *B. gladius* **sp. n.** (Figs 33B–D; vs. somewhat

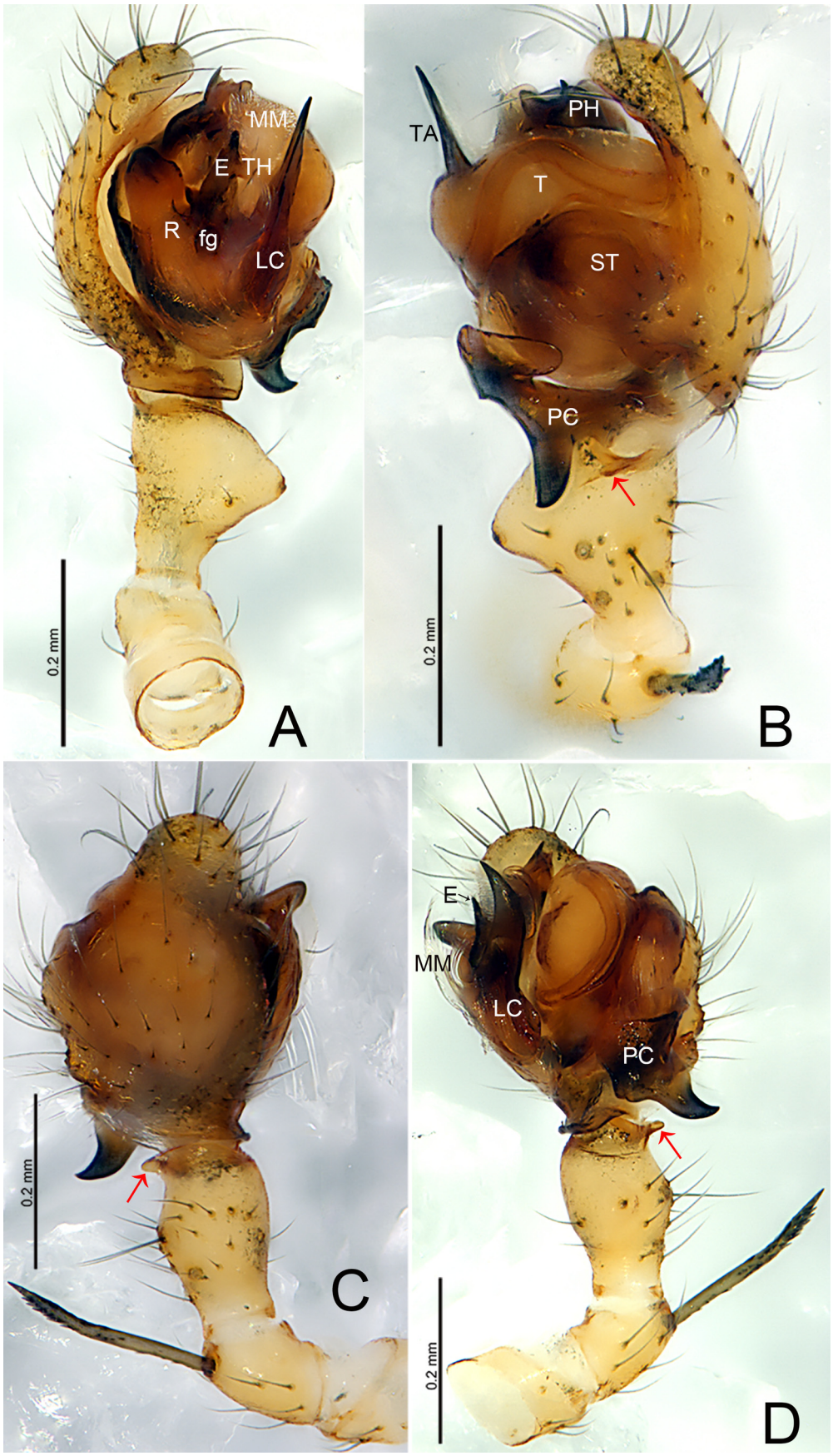


FIGURE 33. *Bolyphantes gladius* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. **B**–**D** Red arrow indicating small tibial apophysis. Abbreviations: E—embolus; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis; TH—thumb.

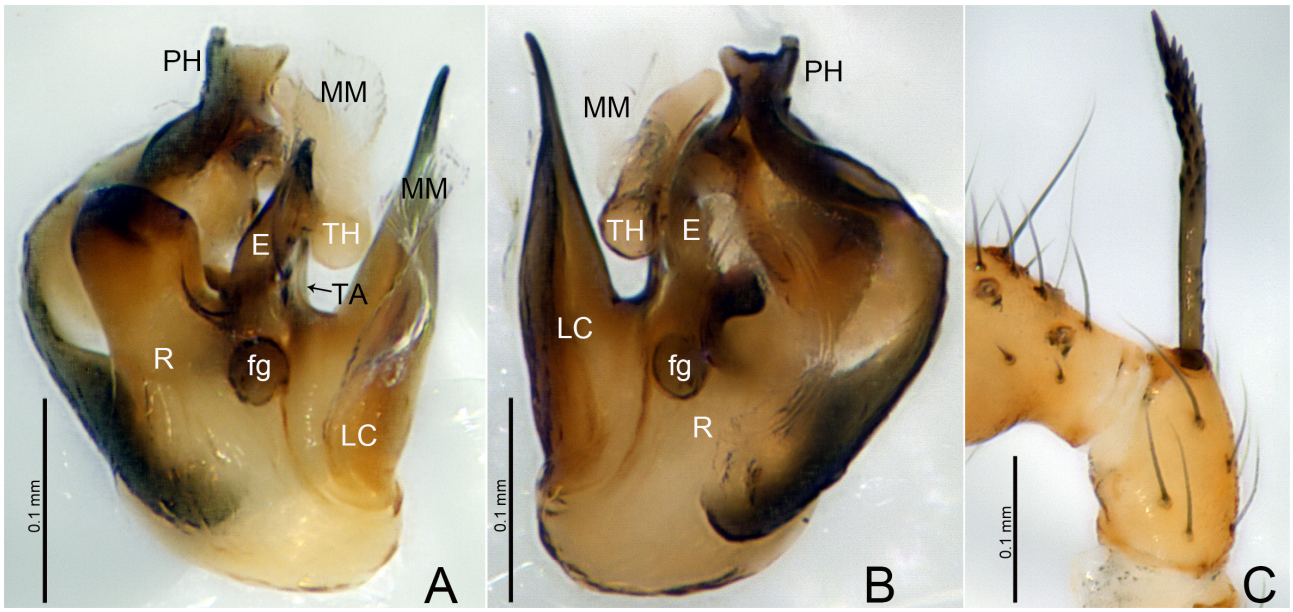


FIGURE 34. *Bolyphantes gladius* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, retrolateral view; **C** Patella spine, retrolateral view. Abbreviations: E—embolus; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PH—pit hook; R—radix; TA—terminal apophysis.

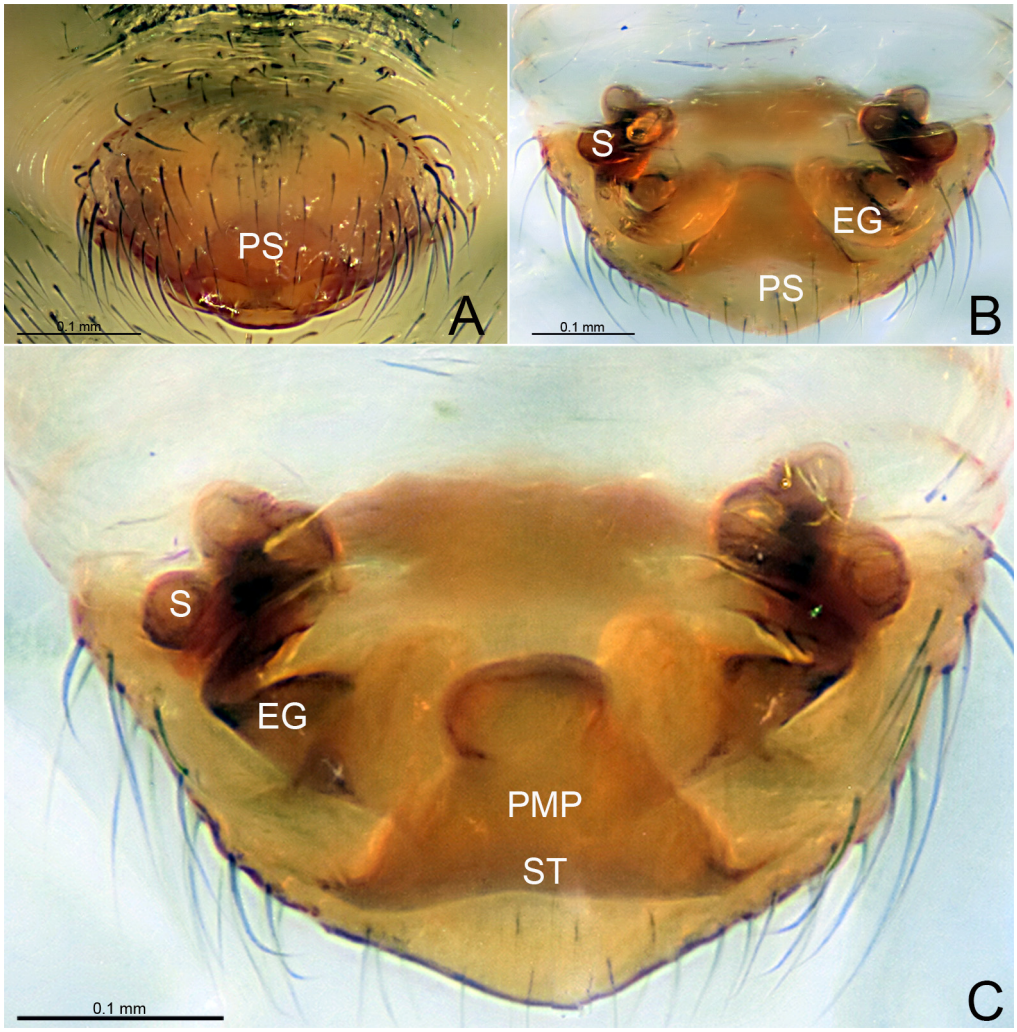


FIGURE 35. *Bolyphantes gladius* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Epigyne, dorsal view. Abbreviations: EG—entrance groove; PMP—posterior median plate; PS—pseudoscape; S—spermatheca; ST—stretcher.

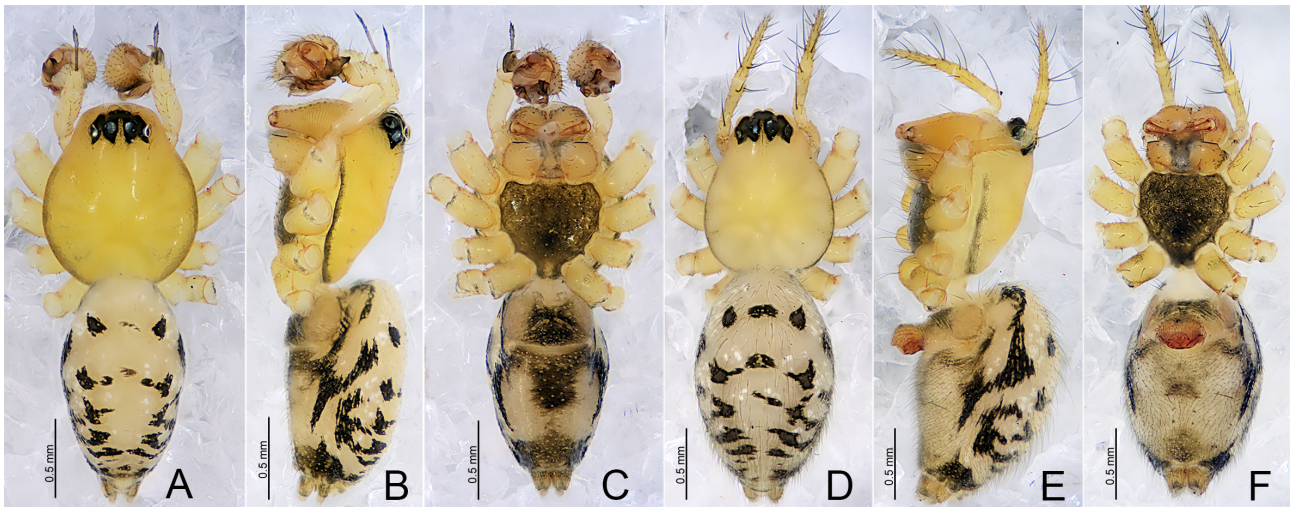


FIGURE 36. *Bolyphantes gladius* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

quadrate, half the length of embolus). The female can be distigushed from all other congeners by the stretcher absent in epigyne (Figs 35A–C).

Description. Male (holotype, Figs 36A–C): Total length: 2.23. Carapace 0.97 long, 0.82 wide, cephalic region slightly elevated, yellowish, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with two retromarginal and promarginal teeth absent. microsetae wider than long, dark grey, with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.06, ALE 0.08, PME 0.06, PLE 0.07, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.04, PME–PLE 0.04, AME–PME 0.06, ALE–ALE 0.32, PLE–PLE 0.34, ALE–PLE contiguous. Length of legs: I 6.87 (1.85, 2.19, 1.96, 1.96, 0.87), II 5.33 (1.47, 1.69, 1.49, 0.68), III 3.9 (1.14, 1.21, 1.05, 0.50), IV 5.29 (1.51, 1.69, 1.43, 0.66). Tibial spine formula: 2-2-2-2. TmI 0.64 and TmIV absent. Opisthosoma 1.26 long, 0.78 wide, oval, grey, dorsally with six cheverons extending posteriorly to the base of spinnerets and laterally, ventral side grey with a broad black band anteriorly.

Palp (Figs 33A–D, 34A–C): Femur unmodified, almost as long as patella and tibia. Patella half the length of tibia, dorsal spine almost equals to the length of both patella and tibia, patellar thick spine densely covered with several teeth from base to the tip. Tibia with two retrolateral and one dorsal trichobothria, ventrally with outgrowth equipped with setae, retrolateral margin with small projection with blunt end. Cymbium unmodified, retrolateral margin with a shallow depression at the base; paracymbium (PC) U-shaped, proximal margin with strongly sclerotized projection with pointed end, paracymbium distal arm half the length of proximal projection, with blunt end; pithook curved, with broad tip. Radix bean-shaped (R), as long as terminal apophysis; median membrane (MM) originating from base of lamella charactristica and from dorsal margin of radix with frayed margin; terminal apophysis (TA) small, inconspicuous on undissected palp; lamella charactristica (LC) sword-shaped, tapering towards apex; embolus (E) spindle-shaped; thumb (TH) originating from ventral margin of embolus, extending above the tip of embolus.

Female (paratype, Figs 36D–F): Total length: 2.20. Carapace 0.85 long, 0.71 wide, cephalic region slightly elevated, yellowish, fovea, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with five promarginal and three retromarginal teeth. Sternum wider than long, dark gray, with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.06, ALE 0.09, PME 0.07, PLE 0.08, AME–AME 0.03, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.30, PLE–PLE 0.32 ALE–PLE contiguous. Length of legs: I 4.36 (1.16, 1.44, 1.11, 0.65), II 3.68 (1, 1.19, 0.93, 0.56), III 2.92 (0.81, 0.91, 0.73, 0.47), IV 3.76 (1.06, 1.21, 0.96, 0.53). Tibial spine formula: 2-2-2-2. TmI 0.68 and TmIV absent. Opisthosoma 1.35 long, 0.96 wide, oval, dusky grey, dorsally with six cheverons extending posteriorly to the base of spinnerets and laterally; ventral side dusky grey.

Epigyne (Figs 35A–D): Protruding, pseudoscape (PS) wider than long; entrance groove (EG) present dorsally in pseudoscape; posterior median plate (PMP) globular, posterior margin round; spermathecae (S) complex, in the form of cluster.

Distribution. Known from type localities (Hunan and Guizhou Provinces, Figs 310, 315).

Genus *Capsulia* Saaristo, Tu & Li, 2006 (裹蛛属)

Type species. *Centromerus tianmushanus* Chen & Song, 1987.

Remark. *Capsulia* comprises two species (including one species known from males) distributed in Yunnan and Zhejiang Provinces, China (WSC 2024).

***Capsulia tianmushana* (Chen & Song, 1987)**
(天目山裹蛛)
Figures 37–39, 312, 315

Centromerus tianmushanus Chen & Song, 1987: 136, fig. 1–5 (♂♀).
Capsulia tianmushana Saaristo *et al.* 2006: 393, figs 18–26 (transferred ♂♀ from *Centromerus*); Yin *et al.* 2012: 483, fig. 221a–f (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♀, **CHINA, Hubei Prov.:** Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 29.99053°N, 109.73879°E, 965 m, 13.V.2017, G.C. Zhou *et al.* leg.; 5♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95948°N, 109.02106°E, 752 m, 24.VIII.2017, M. Irfan & G.C. Zhou leg.; **Hunan Prov.:** 2♂, Hengyang City, Nanyue District, Nanyue Town, Huangzhu Vill., 27.262258°N, 112.73683°E, 160 m, 18.I.2018, G.C. Zhou & L.Y. Wang leg.; 1♀, Shaoyang City, Chengbu Co., Rulin Town, Daqiao Vill., 26.34077°N, 110.27790°E, 527 m, 08.XI.2017, Zhou G.C. leg.; 2♂, Hengyang City, Nanyue District, Hengshan NNR, Xiangnan Temple, 27.281136°N, 112.69919°E, 981 m, 19.I.2018, G.C. Zhou *et al.* leg.; 5♀, Ningxiang Co., Huaminglou Town, Yanglin

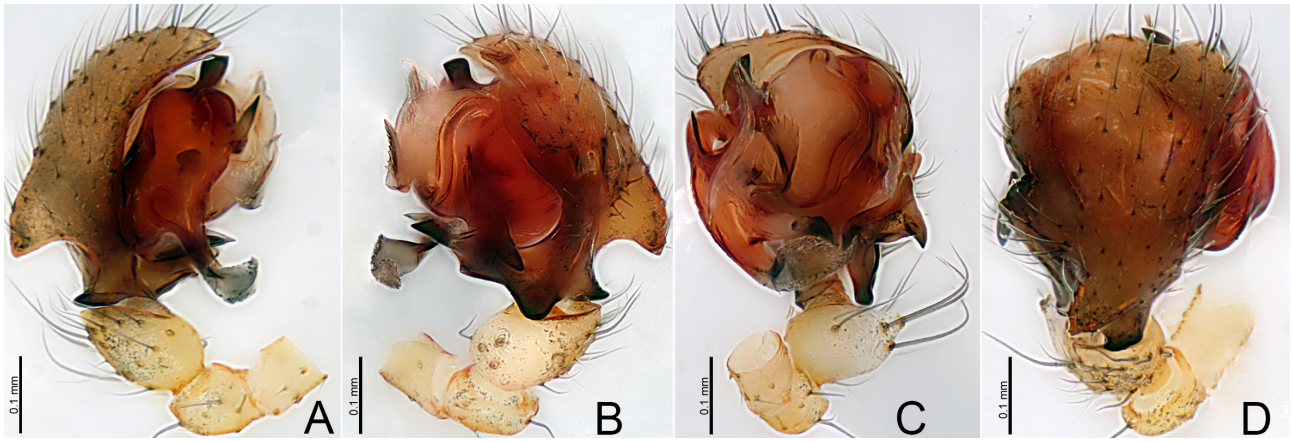


FIGURE 37. *Capsulia tianmushana* Saaristo, Tu & Li, 2006. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

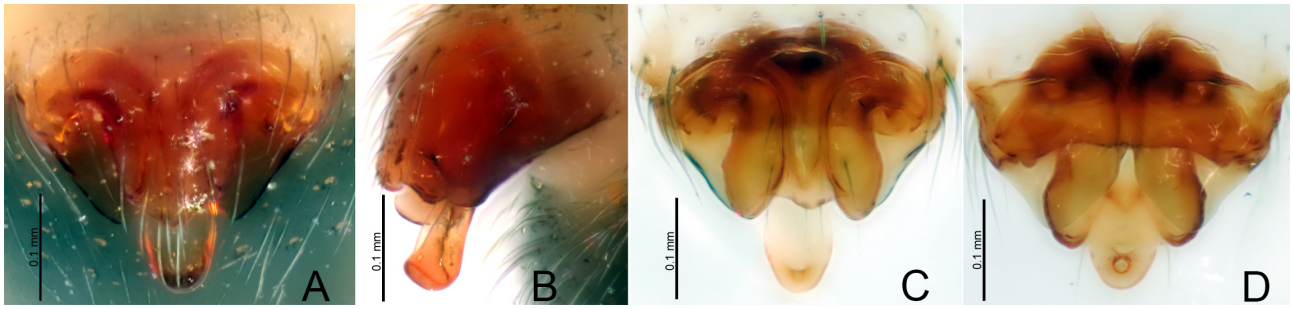


FIGURE 38. *Capsulia tianmushana* Saaristo, Tu & Li, 2006**. A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view.

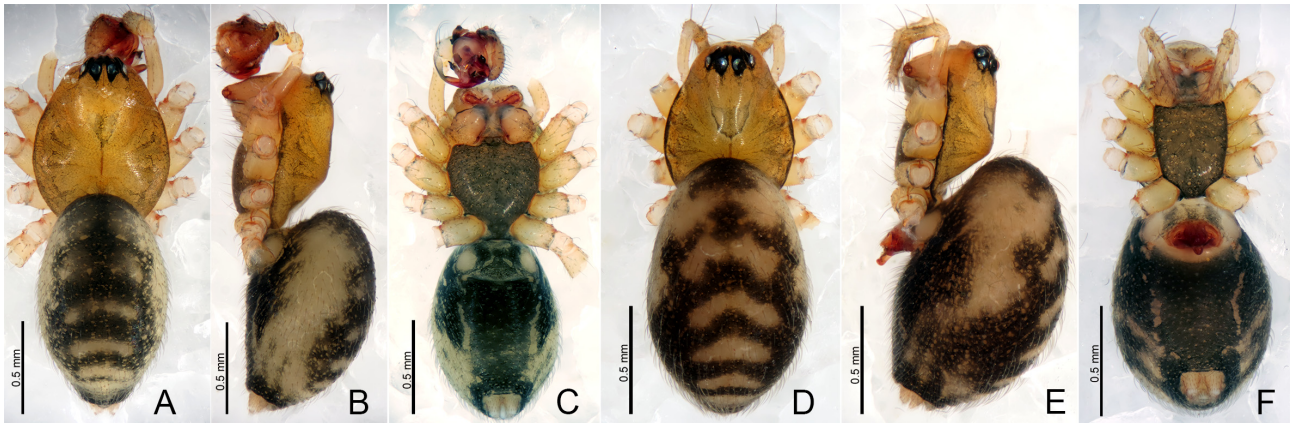


FIGURE 39. *Capsulia tianmushana* Saaristo, Tu & Li, 2006 male (A–C) and female (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

Vill., 28.100208°N, 112.658819°E, 189 m, 10.V.2017, G.C. Zhou *et al.* leg.; 3♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.087272°N, 112.67114°E, 125 m, 09.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Hubei, Hunan and Zhejiang Provinces, Figs 312, 315).

Genus *Collinsia* O. Pickard-Cambridge, 1913 (科林蛛属)

Type species. *Collinsia notabilis* O. Pickard-Cambridge, 1913; gender feminine.

Remark. *Collinsia* comprises 26 species (including two species known from females and two from males) distributed across Holarctic (WSC 2024).

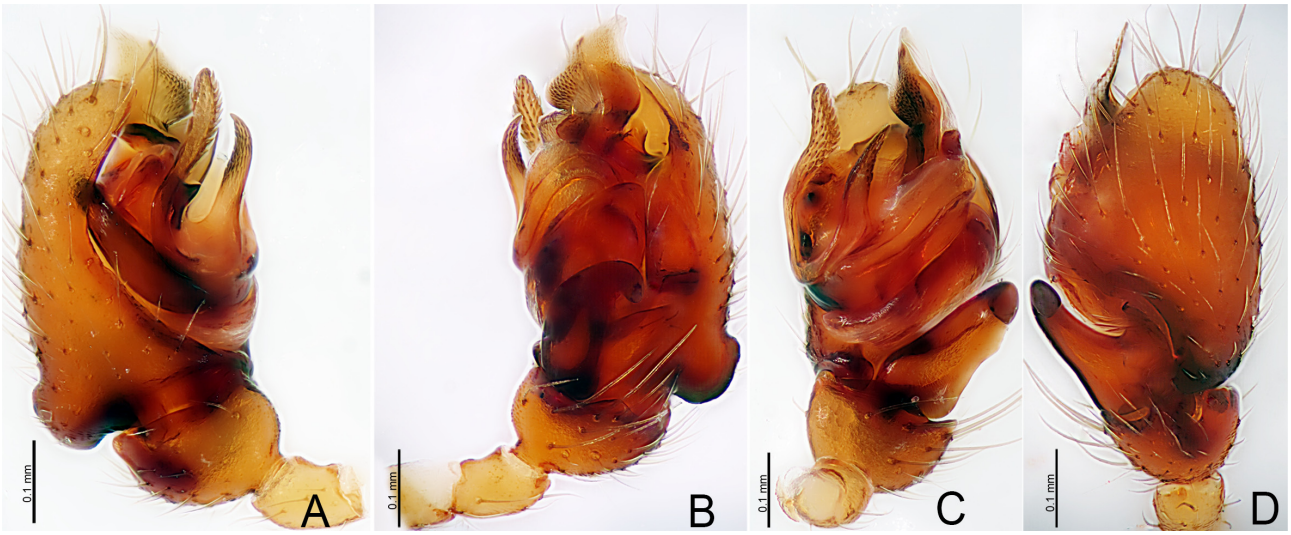


FIGURE 40. *Collinsia inerrans* (O. Pickard-Cambridge, 1885). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.



FIGURE 41. *Collinsia inerrans* (O. Pickard-Cambridge, 1885). **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

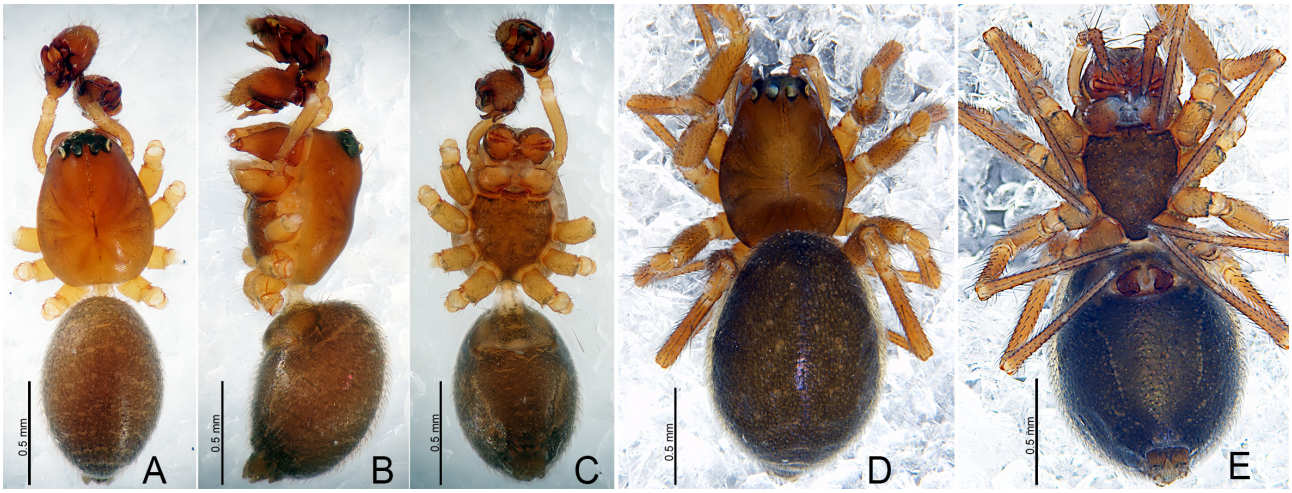


FIGURE 42. *Collinsia inerrans* (O. Pickard-Cambridge, 1885), male (A–C), female (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

***Collinsia inerrans* (O. Pickard-Cambridge, 1885) (静栖科林蛛)**
Figures 40–42, 316

Erigone deserta L. Koch, 1879: 73, pl. 2, fig. 26 (♀; suppressed for lack of usage).

Collinsia inerrans Tanasevitch 1990: 105, figs 22.12–13, 24.36 (♂♀); Irfan *et al.* 2022: 68, figs 68A–D, 69A–C, 70A–E (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♀, **CHINA, Sichuan Prov.:** Ganzi Co., around Millennium Hotels and Resorts, 29.945513°N, 100.29898°E, 3937 m, 01.X.2018, M. Irfan & M. Liao leg.; 1♂2♀, Ganzi Co., Daocheng Co., Xianggelila Town, Yading Vill., Yading Scenic Area, 29.007525°N, 100.26764°E, 3763 m, 03.X.2018, M. Irfan & M. Liao leg.; 6♂9♀, Ganzi Co., Litang Co., 29.03820°N, 100.38246°E, 4016 m, 03.X.2018, M. Irfan & M. Liao leg.; 1♂, Ganzi Co., Danba Co., 30.65039°N, 101.73775°E, 2721 m, 03.X.2018, M. Irfan & M. Liao leg.

Distribution. Europe, Caucasus, Russia (Europe to Far East), Iran, Central Asia, China (Hebei, Jilin, Inner Mongolia, Sichuan, Qinghai, Xizang, Xinjiang, Yunnan Provinces, Fig. 316), Korea, Japan.

Genus *Dicristatus* Irfan, Wang & Zhang, 2023 (二叉蛛属)

Type species. *D. minutus* Irfan, Wang & Zhang, 2023; gender masculine.

Remark. *Dicristatus* comprises two species distributed in Chongqing, China (WSC 2024).

***Dicristatus cordatus* Irfan, Zhang & Peng, sp. n. (心状二叉蛛)**
Figures 43, 44, 312, 315

Types. Holotype ♀ (HNU–HB–IV–1718), **CHINA, Hubei Prov.:** Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95006°N, 109.02566°E, 876 m, 20.V.2017, G.C. Zhou *et al.* leg.; **Paratypes:** 4♀, with same data as for holotype (HNU–HB–IV–1718); 6♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 30.03902°N, 109.14274°E, 1114 m, 19.V.2017, M. Irfan & G.C. Zhou leg.(HNU–HB–IV–1715); 1♀, Enshi Co., Huangjindong Town, Maliuxi Village 29.95240°N, 109.01717°E, 785 m, 20.V.2017, G.C. Zhou *et al.* leg.; 1♀, Enshi Co., Xingdou MNNR, 30.04611°N, 109.13038°E, 1205 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1712); 2♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95948°N,

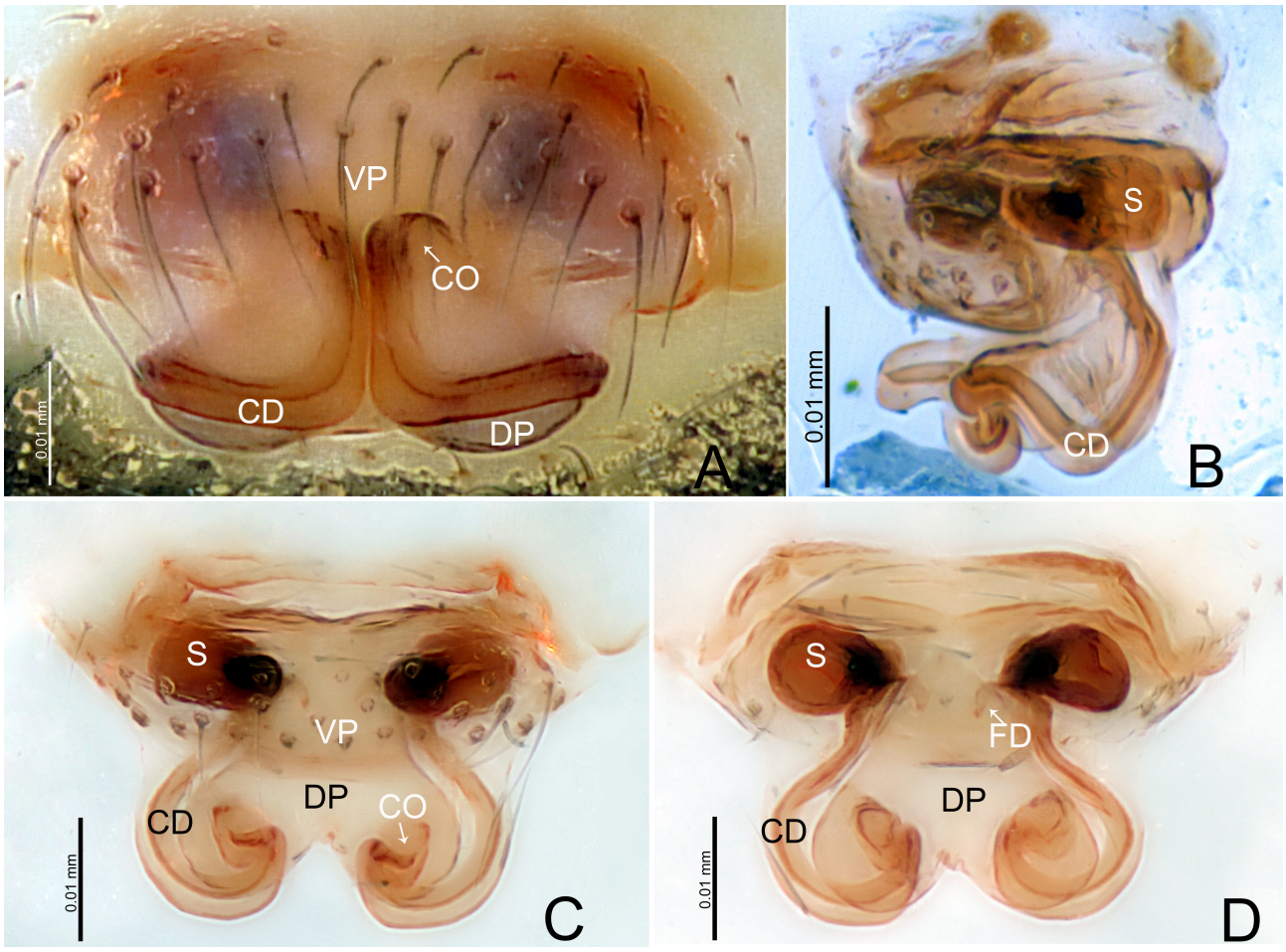


FIGURE 43. *Dicristatus cordatus* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

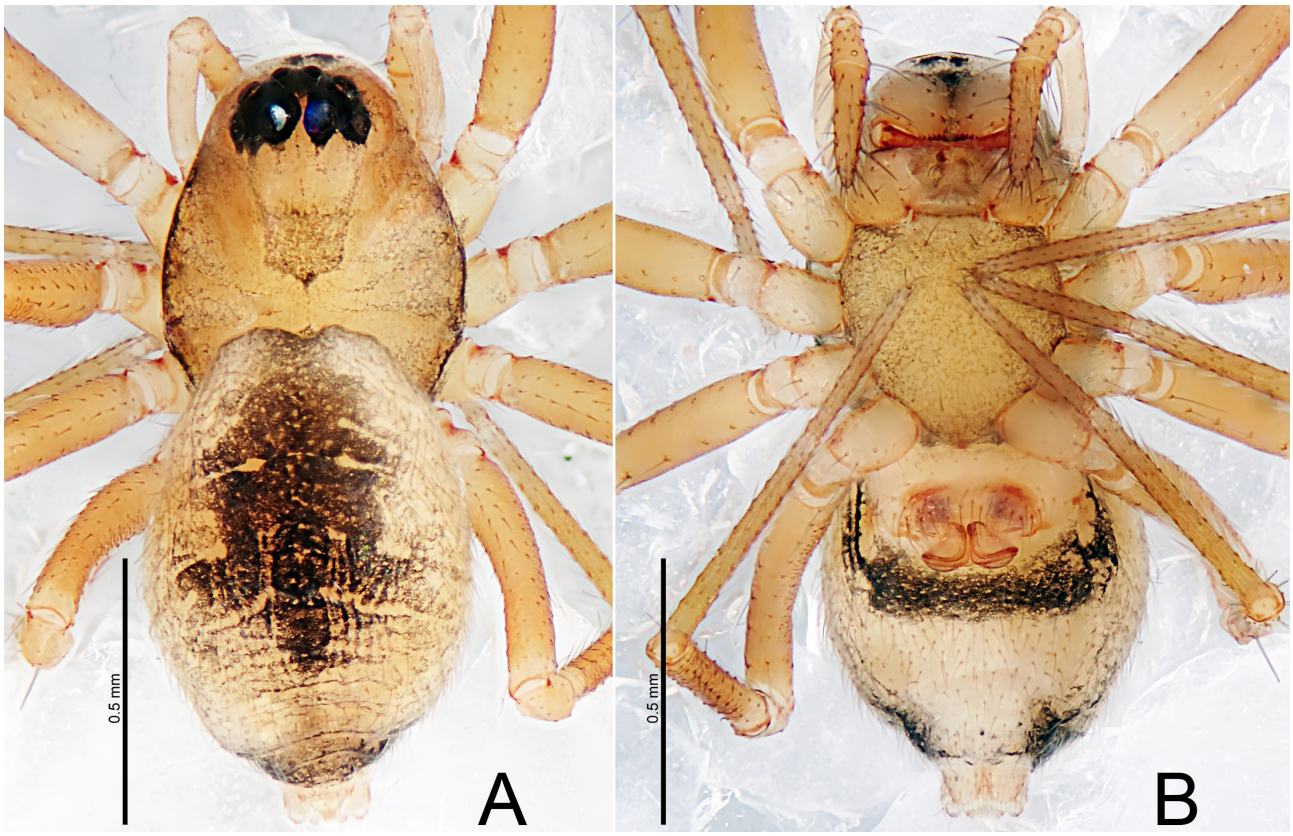


FIGURE 44. *Dicristatus cordatus* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

109.02106°E, 752 m, 24.VIII.2017, M. Irfan & G.C. Zhou leg. (HNU–HB–IV–1724); 1♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1710); **Hunan Prov.:** 2♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.10020°N, 112.65881°E, 189 m, 10.V.2017, G.C. Zhou *et al.* leg. (HNU–HN–IV–1707).

Etymology. The species name comes from the Latin adjective "*cordatus*", meaning "heart-shaped" and referring to the heart-shaped dorsal plate in epigyne.

Diagnosis. *Dicristatus cordatus* **sp. n.** resembles *D. minutus* in having the similar copulatory ducts extending posteriorly (Figs 43A–D; Irfan *et al.* 2023, figs 10A–E), but can be distinguished by the anterior margin of dorsal plate triangular in *D. cordatus* **sp. n.** (Fig. 43D; vs. pentagonal in *D. minutus*).

Description. Female (holotype, Figs 44A, B): Total length: 1.52. Carapace 0.664 long, 0.56 wide, yellowish with grey marking, mid dorsally slightly elevated, with fovea, cervical and radial grooves distinct. Clypeus 0.14 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish, with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.06, PLE 0.07, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.02, PME–PLE 0.03, AME–PME 0.04, ALE–ALE 0.24, PLE–PLE 0.26, ALE–PLE contiguous. Length of legs: I 2.23 (0.56, 0.79, 0.51, 0.37), II 1.97 (0.54, 0.64, 0.45, 0.34), III 1.60 (0.51, 0.54, 0.38, 0.27), IV 2.16 (0.69, 0.77, 0.49, 0.31). Tibial spine formula: 2-2-1-1. TmI 0.27 and TmIV absent. Opisthosoma 1.07 long, 0.85 wide, oval, light yellowish, mid dorsally with broad black band, ventrally transverse black band around epigastric furrow.

Epigyne (Figs 43A–D): Protruding, ventral plate (VP) wider than long; dorsal plate (DP) heart–shaped, extending posteriorly above the epigastric furrow; copulatory opening (CO) present in ventral pocket of copulatory ducts; copulatory ducts (CD) extending posteriorly on the dorsal plate; spermathecae (S) globular, present anteriorly on dorsal plate, spaced by two-third of diameters.

Male. Unknown.

Distribution. Known only from the type localities (Hubei and Hunan Provinces, Figs 310, 315).

Dicristatus denticulatus Irfan, Zhang & Peng, sp. n. (齿状二叉蛛)

Figures 45–47, 310

Types. Holotype ♂ (HNU–GZ–IV–1407), **CHINA, Guizhou Prov.:** Maoxi, Wuluo Town, Fanjingshan NNR, 28.02256°N, 108.77995°E, 1277 m, 31.VII.2014, X.J. Peng *et al.* leg.

Etymology. The specific epithet is derived from the Latin adjective "*denticulatus*" meaning "furnished with small tooth", referring to the dorsal tibial apophysis ventrally with two projections with teeth in male palp.

Diagnosis. *Dicristatus denticulatus* **sp. n.** resembles *D. minutus* in having the similar distal suprategular

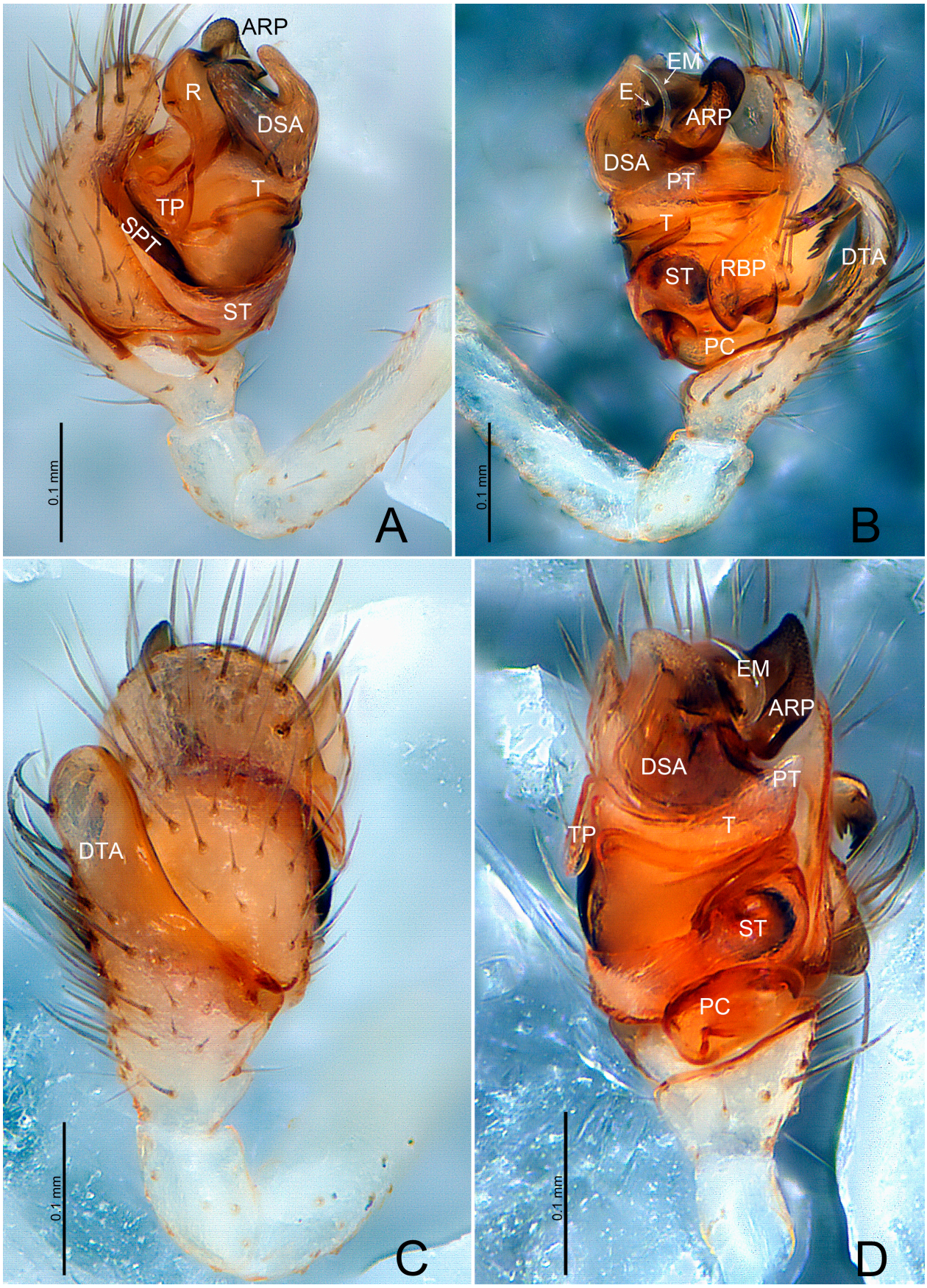


FIGURE 45. *Dicristatus denticulatus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; EM—embolic membrane; PC—paracymbium; PT—protegulum; RBP—cymbial retrobasal process; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

apophysis and small embolus hardly seen on undissected palp (Figs 45A–D, 46A–D; Irfan *et al.* 2023, figs 10A–E), but can be distinguished by the dorsal tibial apophysis upper comb-shaped projection tip with 3 teeth and lower projection with 5 teeth in *D. denticulatus* **sp. n.** (Fig. 56D; vs. with 7 teeth); embolus tip furcated in *D. denticulatus* **sp. n.** (Fig. 56A, C; not furcated).

Description. Male (Figs 47A, B): Total length: 1.42: Carapace 0.66 long, 0.51 wide, the cephalic region slightly elevated, yellow, fovea, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, shield-like, yellowish with microsetae. Eyes: AER recurved, PER straight, wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.06, PLE 0.05, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.03, ALE–ALE 0.22, PLE–PLE 0.24, ALE–PLE contiguous. Length of legs: I 2.36 (0.66, 0.81, 0.51, 0.38), II 2.11 (0.61, 0.70, 0.46, 0.34), III 1.75 (0.53, 0.53, 0.40, 0.29), IV 2.29 (0.65, 0.79, 0.51, 0.34). Tibial spine formula: 2-2-1-1. TmI 0.28 and TmIV absent. Opisthosoma 0.79 long, 0.49 wide, oval, pale.

Palp (Figs 45A–D, 46A–D): Femur unmodified, almost longer than both patella and tibia. Patella shorter than tibia. Tibia with one retrolateral and one dorsal trichobothria, dorsal tibial apophysis (DTA) ventrally with two strongly sclerotized comb-like projections with teeth, retro-margin of dorsal tibia apophysis with two rows of thick comb macrosetae. Cymbium retrolateral margin with large cymbial retrobasal process (RBP), with a semi disc-shaped projection, pointing towards the tibia with blunt end; paracymbium (PC) sclerotized, J-shaped; tegulum (T) with a small protegulum (PT) with blunt end; suprategulum (SPT) with a long sclerotized median tooth, the distal suprategular apophysis (DSA) long, distal tip broad with bifurcated end. Radix (R) with a broad anterior radical projection (ARP); tailpiece (TP) slightly curved, with blunt tip; embolic membrane (EM) long, curved; embolus (E) sclerotized, stout, almost completely covered by the distal suprategular apophysis and the anterior radical projection.

Female. Unknown.

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

Genus *Dicymbium* Menge, 1868 (双舟蛛属)

Type species. *Dicymbium gracilipes* Menge, 1868; gender neuter.

Remark. *Dicymbium* comprises nine species distributed across the Holarctic (WSC 2024).

Dicymbium sinofacetum Tanasevitch, 2006 (华雅双舟蛛)

Figures 48–50, 311

Araeoncus stigmosus Xia *et al.* 2001: 164, figs 16–17 (♀ only, misidentified, per Song & Li 2008c: 88, after Tanasevitch 2006b: 289).

Dicymbium sinofacetum Tanasevitch, 2006: 289, figs 39–44 (♂♀); Song & Li 2008: 88, f. 1–13 (♂♀).

Material examined. 1♂1♀, **CHINA, Hainan:** Lingshui Co., Wanning City, Diaoluoshan NNR, 18.67083°N, 109.89416°E, 241 m, 06.IV.2017, K.K. Liu *et al.* leg.

Distribution. China (Hainan, Fig. 311, Gansu, Sichuan and Yunnan Provinces).

Genus *Diplocephaloides* Oi, 1960 (类双头蛛属)

Type species. *Diplocephalus saganus* Bösenberg & Strand, 1906; gender masculine.

Remark. *Diplocephaloides* comprises three species distributed in China, Korea and Japan (WSC 2024).

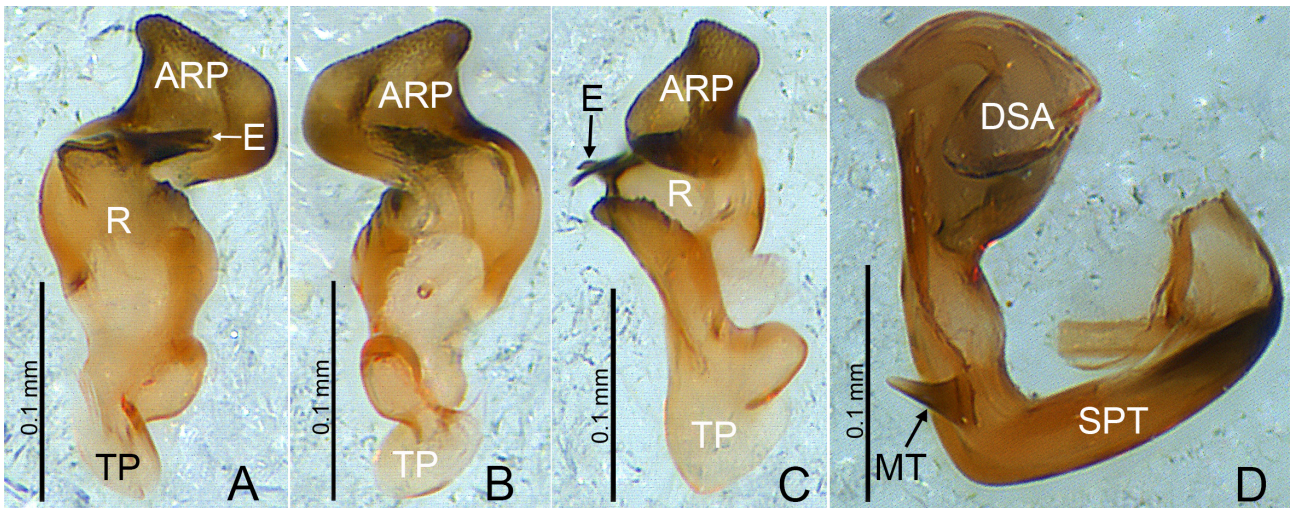


FIGURE 46. *Dicristatus denticulatus* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, dorsal view; **C** Embolic division, retrolateral view; **D** Suprategulum, ventral view. Abbreviations: ARP—anterior radical process; E—embolus; MT—median tooth of DSA; R—radix; TP—tailpiece.

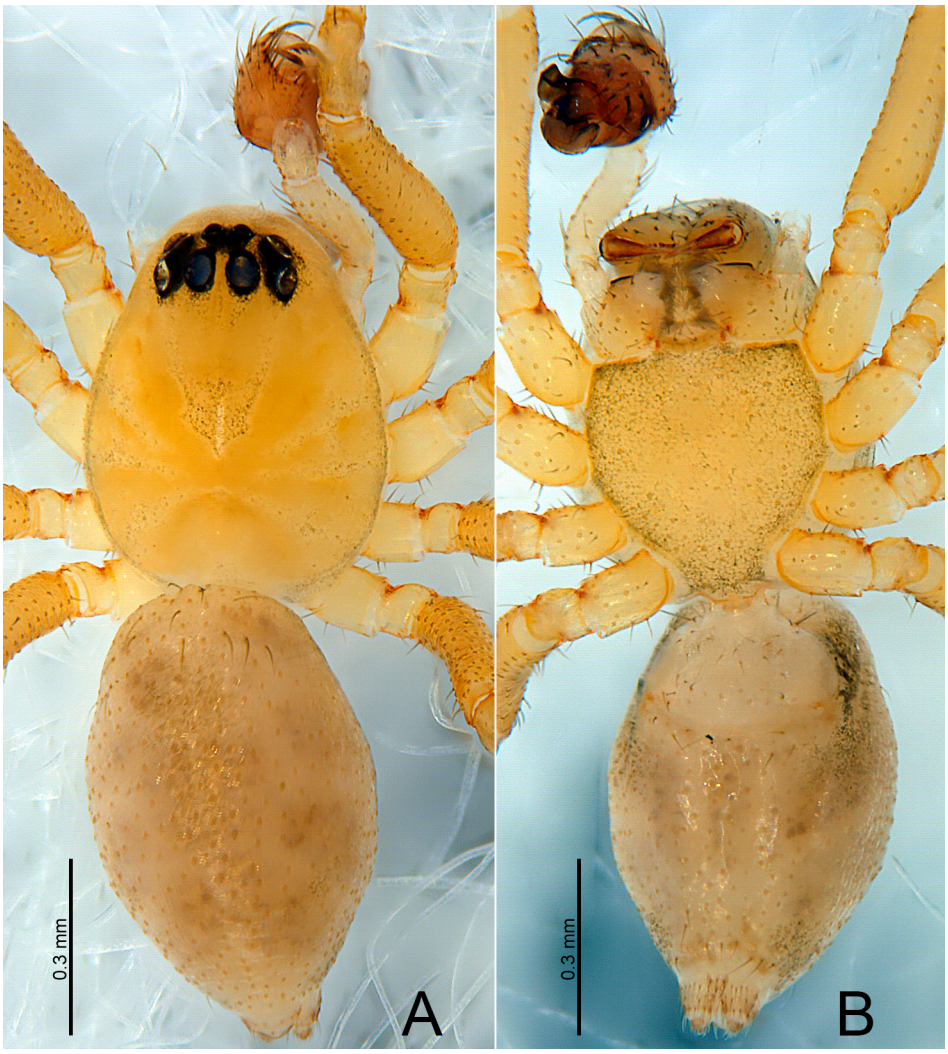


FIGURE 47. *Dicristatus denticulatus* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

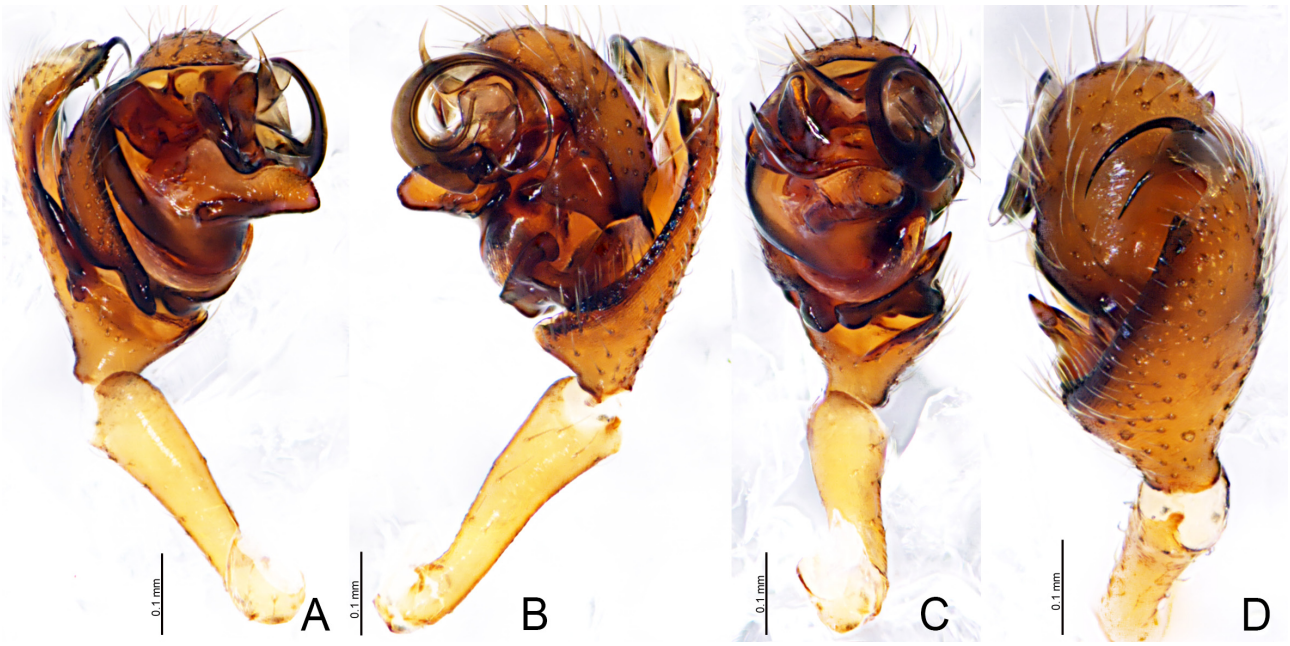


FIGURE 48. *Dicymbium sinofacetum* Tanasevitch, 2006. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

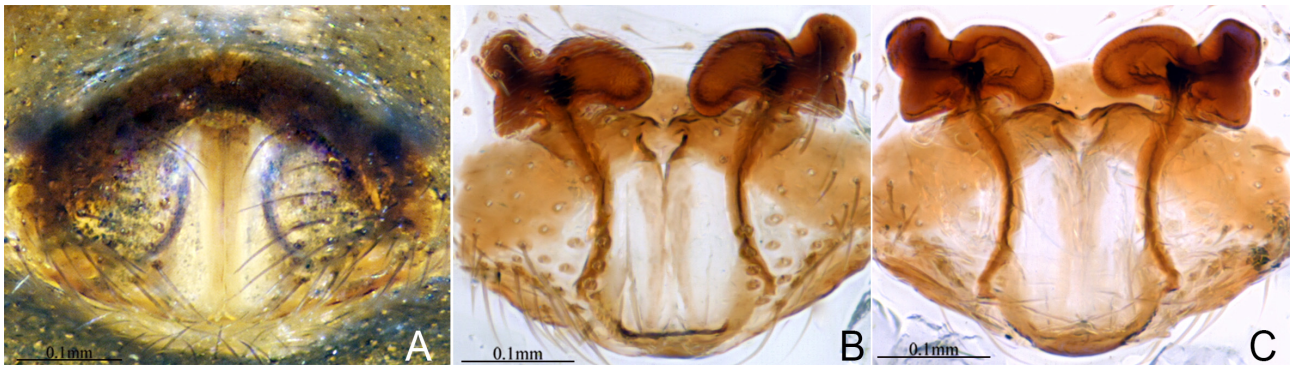


FIGURE 49. *Dicymbium sinofacetum* Tanasevitch, 2006 female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

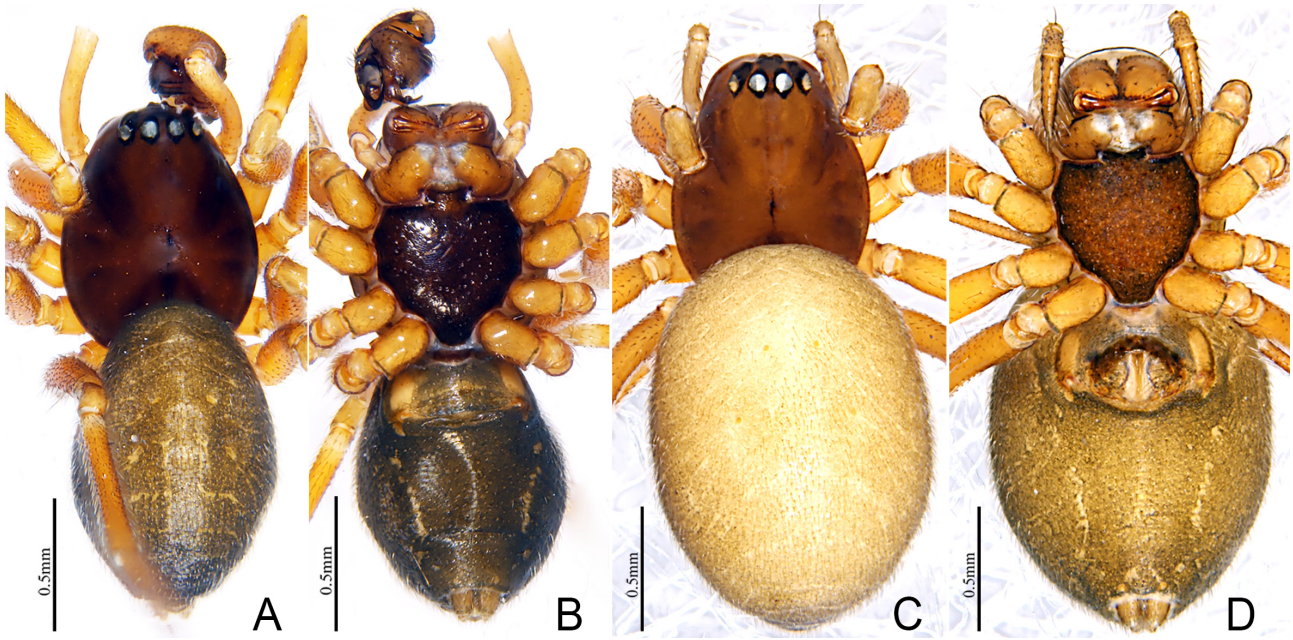


FIGURE 50. *Dicymbium sinofacetum* Tanasevitch, 2006, male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

***Diplocephaloides cucullus* Irfan, Zhang & Peng, sp. n. (兜类双头蛛)**
Figures 51, 52, 310

Types. Holotype ♀ (HNU-GZ-IV-1804), **CHINA, Guizhou Prov.:** Tongren City, Shiqian Co., Pingshan Township, Fodingshan Vill., Fodingshan NNR, 27.332781°N, 108.151789°E, 617 m, 03.V.2018, D. Li *et al.* leg.

Etymology. The specific epithet is derived from Latin noun "*cucullus*" meaning "hood" and referring to the ventral plate with one pair of hoods in epigyne.

Diagnosis. *Diplocephaloides cucullus* **sp. n.** resembles *D. uncatus* in having similar dorsal plate in ventral view (Figs 51A, B; Song & Li, 2010, figs 12–17), but can be distinguished by the ventral plate with one pair of hoods posteriorly in *D. cucullus* **sp. n.** (Fig. 51A; vs. absent); inner margin of ventral plate arc-shaped in ventral view in *D. cucullus* **sp. n.** (Fig. 51A; vs. straight); dorsal plate conical flask-shaped in dorsal view in *D. cucullus* **sp. n.** (Fig. 51C; vs. somewhat quadrate); spermatheca bean-shaped in *D. cucullus* **sp. n.** (Fig. 51D; vs. S-shaped).

Description. Female (Figs 52A, B): Total length: 2.07. Carapace 0.74 long, 0.68 wide, cephalic region slightly elevated, orange, cervical and radial grooves distinct. Clypeus 0.27 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum as long as wide, orange, with microsetae. Eyes: AER recurved, PER procurved. Eye sizes and interdistances: AME 0.06, ALE 0.06, PME 0.06, PLE 0.05, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.04, ALE–ALE 0.28, PLE–PLE 0.30, ALE–PLE 0.01. Length of legs: I 2.98 (0.87, 0.92, 0.72, 0.47), II 2.87 (0.84, 0.89, 0.68, 0.46), III 2.12 (0.65, 0.65, 0.46, 0.36), IV 2.88 (0.88, 0.94, 0.66, 0.40). Tibial spine formula: 2-2-1-1. TmI 0.63 and TmIV present. Opisthosoma 1.14 long, 0.78 wide, oval, pale, dorsally with two pairs of sigillae, ventally with one pair of yellow spots near spinnerets posteriorly.

Epigyne (Figs 51A–D): Fissure absent; ventral plate (VP) wider than long; dorsal plate (DP) column-shaped in ventral view, partially covered by ventral plate, conical flask-shaped in dorsal view; copulatory opening

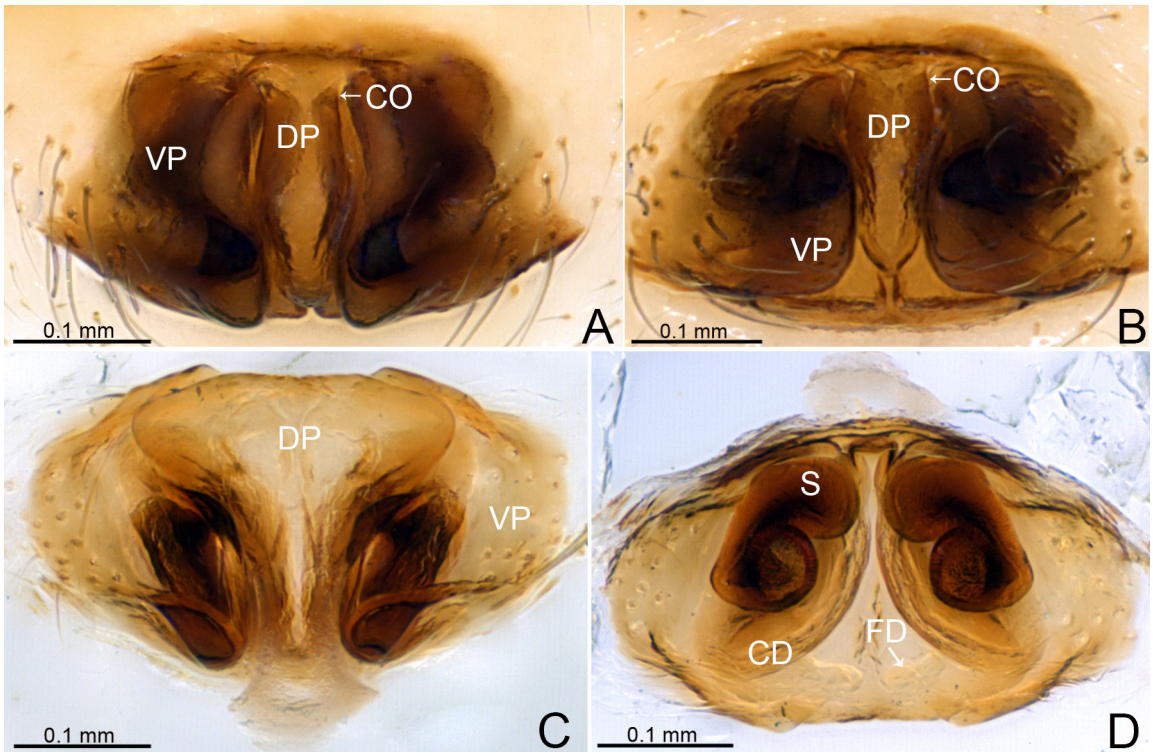


FIGURE 51. *Diplocephaloides cucullus* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Epigyne, dorsal view, **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

(CO) present at the anterior margin of the doprsal plate; copulatory ducts (CD) long; spermathecae (S) present anteriorly, pointing towards each other; fertilization ducts (FD) extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

Genus *Diplocephalus* Bertkau, 1883 (双头蛛属)

Type species. *Erigone foraminifera* O. Pickard-Cambridge, 1875; gender masculine.

Remark. *Diplocephalus* comprises 50 species (including four species known from males and one from females) distributed in Holarctic and Holotropical regions (WSC 2024).

Diplocephalus circularis Irfan, Zhang & Peng, sp. n. (环状双头蛛)

Figures 53–57, 307, 312, 315

Types. Holotype ♂, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg. **Paratypes:** 16♂13♀, with same data as for holotype; 6♂9♀, Badong Co., Yanduhe Town, Songziyuan Vill., 31.33400°N, 110.42625°E, 1340 m, 28.IV.2016, W. Liu *et al.* leg.; 1♂, Badong Co., Yanduhe Town, Songziyuan Vill., 31.3406°N, 110.4131°E, 1320 m, 24.IV.2016, W. Liu *et al.* leg.; 5♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* (HNU–HB–IV–1710); **Hunan Prov.:** 1♂, Shaoyang City, Suining Co., Zhaishi Town, Tieshanlin Vill., Huangshan NNR, 26.37646°N, 110.10573°E, 1129 m, 26.X.2017, G.C. Zhou (HNU–HN–IV–1759); **Chongqing**: 1♀, Youyang Co., Taohuayuan Scenic Spot, 28.85096°N, 108.75037°E, 995 m, 23.VII.2017, M. Irfan & G.C. Zhou (HNU–CQ–IV–1718).

Etymology. The specific epithet is derived from the Latin adjective "*circularis*" meaning "circular" and referring to the curved anterior terminal apophysis in male palp.

Diagnosis. The male of *Diplocephalus circularis* **sp. n.** resembles that of *D. crassilobus* in having the similar cephalic lobe in male (Figs 57A–C; Millidge 1979, figs 50–56), but can be distinguished by the embolus forming a complete 360° circle in *D. circularis* **sp. n.** (Figs 53A–C, 54A, B, 55A–C; vs. spindle-shaped); dorsal tibial apophysis at apex ventrally with two projections in *D. circularis* **sp. n.** (Figs 54C, D; vs. with one projection). The female of *D. circularis* **sp. n.** resembles those of *D. parentalis* in having similar ventral plate and fissure in epigyne (Figs 56A–D; Song and Li, 2010, figs 10G, 11A, B), and can be distinguished by the spermathecae U-shaped, pointing towards the anterior margin of epigyne in *D. circularis* **sp. n.** (Figs 56B, D; vs. J-shaped, pointing towards the posterior margin of epigyne).

Description. Male (holotype, Figs 57A–C): Total length: 1.53. Carapace 0.71 long, 0.57 wide, cephalic region with cephalic lobe 0.27 high, yellow,

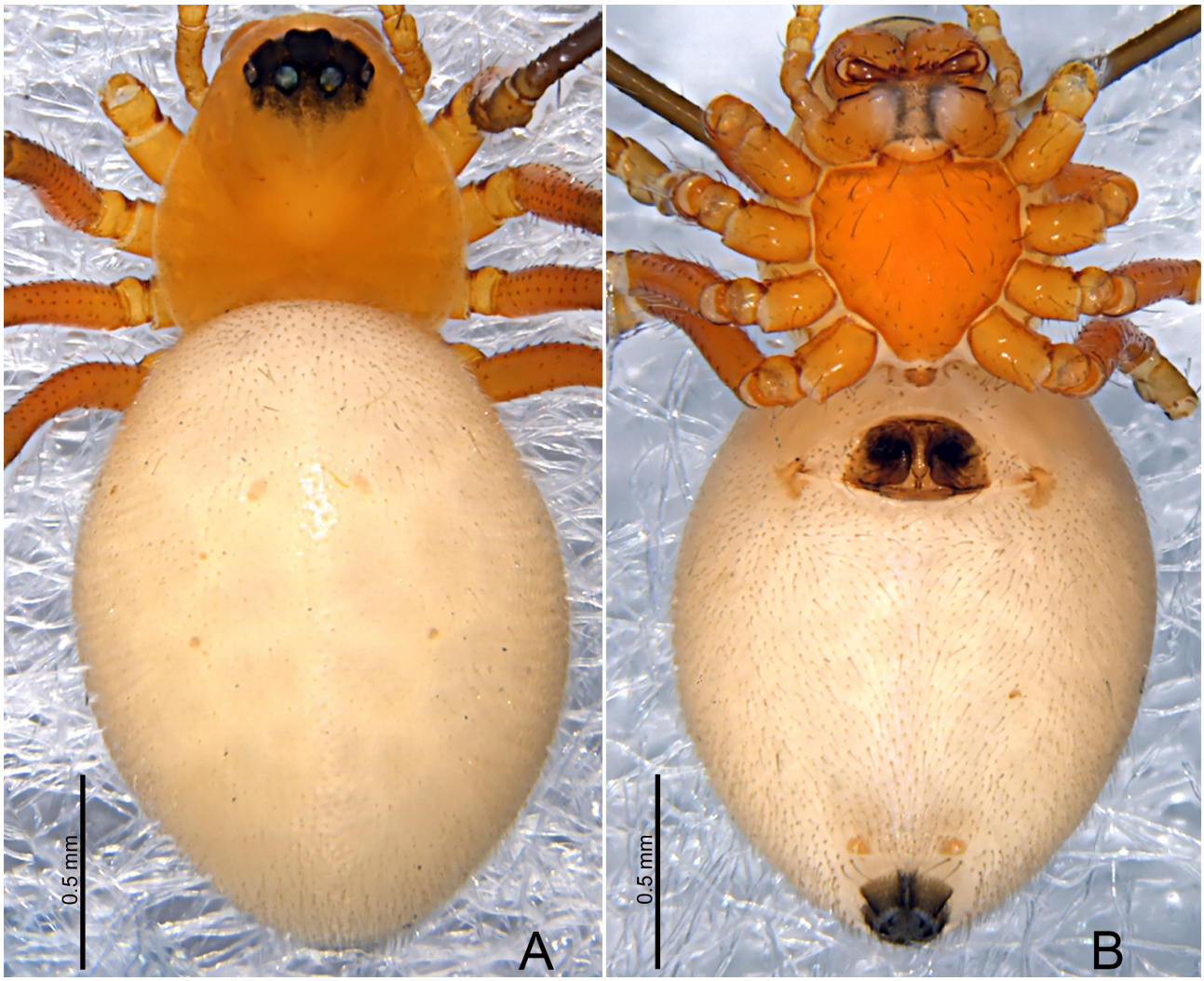


FIGURE 52. *Diplocephaloides cucullus* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

fovea, cervical and radial grooves distinct. Clypeus 0.24 high. Chelicerae with three promarginal and four retromarginal teeth. Sternum longer than wide, yellowish with microsetae. Eye PMEs presents on the cephalic lobe, AER recurved, PER procurved. Eye sizes and interdistances: AME 0.05, ALE 0.04, PME 0.05, PLE 0.04, AME–AME 0.01, PME–PME 0.08, AME–ALE, 0.06, PME–PLE 0.12, AME–PME 0.12, ALE–ALE 0.28, PLE–PLE 0.27, ALE–PLE 0.01. Length of legs: I 1.9 (0.55, 0.64, 0.42, 0.29), II 1.75 (0.53, 0.56, 0.39, 0.27), III 1.54 (0.46, 0.48, 0.34, 0.26), IV 1.96 (0.36, 0.63, 0.44, 0.26). Tibial spine formula: 2-2-1-1. TmI 0.19 and TmIV absent. Opisthosoma 0.99 long, 0.72 wide, oval, dark brown to black.

Palp (holotype, Figs 53A–D, one of the paratype, Figs 54A–D): Femur unmodified, as long as patella and tibia. Patella shorter than tibia, ventrally grooved. Tibia dorsally with broad, long dorsal tibial apophysis, retrolateral margin with a row of thick setae, apex with two projections extending retrolaterally with teeth. Cymbium unmodified, conical, distal end broad; paracymbium (PC) L-shaped, distal arm tip hook-shaped with blunt end; tegulum (T) with well developed protegulum (PT), protruding above the apex of cymbium; distal suprategular apophysis (DSA) sclerotized, basal part broad, distal end needle-like with pointed end. Tailpiece (TP) of embolic division long, curved with blunt tip; embolic membrane (EM) long, with broad end; embolus (E) long, highly sclerotized, forming a tranvers circular at the apex.

Variation (one of the paratype palp, Figs 55A–D): Distal long arm of distal suprategular apophysis with a tooth. All the other morphological and genital characters are similar to the male holotype.

Female (paratype, Figs 57D–F): Total length: 1.56. Carapace 0.66 long, 0.55 wide, cephalic region slightly elevated, yellow, fovea, cervical and radial grooves distinct. Clypeus 0.14 high. Chelicerae with 4 promarginal and 6 retromarginal teeth. Sternum longer than wide, yellowish with microsetae. Eyes: AER recurved, PER procurved. Eye sizes and interdistances: AME 0.03, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.04, PME–PLE 0.03, AME–PME 0.05, ALE–ALE 0.22, PLE–PLE 0.23, ALE–PLE 0.01. Length of legs: I 1.75 (0.54, 0.59, 0.33, 0.29), II 1.68 (0.50, 0.54, 0.34, 0.30), III 1.37 (0.46, 0.40, 0.27, 0.24), IV 1.77 (0.57, 0.61, 0.35, 0.24). Tibial spine formula: 2-2-

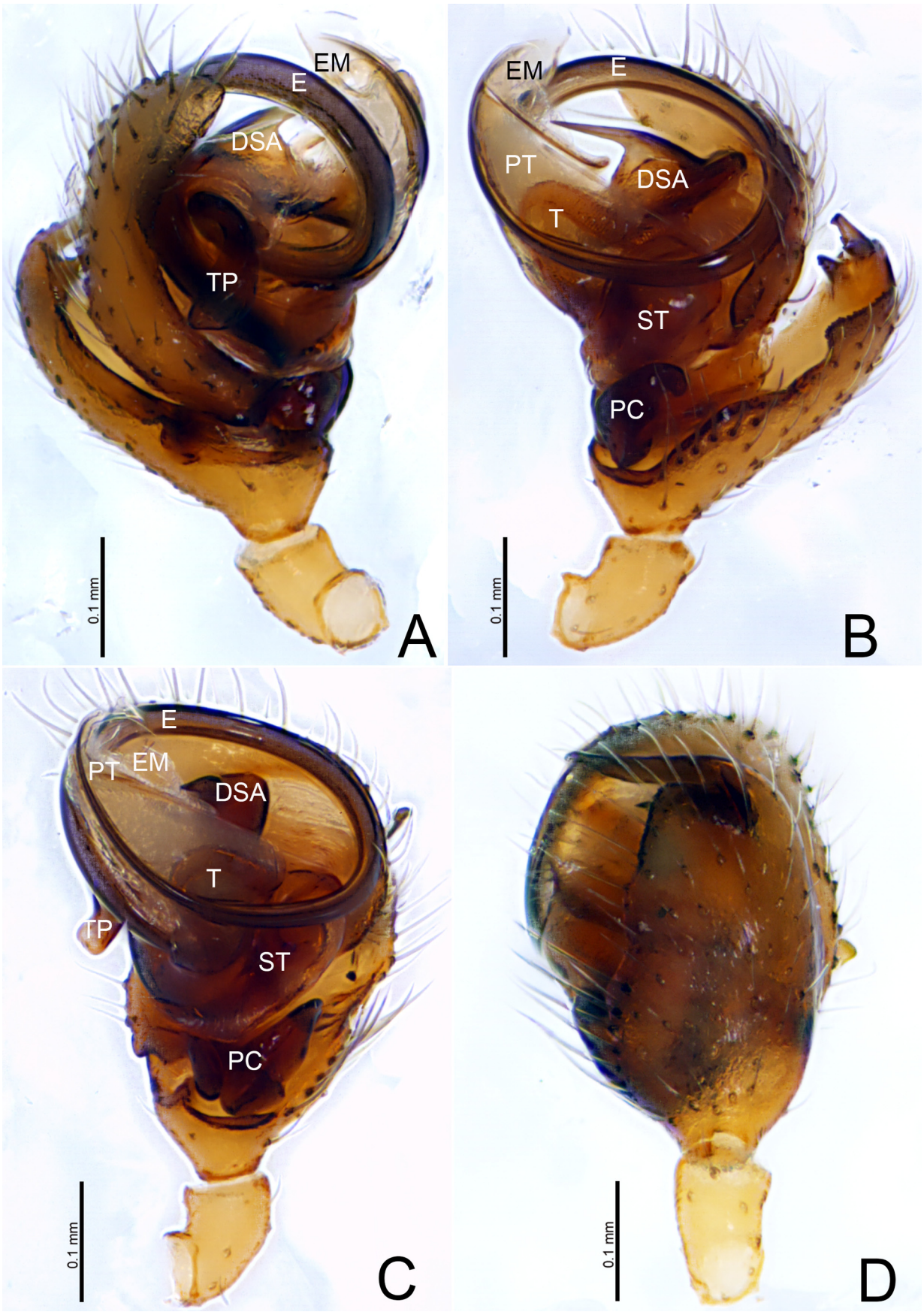


FIGURE 53. *Diplocephalus circularis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; EM—embolic membrane; PC—paracymbium; PT—protegulum; PTA—prolateral tibial apophysis; RBP—cymbial retrobasal process; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

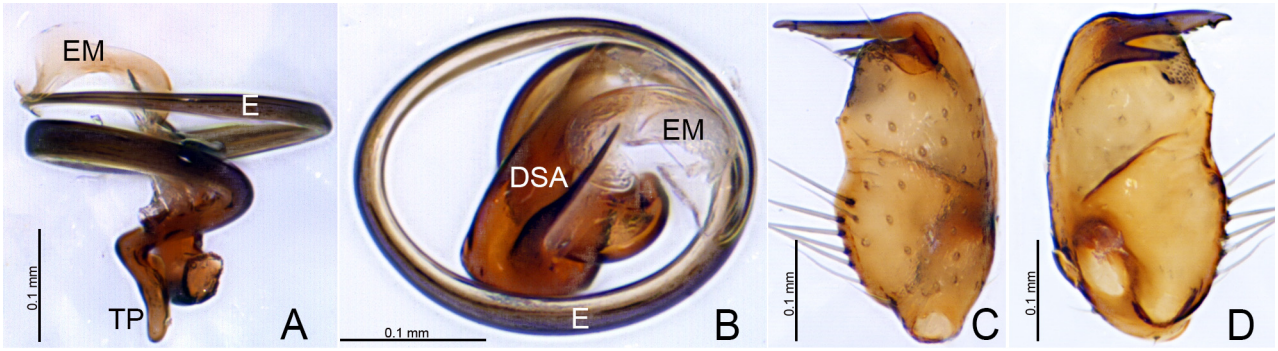


FIGURE 54. *Diplocephalus circularis* **sp. n.**, male palp (one of paratype). **A** Embolic division, prolateral view; **B** Embolic division, posterior view; **C** Tibia, dorsal view; **D** Tibia, ventral view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; EM—embolic membrane.

1-1. TmI 0.17 and TmIV absent. Opisthosoma 1.14 long, 0.78 wide, oval, dark brown to black.

Epigyne (Figs 56A–D): Epigynal plate more than two times wider than long, medially with a long fissure (F); ventral plate (VP) with copulatory openings (CO) anteriorly; dorsal plate (DP) somewhat quadrate, postrior end round, completly covered by ventral plate in ventral view; copulatory ducts (CD) enclosed in a slightly sclerotized capsule. Spermathecae (S) present antero-laterally, spaced by two diameters. Fertilization ducts (FD) present dorso mesally.

Distribution. Known only from the type localities (Chongqing, Hubei and Hunan Provinces, Figs 307, 312, 315).

Diplocephalus tongrenensis Irfan, Zhang & Peng, sp. n. (铜仁双头蛛)

Figures 58, 59, 310

Types. Holotype ♀ (HNU-GZ-IV-1804), **CHINA, Guizhou Prov.:** Tongren City, Shiqian Co., Pingshan Township, Fodingshan Vill., Fodingshan NNR, 27.332781°N, 108.151789°E, 617m. 03.V.2018, D. Li *et al.* leg. **Paratypes:** 2♀, same data as female holotype (HNU-GZ-IV-1804).

Etymology. The specific epithet is derived from type locality; adjective.

Diagnosis. *Diplocephalus tongrenensis* **sp. n.** resembles *D. hispidulus* in having the epigyne ventral plate with a slit at the middle and copulatory opening present anteriorly (Figs 58A–C; Saito & Ono 2001, figs 90, 91), but can be distinguished by the spermathecae present anteriorly in *D. tongrenensis* **sp. n.** (Figs 58A–C; vs. present posteriorly).

Description. Female (holotype, Figs 59A, B): Total length: 2.45. Carapace 0.99 long, 0.81 wide, cephalic region slightly elevated, orange, cervical and radial grooves distinct. Clypeus 0.29 high. Chelicerae with four promarginal and four retromarginal teeth. Sternum as long as wide, orange, with microsetae. Eyes: AER recurved, PER procurved. Eye sizes and interdistances: AME 0.04, ALE 0.08, PME 0.07, PLE 0.6, AME–AME 0.04, PME–PME 0.05, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.06, ALE–ALE 0.31, PLE–PLE 0.34, ALE–PLE contiguous. Length of legs: I 3.69 (1.03, 1.23, 0.88, 0.55), II 3.54 (1.01, 1.16, 0.83, 0.54), III 2.83 (0.87, 0.89, 0.66, 0.41), IV 3.61 (1.07, 1.16, 0.87, 0.51). Tibial spine formula: 2-2-1-1. TmI 0.24 and TmIV absent. Opisthosoma 1.71 long, 1.27 wide, oval, pale, dorsally with two pairs of sigillae, ventally with one pair of yellow spots near spinnerets posteriorly.

Epigyne (Figs 58A–C): Epigynal plate one and half times wider than long, fissure wide, ventral plate (VP) wider than long, inner margin arc-shaped; dorsal plate (DP) partially covered by the ventral plate, spindle-shaped in ventral view and somewhat rectangular posteriorly. Copulatory ducts (CD) enclosed in a slightly sclerotized capsule; copulatory openings (CO) present at the anterior end of the ventral plate. Spermathecae (S) round, most of it covered by copulatory ducts, pointing dorso-laterally. Fertilization ducts (FD) extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

Comment: The epigynal fissure of *D. tongrenensis* **sp. n.** is wide and quite different from those in all other congeners. The species is provisionally placed in the genus *Diplocephalus.*

Genus *Drapetisca* Menge, 1866 (珑蛛属)

Type species. *Linyphia socialis* Sundevall, 1833; gender masculine.

Remark. *Drapetisca* comprises four species (including one species known from females) distributed in Caucasus, Central Asia, China, Europe, Japan, Russia (Europe to Far East) and USA (WSC 2024).

Drapetisca boletus Irfan, Zhang & Peng, sp. n. (蘑菇珑蛛)

Figures 60, 61, 315

Types. Holotype ♀ (HNU–HNHS–18–10), **CHINA,**

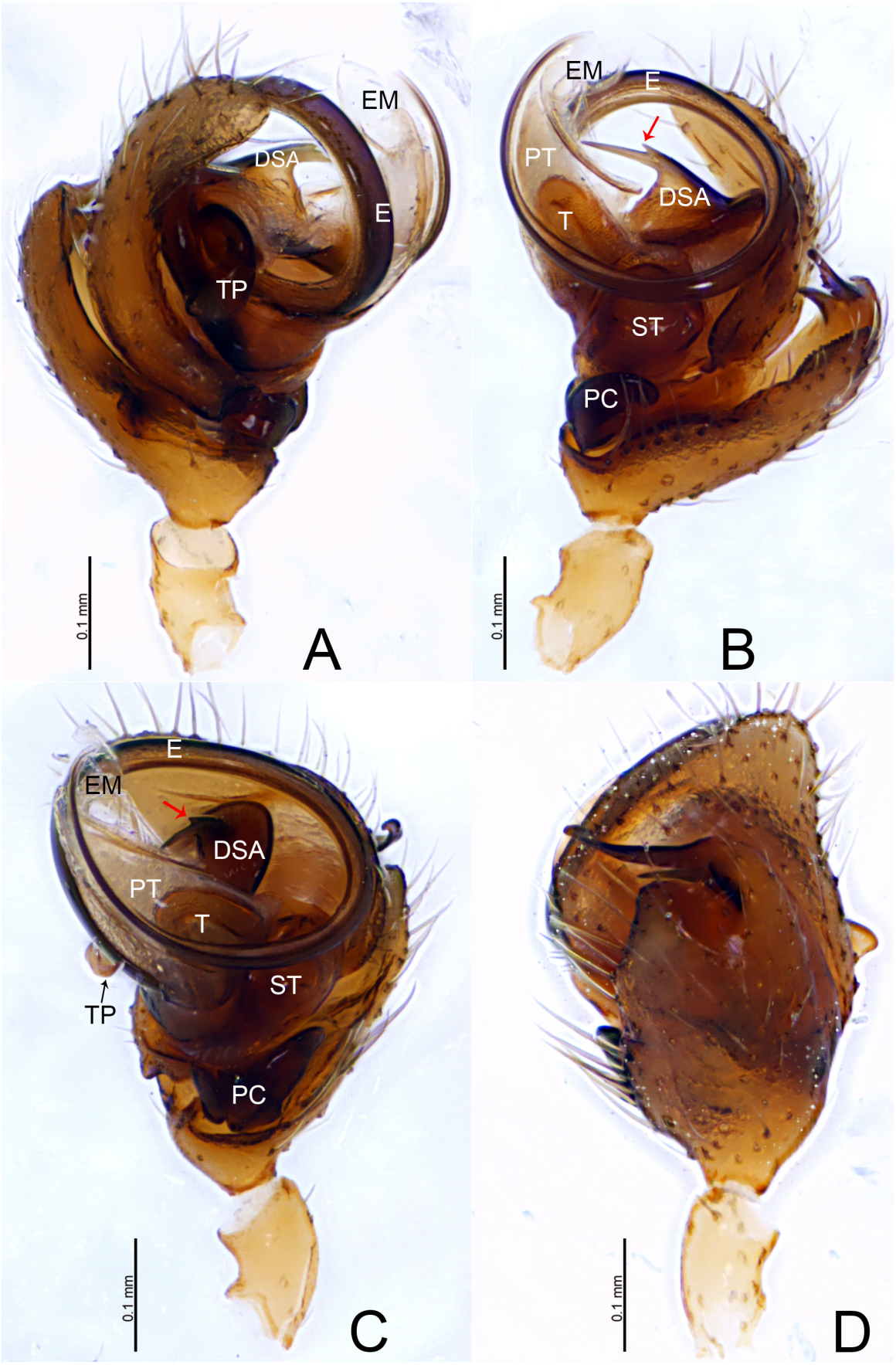


FIGURE 55. *Diplocephalus circularis* **sp. n.** male paratype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. **B, C** Red arrows indicating distal long arm of distal suprategular apophysis with a tooth. Abbreviations: DSA—distal suprategular apophysis; E—embolus; EM—embolic membrane; PC—paracymbium; PT—protegulum; PTA—prolateral tibial apophysis; RBP—cymbial retrobasal process; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

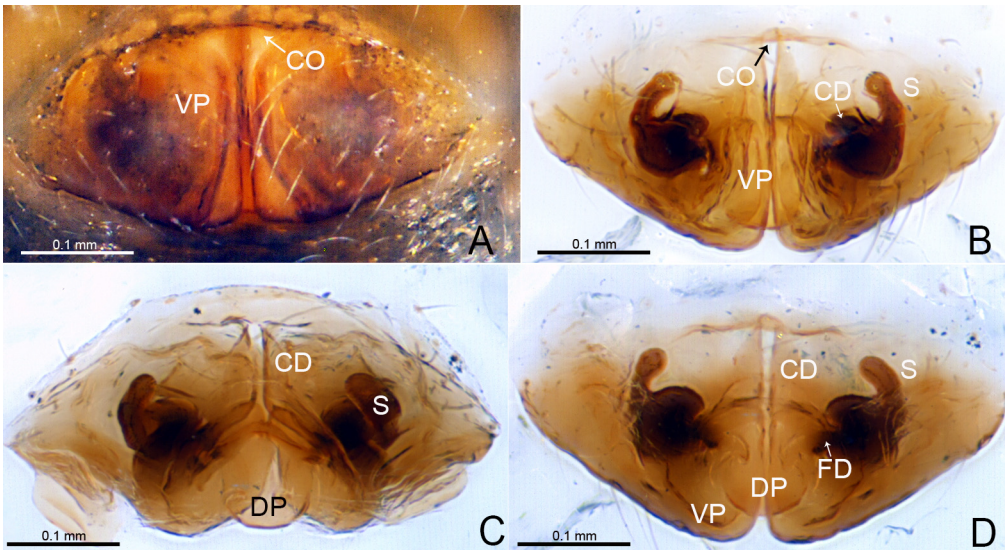


FIGURE 56. *Diplocephalus circularis* **sp. n.**, female (one of paratype). **A**, **B** Epigyne, ventral view; **C**, **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

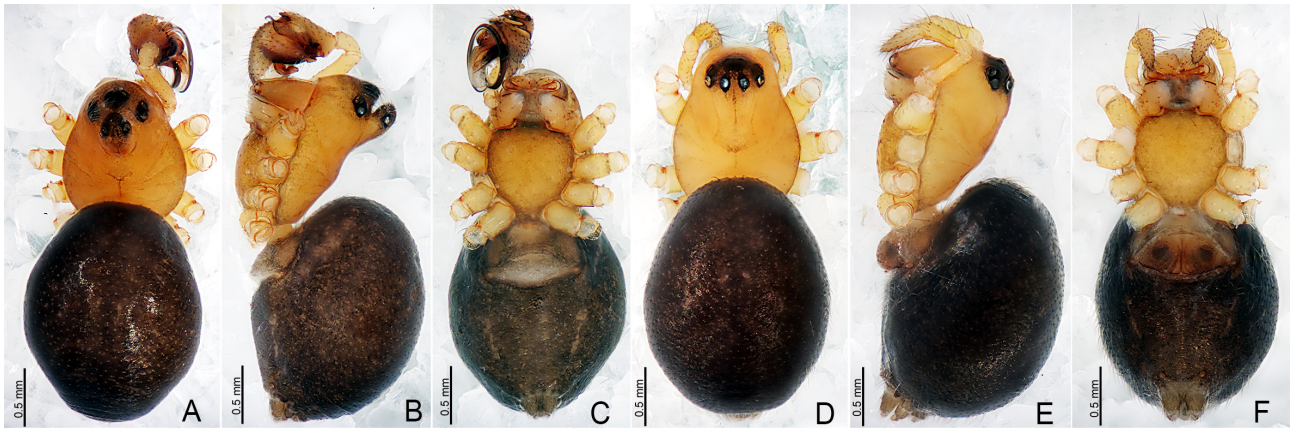


FIGURE 57. *Diplocephalus circularis* **sp. n.**, male holotype (A–C), female (one of paratypes, D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

Hunan Prov.: Hengyang City, Nanyue District, Hengshan NNR, Guanjing Villa, 27.290263°N, 112.70072°E, 1186 m, 19.I.2018, G.C. Zhou *et al.* leg. **Paratype:** 1♀, Hengyang City, Nanyue District, Hengshan NNR, Hu Heyun Tomb, 27.26710N, 112.71825°E, 389 m, 19.I.2018, G.C. Zhou *et al.* leg. (HNU–HNHS–18–12).

Etymology. The specific epithet is derived from the Latin noun "*boletus*" meaning "mushroom" and referring to the mushroom-like appearance of epigyne.

Diagnosis. *Drapetisca boletus* **sp. n.** resembles *D. socialis* in having similar spermatheca (Figs 60C–E; Tu & Li 2006, figs 22–26), but can be distinguished by the epigyne posteriorly mushroom-like in ventral view in *D. boletus* **sp. n.** (Figs 60A–E; vs. somewhat rectangular in ventral view).

Description. Female (holotype, Figs 61A, B): Total length: 2.46. Carapace 0.95 long, 0.72 wide, cephalic region slightly elevated, yellow, lateral margin black, cervical and radial grooves distinct. Clypeus 0.22 high. Chelicerae with five promarginal and three retromarginal teeth. Eyes: AER recurved, PER straight. Sternum as long as wide, brown, with microsetae. Eye sizes and interdistances: AME 0.05, ALE 0.09, PME 0.08, PLE 0.08, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.04, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.32, PLE–PLE 0.35, ALE–PLE contiguous. Legs with alternative light yellow and black bands. Length of legs: I 4.29 (1.12, 1.38, 1.06, 0.73), II 3.43 (0.91, 1.07, 0.83, 0.62), III 2.73 (0.83, 0.85, 0.62, 0.43), IV 3.71 (1.04, 1.14, 0.92, 0.61). Tibial spine formula: 2-2-2-2. TmI 0.49 and TmIV present. Opisthosoma 1.76 long, 1.21 wide, oval, dusky grey, dorsally with distinct pattern extending posteriorly, with irregular white patches; ventral side greenish brown.

Epigyne (Figs 60A–E): Protruding, posterior end round, with well-developed lateral pockets (LP); posterior median plate (PMP) rectangular, partially visible in ventral view. Spermathecae (S) long, curved, figure-shaped, pointing posteriorly towards the epigastric furrow.

Male. Unknown.

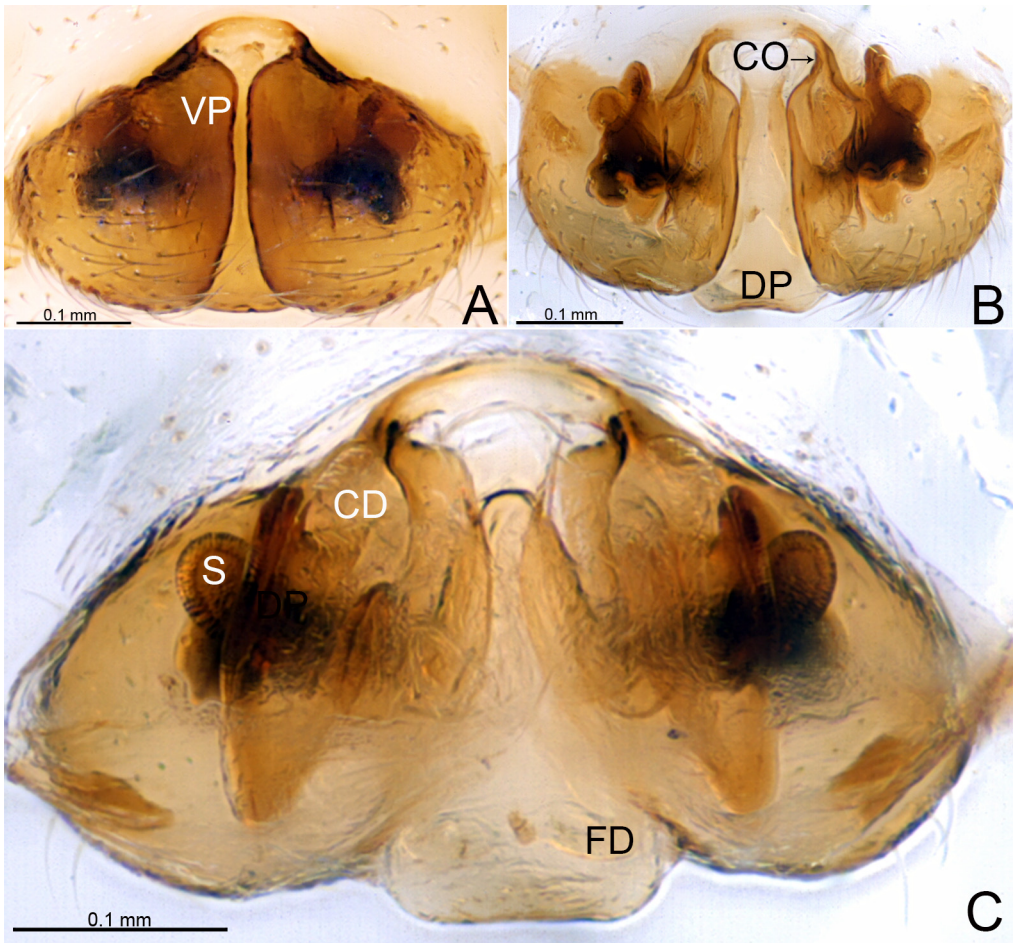


FIGURE 58. *Diplocephalus tongrenensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

Distribution. Known only from the type localities (Hunan Province, Fig. 315).

***Drapetisca nanpingensis* Irfan, Zhang & Peng, sp. n. (南屏珑蛛)**
Figures 62–64, 315.

Types. Holotype ♂ (HNU–HN–IV–1406), **CHINA, Hunan Prov.:** Changde City, Shimen Co., Hupingshan Town, Nanping Township, Maozhu River, 30.03738°N, 110.91102°E, 284 m, 14.X.2004, C. Wang *et al.* leg. **Paratype:** 1♀, with same data as for holotype male (HNU–HN–IV–1406).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Drapetisca nanpingensis* **sp. n.** can be distinguished from all other congeners by the lamella characteristica L-shaped in retrolateral view; distal part of terminal apophysis kidney-shaped in retrolateral view; distal arm of paracymbium anchor-shaped in retrolateral view; thumb disc-shaped in prolateral view (Figs 62A–D); proximal cymbial apophysis absent (Fig. 62C). The female resembles those of *D. boletus* **sp. n.** and *D. socialis* in having similar spermatheca (Figs 60C–E; Figs 63E, F; Tu & Li 2006, figs 22–26), and can be distinguished by the epigyne C-shaped posteriorly in *D. nanpingensis* **sp. n.** (Fig. 63C; vs. mashroom-like in *D. boletus* **sp. n.** and somewhat rectangular in *D. socialis*).

Description. Male (holotype, Figs 64A, B): Total length: 2.46. Carapace 1.17 long, 1.02 wide, brown, fovea, cervical and radial grooves distinct. Clypeus 0.0.23 high. Chelicerae with two promarginal and two retromarginal teeth. AER recurved, PER straight, slightly wider. Sternum wider than long, dark brown, with microsetae. Eye sizes and interdistances: AME 0.06, ALE 0.07, PME 0.08, PLE 0.08, AME–AME 0.03, PME–PME 0.05, AME–ALE, 0.07, PME–PLE 0.06, AME–PME 0.08, ALE–ALE 0.38, PLE–PLE 0.40, ALE–PLE contiguous. Length of legs: I 5.89 (1.58, 1.80, 1.57, 0.94), II 5.17 (1.41, 1.65, 1.32, 0.79), III 4.12 (1.17, 1.29, 1.05, 0.61), IV 5.42 (1.50, 1.63, 1.46, 0.83). Tibial spine formula: 2-2-2-2. TmI 0.51 and TmIV present. Opisthosoma 1.24 long, 0.88 wide, oval, dusky grey, dorsally with distinct black pattern with white patches; ventral side blackish brown.

Palp (Figs 62A–D): Femur unmodified, as long as patella and tibia. Patella as long as tibia, ventrally grooved, with a long dorsal spine. Tibia conical, ventrally with outgrowth; with two retrolateral and one dorsal trichobothria. Cymbium unmodified, retrolateral margin with a shallow depression at the base, retrolateral

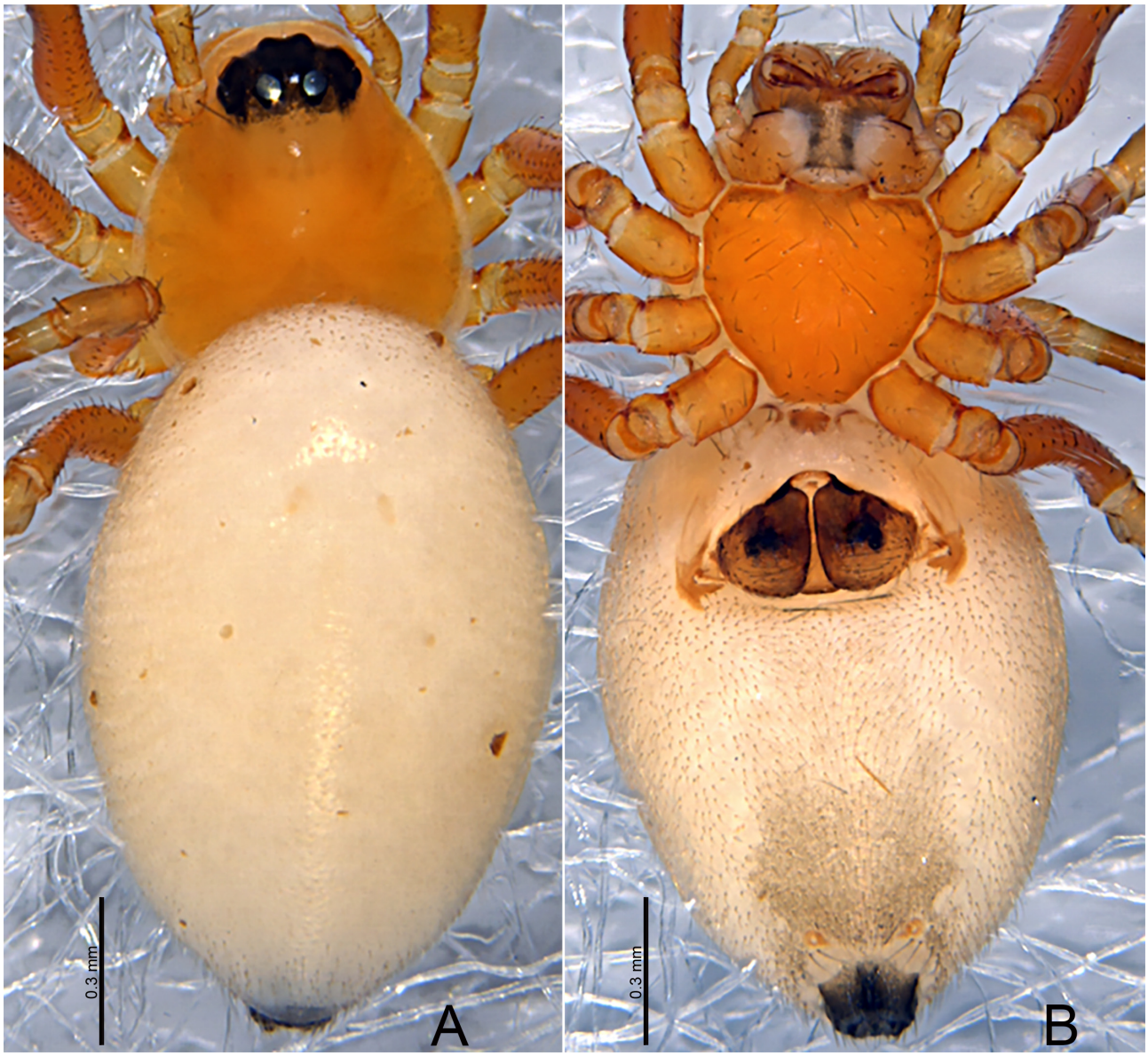


FIGURE 59. *Diplocephalus tongrenensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

margin protruding towards subtegulum; paracymbium (PC) sclerotized, basal part wider than long, with thick spines, distal arm with small projection at the center, tip with blunt end. Pithook (PH) invisible on unexpanded palp. Radix (R) longer than wide with Fickert's gland (fg); terminal apophysis (TA) sclerotized, longer than wide in prolateral view. Lamella characteristica (LC) strongly sclerotized, curved, longer than wide L-shaped in retrolateral view, extending forward; embolus proper (EP) short with pointed tip; attached with disc-shaped thumb (TH).

Female (paratype, Figs 64C, D): Total length: 1.89. Carapace 0.96 long, 0.72 wide, cephalic region slightly elevated, brown, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with four promarginal and three retromarginal teeth. Sternum wider than long, dark brown with light patches and microsetae. Eyes: AER recurved, PER slightly recurved. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.07, PLE 0.07, AME–AME 0.03, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.03, ALE–ALE 0.31, PLE–PLE 0.32, ALE–PLE 0.01. Legs with annuli. Length of legs: I 4.42 (1.10, 1.49, 1.14, 0.69), II 3.77 (0.93, 1.24, 0.95, 0.61), III 3.04 (0.93, 0.87, 0.76, 0.48), IV 4 (1.13, 1.23, 1.03, 0.61). Tibial spine formula: 2-2-2-2. TmI 0.51 and TmIV present. Opisthosoma 1.07 long, 0.64 wide, all other characters same as in male, except lighter in color.

Epigyne (Figs 63A–F): Protruding, distal end with well-developed lateral pockets (LP), entrance groove (EG) present inside lateral groove; posterior median plate (PMP) small, somewhat rectangular. Spermathecae (S) long, present antero-laterally.

Distribution. Known only from the type localities (Hunan Province, Fig. 315).

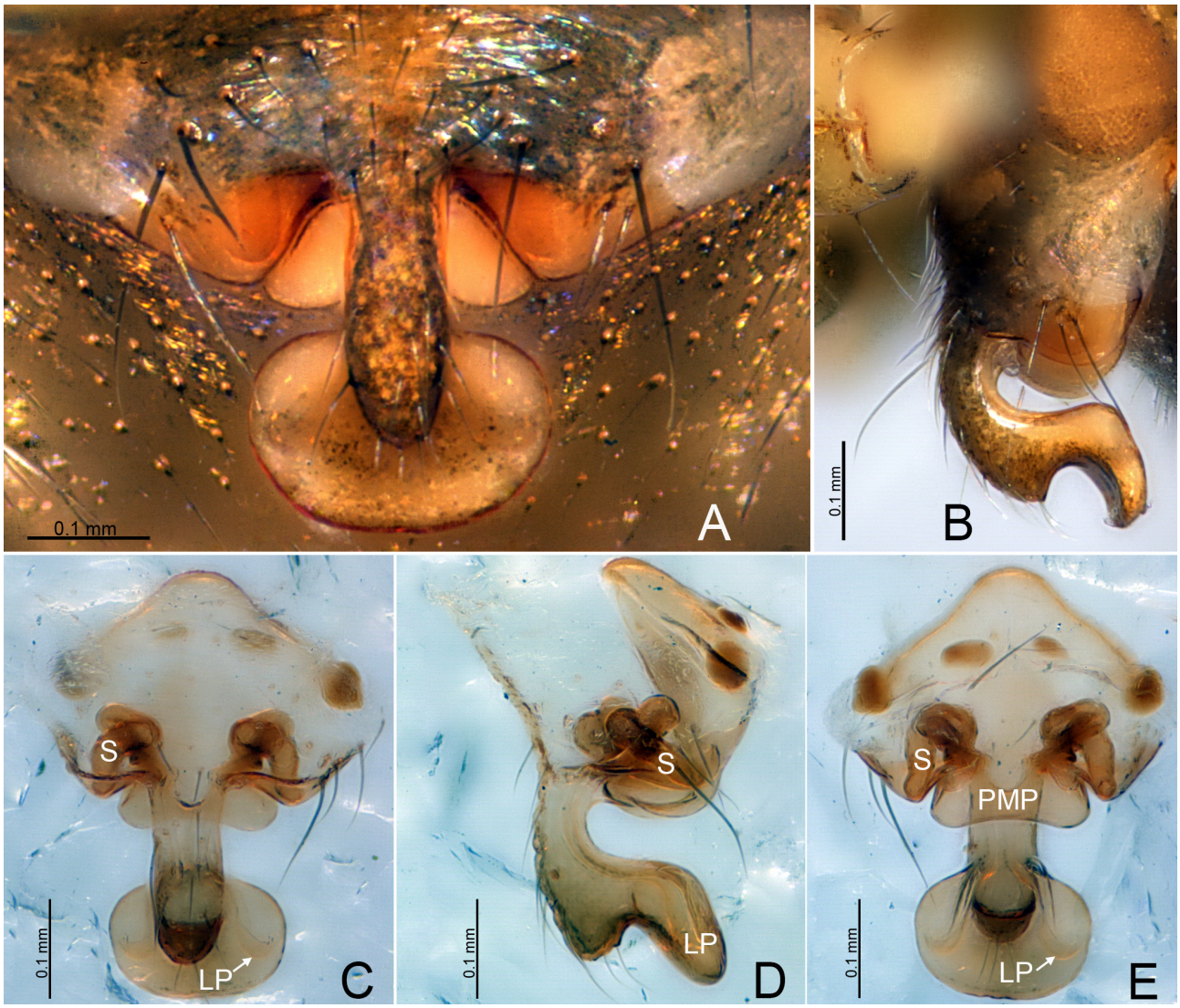


FIGURE 60. *Drapetisca boletus* **sp. n.**, female holotype. **A**, **C** Epigyne, ventral view; **B**, **D** Epigyne, lateral view; **E** Vulva, dorsal view. Abbreviations: LP—lateral pocket; PMP—posterior median plate; S—spermatheca.

Drapetisca yuelushanensis **Irfan, Zhang & Peng, sp. n. (岳麓山珑蛛)**
Figures 65, 66, 315

Types. Holotype ♀, **CHINA, Hunan Prov.:** Changsha City, Yuelu District, Yuelu Mountain, 28.19012°N, 112.94269°E, 141 m, 06.XI.2016, M. Irfan & G.C. Zhou leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Drapetisca yuelushanensis* **sp. n.** resembles *D. socialis* in having the similar slightly curved, protruding scape in lateral view (Figs 65A–D; Tu & Li 2006, figs 22–25), and can be distinguished by the posterior median plate rectangular in *D. yuelushanensis* **sp. n.** (Figs 65A–D; vs. somewhat trapezoid).

Description. Female (holotype, Figs 66A, B): Total length: 2.10. Carapace 0.99 long, 0.73 wide, cephalic region slightly elevated, greenish, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with five promarginal and three retromarginal teeth. Sternum longer than wide, black with microsetae. Eyes: AER recurved, PER straight. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.07, PLE 0.06, AME–AME 0.03, PME–PME 0.04, AME–ALE, 0.07, PME–PLE 0.05, AME–PME 0.08, ALE–ALE 0.34, PLE–PLE 0.36, ALE–PLE contiguous. Legs with annuli. Length of legs: I 4.53 (1.19, 1.49, 1.11, 0.74), II 3.92 (1.07, 1.21, 0.97, 0.67), III 3.21 (0.94, 0.96, 0.80, 0.51), IV 4.09 (1.14, 1.25, 1.03, 0.67). Tibial spine formula: 2-2-2-2. TmI 0.51 and TmIV present. Opisthosoma 1.11 long, 0.69 wide, oval, dorsally with distinct pattern extending posteriorly and laterally with irregular white patches, ventral side brownish black.

Epigyne (Figs 65A–D): Protruding, posteriorly slightly curved, distal end with well-developed lateral pockets (LP); posterior median plate (PMP) rectangular. Spermathecae (S) C-shaped present antero-laterally.

Male. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Comment. Due to the absence of male specimens, it is uncertain whether *Drapetisca boletus* **sp. n.** and *D.*

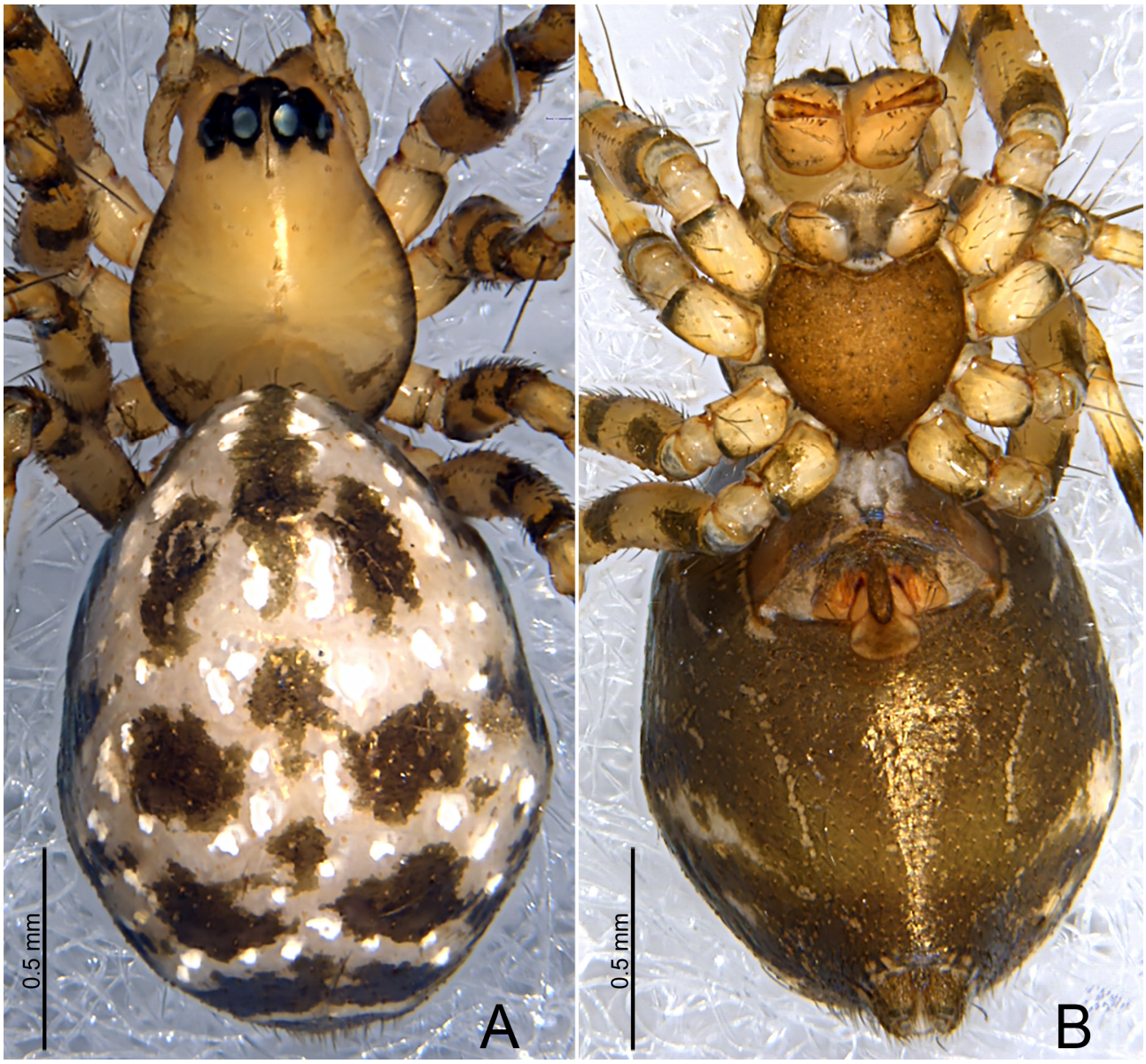


FIGURE 61. *Drapetisca boletus* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

yuelushanensis **sp. n.** should be classified as separate genera; therefore, they are provisionally assigned to the genus *Drapetisca*. The female of *D. nanpingensis* **sp. n.** bears resemblance to the type species, but its palp is distinctly different; hence, this new species is also provisionally placed within the genus *Drapetisca*.

Genus *Erigone* Audouin, 1826 (微蛛属)

Type species. *Linyphia longipalpis* Sundevall, 1830; gender feminine.

Remark. *Erigone* comprises 110 species (including 26 species known from males and 18 from females) distributed worldwide (WSC 2024).

Erigone kazhiensis Irfan, Zhang & Peng, sp. n. (卡子拉微蛛)

Figures 67–69, 316

Types. Holotype ♂ (HNU–SCLT–18–01), **CHINA, Sichuan Prov.:** Ganzi Co., Litang Co., Kazhi Mountain, 30.14454°N, 100.63900°E, 4430 m, 30.IX.2018, M. Irfan & M. Liao leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Erigone kazhiensis* **sp. n.** resembles *E. maritima* in having the similar tibia in male palp (Figs 67A–D, 68A, B; Marusik *et al.* 2006, figs 11, 12, 14, 15), but can be distinguished by the anterior radical process somewhat triangular, distal part not extending above the tehulum in prolateral view in *E. kazhiensis* **sp. n.** (Figs

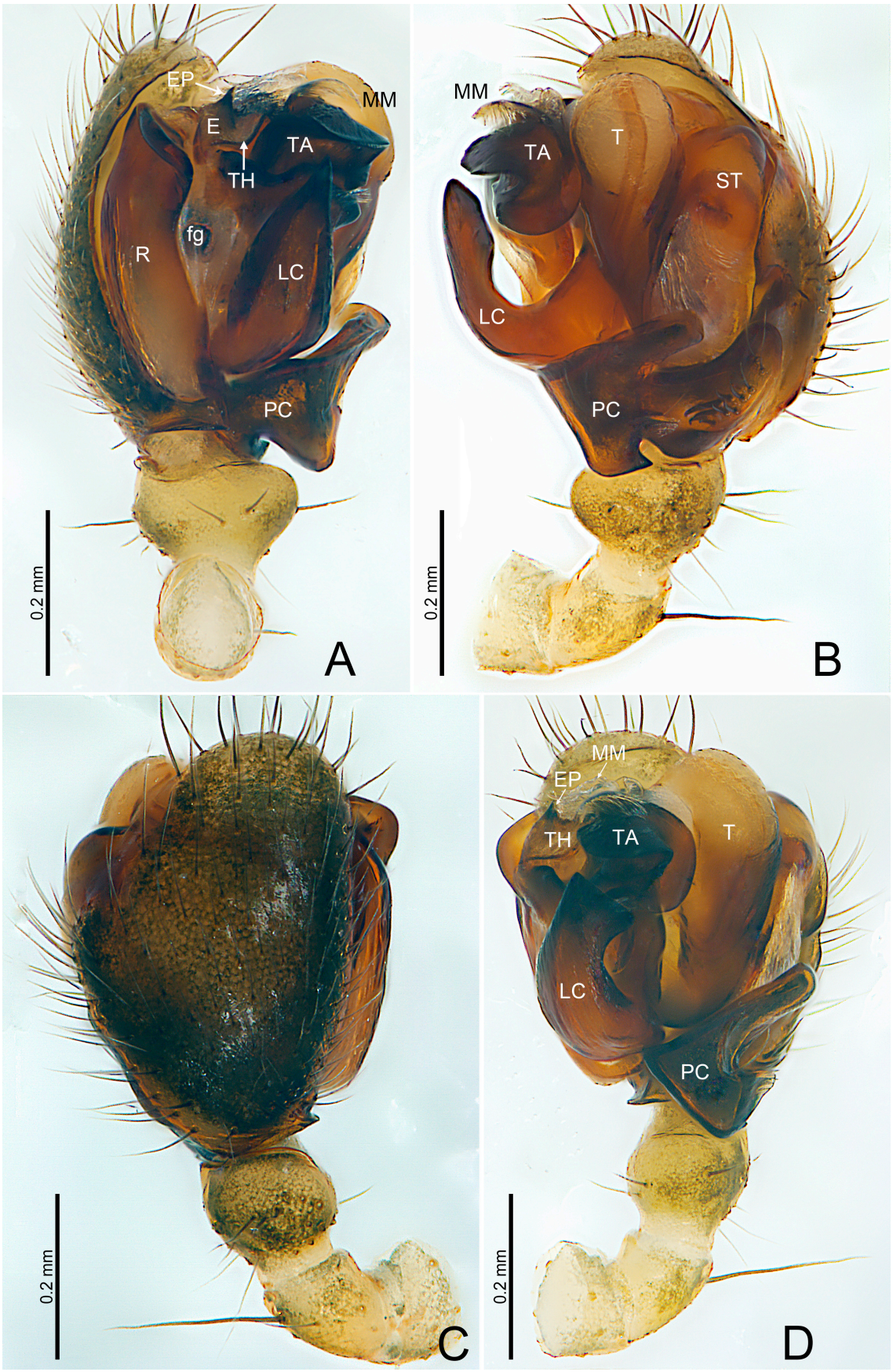


FIGURE 62. *Drapetisca nanpingensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: E—embolus; EP—embolus proper; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis; TH—thumb.



FIGURE 63. *Drapetisca nanpingensis* **sp. n.**, female paratype. **A**, **D, E** Epigyne, ventral view; **B, C** Epigyne, lateral view; **F** Epigyne, dorsal view. Abbreviations: EG —entrance groove; LP—lateral pocket; PMP—posterior median plate; S—spermatheca.

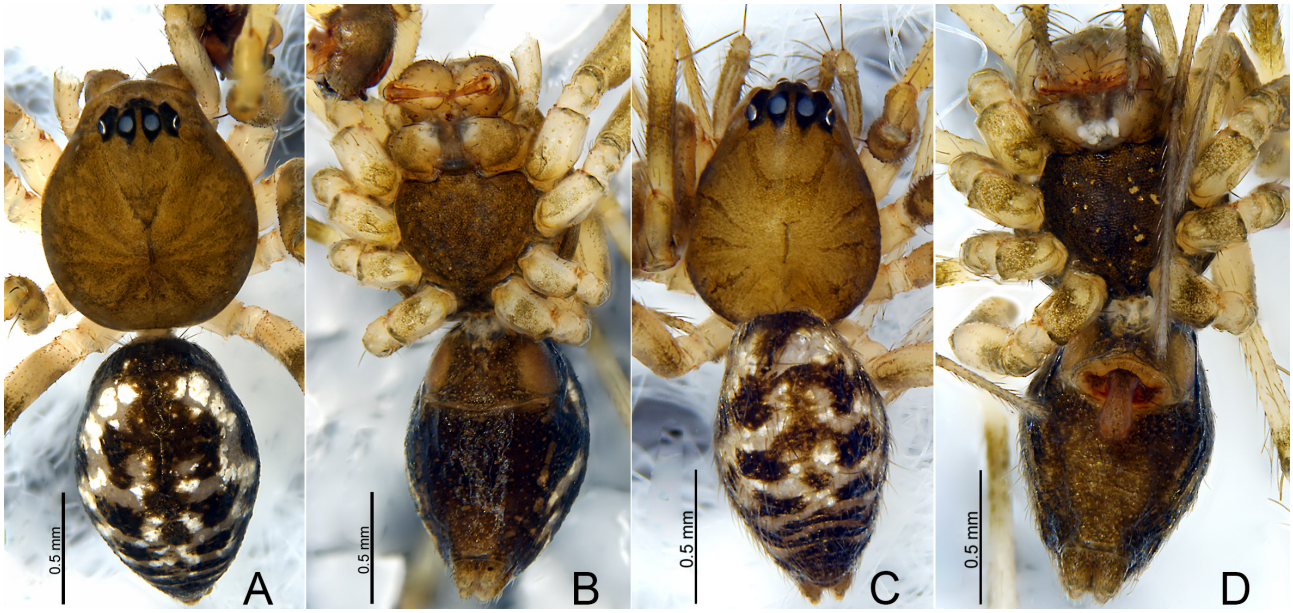


FIGURE 64. *Drapetisca nanpingensis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

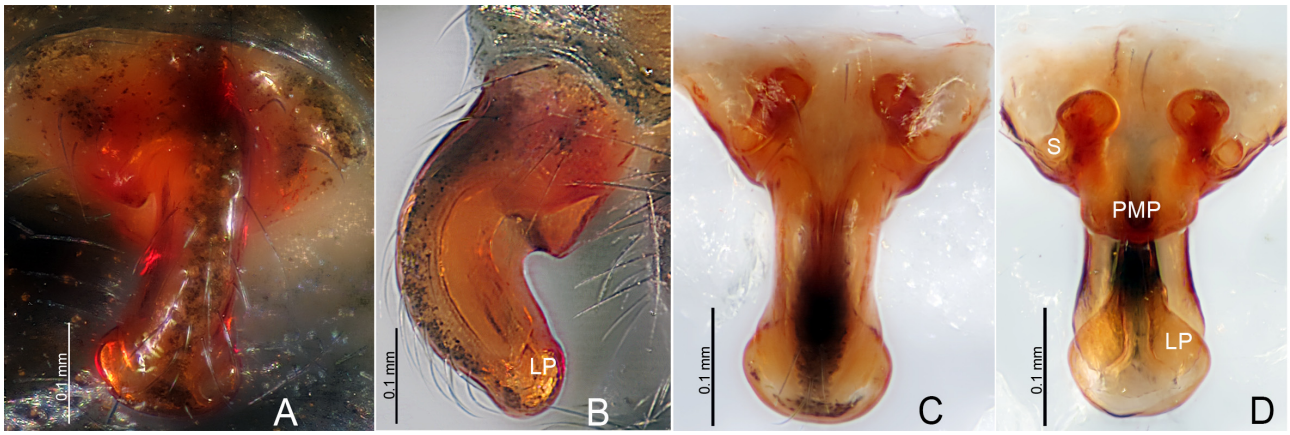


FIGURE 65. *Drapetisca yuelushanensis* **sp. n.**, female holotype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Epigyne, dorsal view. Abbreviations: LP—lateral pocket; PMP—posterior median plate; S—spermatheca; SC—scape.



FIGURE 66. *Drapetisca yuelushanensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

67B, C, 68B; vs. rod-like, tip slightly curved, extending above the tegulum); tegulum tip somewhat rectangular in retrolateral view in *E. kazhiensis* **sp. n.** (Figs 67A–C, 68A, B; vs. somewhat triangular).

Description. Male (Figs 69A–D): Total length: 2.59. Carapace 1.21 long, 0.95 wide, cephalic region slightly elevated 0.35 high, brown, fovea, cervical and radial grooves distinct. Clypeus 0.29 high. Chelicerae with four promarginal and four retromarginal teeth. Sternum longer than wide dark brown with microsetae. Eyes: AER recurved, PME slightly procurved. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.06, PLE 0.06, AME–AME 0.04, PME–PME 0.07, AME–ALE, 0.05, PME–PLE 0.08, AME–PME 0.06, ALE–ALE 0.34, PLE–PLE 0.36, ALE–PLE contiguous. Length of legs: I 2.86 (0.79, 1.04, 0.57, 0.46), II 2.62 (0.76, 0.92, 0.53, 0.41), III 2.29 (0.64, 0.76, 0.52, 0.37), IV 2.99 (0.88, 1.01, 0.65, 0.45). TmI 0.33 and TmIV 0.21. Tibial spine

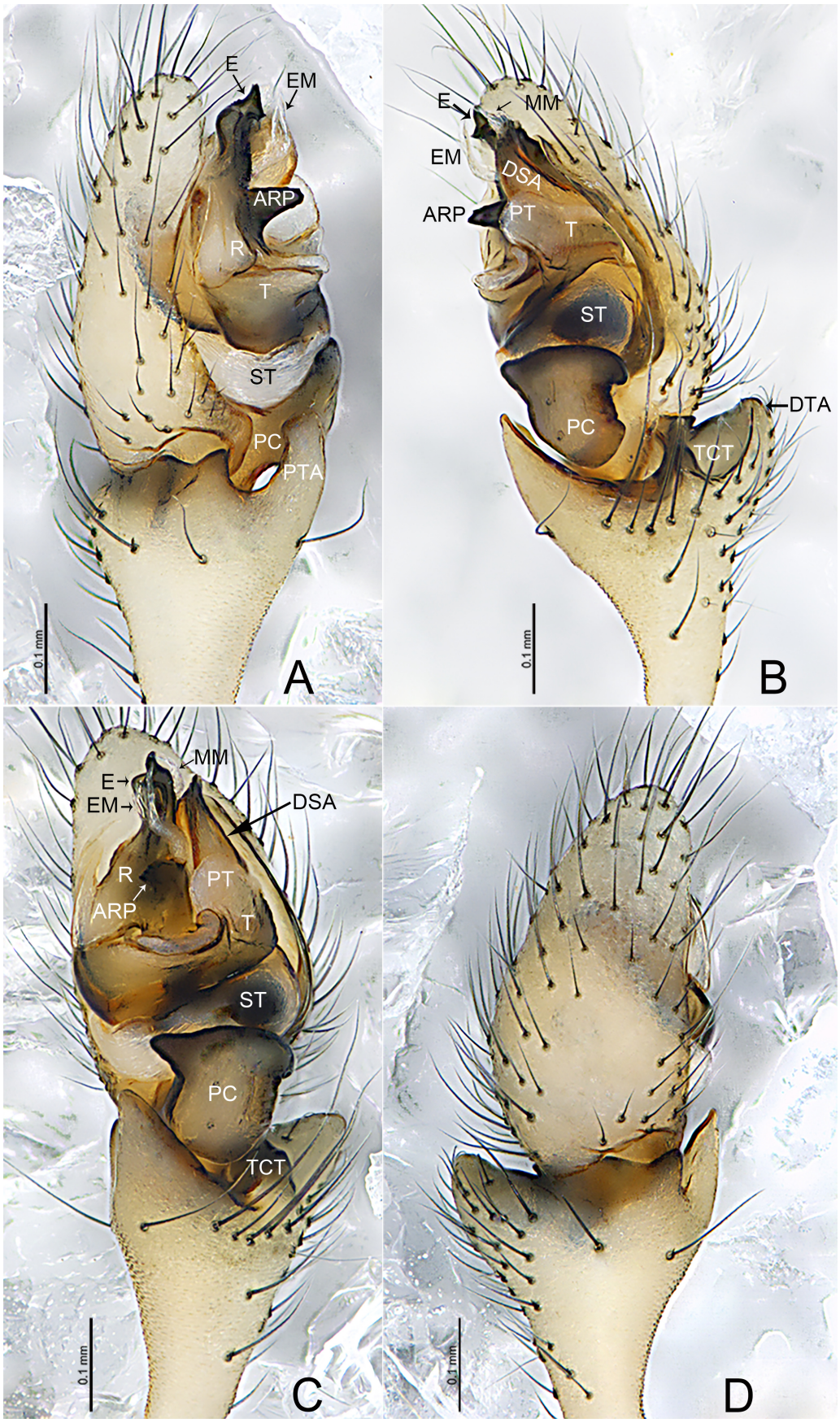


FIGURE 67. *Erigone kazhiensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; EM—embolic membrane; MM—median membrane; PC—paracymbium; PT—protegulum; PTA—prolateral tibial apophysis; R—radix; SPT—suprategulum; ST—subtegulum; T—tegulum; TCT— tibial central tooth; TP—tailpiece.

formula: 2-2-1-1. Opisthosoma 1.24 long, 0.91 wide, oval, brownish black, with irregular light brown patches.

Palp (Figs 67A–D, 68A, B): Femur almost as long as both patella and tibia, slightly curved, ventrally with two rows of teeth; patella longer than tibia, ventral patellar apophysis long with pointed tip, extending ventrally. Tibia with two reterolateral trichobothria, tibia central tooth column-shaped, dorsal tibial apophysis (DTA), round, prolateral tibial apophysis (PTA) longer than wide with blunt end; cymbium unmodified, narrow towards tip; paracymbium (PC) sclerotized, hook-shaped, distal tip slightly curved with blunt end; tegulum (T) with protegulum (PT) longer than wide, with blunt tip slightly covering the distal suprategular apophysis; distal suprategular apophysis (DSA) sclerotized, longer than wide, slightly curved. Embolic division: radix (R) with broad plate, sclerotized; anterior redical process (ARP) longer than wide, slightly curved with blunt end; embolic membrane (EM) small; median membrane (MM) transparent, covering the embolus in prolateral view. Embolus (E) long, sclerotized, S-shaped.

Female. Unknown.

Distribution. Known only from the type locality (Sichuan Province, Fig. 316).

Erigone prominens Bösenberg & Strand, 1906 (隆背微蛛)

Figures 70–72, 312, 315

Erigone prominens Bösenberg & Strand, 1906: 168, pl. 12, fig. 270 (♂♀); Suzuki *et al.* 2018: 32, fig. e (♂). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♂, **CHINA, Hunan Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.3406°N, 110.4131°E, 1320 m, 24.IV.2016, W. Liu *et al.* leg.; 1♂, Ningxiang Co., Huaminglou Town, Shili Vill., 28.08727°N, 112.67114°E, 125 m, 09.V.2017, G.C. Zhou *et al.* leg.; 1♀, Ningxiang Co., Huaminglou Town, Tanzi Vill., 28.032005°N, 112.640872°E, 72 m, 09.V.2017, G.C. Zhou *et al.* leg.; 1♂, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.1002°N, 112.65881°E, 187 m, 24.X.2017, G.C. Zhou leg.; 1♂, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.1002°N, 112.5277°E, 187 m, 24.X.2017, G.C. Zhou leg.; 1♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.10020°N, 112.65881°E, 189 m, 10.V.2017, G.C. Zhou *et al.* leg.; 2♀, Zhangjiajie City, Wulingyuan district, Suoxiyu town, Lijia Vill., 29.33220°N, 110.57562°E, 346 m, 11.V.2017, G.C. Zhou *et al.* leg.; 3♂4♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.10271°N, 112.65350°E, 172 m, 10.V.2017, G.C. Zhou *et al.* leg.; 1♂, Zhangjiajie City, Wulingyuan district, Suoxiyu town, Lijia Vill., 29.32409°N, 110.60921°E, 480 m, 12.V.2017, G.C. Zhou *et al.* leg.; 1♀, Changsha City, Yuelu District, Yuelu Mountain, 28.19012°N, 112.94269°E, 141 m, 06.XI.2016, M. Irfan & G.C. Zhou leg.; **Hubei Prov.:** 1♂, Enshi Co., Xingdou MNNR, 30.039022°N, 109.14274°E,

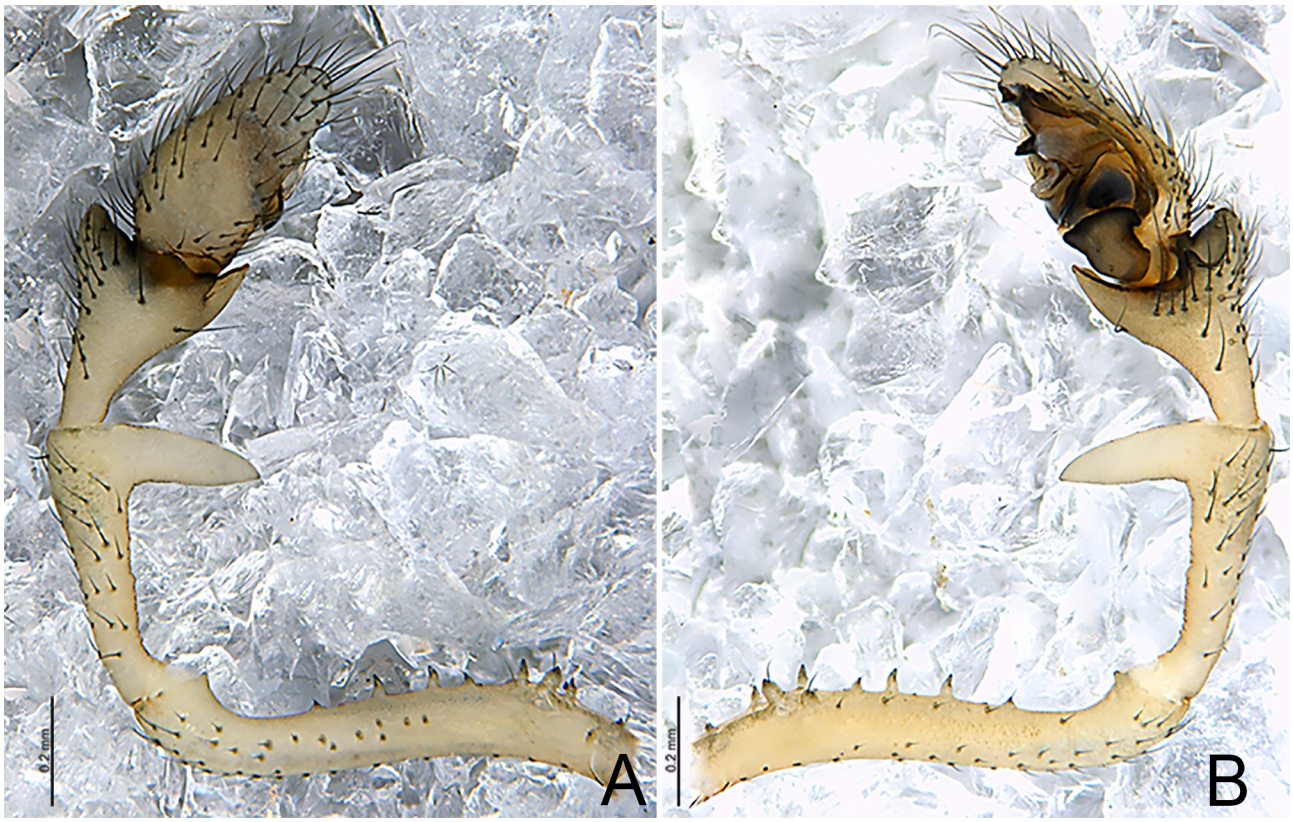


FIGURE 68. *Erigone kazhiensis* **sp. n.**, male holotype palp till femur. **A** dorsal view; **B** retrolateral view.

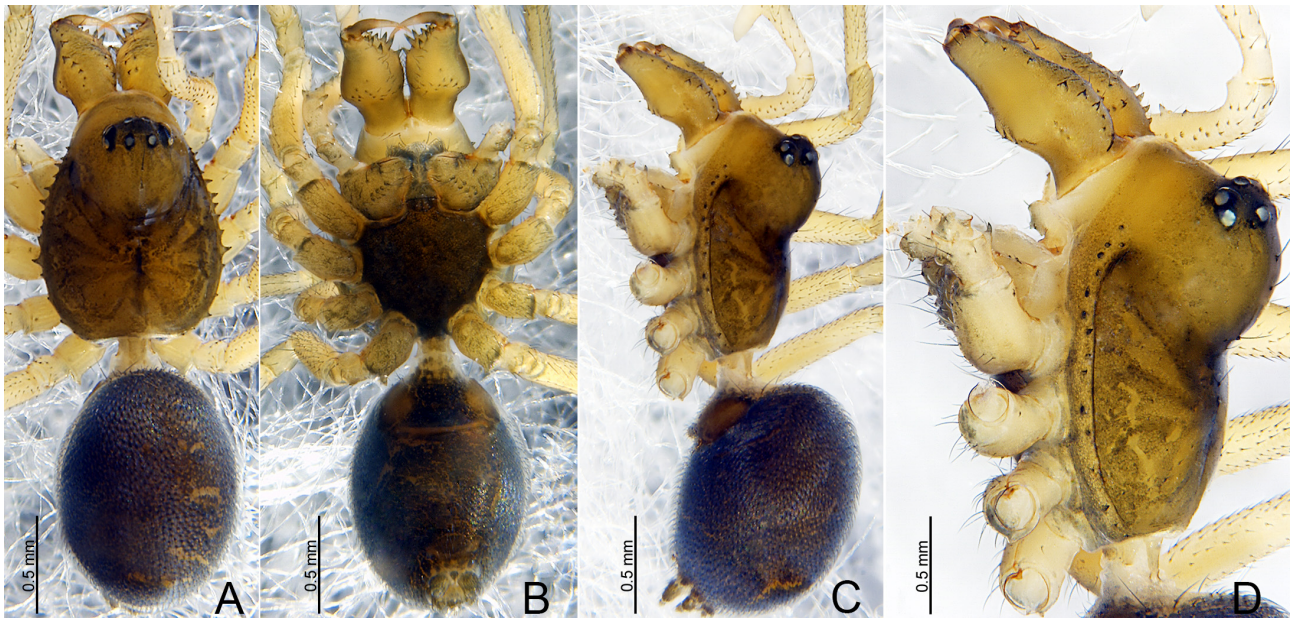


FIGURE 69. *Erigone kazhiensis* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view; **C**, **D** Habitus, lateral view.

1114 m, 20.V.2017, G.C. Zhou *et al.* leg.; 3♀, Lichuan City, Tenglongdong Scenic Spot, Tenglong Cave, 30.33373°N, 108.98644°E, 1054 m, 26.VIII.2017, M. Irfan & G.C. Zhou leg.

Distribution. Asia (China: Anhui, Chongqing, Hebei, Henan, Hubei, Hunan, Fujian, Guangdong, Jiangsu, Jiangxi, Sichuan, Shaanxi, Shandong, Taiwan, Yunnan, Zhejiang Provinces, Figs 312, 315), Introduced to Africa, Australia, New Zealand.

Genus *Frontinella* F. O. Pickard-Cambridge, 1902 (盾蛛属)

Type species. *Linyphia laeta* O. Pickard-Cambridge, 1898; gender feminine.

Remark. *Frontinella* comprises ten species (including two species known from females) distributed in America and China (WSC 2024).

Frontinella zhui Li & Song, 1993 (朱氏盾蛛)

Figures 73–75, 307, 312, 315

Frontinella zhui Li & Song, in Song *et al.* 1993: 863, figs 20A–F (♀); Fu 2018: 36, figs 5-3A–C, pl. 8 (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♂33♀, **CHINA, Hubei Prov.:** Xuanen Co., Shadaogou Town, Qizimei Mountain, 29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu *et al.* leg.; 6♀, Badong Co., Yanduhe Town, Songziyuan Vill., 31.3406°N, 110.4131°E, 1320 m, 26.IV.2016, W. Liu *et al.* leg.; 6♀, Enshi Co., Huangjindong Town, Maliuxi Village 29.95240°N, 109.01717°E, 785 m, 20.V.2017, G.C. Zhou *et al.* leg.; 4♀, Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg.; 6♀, Enshi Co., Xingdou MNNR, 30.03748°N, 109.14548°E, 1078 m, 19.V.2017, G.C. Zhou *et al.* leg.; 1♂3♀, Enshi Co., Xingdou MNNR, 30.04581°N, 109.13635°E, 1151 m, 17.V.2017, G.C. Zhou *et al.* leg.; 16♂111♀, Badong Co., Yanduhe Town, Songziyuan Vill., 31.33400°N, 110.42625°E, 1340 m, 28.IV.2016, W. Liu *et al.* leg.; 2♀, Xuanen Co., Shadaogou Town, Yuquan River, 29.71136°N, 109.72781°E, 805 m, 01.V.2016, W. Liu *et al.* leg.; 14♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg.; 20♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 29.99510°N, 109.74007°E, 1041 m, 14.V.2017, G.C. Zhou *et al.* leg.; 1♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 30.00166°N, 109.74093°E, 1234 m, 14.V.2017, G.C. Zhou *et al.* leg.; **Hunan Prov.:** 7♀, Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Wenfeng Vill., 29.331437°N, 110.599815°E, 457 m, 22.IV.2016, W. Liu *et al.* leg.; 9♀, Zhangjiajie City, Wulingyuan district, Suoxiyu Town, 29.325725°N, 110.60704°E, 454 m, 12.V.2017, G.C. Zhou *et al.* leg.; 4♀, Zhangjiajie City, Wulingyuan district, Suoxiyu town, Lijia Vill., 29.33220°N, 110.57562°E, 346 m, 11.V.2017, G.C. Zhou *et al.* leg.; **Chongqing:** 1♀, Pengshui Co., Mowei MSS, 29.16067°N, 108.03687°E, 1548 m, 23.V.2017, G.C. Zhou *et al.* leg.; 1♀, Youyang Co., Xiaoba Town, Xinqiao Vill., 28.83778°N, 108.72372°E, 924 m, 23.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Chongqing, Fujian, Hubei, Hunan, Figs 307, 312, 315).

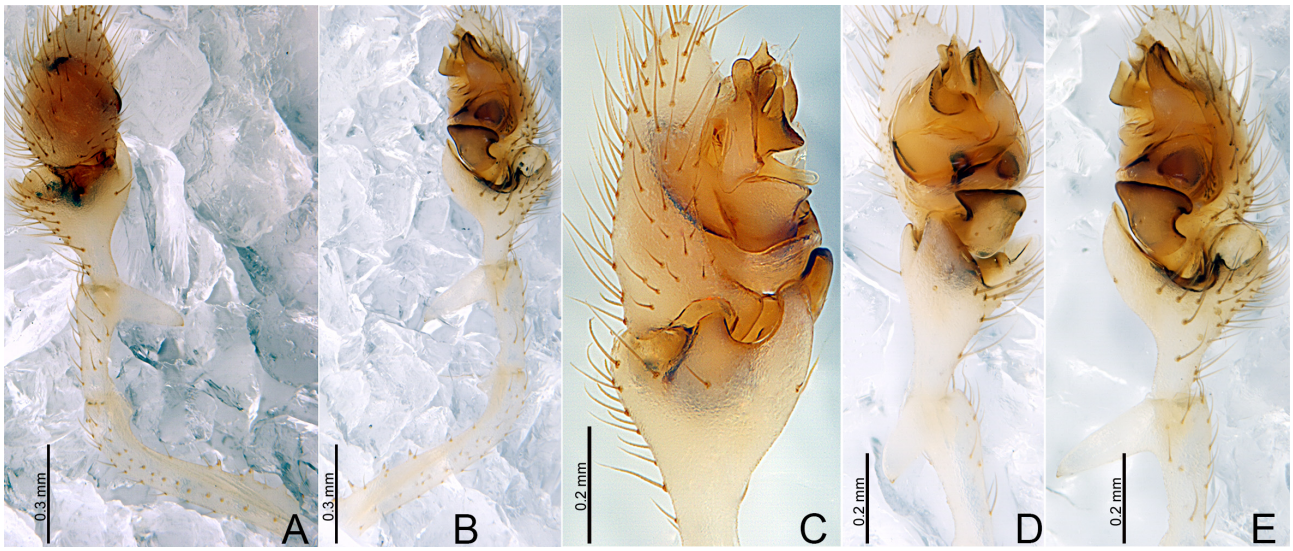


FIGURE 70. *Erigone prominens* Bösenberg & Strand, 1906, male. **A** Palp, dorsal view; **B**, **E** Palp, prolateral view; **D** Palp, ventral view; **E** Palp, retrolateral view.

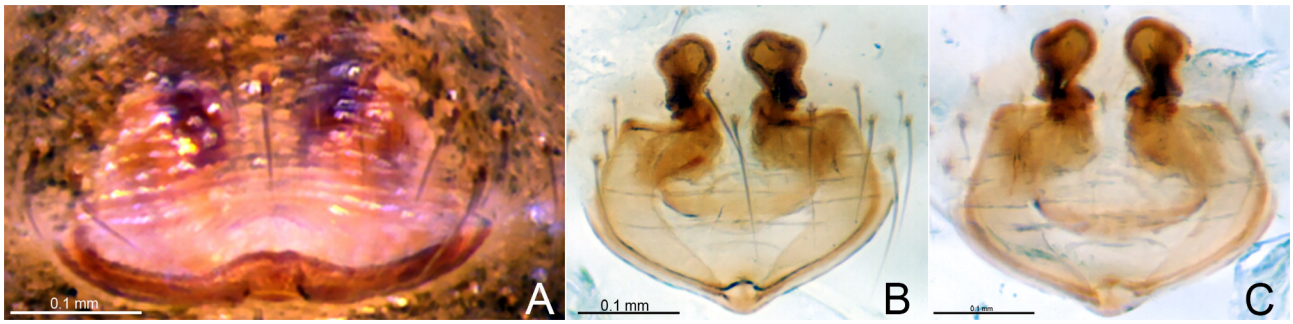


FIGURE 71. *Erigone prominens* Bösenberg & Strand, 1906, female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

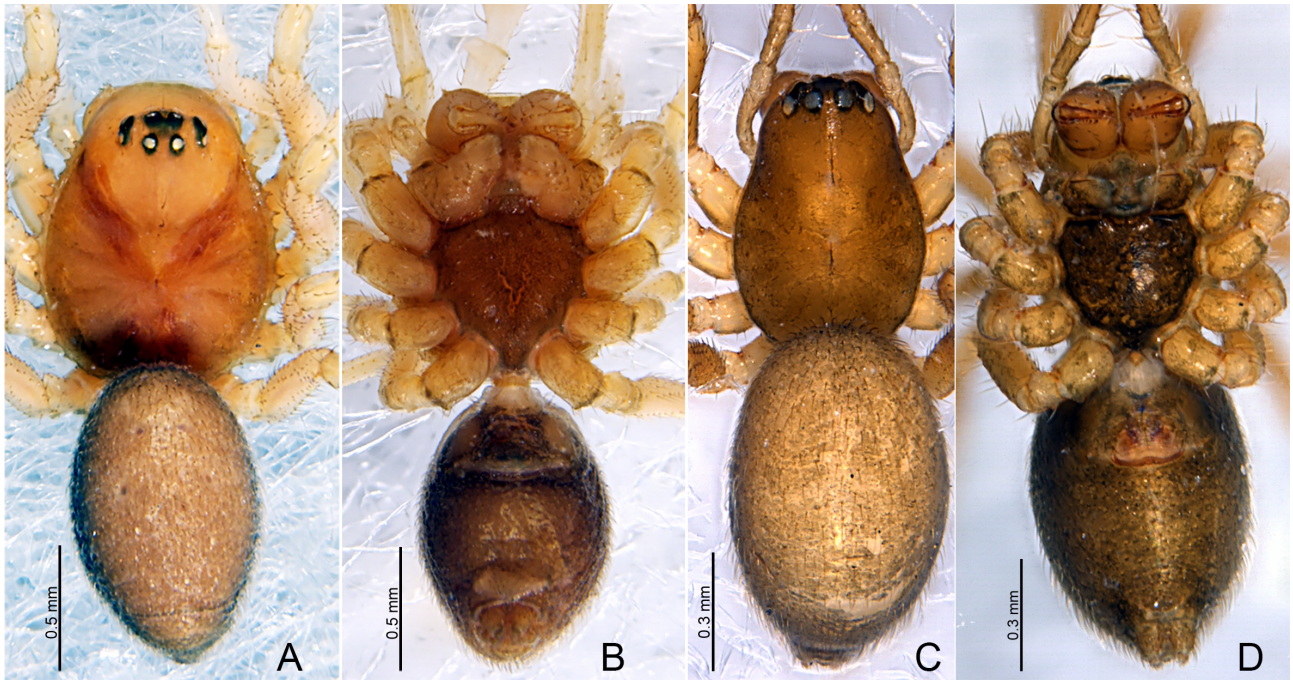


FIGURE 72. *Erigone prominens* Bösenberg & Strand, 1906, male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

Genus *Gnathonarium* Karsch, 1881 (额角蛛属)

Type species. *Gnathonarium rohlfsianum* Karsch, 1881; gender neuter.

Remark. *Gnathonarium* comprises eight species distributed across the Holarctic and Philippines (WSC 2024).

Gnathonarium dentatum (Wider, 1834) (齿螯额角蛛)

Figures 76, 77, 307, 312, 315

Gongylidium dentatum Simon 1884: 492, figs 276–279 (♂♀); Tanasevitch 2013: 173, figs 7–12, 22–27, 38–94 (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♂1♀, **CHINA, Chongqing:** Nanchuan Co., Sanquan Town, Sanquan Neighborhood, 29.05805°N, 107.20680°E, 978 m, X.J. Peng *et al.* leg.; 1♀, Pengshui Co., Mowei MSS, 29.16067°N, 108.03687°E, 1548 m, 23.V.2017, G.C. Zhou *et al.* leg.; **Hubei Prov.:** 1♂, Enshi Co., Huangjindong Town, Maliuxi Vill., 30.03902°N, 109.14274°E, 1114 m, 19.V.2017, M. Irfan & G.C. Zhou leg.; 6♂, Enshi Co., Xingdou MNNR, 30.03748°N, 109.14548°E, 1078 m, 19.V.2017, G.C. Zhou *et al.* leg.; **Hunan Prov.:** 2♂, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.10271°N, 112.65350°E, 172 m, 10.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Anhui, Chongqing, Fujian, Hebei, Hunan, Hubei, Jiangsu, Jiangxi, Sichuan, Shaanxi, Zhejiang, Figs 307, 312, 315), Transpalaearctic.

Gnathonarium gibberum Oi, 1960 (驼背额角蛛)

Figures 78–79, 315

Gnathonarium gibberum Oi, 1960: 149, figs 44–49 (♂♀); Fu 2018: 37, figs 5–4A–C, pl. 8 (♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♂, **CHINA, Hunan Prov.:** Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.10046°N, 112.66057°E, 209 m, 12.XI.2017, G.C. Zhou leg.; 1♀, Ningxiang Co., Huaminglou Town, Shili Vill., 28.09017°N, 112.66843°E, 146 m, 09.V.2017, G.C. Zhou *et al.* leg.; 1♀, Zhangjiajie City, Wulingyuan district, Suoxiyu town, Lijia Vill., 29.32409°N, 110.60921°E, 480 m, 12.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Guangdong, Fujian, Zhejiang, Jiangsu, Jiangxi, Anhui, Hunan, Hubei, Sichuan, Henan, Shaanxi, Shanxi, Hebei, Beijing, Xizang, Gansu, Qinghai, Shandong, Inner Mongolia, Jilin, Fig. 315), Japan, Korea, Nepal, Russia (South Siberia).



FIGURE 73. *Frontinella zhui* Li & Song, 1993, male. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view.

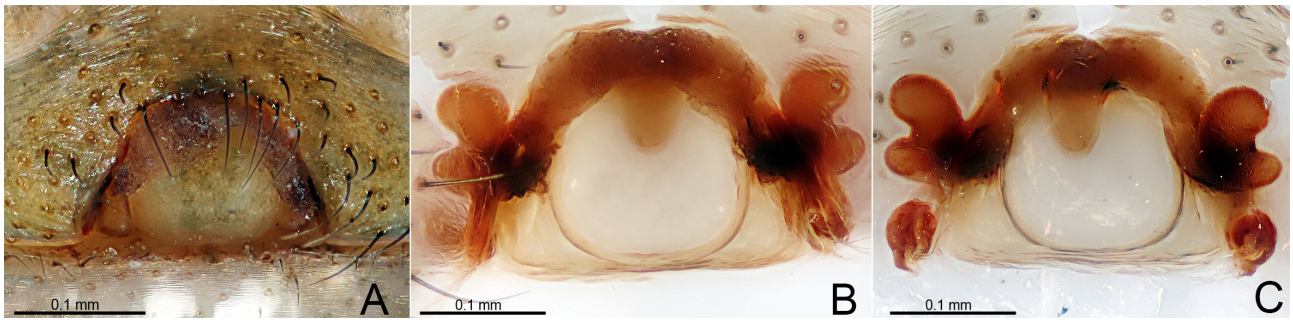


FIGURE 74. *Frontinella zhui* Li & Song, 1993, female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

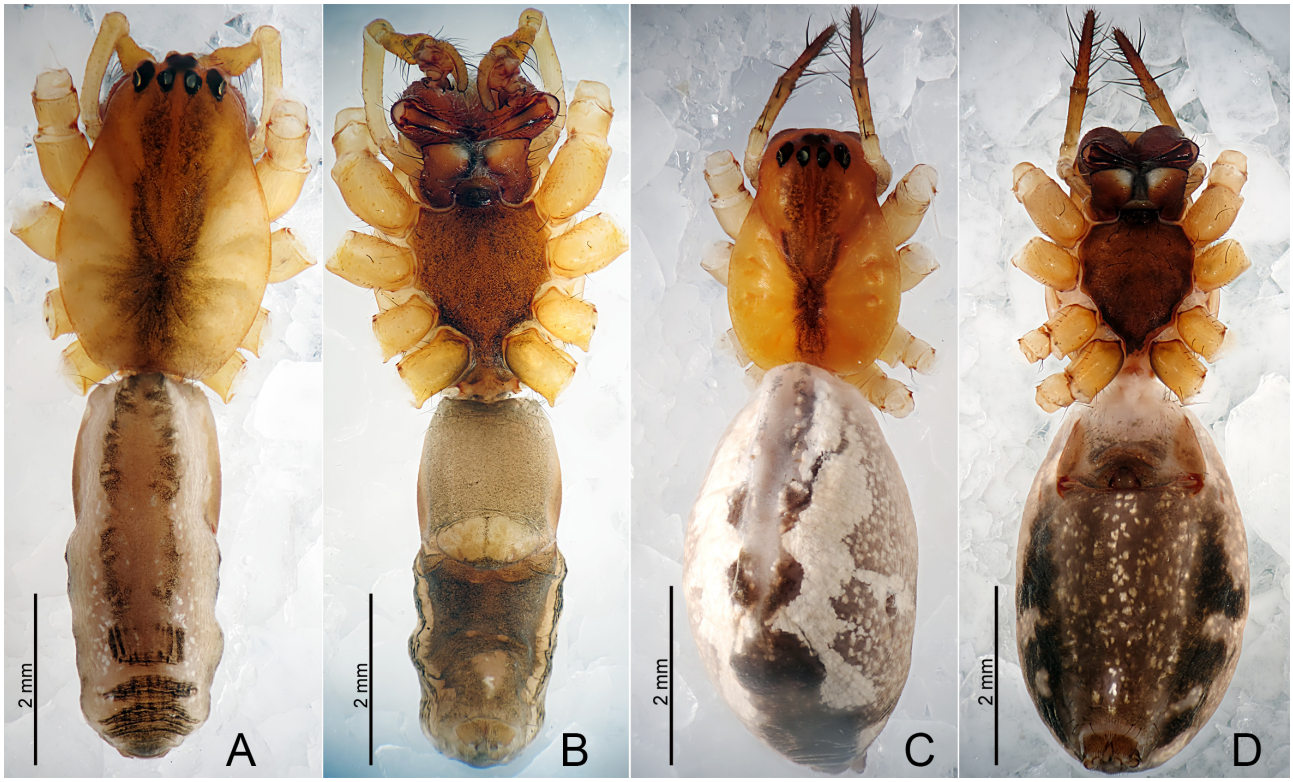


FIGURE 75. *Frontinella zhui* Li & Song, 1993, male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

Genus *Gonatium* Menge, 1868 (戈那蛛属)

Type species. *Gonatium cheliferum* Menge, 1868; gender neuter.

Remark. *Gonatium* comprises 19 species (including one species known from males) distributed worldwide (WSC 2024).

Gonatium absidatum Irfan, Zhang & Peng, sp. n. (弓形戈那蛛)

Figures 80–83, 310

Types. Holotype ♂ (HNU–GZ–IV–1407), **CHINA, Guizhou Prov.:** Maoxi, Wuluo Town, Fanjingshan NNR, 28.02256°N, 108.77995°E, 1277 m, 31.VII.2014, X.J. Peng *et al.* leg. **Paratypes:** 1♂6♀, with same data as for holotype (HNU–GZ–IV–1407); 1♂, Taiping Town, Machahe River, Fanjingshan NNR, 27.88313°N, 108.78521°E, 597 m, 01.VIII.2014, X.J. Peng *et al.* leg. (HNU–GZ–IV–1409); 2♂1♀, Taiping Town, Kema Vill., Fanjingshan NNR, 27.84272°N, 108.77494°E, 540 m, 02.VIII.2014, X.J. Peng *et al.* leg. (HNU–GZ–IV–1412); 1♂, Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 27.98810°N, 108.78313°E, 865 m, 05.XI.2017, T. Tian & D.Q. Li leg. (HNU–GZ–IV–1711).

Etymology. The specific epithet is derived from the Latin adjective "*absidatus*" meaning "arched" and referring to the arch-shaped tibial apophysis in male palp.

Diagnosis. *Gonatium absidatum* **sp. n.** resembles *G. japonicum* in having the similar hook-shaped paracymbium, long tibial apophysis extending above the apex of cymbium and the femur of tibia I & II with a row of stout ventral bristlesin male palp, the copulatory opening present anteriorly in epigyne,, with long internal copulatory ducts (Figs 80A–D, 81A–D, 82A–D; Millidge

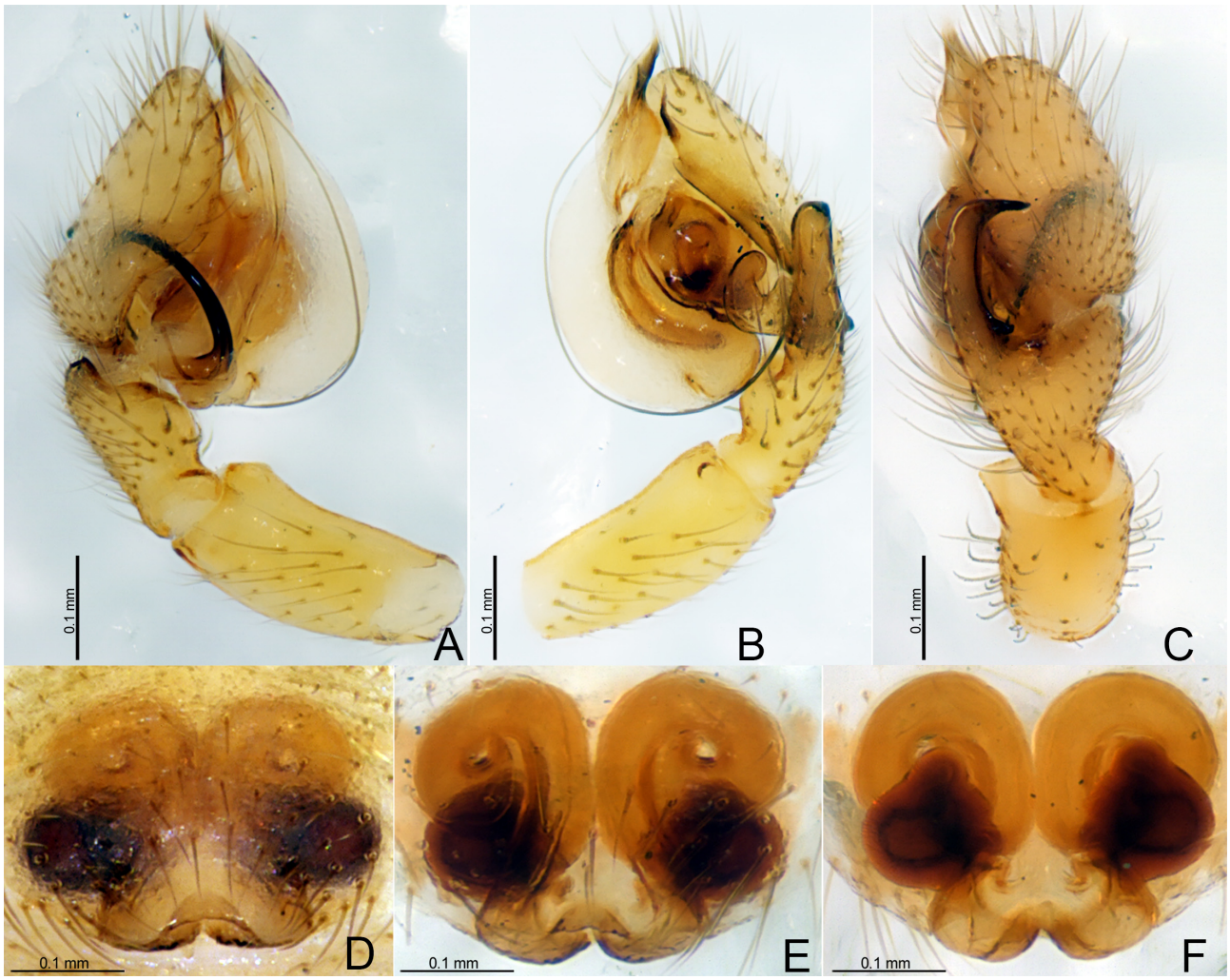


FIGURE 76. *Gnathonarium dentatum* (Wider, 1834). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D**, **E** Epigyne, ventral view; **F** Vulva, dorsal view.

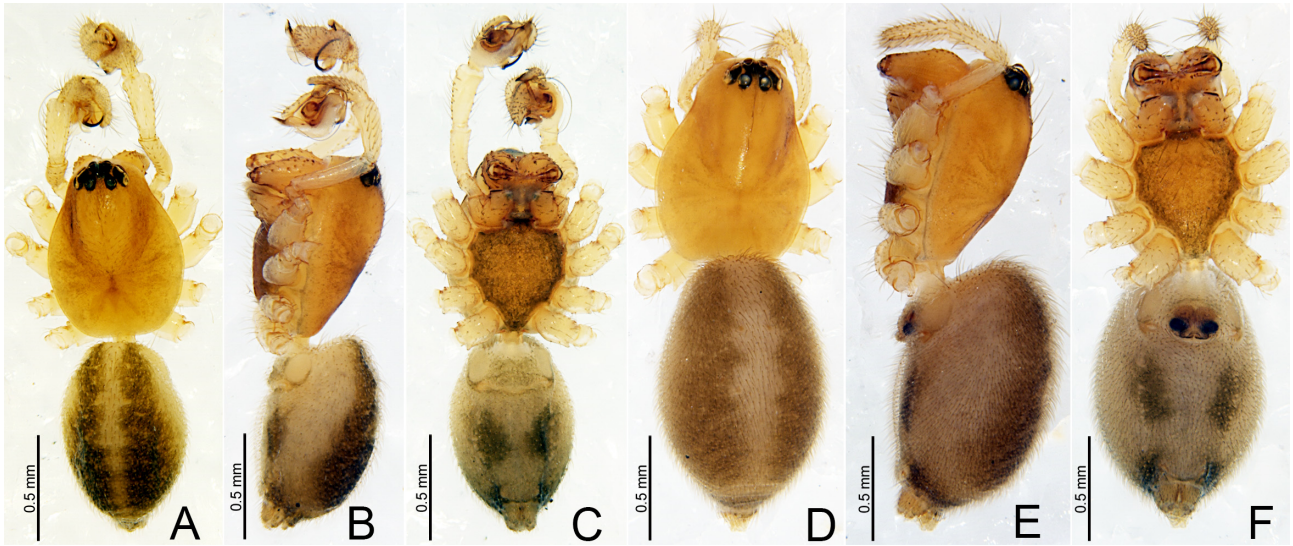


FIGURE 77. *Gnathonarium dentatum* (Wider, 1834). male (A–C) and female (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

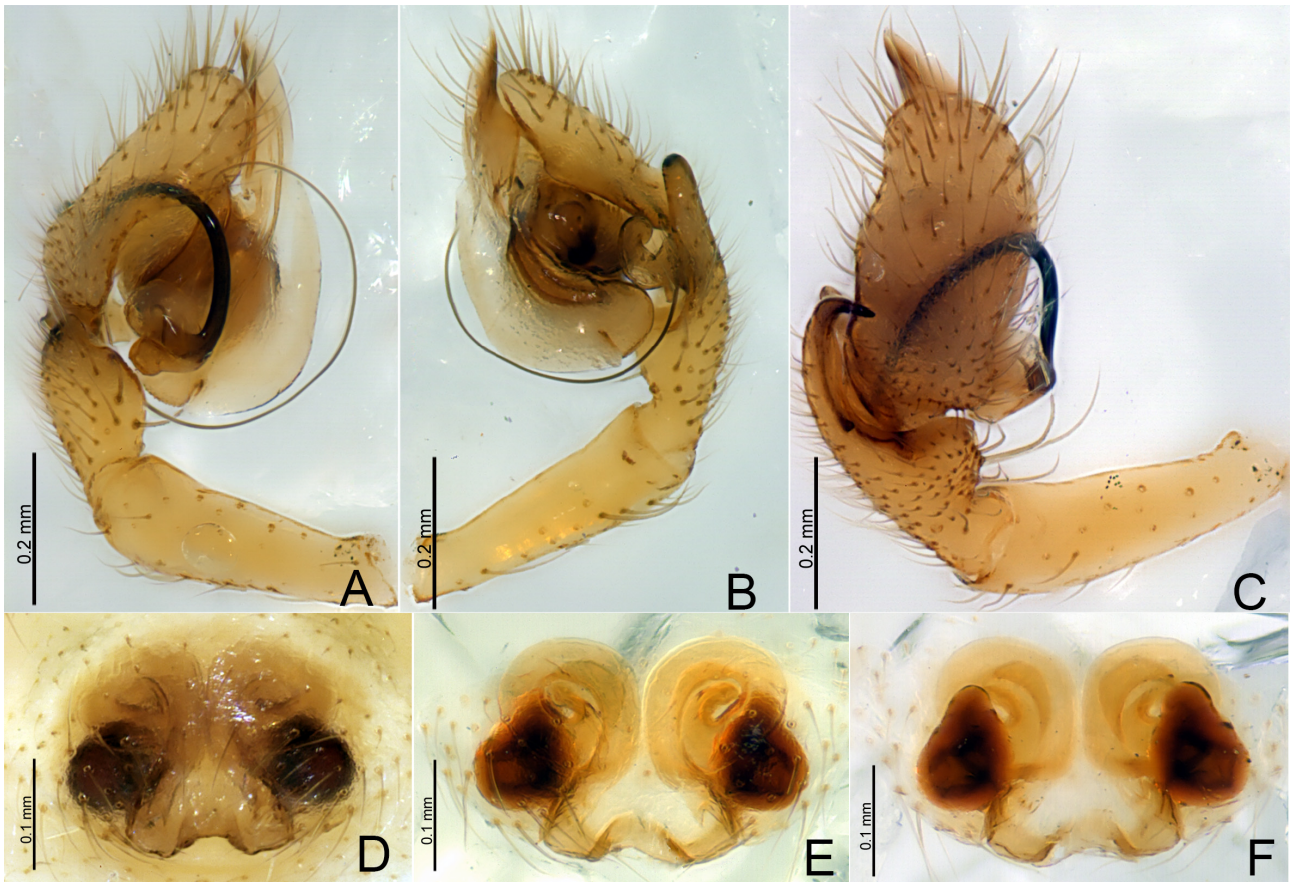


FIGURE 78. *Gnathonarium gibberum* Oi, 1960. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D**, **E** Epigyne, ventral view; **F** Vulva, dorsal view.

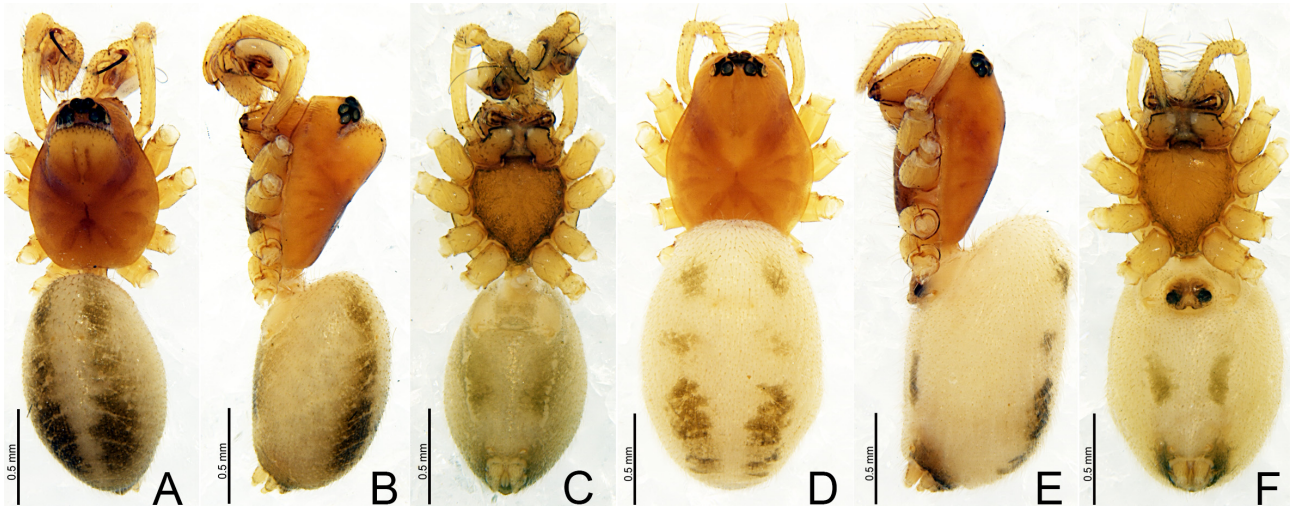


FIGURE 79. *Gnathonarium gibberum* Oi, 1960, male (A–C) and female (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

1981, fig. 72, Oi 1960, figs 71, 72; Wang *et al.* 2015, figs 2i, 3i), but can be distinguished by retrograde basal tibial apophysis bifurcated and with 2 teeth at the base on the lateral margin of apophysis in dorsal view in *G. absidatum* **sp. n.** (Figs 80B, 81E; vs. not bifurcated and with 1 tooth); ectal part of spermathecae globular in *G. absidatum* **sp. n.** (Fig. 82D; vs. elliptical).

Description. Male (holotype, Figs 83A–C): Total length: 2.21. Carapace 1.09 long, 0.89 wide, cephalic region elevated, clypeus and ocular area with hairs, orange with grey pattern, fovea, cervical and radial grooves distinct. Clypeus 0.49 high. Chelicerae with four promarginal and four retromarginal teeth. Sternum shield-like, as wide as long orange with greenish patches. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.08, PLE 0.07 AME–AME 0.03, PME–PME 0.06, AME–ALE, 0.07, PME–PLE 0.08, AME–PME 0.05, ALE–ALE

0.37, PLE–PLE 0.41, ALE–PLE 0.02. Legs I–IV ventrally with row of thick spines. Length of legs: I 3.66 (1.03, 1.41, 0.77, 0.45), II 3.46 (1.01, 1.22, 0.81, 0.42), III 2.96 (0.87, 0.93, 0.75, 0.41), IV 3.66 (1.10, 1.15, 0.95, 0.46). Tibial spine formula: 1-1-1-1. TmI 0.27 and TmIV 0.24. Opisthosoma 1.32 long, 0.90 wide, cylindrical, dorsally light grey, with longitudinal grey band laterally, ventral side light grey.

Palp (Figs 80A–D, 81A–D): Femur cylindrical, as long as cymbium; patella three times longer than basal part of tibia, curved mesally. tibia with one retrolateral trichobothria, dorsally with C-shaped tibial apophysis (TBA), closely applied to dorsal side of cymbium, long, extending above the retrolateral margin of cymbium; retrograde basal tibial apophysis bifurcated and with two teeth at the base in dorsal view; cymbium unmodified, hoof-shaped; paracymbium (PC) simple, hook-shaped; tegulum (T) round with long membranous protegulum (PT); distal suprategular apophysis (DSA) membranous. Tailpiece (TP) spindle-shaped, slightly curved, with blunt tip; embolus (E) long, curved, accompanied by embolic membrane (EM) extending above the cymbium apex.

Female (one of paratypes, Figs 83D–F): Total length: 2.51. Carapace 1.07 long, 0.95 wide, cephalic region slightly elevated, ocular region narrow, orange with grey pattern, fovea, cervical and radial grooves distinct. Clypeus 0.29 high. Chelicerae with 5 promarginal and 4 retromarginal teeth. Sternum shield-like, longer than wide, orange with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.06 ALE 0.09, PME 0.07, PLE 0.07, AME–AME 0.06, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.04, ALE–ALE 0.37, PLE–PLE 0.38, ALE–PLE 0.01. Length of legs: I 3.76 (1.07, 1.34, 0.88, 0.47), II 3.7 (1.04, 1.3, 0.89, 0.47), III 3.4 (0.95, 1.04, 0.79, 0.42), IV 4 (1.12, 1.32, 1.06, 0.5). Tibial spine formula: 1-1-1-1. TmI 0.27 and TmIV 0.18. Opisthosoma 1.52 long, 0.96 wide, oval, pale, dorsally with grey band.

Epigyne (Figs 82A–D): Epigynal plate wider than long; copulatory opening (CO) present anteriorly; copulatory ducts (CD) long, spirally coiled anteriorly; spermathecae (S) with mesal and ectal part, present laterally on dorsal plate, pointing away from each other; fertilization ducts (FD) short, extending mesally.

Distribution. Known only from the type localities (Guizhou Province, Fig. 310).

Genus *Gongylidioides* Oi, 1960 (圆胸蛛属)

Type species. *Gongylidioides cucullatus* Oi, 1960; gender masculine.

Remark. *Gongylidioides* comprises 20 species (including four species known from females and one from males) distributed in China, India, Korea, Japan, Malaysia (peninsula) Russia (south Far East) and Vietnam (WSC 2024).

Gongylidioides acuminatus Irfan, Zhang & Peng, sp. n. (尖状圆胸蛛)

Figures 84–87, 307

Types. Holotype ♂ (HNU–CQ–IV–1721), **CHINA, Chongqing**: Pengshui Co., Mowei MSS, 29.18643°N, 108.041981°E, 1568 m, 25.VII.2017, M. Irfan & G.C. Zhou leg. **Paratypes:** 7♂28♀, with same data as for holotype (HNU–CQ–IV–1721).

Etymology. The specific epithet is derived from the Latin adjective "*acuminatus*" meaning "sharp" and referring to the sharp and pointed embolus in male palp.

Diagnosis. *Gongylidioides acuminatus* **sp. n.** resembles *G. ussuricus* in having the similar paracymbium, the embolic division and the epigyne with dorsal plate protruding above the epigastric furrow (Figs 84A–D, 85A–C, 86A–D; Fei & Zhu 1992, figs E, G), but can be distinguished by the cephalothorax mid dorsally without cephalic lobe in male in *G. acuminatus* **sp. n.** (Figs 84A, B; vs. with conspicuous cephalic lobe); tibia with two tibial apophyses in *G. acuminatus* **sp. n.** (Fig. 84B; vs. with three tibial apophyses); retrolateral tibial apophysis with blunt end in *G. acuminatus* **sp. n.** (Fig. 84B; vs. tip bifurcated); lamella semicircular in *G. acuminatus* **sp. n.** (Figs 84B, 85A–C; vs. longer than wide, without round margin). The female can be distinguished by the copulatory ducts six times longer than spermathecae diameter in *G. acuminatus* **sp. n.** (Figs 86A–D; vs. three times longer).

Description. Male (holotype, Figs 87A–C): Total length: 1.97. Carapace 0.94 long, 0.75 wide, yellowish brown, cephalic region elevated, fovea, cervical and radial grooves distinct. Clypeus 0.22 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum longer than wide, greyish brown with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.07, PLE 0.07, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.04, ALE–ALE 0.27, PLE–PLE 0.31, ALE–PLE contiguous. Length of legs: I 3.29 (0.91, 1.07, 0.80, 0.51), II 3.05 (0.86, 0.96, 0.73, 0.50), III 2.30 (0.64, 0.76, 0.54, 0.36), IV 3.30 (0.98, 0.99, 0.87, 0.46). Tibial spine formula: 2-2-1-1. TmI 0.37 and TmIV 0.28. Opisthosoma 1.03 long, 0.66 wide, oval, dusky grey, dorsally with dark grey band, lateral side with longitudinal grey band, ventral side dusky grey with grey band.

Palp (Figs 84A–D, 85A–C): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, slightly curved mesally. tibia with one reterolateral and one dorsal trichobothria; reterolateral tibial apophysis (RTA) long, somewhat triangular; dorsal tibial apophysis (DTA) small with pointed end; cymbium unmodified, hoof-shaped; paracymbium (PC) sclerotized, U-shaped, apical tip with hook-shaped; tegulum (T) with a transparent protegulum (PT), tip bifurcated, extending almost equal to the apex of cymbium; distal suprategular apophysis (DSA) sclerotized, distal end semicircular, gradually narrow towards tip. Radix sclerotized, with broad tailpiece (TP) with blunt tip pointing towards the ventral margin of tibia; lamella (L) sclerotized, with round

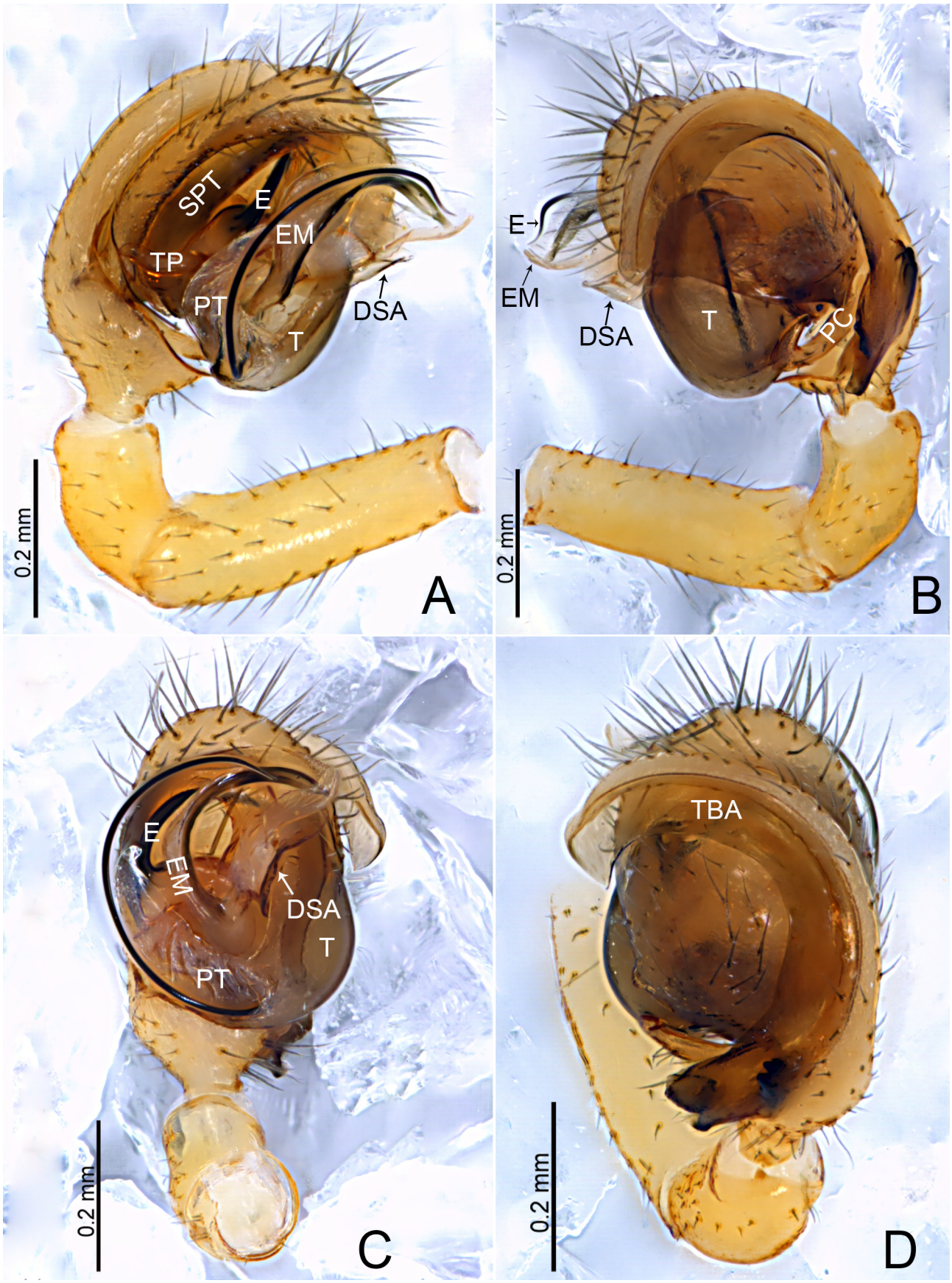


FIGURE 80. *Gonatium absidatum* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; EM—embolic membrane; PC—paracymbium; PT—protegulum; SPT—suprategulum; T—tegulum; TBA—tibial apophysis; TP—tailpiece.

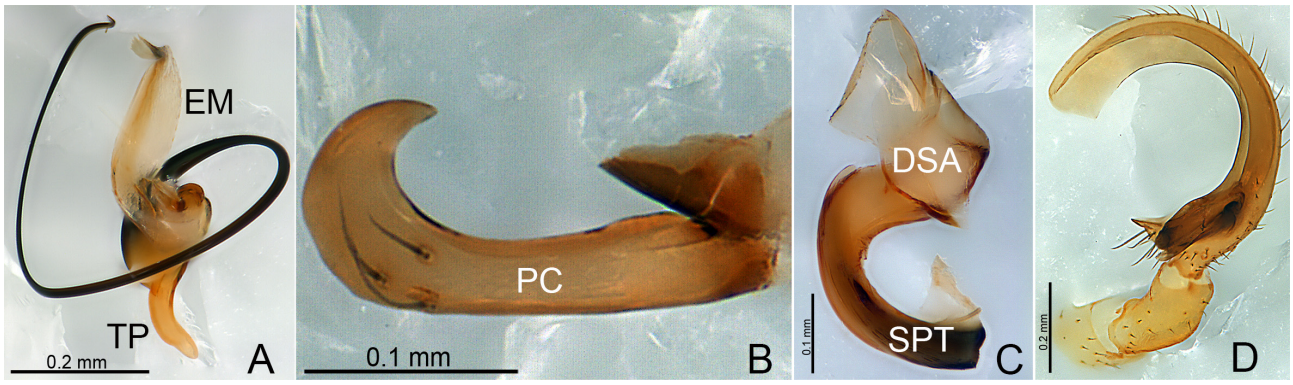


FIGURE 81. *Gonatium absidatum* **sp. n.**, male paratype palp. **A** Embolic division **B** Paracymbium **C** Suprategulum **D** tibial apophysis. Abbreviations: DSA—distal suprategular apophysis; E—embolus; EM—embolic membrane; PC—paracymbium; PT—protegulum; R—radix; SPT—suprategulum; TP—tailpiece.

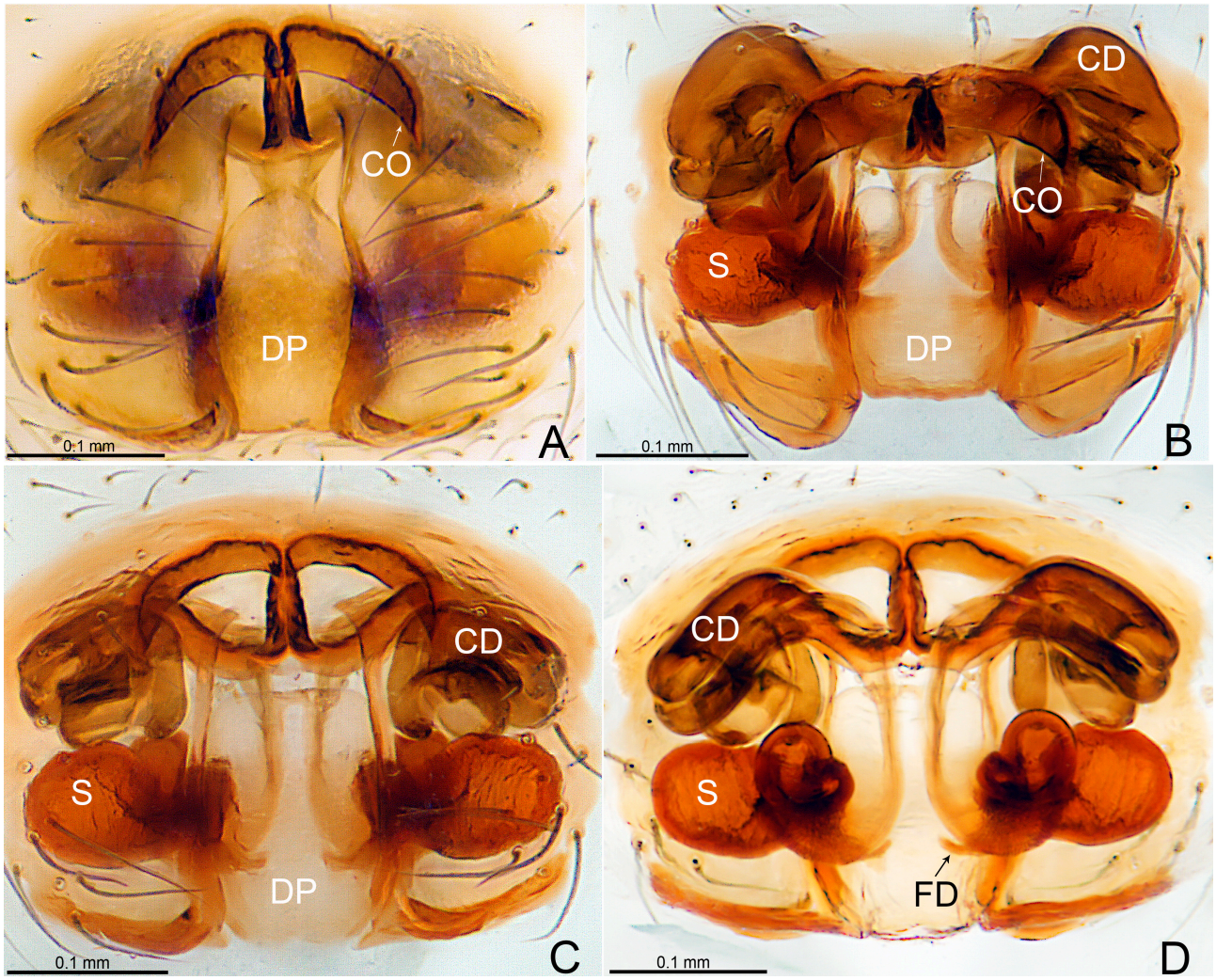


FIGURE 82. *Gonatium absidatum* **sp. n.**, female (one of paratypes). **A–C** Epigyne, ventral view; **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermathecae.

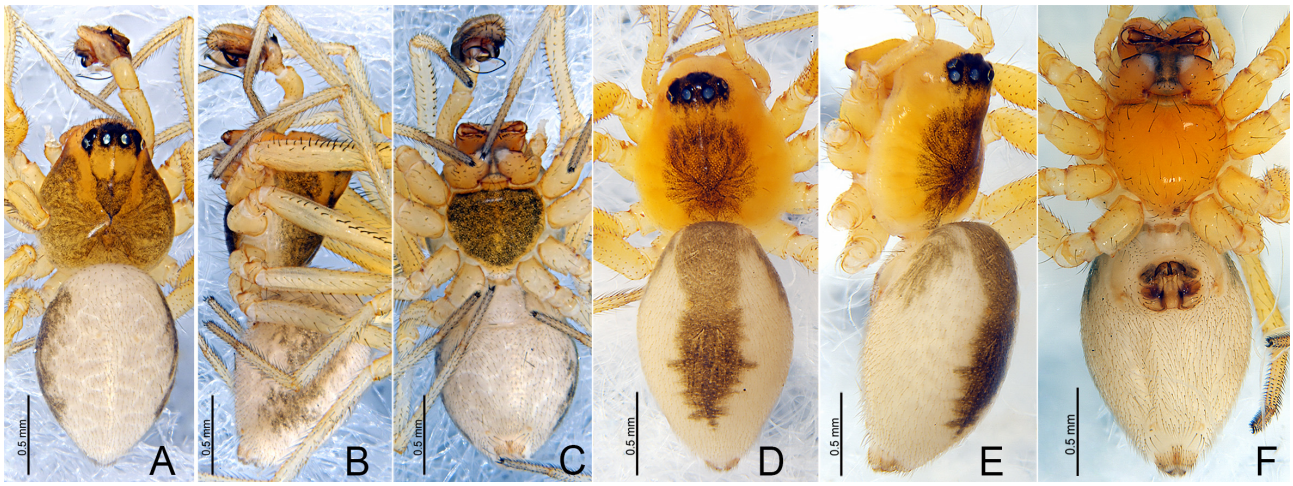


FIGURE 83. *Gonatium absidatum* **sp. n.**, male (holotype, A–C), female (one of paratypes, D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

margin, extending forward; embolus (E) sclerotized, knife-shaped with sharp pointed end, extending above the apex of cymbium.

Female (one of paratype, Figs 87D–F): Total length: 2.25. Carapace 0.97 long, 0.71 wide, cephalic region elevated, brown, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with 5 promarginal and 6 retromarginal teeth. Sternum longer than wide, greyish brown with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.06, PME 0.06, PLE 0.06, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.04, ALE–ALE 0.25, PLE–PLE 0.30, ALE–PLE contiguous. Length of legs: I 2.68 (0.76, 0.86, 0.68, 0.48), II 2.50 (0.69, 0.75, 0.61, 0.45), III 2.13 (0.61, 0.69, 0.54, 0.39), IV 2.79 (0.86, 0.76, 0.74, 0.42). Tibial spine formula: 2-2-1-1. TmI 0.34 and TmIV 0.26. Opisthosoma 1.28 long, 0.78 wide, oval, dusky grey, dorsally with black band, lateral side with longitudinal black band, ventral side dusky grey with grey band.

Epigyne (Figs 86A–D): Ventral plate (VP) wider than long, narrow posteriorly; copulatory opening (CO) present inside the atrium ventro-mesally at the junction of dorsal and ventral plate. Dorsal plate (DP) extending above the epigastric furrow; copulatory ducts (CD) long, sinuosus, forming broad loop mid ventrally before entering spermathecae; spermathecae (S) globular, present dorso-laterally, pointing towards the lateral margin of ventral plate, spaced by four diameters; fertilization ducts (FD) short, extending mesally.

Distribution. Known only from the type locality (Chongqing, Fig. 307).

Remarks. *Gongylidioides acuminatus* **sp. n.** is provisionally placed in the genus *Gongylidioides*. In the future, if a more closely related new species is collected, it could provide further data to justify erecting a new genus. For now, we ensure that the provisional placement is well-documented in our study, so it can be revisited and revised as necessary.

Gongylidioides ensis Irfan, Zhang & Peng, sp. n. (剑状圆胸蛛)

Figures 88–90, 307, 312

Types. Holotype ♂, **CHINA, Hubei Prov.:** Xuanen Co., Zhang Tanhe Township, Mahuping Vill., 29.97436°N, 109.582645°E, 509 m, 05.V.2016, W. Liu *et al.* leg. **Paratypes:** 9♀, with same data as for holotype; **Chongqing:** 2♂2♀, Nanchuan Co., Dayou Town, 28.99736°N, 107.33591°E, 1021 m, 13.VIII.2015, X.J. Peng *et al.* leg. (HNU–CQ–IV–1508).

Etymology. The specific epithet is derived from the Latin noun "*ensis*" meaning "sword" and referring to the sword-shaped retrolateral tibial apophysis in ventral view in male palp.

Diagnosis. The male of *Gongylidioides ensis* **sp. n.** resembles that of *G. microdontus* **sp. n.** in having the similar disc-shaped radix and the long, sclerotized, helical-shaped embolus (Figs 88A–D; Figs 91A–D), but can be distinguished by the tibia with a sword-shaped reterolateral tibial apophysis in ventral view in *G. ensis* **sp. n.** (Figs 88B–D), vs. reterolateral tibial apophysis L-shaped, retrodorsal margin with teeth in *G. microdontus* **sp. n.** (Figs 91B–D); retrodorsal tibial apophysis present in *G. ensis* **sp. n.** (Figs 88B–D), vs. absent in *G. microdontus* **sp. n.** (Figs 91B–D); suprategular membrane slightly curved, almost equal to the apex of cymbium in *G. ensis* **sp. n.** (Figs 88A, B, D), vs. tongue-shaped tapering towards tip, extending above to the apex of cymbium in *G. microdontus* **sp. n.** (Figs 91A, B, D). Female of *G. ensis* **sp. n.** resembles those of *G. microdontus* **sp. n.** with long copulatory ducts forming pair of large round loops anteriorly and the dorsal plate resembles those of *G. microdontus* in epigyne (Figs 89A–C; Figs 92A–D; Tu & Li, 2006, fig. 2J), and can be distinguished by the copulatory ducts forming two loops before joining the spermathecae in *G. ensis* **sp. n.** (Figs 89B–D), vs. forming one loop before joining the spermathecae in *G. microdontus* **sp. n.** (Figs 92C–E); spermathecae pointing towards the posterior end in *G. ensis* **sp. n.** (Figs 89B, C),

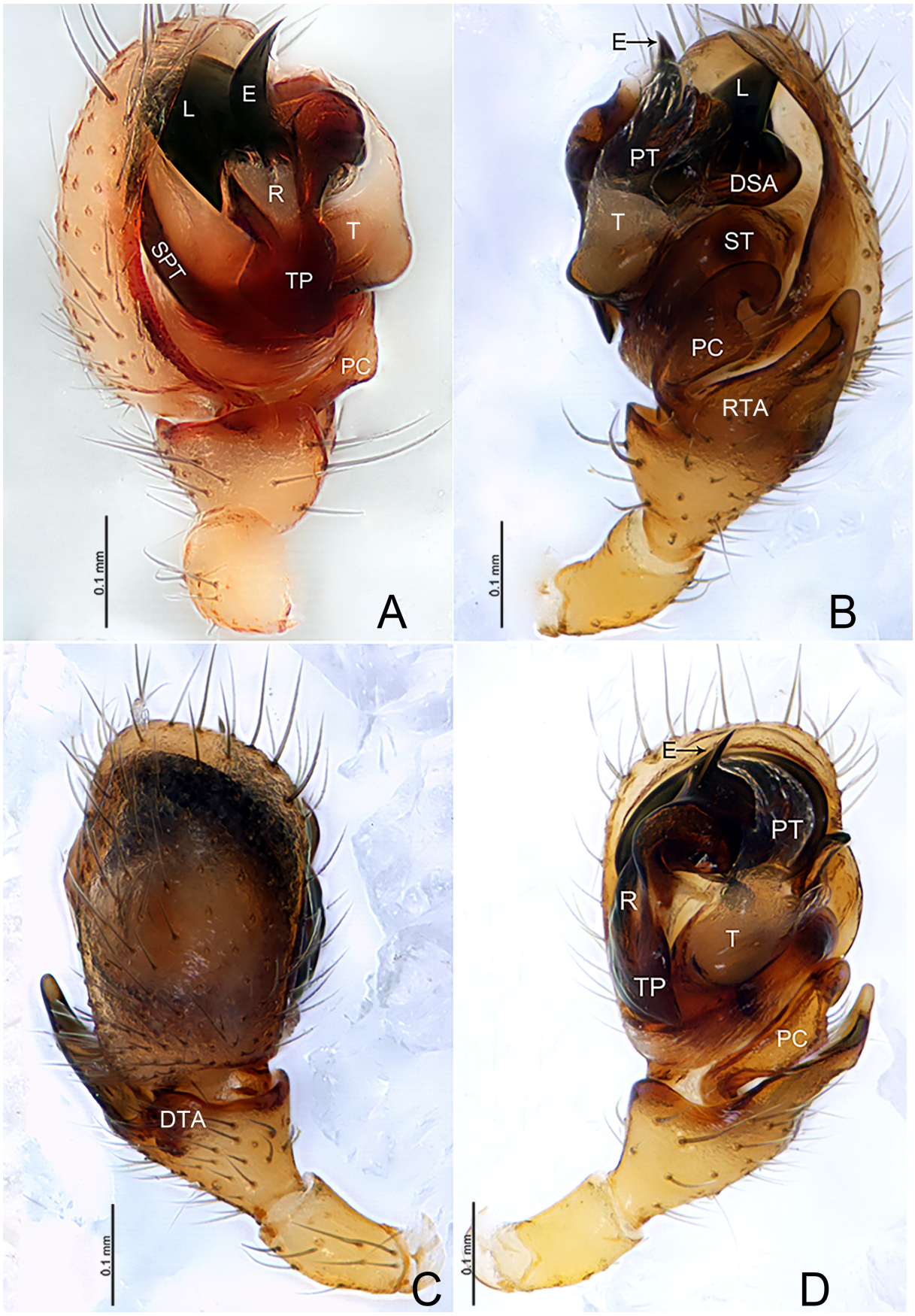


FIGURE 84. *Gongylidioides acuminatus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; L—lamella; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

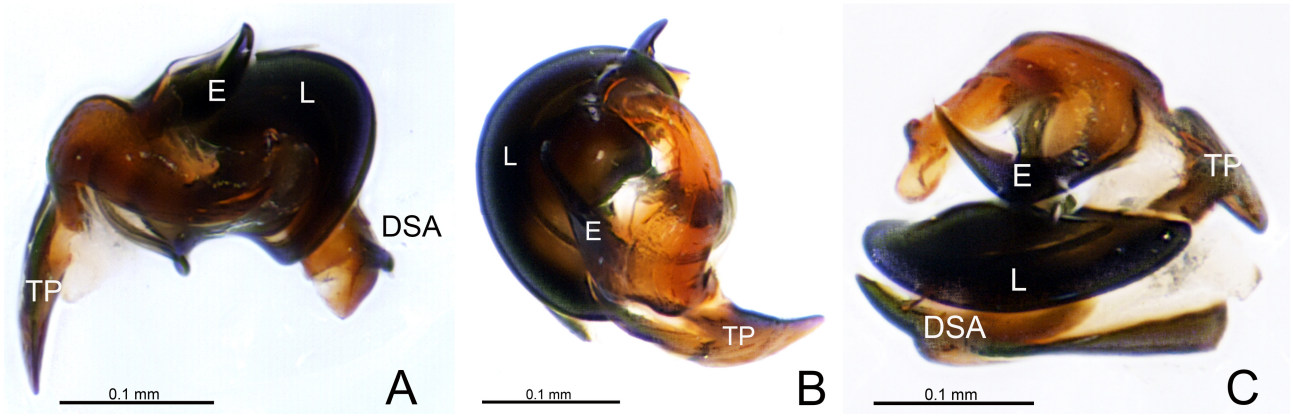


FIGURE 85. *Gongylidioides acuminatus* **sp. n.**, male paratype. **A** Embolic division, prolateral view; **B** Embolic division, ventral view; **C** Embolic division, retrolateral view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; L—lamella; TP—tailpiece.

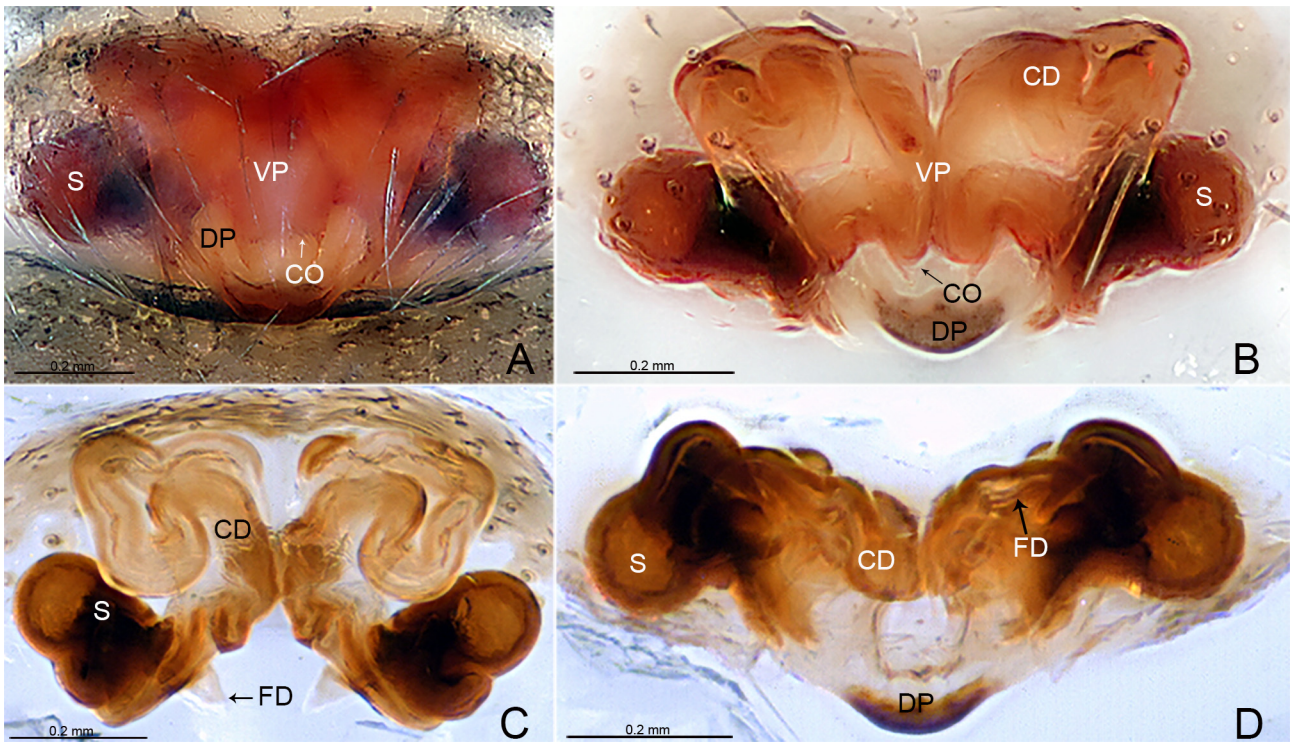


FIGURE 86. *Gongylidioides acuminatus* **sp. n.**, female (one of paratype). **A**, **B** Epigyne, ventral view; **C**, **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

vs. pointing towards the anterior end of the epigyne in *G. microdontus* **sp. n.** (Figs 92B, C).

Description. Male (holotype, Figs 90A, B): Total length: 1.87. Carapace 0.84 long, 0.70 wide, cephalic region elevated with cephalic pits, ocular quad narrow, yellow brown, fovea, cervical and radial grooves distinct. Clypeus 0.25 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish brown with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.07, PLE 0.07, AME–AME 0.03, PME–PME 0.05, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.05, ALE–ALE 0.27, PLE–PLE 0.32, ALE–PLE contiguous. Length of legs: I 3.11 (0.85, 1.06, 0.69, 0.51), II 2.74 (0.79, 0.89, 0.63, 0.43), III 2.3 (0.67, 0.74, 0.52, 0.37), IV 3.09 (0.89, 0.99, 0.73, 0.48). Tibial spine formula: 2-2-1-1. TmI 0.29 and TmIV 0.23. Opisthosoma 1.03 long, 0.60 wide, oval, dusky grey, mid–dorsally with black band, ventral side dusky grey with light green band.

Palp (Figs 88A–D): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, slightly curved mesally. Tibia with one reterolateral and one dorsal trichobothria; reterolateral tibial apophysis (RTA) longer than wide; retrodorsal tibial apophysis (rDTA) sclerotized, longer than wide with

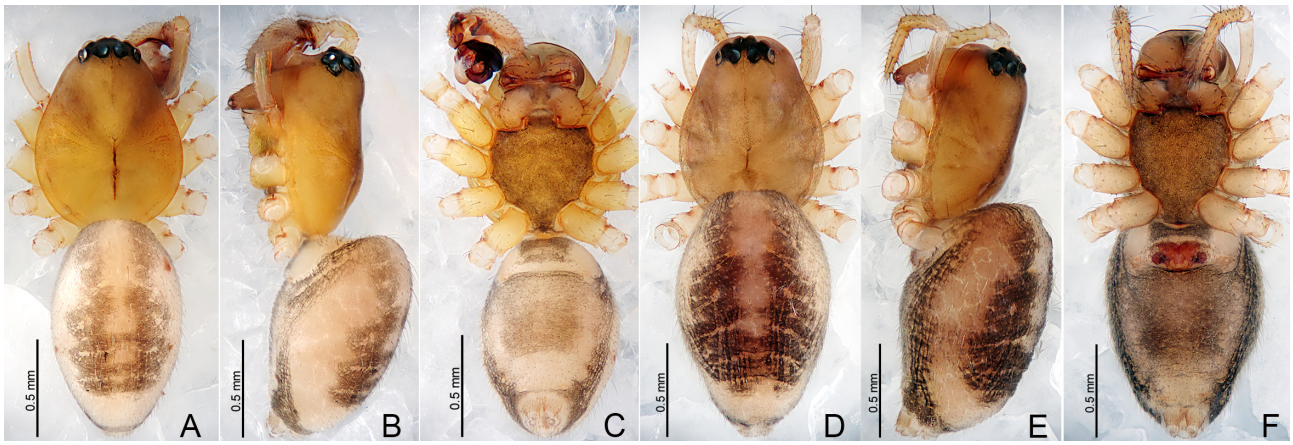


FIGURE 87. *Gongylidioides acuminatus* **sp. n.**, male (holotype, A–C), female (one of paratypes, D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

serrated tip, longer than half the length of retrolateral tibial apophysis; dorsal tibial apophysis (DTA) tongue-shaped, with blunt end, covered with spines; cymbium unmodified, hoof-shaped; paracymbium (PC) sclerotized, J-shaped, apical tip hook-shaped; suprategular membrane (STM) transparent, tongue-shaped, longer than wide almost equal to the apex of cymbium; tegulum (T) with a transparent bifurcated protegulum (PT); distal suprategular apophysis (DSA) stout. Radix (R) sclerotized, disc-shaped; tailpiece long, slightly curved with blunt tip, pointing towards the basal margin of cymbium; lamella (L) translucent, tapering towards the tip; embolus (E) sclerotized, long, helical-shaped, extending above the apex of cymbium.

Female (one of paratype, Figs 90C, D): Total length: 2.06. Carapace 0.94 long, 0.72 wide, cephalic region slightly elevated, yellow brown, fovea, cervical and radial grooves distinct. Clypeus 0.21 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, brown with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.06, PLE 0.07, AME–AME 0.02, PME–PME 0.06, AME–ALE, 0.01, PME–PLE 0.04, AME–PME 0.05, ALE–ALE 0.27, PLE–PLE 0.32, ALE–PLE contiguous. Length of legs: I 2.82 (0.79, 0.96, 0.63, 0.44), II 2.66 (0.78, 0.87, 0.58, 0.43), III 2.25 (0.67, 0.71, 0.54, 0.33), IV 2.86 (0.84, 0.95, 0.67, 0.40). Tibial spine formula: 2-2-1-1. TmI 0.31 and TmIV 0.24. Opisthosoma 1.12 long, 0.69 wide, oval, dusky grey, dorsally with greenish black band, ventral side dusky grey with greenish black band.

Epigyne (Figs 89A–D): Epigynal plate as long as wide; ventral plate (VP) wider than long; copulatory opening (CO) located in atrium ventro-mesally at the junction of dorsal and ventral plate; dorsal plate (DP) somewhat heart-shaped, slightly depressed posteriorly; copulatory ducts (CD) long, extend anteriorly than curve back as a loop to spermathecae; spermathecae (S) globular, present posterolaterally, spaced by six diameters; fertilization ducts (FD) short, extending mesally.

Distribution. Known only from the type localities (Chongqing and Hubei Province, Figs 307, 312).

Gongylidioides microdontus Irfan, Zhang & Peng, sp. n. (小齿圆胸蛛)

Figures 102–104, 312

Types. Holotype ♂, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Sendziyuan Vill., 31.3406°N, 110.4131°E, 1320 m, 26.IV.2016, W. Liu *et al.* leg. **Paratypes**. 1♂2♀, with same data as for holotype.

Etymology. The specific epithet is derived from the Latin noun "*microdontus*" meaning "small teeth" and referring to the retrolateral tibial apophysis with small teeth in male palp.

Diagnosis. The male of *Gongylidioides microdontus* **sp. n.** resembles that of *G. ensis* **sp. n.** in having the similar disc-shaped radix and the long, sclerotized, helical-shaped embolus (Figs 91A–D; Figs 88A–D), but can be distinguished by the tibia with reterolateral tibial apophysis L-shaped in ventral view in *G. ensis* **sp. n.** (Figs 91B–D), vs. sword-shaped retrodorsal margin with teeth in *G. microdontus* **sp. n.** (Figs 88B–D); retrodorsal tibial apophysis absent in *G. microdontus* **sp. n.** (Figs 91B–D), vs. present in *G. ensis* **sp. n.** (Figs 88B–D); suprategular membrane tongue-shaped tapering towards tip, extending above to the apex of cymbium in *G. microdontus* **sp. n.** (Figs 91A, B, D), vs. slightly curved, almost equal to the apex of cymbium in *G.* **s** *ensis* **p. n.** (Figs 88A, B, D). Female of *G. microdontus* **sp. n.** resembles those of *G. ensis* **sp. n.** with long copulatory ducts forming pair of large round loops anteriorly and the dorsal plate resembles those of *G. microdontus* in epigyne (Figs 92A–D; Figs 89A–C; Tu & Li, 2006, fig. 2J), and can be distinguished by the copulatory ducts forming one loop before joining the spermathecae in *G. microdontus* **sp. n.** (Figs 92C–E), vs. forming two loops before joining the spermathecae in *G. ensis* **sp. n.** (Figs 89B–D); spermathecae pointing towards the anterior

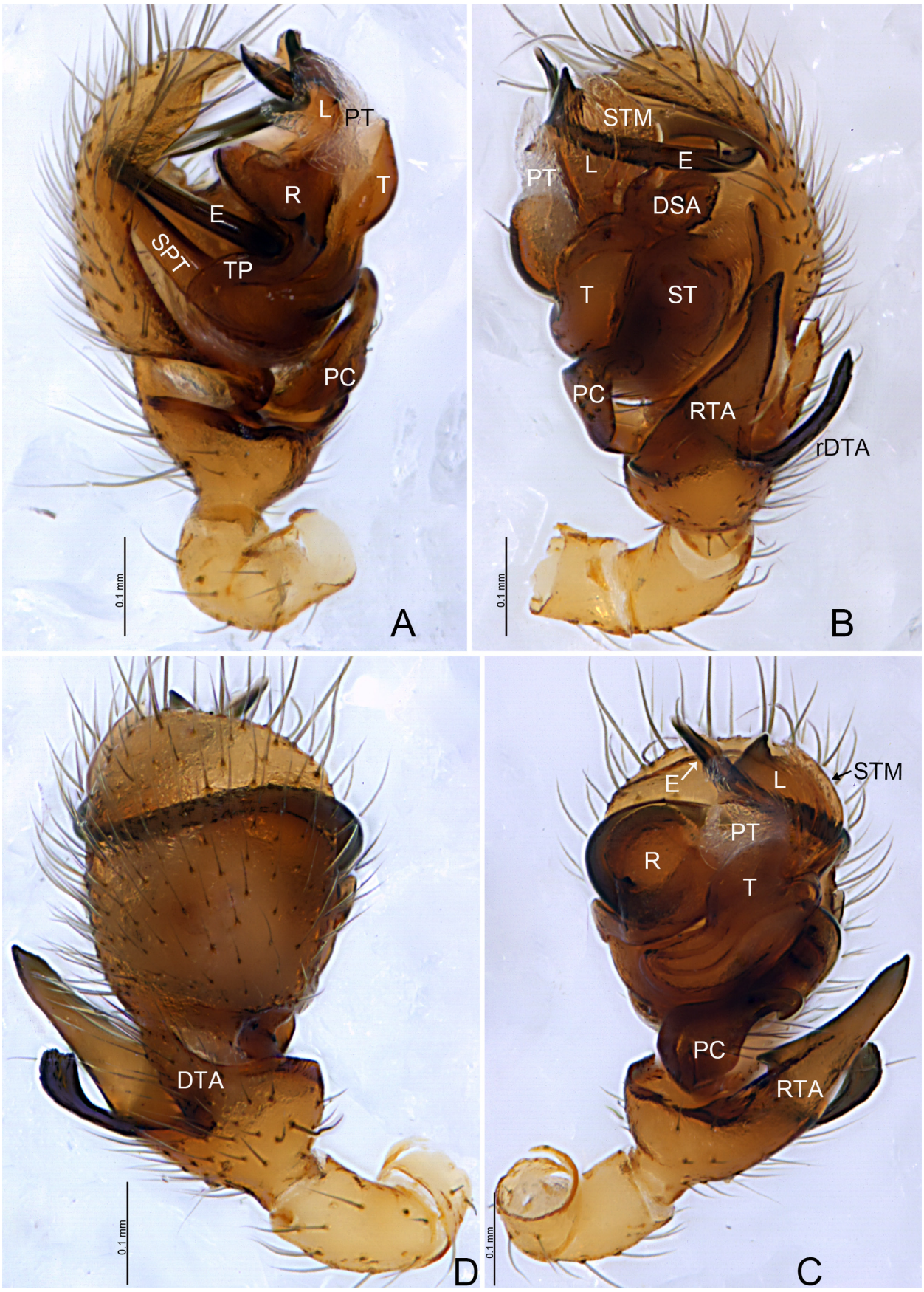


FIGURE 88. *Gongylidioides ensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; L—lamella; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; rDTA—retrodorsal tibial apophysis; SPM—suprategular membrane; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

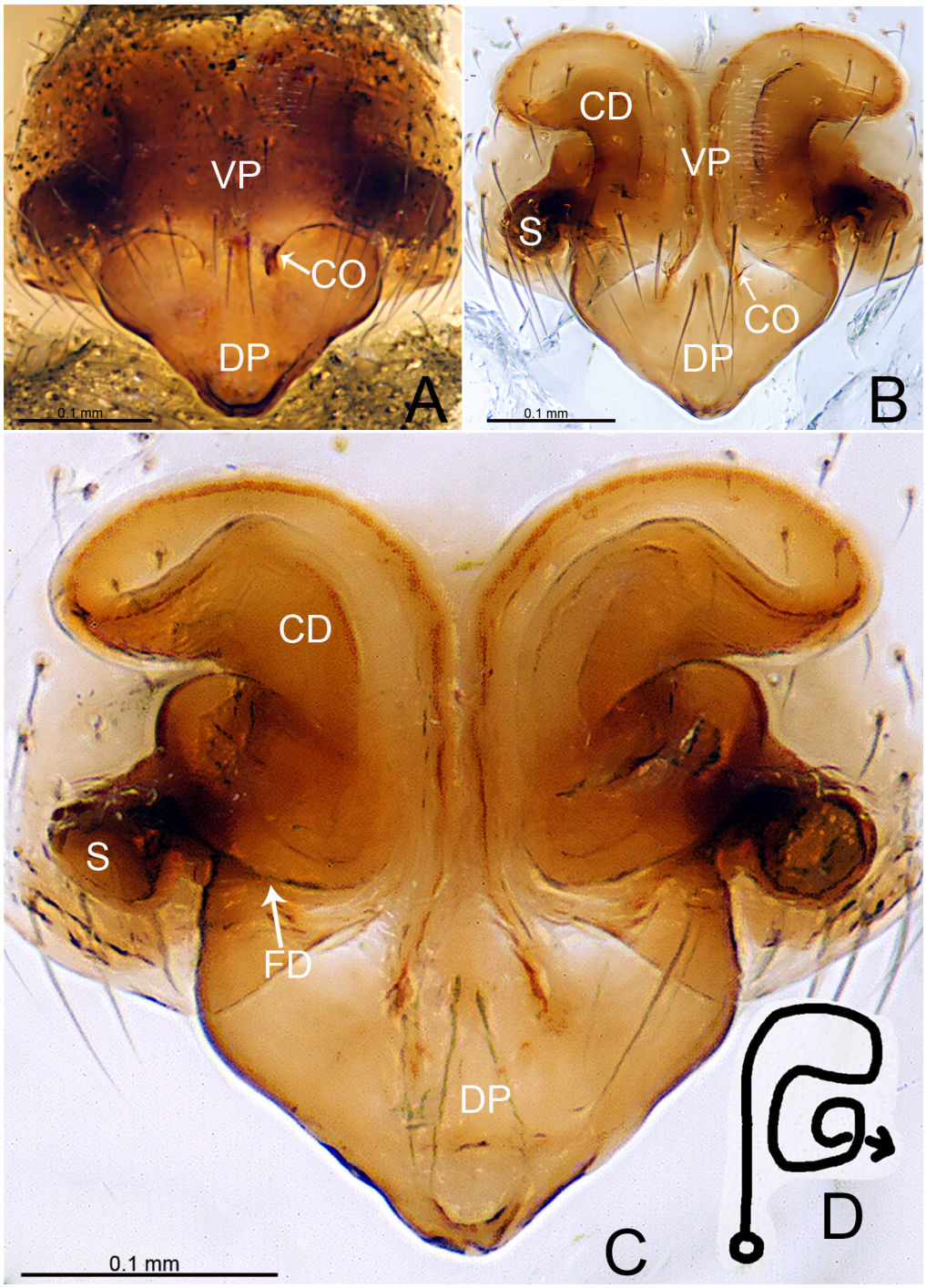


FIGURE 89. *Gongylidioides ensis* **sp. n.**, female (one of paratype). **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view; D Schematic course of internal duct system. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

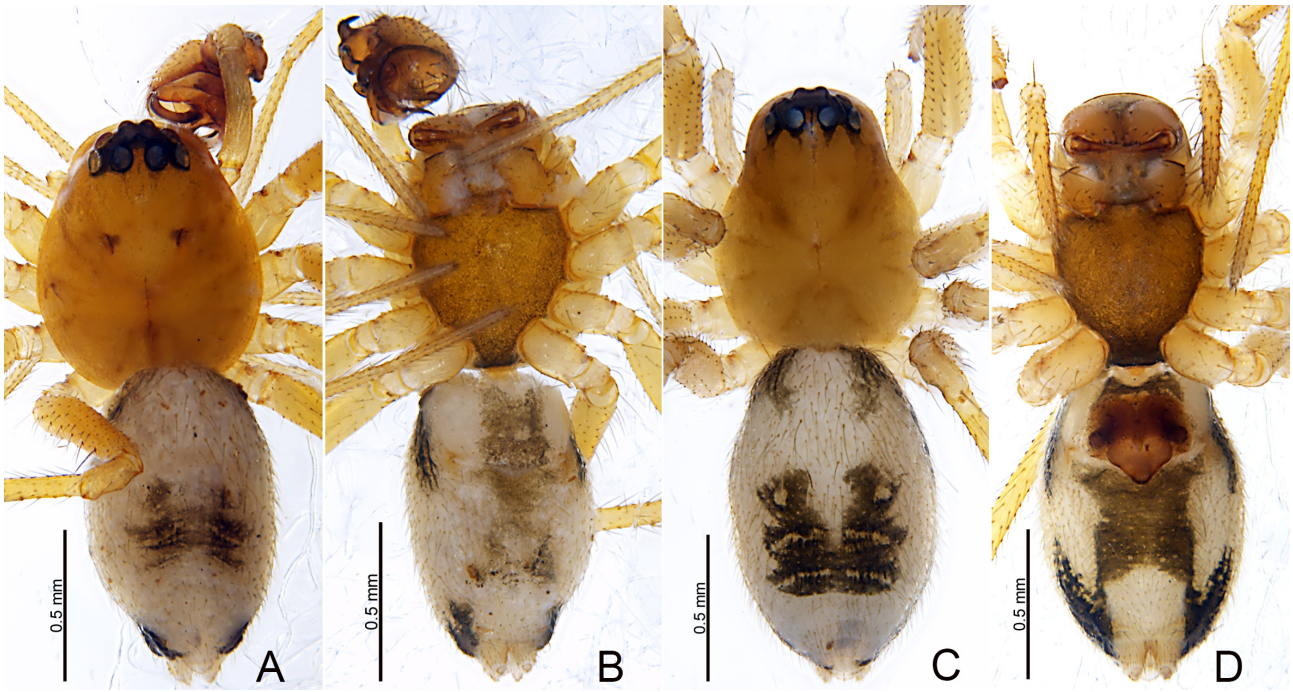


FIGURE 90. *Gongylidioides ensis* **sp. n.**, male holotype (A, B) and female, one of paratypes (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

end in *G. microdontus* **sp. n.** (Figs 92B, C), vs. pointing towards the posterior end of the epigyne in *G. ensis* **sp. n.** (Figs 89B, C).

Description. Male (holotype, Figs 93A, B): Total length: 2.13. Carapace 0.93 long, 0.78 wide, cephalic region elevated, ocular quad narrow, yellowish brown, fovea, cervical and radial grooves distinct. Clypeus 0.25 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum as wide as long, yellowish brown with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.06, PLE 0.06, AME–AME 0.02, PME–PME 0.10, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.06, ALE–ALE 0.27, PLE–PLE 0.33, ALE–PLE 0.01. Length of legs: I 3.32 (0.96, 1.11, 0.78, 0.47), II 2.94 (0.84, 0.98, 0.69, 0.43), III 2.35 (0.71, 0.66, 0.60, 0.38), IV 3.20 (0.86, 1.09, 0.80, 0.45). Tibial spine formula: 2-2-1-1. TmI 0.31 and TmIV 0.24. Opisthosoma 1.28 long, 0.83 wide, oval, dusky grey, dorsally with greenish band, lateral side with longitudinal greenish band, ventral side dusky grey with greenish green band.

Palp (Figs 91A–D): Femur unmodified, as long as both patella and tibia. Patella as long as tibia, slightly curved mesally. Tibia with one reterolateral and one dorsal trichobothria; reterolateral tibial apophysis (RTA) long, sclerotized, basally with teeth in retrolateral view, dorsal tibial apophysis (DTA) longer than wide, half the length of retrolateral tibial apophysis, covered with spines; cymbium unmodified, hoof-shaped; paracymbium (PC) sclerotized, U-shaped, apical tip hook-shaped; suprategular membrane transparent (STM) tongue-shaped, longer than wide extending above the apex of cymbium; tegulum (T) with a transparent bifurcated protegulum (PT); distal suprategular apophysis (DSA) stout. Radix (R) sclerotized, disc-shaped; tailpiece (TP) long, slightly curved with blunt tip, pointing towards the lateral margin of cymbium; lamella (L) translucent, tapering towards the tip; embolus (E) sclerotized, long, helical-shaped, extending above the apex of cymbium.

Female (one of paratypes, Figs 92C, D): Total length: 2.09. Carapace 0.87 long, 0.69 wide, yellowish green, cephalic region slightly elevated, fovea, cervical and radial grooves distinct. Clypeus 0.21 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum as wide as long, brownish grey with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.08, PLE 0.07, AME–AME 0.02, PME–PME 0.06, AME–ALE, 0.02, PME–PLE 0.03, AME–PME 0.04, ALE–ALE 0.25, PLE–PLE 0.29, ALE–PLE contiguous. Length of legs: I 3 (0.78, 1.11, 0.69, 0.42), II 2.35 (0.76, 0.67, 0.54, 0.38), III 2 (0.69, 0.56, 0.41, 0.34), IV 2.89 (0.79, 1.02, 0.67, 0.41). Tibial spine formula: 2-2-1-1. TmI 0.26 and TmIV 0.19. Opisthosoma 1.21 long, 0.81 wide, oval, dusky grey, dorsally with green band, ventro-laterally with longitudinal greenish band, ventral side dusky grey with broad greenish band.

Epigyne (Figs 93A–E): Epigynal plate as long as wide; ventral plate (VP) wider than long; copulatory opening (CO) located in atrium ventro-mesally at the junction of dorsal and ventral plate; dorsal plate (DP) heart-shaped, tip with depressed area laterally; copulatory ducts (CD) long, forming pair of broad loops anteriorly, before entering the spermathecae; spermathecae (S) globular, present dorsolaterally; fertilization ducts (FD) short, extending mesally.

Distribution. Known only from the type locality (Hubei Province, Fig. 312).

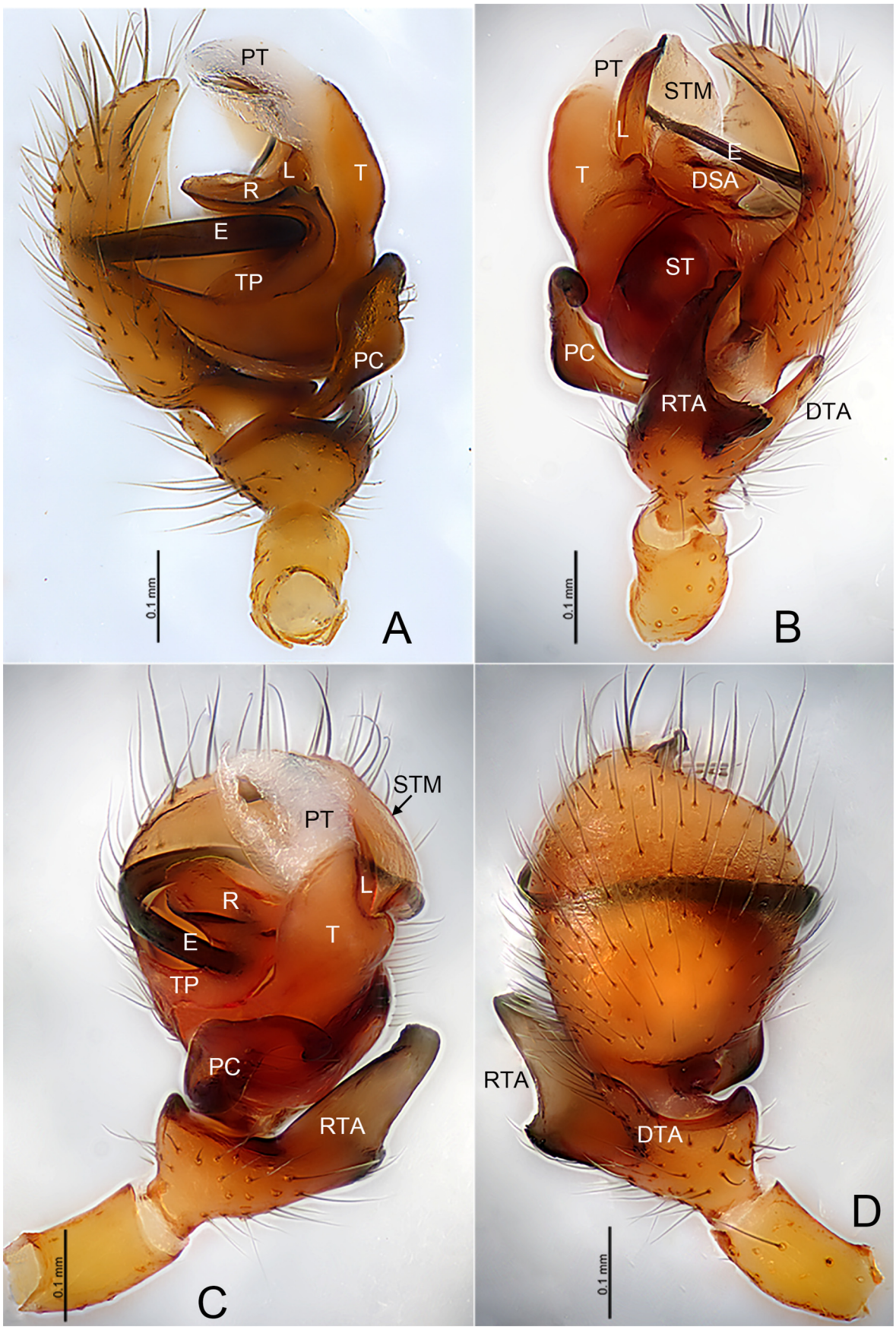


FIGURE 91. *Gongylidioides microdontus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; L—lamella; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; SPM—suprategular membrane; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

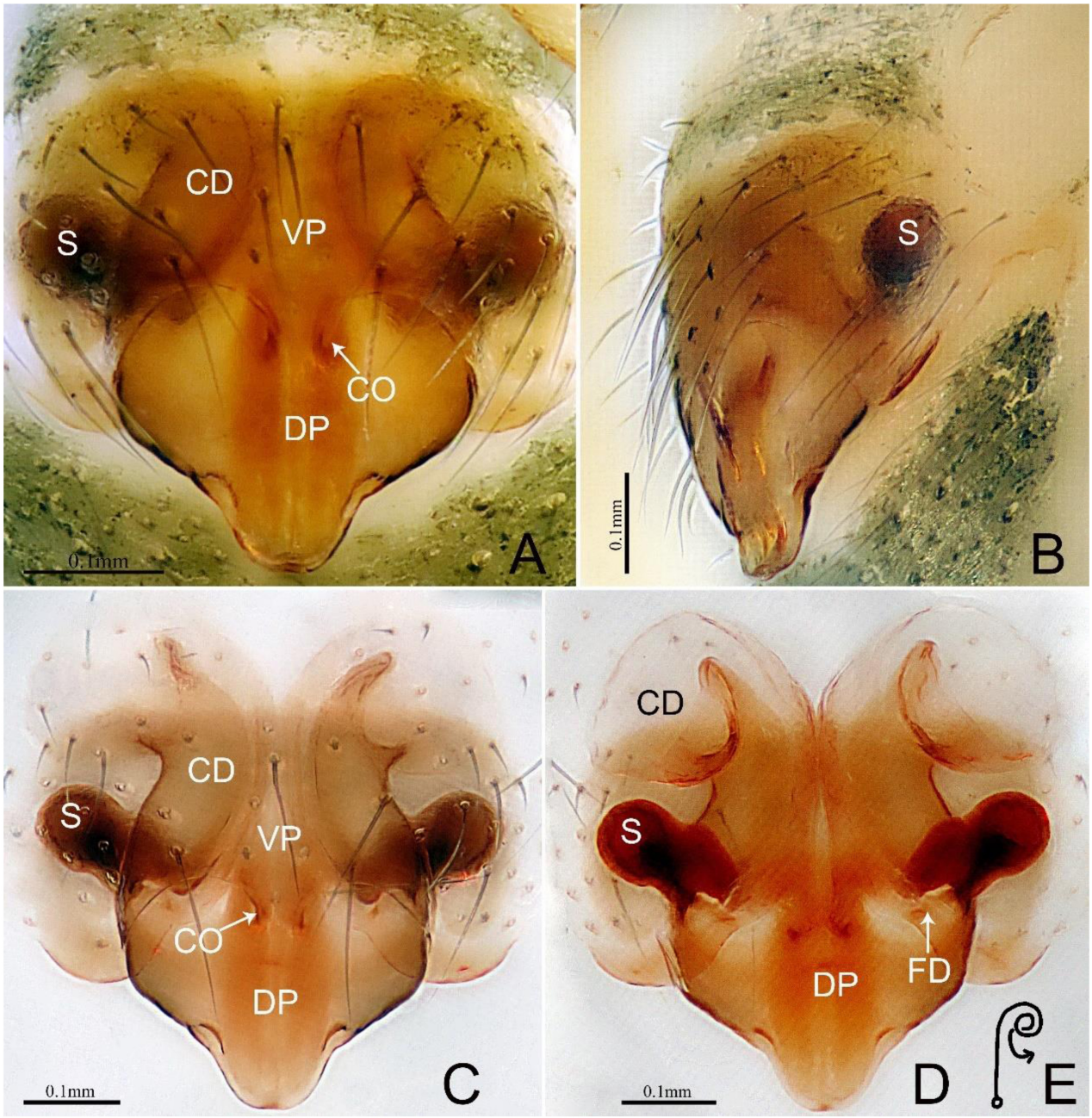


FIGURE 92. *Gongylidioides microdontus* **sp. n.**, female (one of paratype). **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view; E Schematic course of internal duct system. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

Genus *Gongylidium* Menge, 1868 (圆膝蛛属)

Type species. *Gongylidium nigricans* Menge, 1868; gender neuter.

Remark. *Gongylidium* comprises five species (including one species known from males) distributed Palaearctic (WSC 2024).

Gongylidium dawolongense Irfan, Zhang & Peng, sp. n. (大卧龙圆膝蛛)

Figures 94, 95, 312

Types. Holotype ♀ (HNU–HB–IV–1707), **CHINA, Hubei Prov.:** Enshi Co., Xuaneng Co., Changtanghe Town, Dawolong Vill., 30.06976°N, 109.74897°E, 839 m, 16.V.2017, G.C.Zhou & T. Tian leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. The female of *Gongylidium dawolongense* **sp. n.** can be distinguished from all other congeners by the copulatory duct S-shaped and spermathecae globular (Figs 94A–C).

Description. Female (Figs 95A, B): Total length: 1.21. Carapace 0.35 long, 0.42 wide, yellow, cephalic region

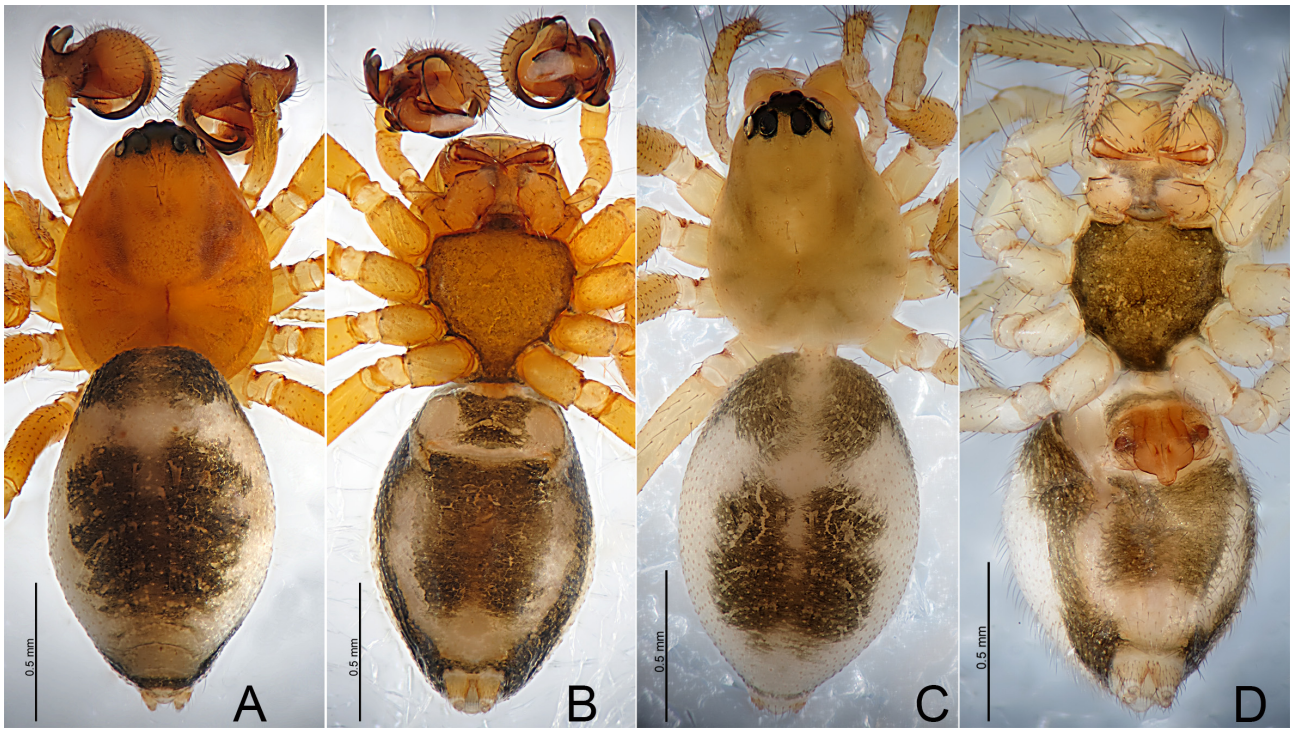


FIGURE 93. *Gongylidioides microdontus* **sp. n.**, male holotype (A, B) and female, one of paratypes (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

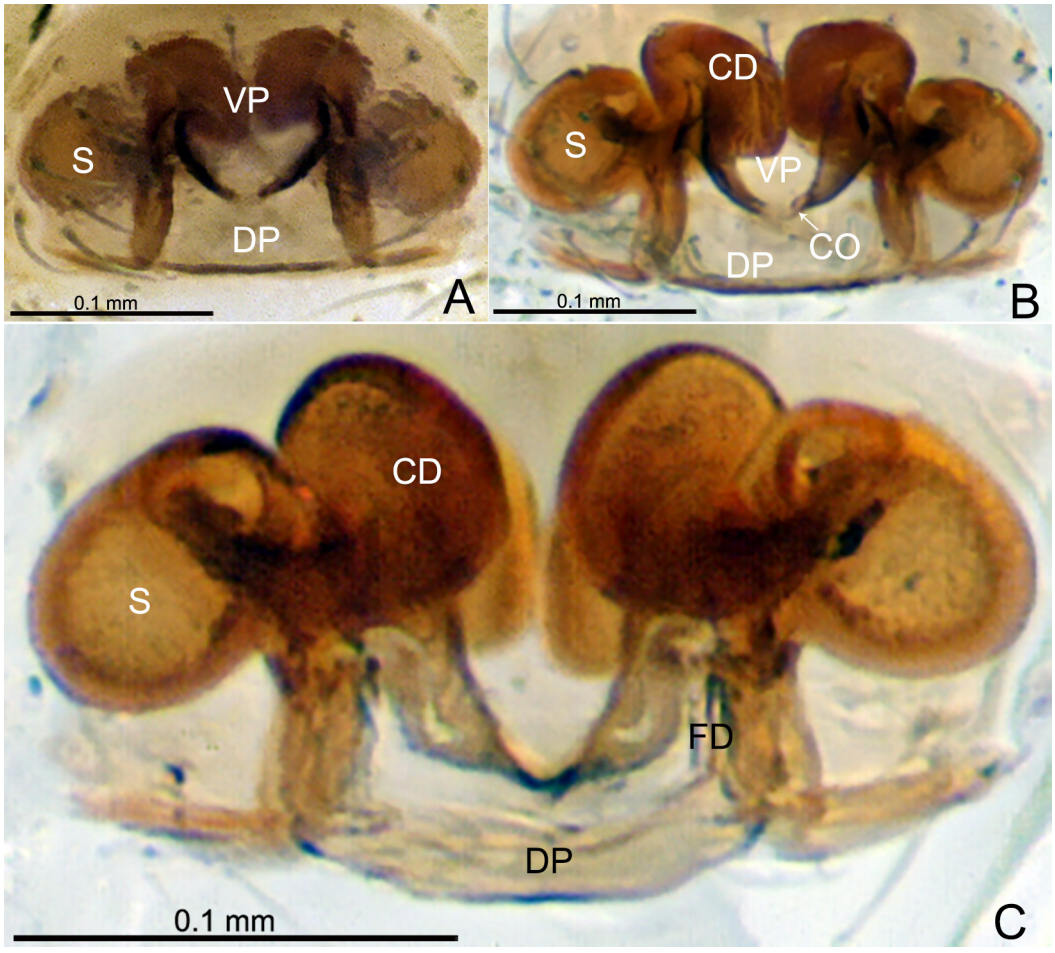


FIGURE 94. *Gongylidium dawolongense* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

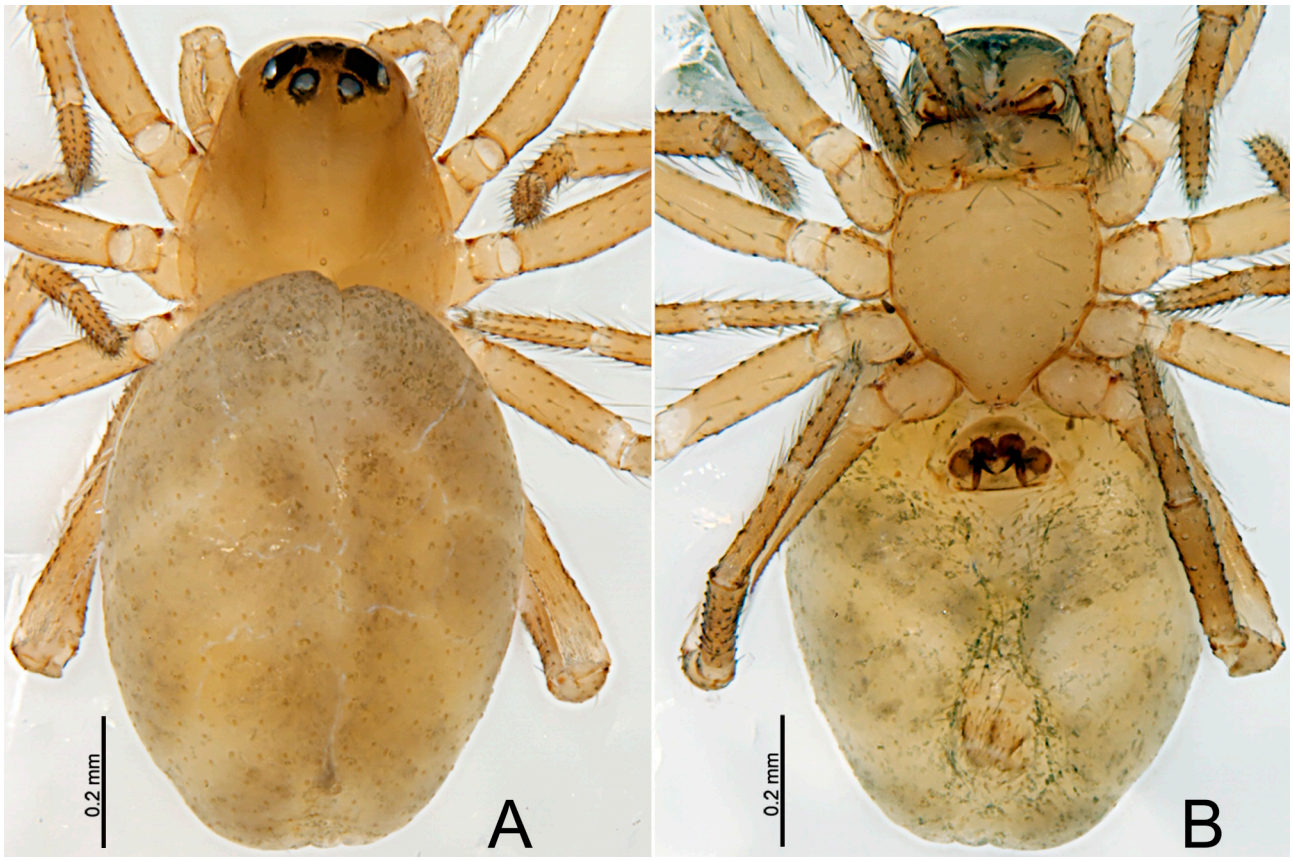


FIGURE 95. *Gongylidium dawolongense* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

slightly elevated, cervical and radial grooves distinct. Clypeus 0.09 high. Chelicerae with five promarginal and four retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.02, ALE 0.04, PME 0.03, PLE 0.04, AME–AME 0.01, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.03, AME–PME 0.05, ALE–ALE 0.18, PLE–PLE 0.21, ALE–PLE contiguous. Length of legs: I 1.27 (0.39, 0.48, 0.21, 0.19), II 1.01 (0.34, 0.31, 0.19, 0.17) III 0.99 (0.31, 0.34, 0.18, 0.16), IV 1.23 (0.43, 0.46, 0.19, 0.15). TmI 0.18 and TmIV 0.16. Tibial spine formula: 2-2-1-1. Opisthosoma 0.86 long, 0.64 wide, oval, yellow.

Epigyne (Figs 94A–C): Ventral plate (VP) wider than long; dorsal plate (DP) rectangular, wider than long; copulatory opening (CO) present mid ventrally at the junction of dorsal and ventral plate; copulatory ducts (CD) form long loop before entering the spermathecae; spermathecae (S) globular, present dorsolaterally, spaced by three diameters; fertilization ducts (FD) short, extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Hubei Province, Fig. 312).

***Gongylidium demersum* Irfan, Zhang & Peng, sp. n. (凹陷圆膝蛛)**

Figures 96, 97, 310

Types. Holotype ♀ (HNU–GZ–IV–1706), **CHINA, Guizhou Prov.:** Tongren City, Shiqian Co., Pingshan Town, Fodingshan Vill., Fodingshan NNR, 27.34899°N, 108.16272°E, 666 m, 01.XI.2017, G.C. Zhou leg. **Paratype:** 1♀, With same data as for holotype female (HNU–GZ–IV–1706).

Etymology. The specific epithet is derived from the Latin adjective "*demersus*" meaning "depressed" referring to the slightly depressed posterior margin of dorsal plate in epigyne.

Diagnosis. *Gongylidium demersum* **sp. n.** resembles *G. minutum* **sp. n.** in having the similar dorsal plate (Figs 96A–C; Figs 98A–C), and can be distinguished by the ventral plate without any hood in *G. demersum* **sp. n.** (Figs 96A, B), vs. hood present in *G. minutum* **sp. n.** (Figs 98A, B); copulatory ducts short, not forming loop before entering the spermathecae in *G. demersum* **sp. n.** (Fig. 96C), vs. sinuous, forming long loop before entering the spermathecae in *G. minutum* **sp. n.** (Figs 98B, C).

Description. Female (Figs 97A, B): Total length: 2.06. Carapace 0.93long, 0.67 wide, cephalic region slightly elevated, pale, mid dorsally with macrosetae, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, light greenish with grey patches and microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.04, PME 0.05, PLE 0.05, AME–AME 0.01, PME–PME 0.02, AME–ALE,

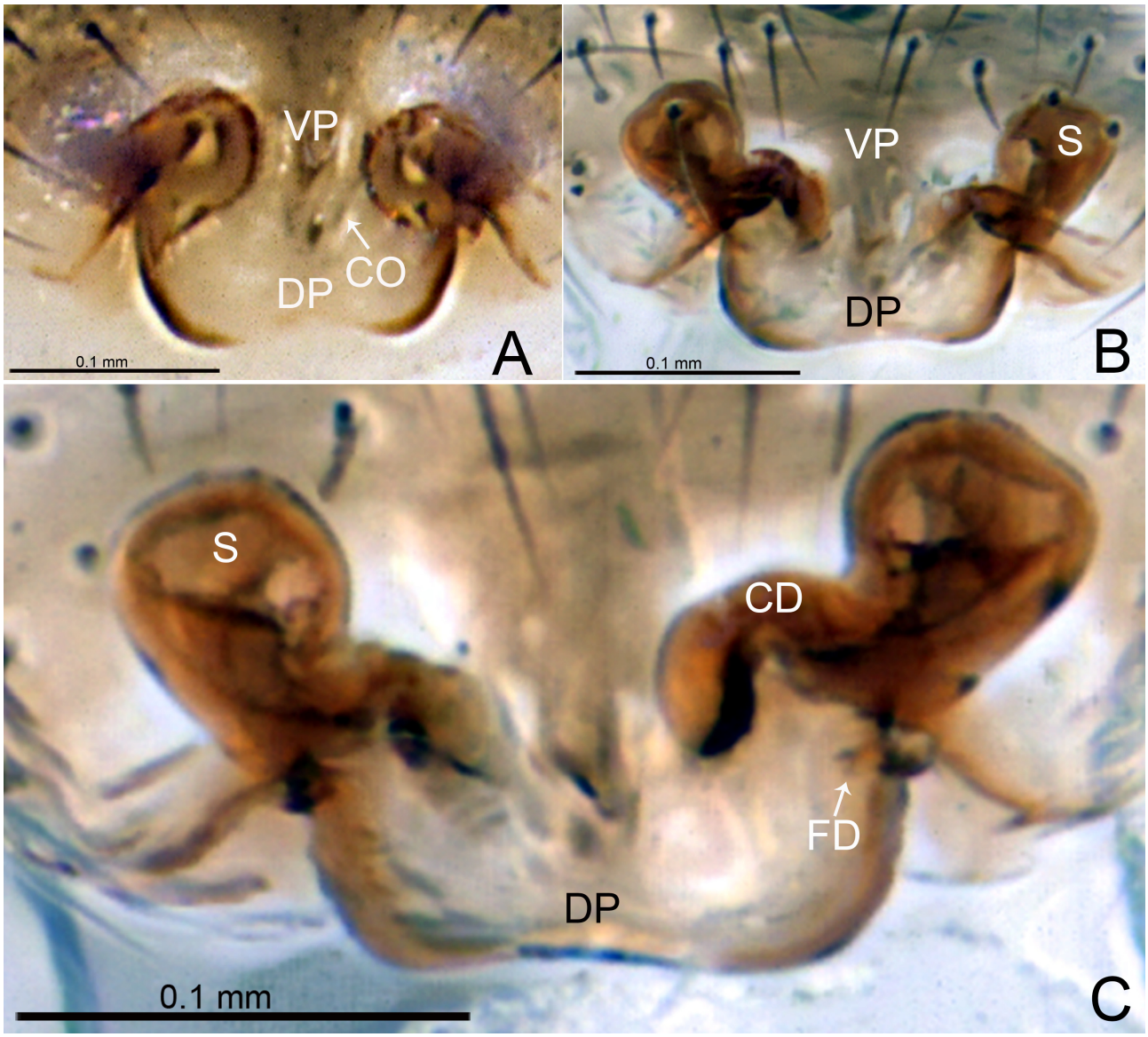


FIGURE 96. *Gongylidium demersum* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

0.04, PME–PLE 0.04, AME–PME 0.04, ALE–ALE 0.22, PLE–PLE 0.23, ALE–PLE contiguous. Length of legs: I 2.17 (0.65, 0.75, 0.41, 0.36), II 1.92 (0.61, 0.60, 0.37, 0.34), III 1.67 (0.54, 0.52, 0.32, 0.29), IV 2.17 (0.65, 0.79, 0.41, 0.32). TmI 0.27 and TmIV 0.16. Tibial spine formula: 2-2-1-1. Opisthosoma 1.15 long, 0.64 wide, oval, pale, densely covered with fine macrosetae.

Epigyne (Figs 96A–C): Ventral plate (VP) sclerotized, wider than long; dorsal plate (DP) rectangular, posterior margin slightly concave; copulatory opening (CO) present at the junction of dorsal and ventral plate; copulatory ducts (CO) short; spermathecae (S) elliptical, present at the apex of dorsal plate anteriorly; fertilization ducts (FD) extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

***Gongylidium minutum* Irfan, Zhang & Peng, sp. n. (微形圆膝蛛)**

Figures 98, 99, 312

Types. Holotype ♀ (HNU–HB–IV–1712), **CHINA, Hubei Prov.:** Enshi Co., Xingdou MNNR, 30.04611°N, 109.13038°E, 1205 m, 18.V.2017, G.C. Zhou *et al.* leg.

Etymology. The specific epithet is derived from the Latin adjective "*minutus*" meaning "small" referring to the very small size spiders.

Diagnosis. *Gongylidium minutum* **sp. n.** resembles *G. demersum* **sp. n.** in having the similar dorsal plate (Figs 98A–C; Figs 96A–C), but can be distinguished by the ventral plate hood present in *G. minutum* **sp. n.** (Figs 98A, B), vs. hood absent in *G. demersum* **sp. n.** (Figs 96A, B); copulatory ducts S-shaped in *G. minutum* **sp. n.** (Figs 98C), vs. short, directly entering the spermathecae in *G. demersum* **sp. n.** (Figs 96B, C).

Description. Female (Figs 99A, B): Total length:

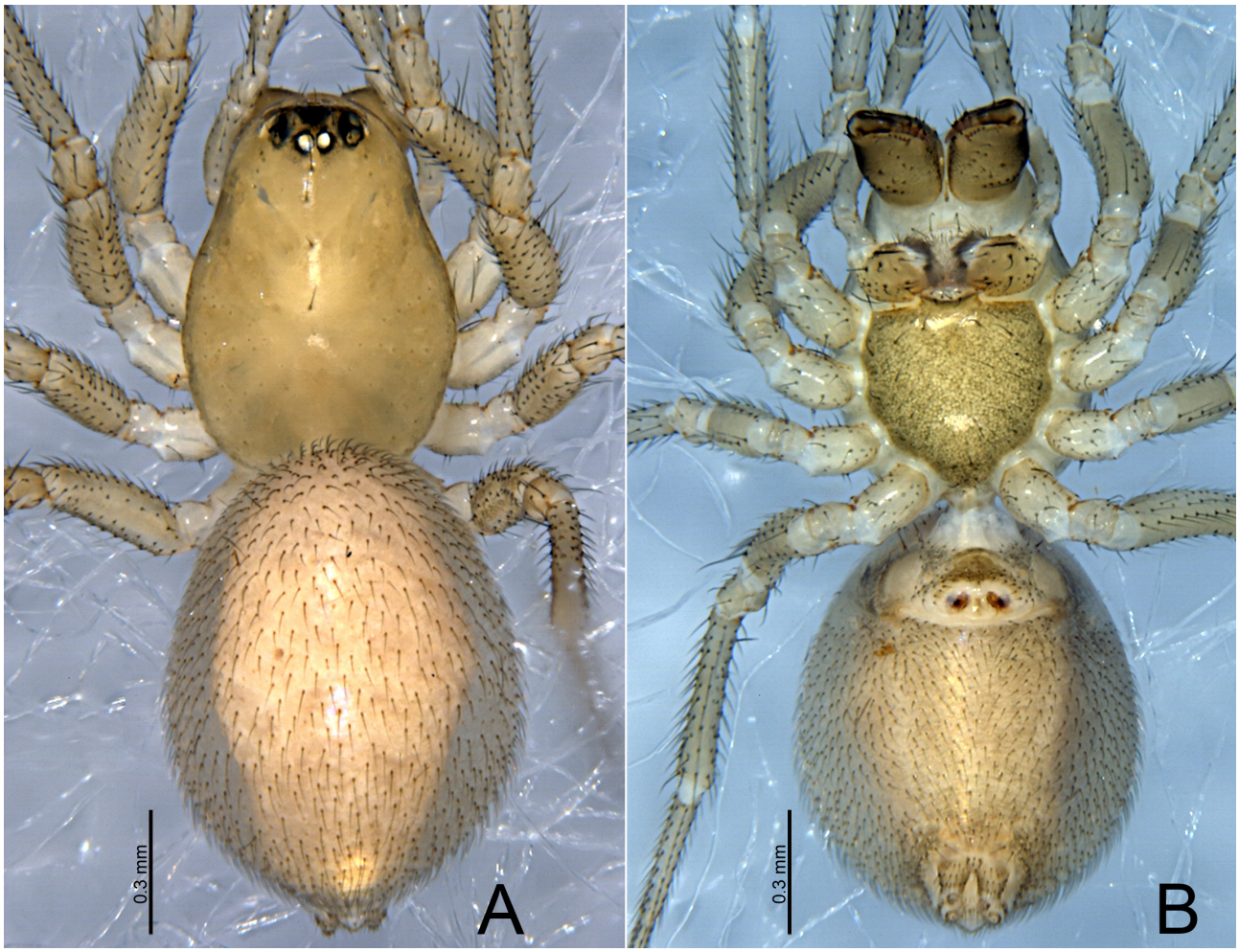


FIGURE 97. *Gongylidium demersum* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

1.35. Carapace 0.58 long, 0.41 wide, yellowish brown, cephalic region slightly elevated, cervical and radial grooves distinct. Clypeus 0.1 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.04, PME 0.02, PLE 0.03, AME–AME 0.01, PME–PME 0.04, AME–ALE, 0.01, PME–PLE 0.05, AME–PME 0.05, ALE–ALE 0.17, PLE–PLE 0.19, ALE–PLE contiguous. Length of legs: I 1.30 (0.42, 0.44, 0.21, 0.23), II 1.19 (0.37, 0.41, 0.19, 0.22), III 1.04 (0.31, 0.35, 0.18, 0.20), IV 1.37 (0.42, 0.49, 0.23, 0.23). TmI 0.62 and TmIV 0.67. Tibial spine formula: 2-2-1-1. Opisthosoma 0.77 long, 0.53 wide, oval, pale.

Epigyne (Figs 98A–C): Ventral plate (VP) sclerotized, wider than long, partly covering the dorsal plate; dorsal plate (DP) rectangular, wider than long; copulatory opening (CO) present at the junction of dorsal and ventral plate; copulatory ducts (CD) sinuous; spermathecae (S) globular; fertilization ducts (FD) long, extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Hubei Province, Fig. 312).

***Gongylidium uncatum* Irfan, Zhang & Peng, sp. n. (钩状圆膝蛛)**

Figures 100–102, 307, 307, 312

Types. Holotype ♂ (HNU–HB–IV–1715), **CHINA, Hubei Prov.:** Enshi Co., Huangjindong Town, Maliuxi Vill., 30.03902°N, 109.14274°E, 1114 m, 19.V.2017, M. Irfan & G.C. Zhou leg. **Paratypes:** 22♀, with same data as for holotype (HNU–HB–IV–1715); 1♀, Enshi Co., Xingdou MNNR, 30.03748°N, 109.14548°E, 1078 m, 19.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1714); 3♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1710); 6♀, Enshi Co., Xingdou MNNR, 30.04611°N, 109.13038°E, 1205 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1712); 2♀, Enshi Co., Xingdou MNNR, 30.039022°N, 109.14274°E, 1114 m, 20.V.2017, G.C. Zhou *et al.* leg. (HNU–T20170520); **Chongqing:** 1♀, Youyang Co., Taohuayuan Scenic Spot, 28.85096°N, 108.75037°E, 995 m, 23.VII.2017, M. Irfan & G.C. Zhou leg. (HNU–CQ–IV–1718); 2♀, Youyang Co., Taohuayuan Scenic Spot, 28.85264°°N, 108.75444°E, 954 m, 26.V.2017, G.C. Zhou *et al.* leg. (HNU–CQ–IV–1709); 1♀, Youyang Co., Xiaoba Town, Xinqiao Vill., 28.837783°N, 108.723728°E, 924 m, 27.V.2017, G.C. Zhou *et al.* leg. (HUN–CQ–IV–1712).

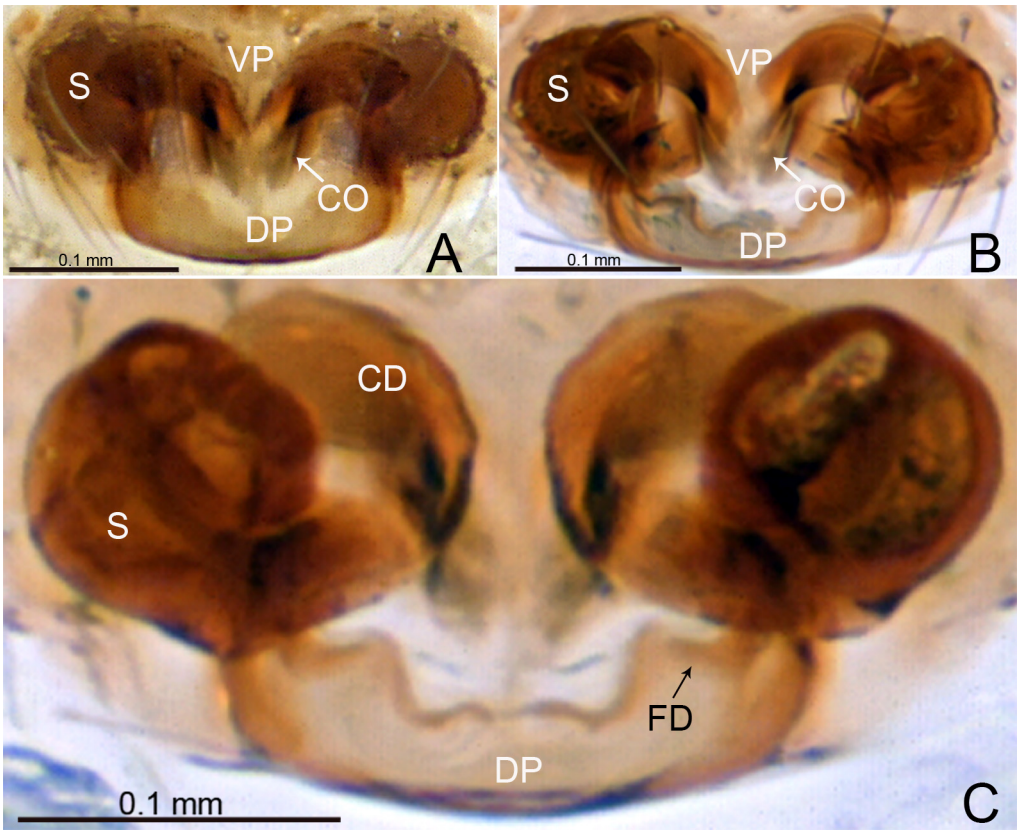


FIGURE 98. *Gongylidium minutum* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

Etymology. The specific epithet is derived from the Latin adjective "*uncatus*" meaning "hooked" referring to hook-shaped embolus in male palp.

Diagnosis. *Gongylidium uncatum* **sp. n.** can be distinguished from all other congeners by the distal end of tibia two times wider than proximal end, dorsal tibial apophysis small with blunt end (Figs 100A–D), tip of embolus as wide as Radix in male palp. Female can be differentiated by the ventral plate sclerotized, tomb-shaped anteriorly; copulatory ducts wave-like in epigyne (Figs 101A–C).

Description. Male (holotype, Figs 102A, B): Total length: 2.06. Carapace 0.85 long, 0.66 wide, orange brown, cephalic region strongly elevated, with cephalic pits, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, orange with greyish patches and microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.04, PME 0.04, PLE 0.05, AME–AME 0.01, PME–PME 0.09, AME–ALE, 0.06, PME–PLE 0.14, AME–PME 0.17, ALE–ALE 0.29, PLE–PLE 0.31, ALE–PLE 0.01. Length of legs: I 2.08 (0.59, 0.73, 0.40, 0.36), II 1.92 (0.58, 0.63, 0.37, 0.34), III 1.6 (0.55, 0.55, 0.25, 0.25), IV 2.10 (0.68, 0.76, 0.39, 0.27). TmI 0.68 and TmIV 0.62. Tibial spine formula: 2-2-1-1. Opisthosoma 1.21 long, 1.03 wide, oval, grey, proximally with two pairs of sigillae and irregular light spots.

Palp (Figs 100A–D): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, slightly curved mesally. Tibia conic, with one retrolateral and one dorsal trichobothria, dorsal tibial apophysis (DTA) sclerotized, tip slightly curved with blunt end; cymbium unmodified, globular in dorsal view; paracymbium (PC) small, distal arm tip hook-shaped, basally with spines; tegulum (T) almost round, proximally bulging above the subtegulum, protegulum (PT) distinctly developed, membranous; distal suprategular apophysis (DSA) sclerotized, distal end slightly grooved, with blunt end. Radix (R) globular, ventrally grooved, slightly overlapping the suprategulum. Embolic membrane (EM) barely visible on unexpended palp. Embolus (E) sclerotized, moderately long, extending above the apex of cymbium.

Female (one of paratype, Figs 102C, D): Total length: 1.96. Carapace 0.87 long, 0.63 wide, orange, cephalic region slightly elevated, cervical and radial grooves distinct. Clypeus 0.17 high. Chelicerae with five promarginal and five retromarginal teeth. Eyes: AER recurved, PER procurved, slightly wider than AER. Sternum longer than wide, orange with greyish patches and microsetae. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.05, PLE 0.04, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.25, PLE–PLE 0.27, ALE–PLE contiguous. Length of legs: I 2.28 (0.72, 0.78, 0.42, 0.36), II 2.02 (0.59, 0.68, 0.41, 0.34), III 1.70 (0.55, 0.54, 0.34, 0.27), IV 2.24 (0.71, 0.79, 0.41, 0.33). TmI 0.69 and TmIV 0.61. Tibial spine formula: 2-2-1-

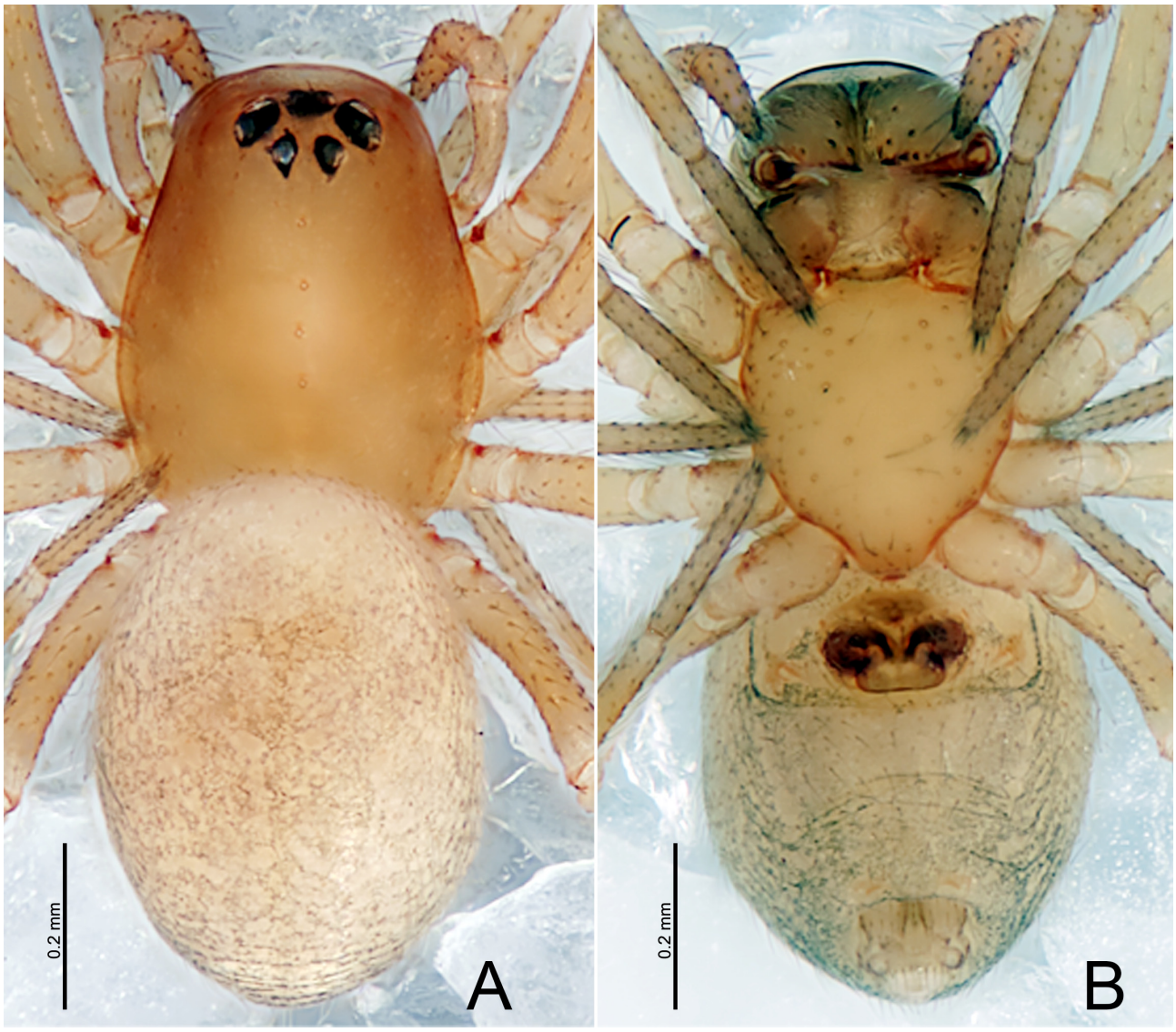


FIGURE 99. *Gongylidium minutum* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

1. Opisthosoma 1.09 long, 0.77 wide, oval, grey, proximally with two pairs of sigillae, dorsally irregular light spots.

Epigyne (Figs 101A–C): Ventral plate (VP) sclerotized, wider than long; dorsal plate (DP) somewhat triangular; copulatory opening (CO) present mid ventrally at the junction of dorsal and ventral plate; copulatory ducts (CD) present mid dorsally; spermathecae (S) globular, present dorsolaterally; fertilization ducts (FD) short, extending mesally.

Distribution. Known only from the type localities (Chongqing and Hubei Province, Figs 310, 312).

Comment. The palps and epigynes of *Gongylidium uncatum* **sp. n.** differ from those of the type species and the European species *G. soror*, which has a modified patella and different tibia, as well as an unmodified carapace. Therefore, this new species is provisionally placed within the genus *Gongylidium.*

Genus *Gracilentus* Irfan, Zhang & Peng, 2022 (简蛛属)

Type species. *Gracilentus denticulatus* Irfan, Zhang & Peng, 2022; gender masculine.

Remark. *Gracilentus* comprises three species (including two species known from females) distributed in China (WSC 2024).

Gracilentus mangshanensis Irfan, Zhang & Peng, sp. n. (莽山简蛛)

Figures 103, 104, 315

Types. Holotype ♀, **CHINA, Hunan Prov.:** Mangshan NNR, 24.9517333°N, 112.9500167°E, 1294 m, 13.VIII.2014, H.Q. Yin *et al.* leg. **Paratypes:** 7♀, with same data as for holotype; 3♀, Mangshan NNR, 24.94948°N, 112.98438°E, 1327 m, 16.VIII.2014,

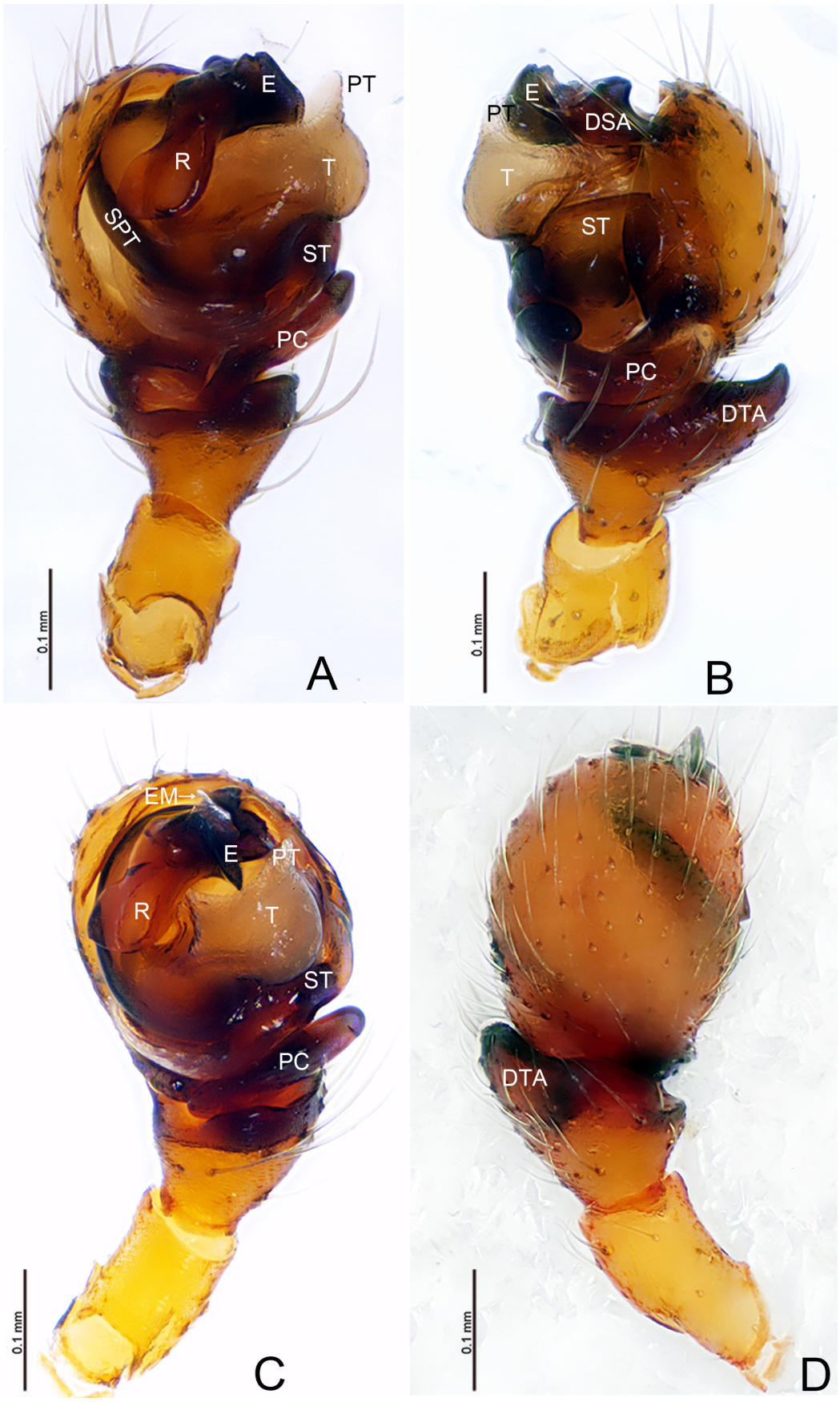


FIGURE 100. *Gongylidium uncatum* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; PC—paracymbium; PT—protegulum; R—radix; SPT—suprategulum; ST—subtegulum; T—tegulum.

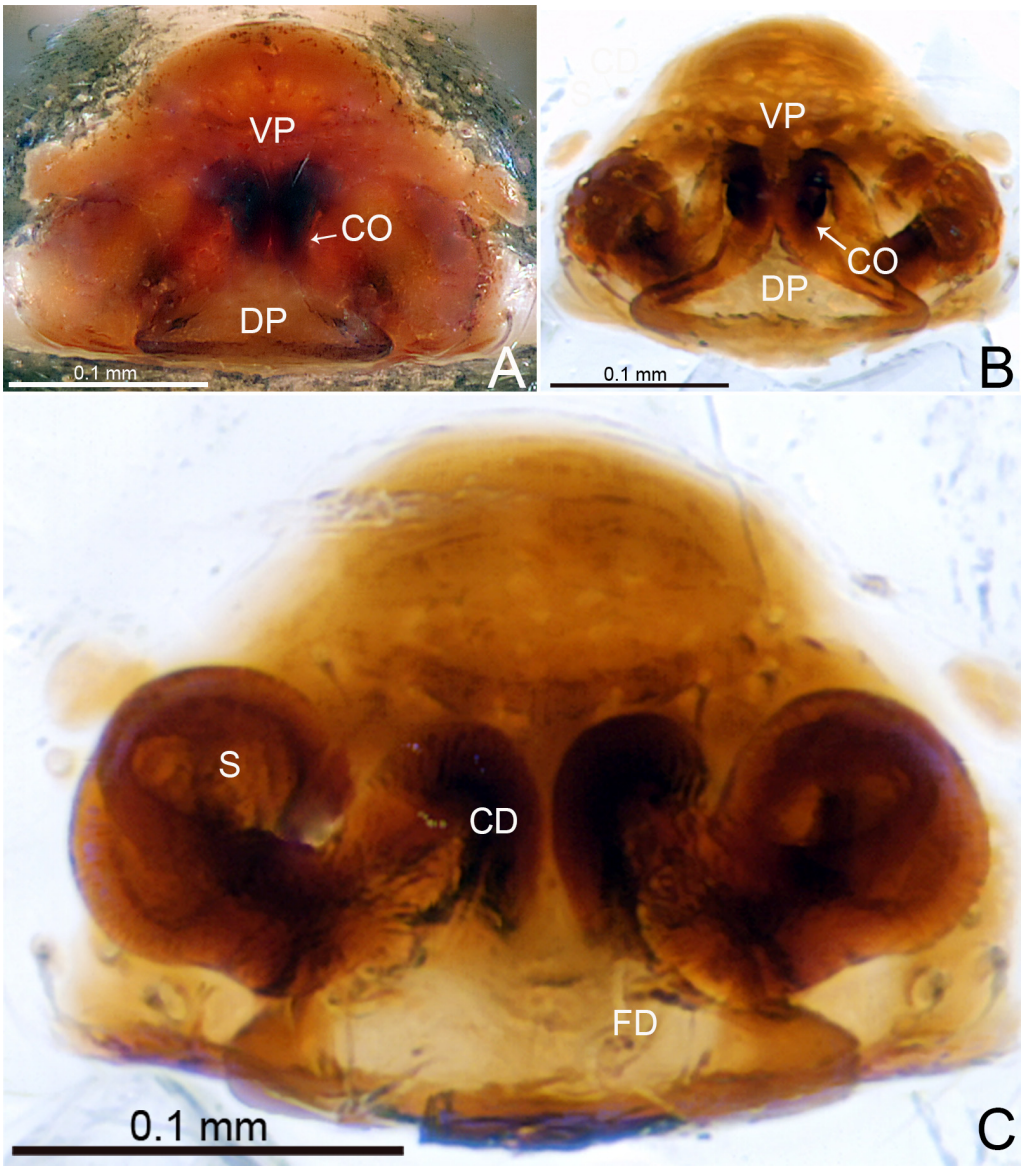


FIGURE 101. *Gongylidium uncatum* **sp. n.**, female (one of paratypes). **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

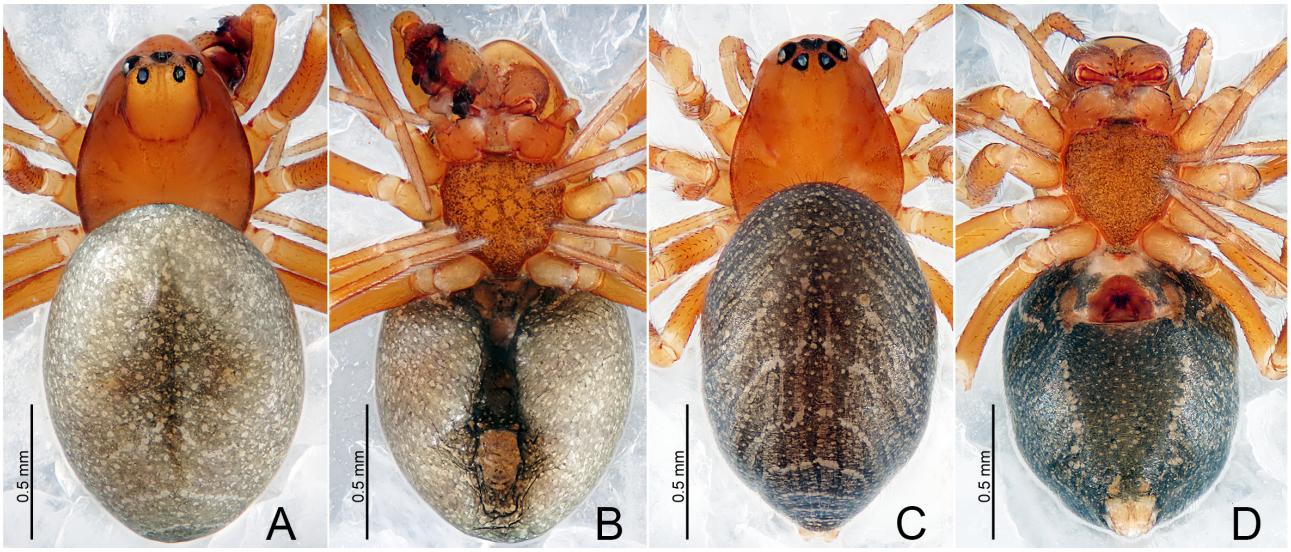


FIGURE 102. *Gongylidium uncatum* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

H.Q. Yin *et al.* leg.; 1♀, Mangshan NNR, 24.97975°N, 112.99083°E, 1344 m, 17.VIII.2014, H.Q. Yin *et al.* leg.; 1♀, Mangshan NNR, 24.92725°N, 112.83375°E, 517 m, 19.VIII.2014, H.Q. Yin *et al.* leg.; 2♀, Mangshan NNR, 24.95880°N, 112.95920°E, 1116–1220 m, 21.VIII.2014, H.Q. Yin *et al.* leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Gongylidium mangshanensis* **sp. n.** resembles *G. serratus* in having the similar wave-like posterior margin of ventral plate and spermathecae (Figs 103A–D; Irfan *et al.* 2022, figs 126A–C), but can be distinguished by the dorsal plate funnel-shaped in *G. mangshanensis* **sp. n.** (Fig. 103D; vs. rectangular).

Description. Female (holotype, Figs 104A, B): Total length: 2.83. Carapace 1.09 long, 0.92 wide, yellowish brown, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae sclerotized, dark brown, with five promarginal and five retromarginal teeth. Sternum shield-like, yellowish brown with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.06, PLE 0.07, AME–AME 0.03, PME–PME 0.06, AME–ALE, 0.02, PME–PLE 0.05, AME–PME 0.04, ALE–ALE 0.31, PLE–PLE 0.35, ALE–PLE contiguous. Length of legs: I 5.34 (1.51, 1.81, 1.34, 0.68), II 5.07 (1.43, 1.69, 1.32, 0.63), III 3.5 (1.07, 1.05, 0.92, 0.46), IV 4.52 (1.31, 1.41, 1.23, 0.57). TmI and TmIV present. Tibial spine formula: 2-2-1-1. Opisthosoma 1.74 long, 1.05 wide, oval, pale, mid dorsally with longitudinal greenish band anteriorly followed by 3 transverse chevrons, ventral side pale.

Epigyne (Figs 103A–D): Ventral plate (VP) longer than wide protruding above the epigastric furrow posteriorly, posterior margin wave-like. Copulatory opening (CO) present dorsally at the posterior margin of the ventral plate. Dorsal plate (DP) longer tha wide, fused with ventral plate posteriorly; copulatory ducts (CD) present mesally, forming a spiral coiled loop, before joining the spermathecae, extending above the spermathecae anteriorly; spermathecae (S) globular, present anterolaterally, spaced by 2/3 of diameters; fertilization ducts (FD) small, extending mesally.

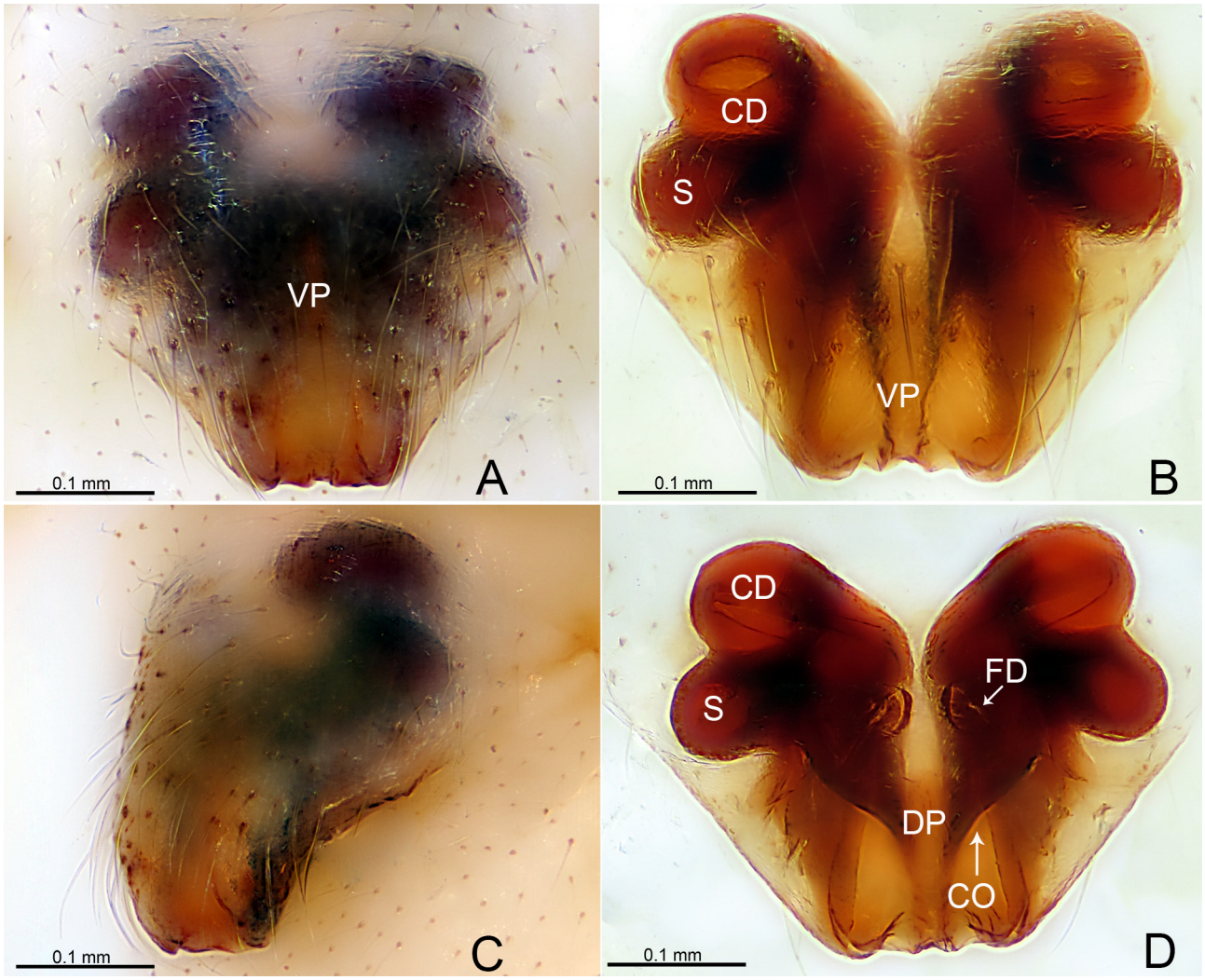


FIGURE 103. *Gracilentus mangshanensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

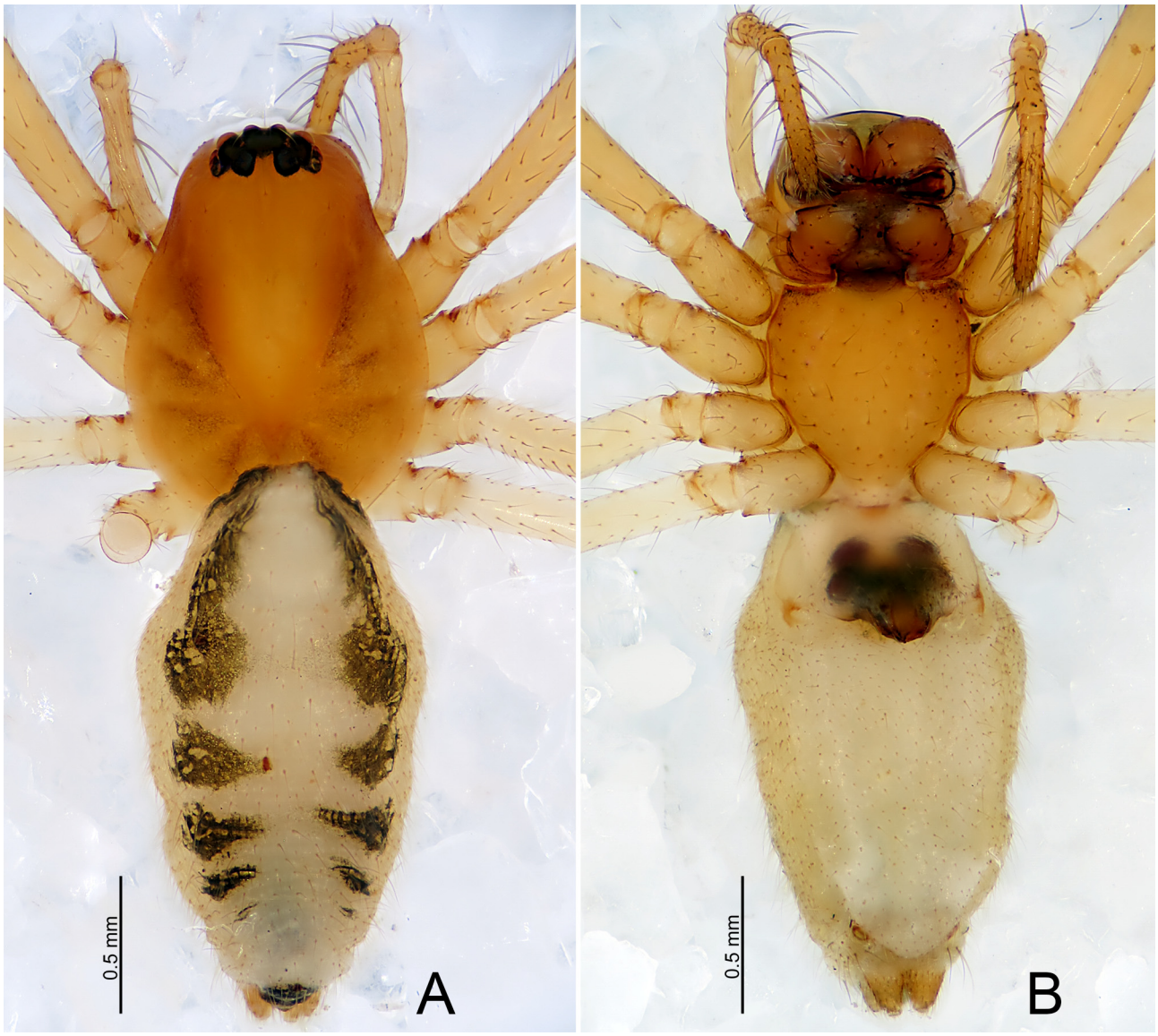


FIGURE 104. *Gracilentus mangshanensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

Male. Unknown.

Distribution. Known only from the type localities (Hunan Provinces, Fig. 315).

Genus *Himalaphantes* Tanasevitch, 1992 (喜峰蛛属)

Type species. *Lepthyphantes grandiculus* Tanasevitch, 1987; gender masculine.

Remark. *Himalaphantes* comprises 14 species (including six species known from females and one from males) distributed in China, Japan, Nepal and Russia (Far East), (WSC 2024).

Himalaphantes azumiensis (Oi, 1979) (东喜峰蛛)

Figures 105–108, 307, 308, 315

Lepthyphantes azumiensis Oi, 1979: 333, figs 16–18 (♂♀).

Himalaphantes azumiensis Tanasevitch 1992: 45, 3f–h (♂♀ from *Lepthyphantes*); Irfan *et al.* 2023b: 17, figs 10A–D, 11A–D, 12A–B (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 3♀, **CHINA, Hunan Prov.:** Changde City, Sangzhi, Badagong Mountain Co., Tianping Mountain, 29.78643°N, 110.08432°E, 1577 m, 23.X.2014, C. Wang *et al.* leg.; 30♂12♀, Mangshan NNR, 24.9517333°N, 112.9500167°E, 1294 m, 13.VIII.2014, H.Q. Yin *et al.* leg.; **Chongqing:** 32♂3♀, Pengshui Co., Mowei MSS, 29.19517°N, 108.0562°E, 1476 m, 24.VII.2017, M. Irfan & G.C. Zhou leg.; **Guangdong Prov.:** 1♂, Shaoguan City, Ruyuan Co., Nanling NFP, Lao Pengkeng, 24.9457°N, 112.99449°E, 1254–1372 m, H.Q. Yin *et al.* leg.

Distribution. Russia, China (Chongqing, Gansu, Guangdong, Guizhou, Hunan, Sichuan and Qinghai Provinces, Figs 307, 308, 315), Japan.

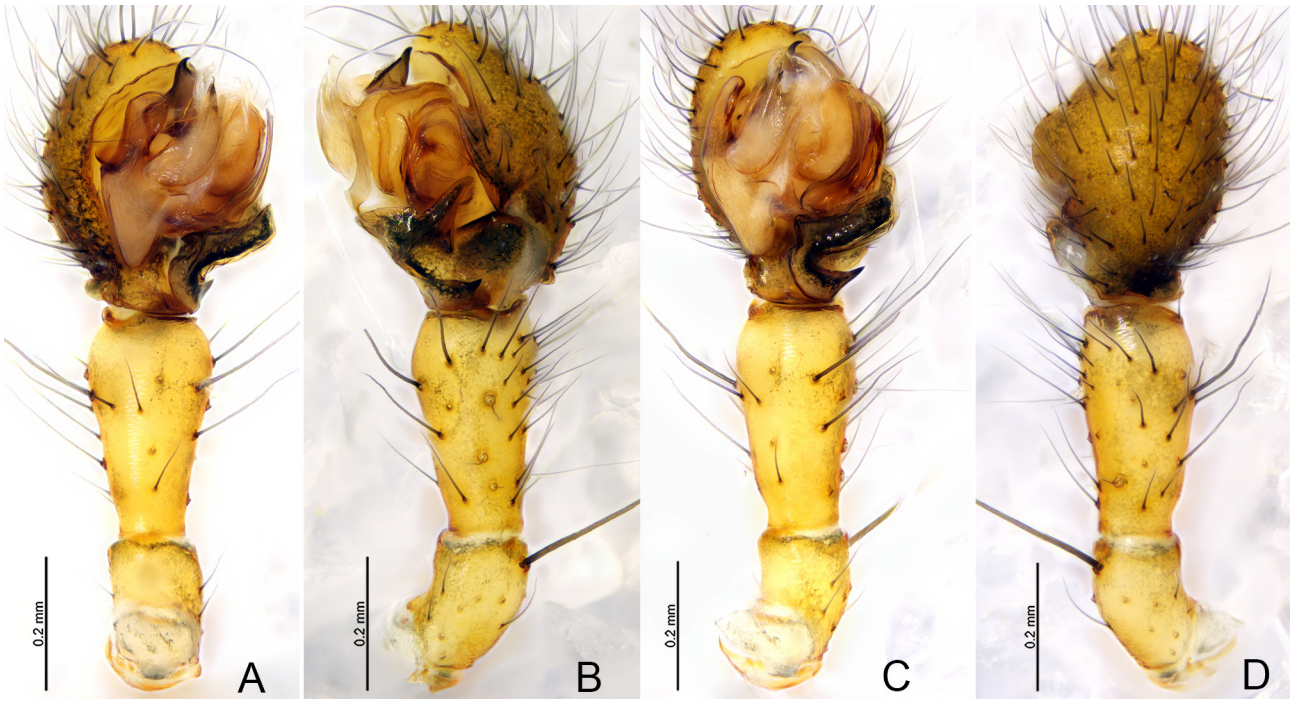


FIGURE 105. *Himalaphantes azumiensis* (Oi, 1979), male. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

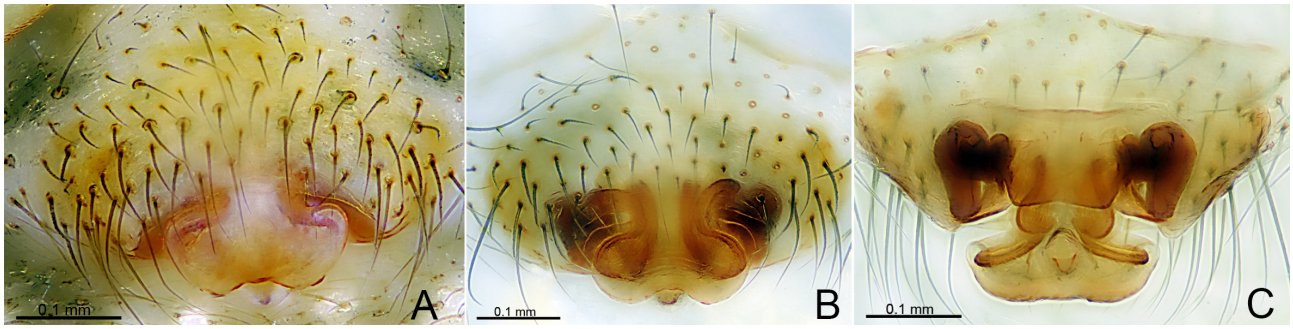


FIGURE 106. *Himalaphantes azumiensis* (Oi, 1979), female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

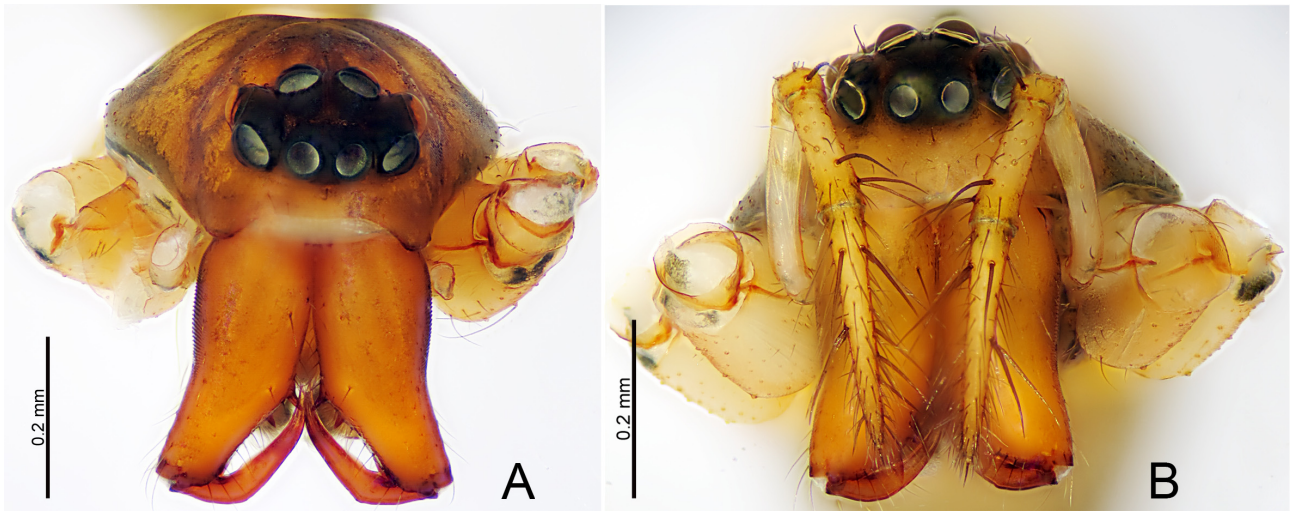


FIGURE 107. *Himalaphantes azumiensis* (Oi, 1979), male (A) and female (B). **A**, **B** Habitus, frontal view.

Genus *Houshenzinus* Tanasevitch, 2006 (厚畛蛛属)

Type species. *Houshenzinus rimosus* Tanasevitch, 2006.

Remark. *Houshenzinus* comprises three species distributed in China (WSC 2024).

Houshenzinus rimosus Tanasevitch, 2006 (多裂厚畛蛛)

Figures 109–111, 312

Houshenzinus rimosus Tanasevitch, 2006b: 292, figs 45–50 (♂); Song & Li 2008c: 92, figs 19–32 (♂♀).

Material examined. 1♂, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg.

Distribution. China (Hubei, Shaanxi and Sichuan Provinces, Fig. 312).

Genus *Hylyphantes* Simon, 1884 (钻头蛛属)

Type species. *Erigone nigrita* Simon, 1881; gender masculine.

Remark. *Hylyphantes* comprises five species (including one species from males) distributed across Holarctic (WSC 2024).

Hylyphantes graminicola (Sundevall, 1830) (草间钻头蛛)

Figures 112–114, 307, 308, 312, 315

Hylyphantes graminicola Roberts 1987: 42, fig 12b (♂♀); Irfan *et al.* 2022: 132, figs 151A–D, 152A–C, 153A–D (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♀11♂, **CHINA**, **Chongqing:** Nanchuan Co., Dayou Town, 28.997361°N, 107.33591°E, 1021 m, 13.VIII.2015, X.J. Peng *et al.* leg.; 1♂, Nanchuan Co., Touda Town, Banxi, 28.93711°N, 107.20238°E, 1028

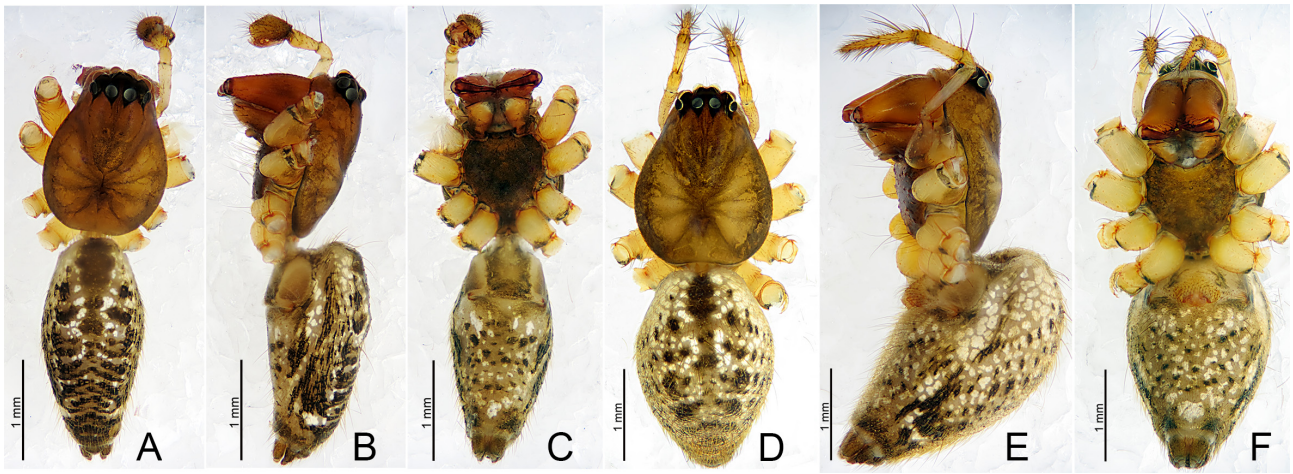


FIGURE 108. *Himalaphantes azumiensis* (Oi, 1979), male (A–C) and female (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

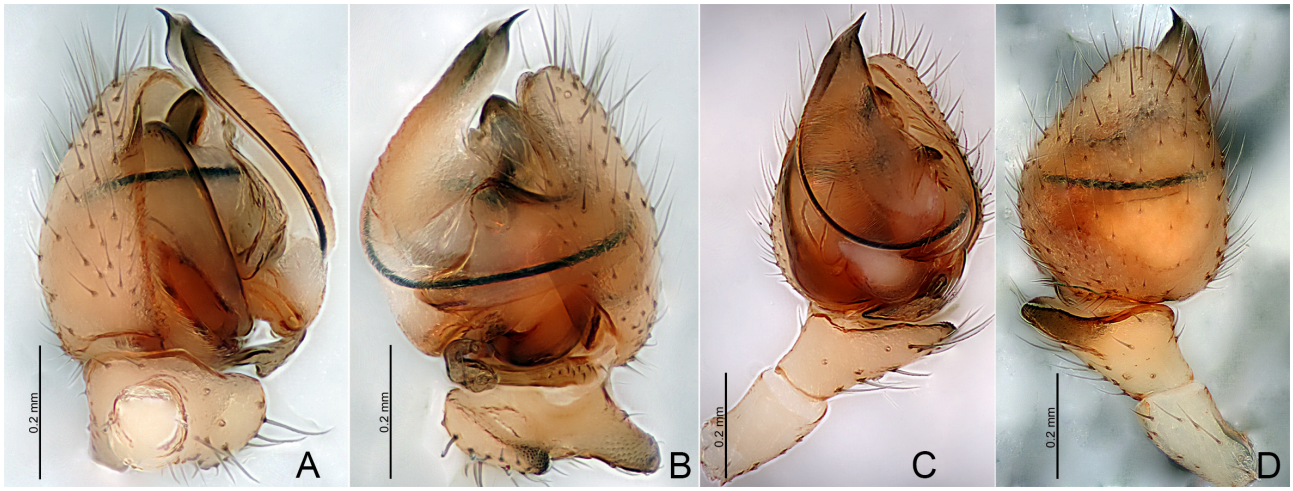


FIGURE 109. *Houshenzinus rimosus* Tanasevitch, 2006, male. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

m, 16.VIII.2015, X.J. Peng *et al.* leg; 1♀, Nanchuan Co., Jinfu Mountain, Xi ShiguoVill., Yu Jiaba, 29.07436°N, 107.07204°E, 638 m, 18.VIII.2015, X.J. Peng *et al.* leg.; **Guizhou Prov.:** 2♂3♀, Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 27.98810°N, 108.78313°E, 865 m, 05.XI.2017, T. Tian & D.Q. Li leg.; 8♂3♀, Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 28.00130N, 108.80578E, 1160 m, 06.IX.2017, G.C. Zhou leg.; 1♂, Shimen Co., Huping Mountain, Jinban Mountain Vill., 30.00013°N, 110.05099°E, 337 m, 14.VI.2014, C. Wang *et al.* leg.; **Hubei Prov.:** 4♀, Xuanen Co., Zhang Tanhe Township, Mahuping Vill., 29.97436°N, 109.582645°E, 509 m, 05.V.2016, W. Liu *et al.* leg.; 1♂1♀, Xuanen Co., Shadaogou Town, Qizimei Mountain, 29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu *et al.* leg.; **Hunan Prov.:** 2♀1♂, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.10046°N, 112.66057°E, 209 m, 12.XI.2017, G.C. Zhou leg.; 1♀, Ningxiang Co., Huaminglou Town, Tanzi Vill., 28.032005°N, 112.640872°E, 72 m, 09.V.2017, G.C. Zhou *et al.* leg.; 1♀, Changde City, Sangzhi, Badagong Mountain Co., Tianping Mountain, 29.78856°N,

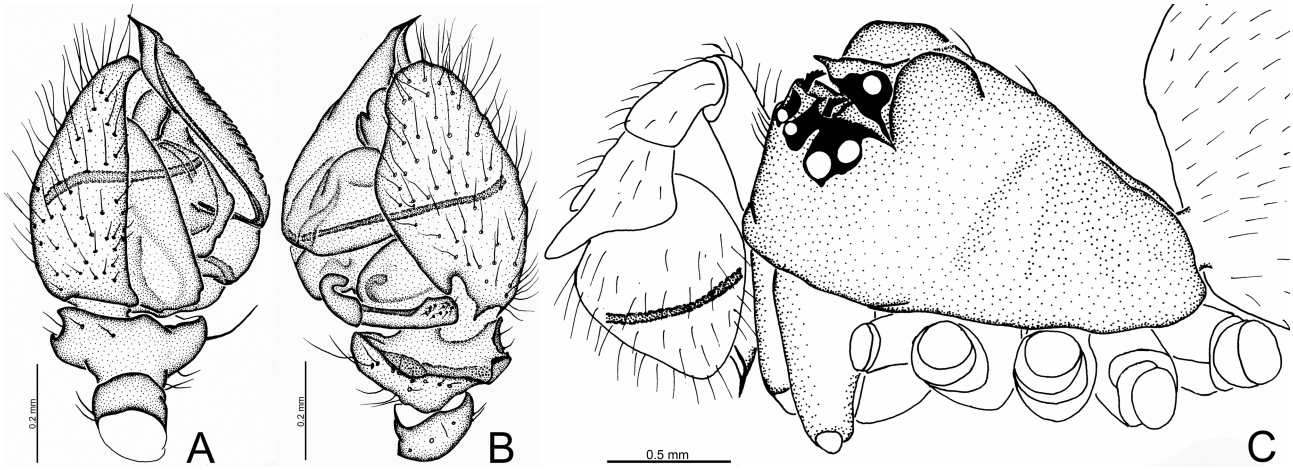


FIGURE 110. *Houshenzinus rimosus* Tanasevitch, 2006, male. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Habitus, lateral view.

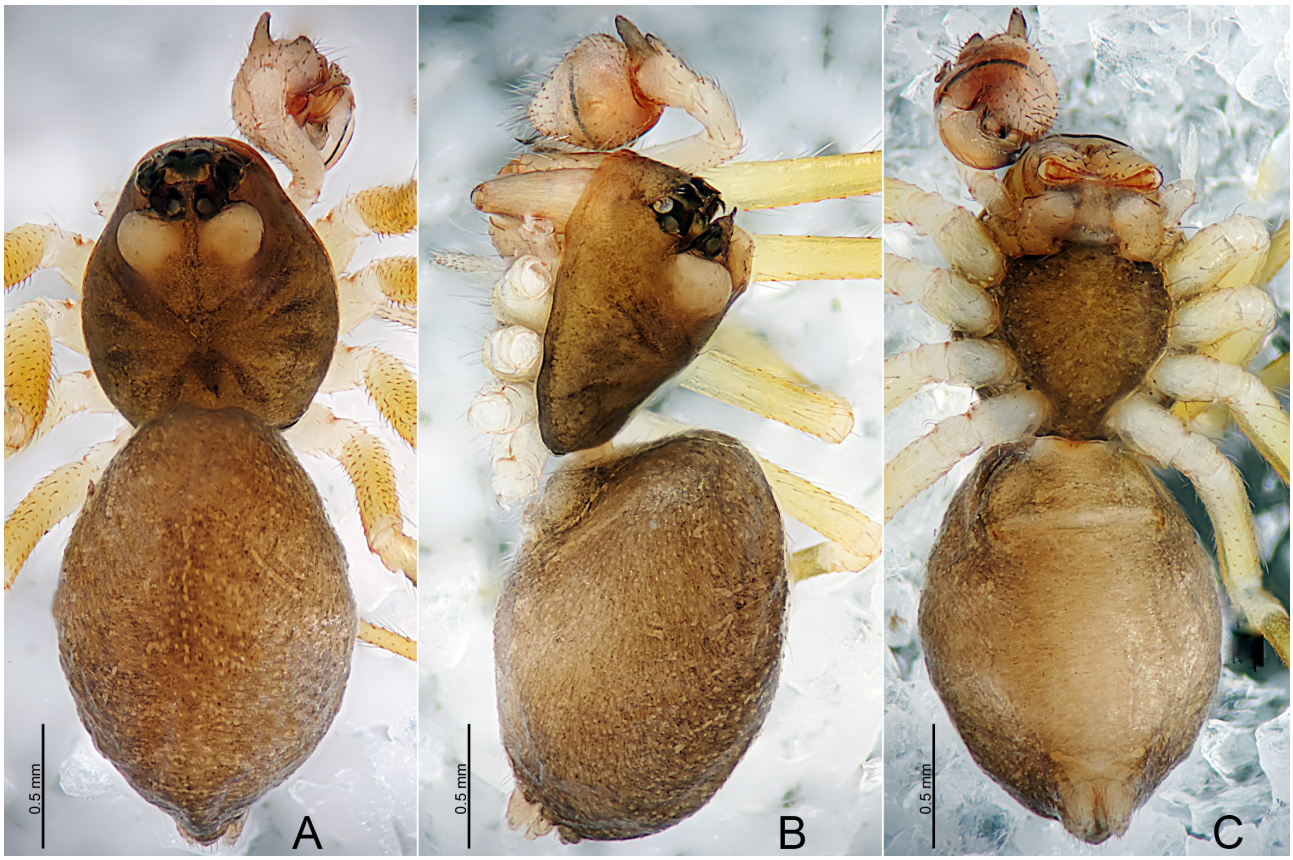


FIGURE 111. *Houshenzinus rimosus* Tanasevitch, 2006, male. **A** Habitus, dorsal view; **B** Habitus, lateral view; **C** Habitus, ventral view.

110.06751°E, 1348 m, 27.X.2014, C. Wang *et al.* leg.; 1♀, Huaihua City, Huitong Co., Suyu Park Lingcheng Town, 26.79819°N, 109.59819°E, 288 m, X.J. Peng *et al.* leg.; 2♂2♀, Huaihua City, Qianxi Co., 28.86006°N, 110.45183°E, 420 m, 08.VIII.2017, X.J. Peng *et al.* leg.

Distribution. Europe, Russia (Europe to Far East), China (Anhui, Fujian, Chongqing, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Ningxia, Qinghai, Shaanxi, Shandong, Shanghai, Shanxi, Sichuan, Taiwan, Xinjiang, Yunnan and Zhejiang Provinces, Figs 307, 308, 312, 315), Korea, Japan, Myanmar, Laos, Thailand, Vietnam.

Genus *Indophantes* Saaristo & Tanasevitch, 2003 (印蛛属)

Type species. *Indophantes kalimantanus* Saaristo & Tanasevitch, 2003; gender masculine.

Remark. *Indophantes* comprises 12 species (including three species from males and one with females) distributed in China, India, Malaysia (Borneo), Nepal Indonesia (Sumatra) and Pakistan (WSC 2024).

Indophantes wushanensis Irfan, Wang & Zhang, 2023 (巫山印蛛)

Figures 115–117, 307, 312

Indophantes wushanensis Irfan, Wang & Zhang, 2023b: 17, figs 13A–D, 14A–B, 15A–D, 16A–B (♂♀).

Material examined. 2♂6♀, **CHINA, Chongqing,** Pengshui Co., Mowei MSS, 29.16079°N, 108.03732°E, 1564 m, 26.VII.2017, M. Irfan & G.C. Zhou leg.; 1♀, Pengshui Co., Mowei MSS, 29.195172°N, 108.056197°E, 1476 m, 24.VII.2017, M. Irfan & G.C. Zhou leg.; 2♂2♀, Pengshui Co., Mowei MSS, 29.18643°N, 108.050811°E, 1568 m, 25.VII.2017, M. Irfan & G.C. Zhou leg.; 1♀, Pengshui Co., Mowei MSS, 29.19612°N, 108.04788°E, 1458 m, 26.VII.2017, M. Irfan & G.C. Zhou leg.; **Hubei Prov.:** 1♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Chongqing, Hubei, Figs 307, 312).



FIGURE 112. *Hylyphantes graminicola* (Sundevall, 1830). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

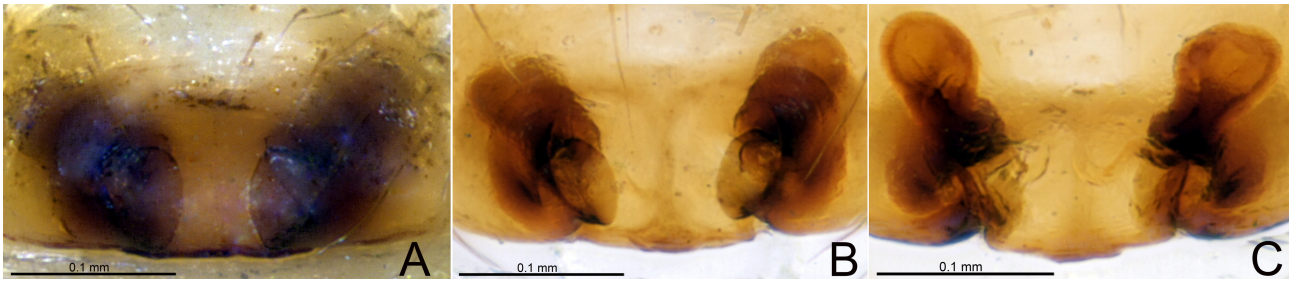


FIGURE 113. *Hylyphantes graminicola* (Sundevall, 1830). **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

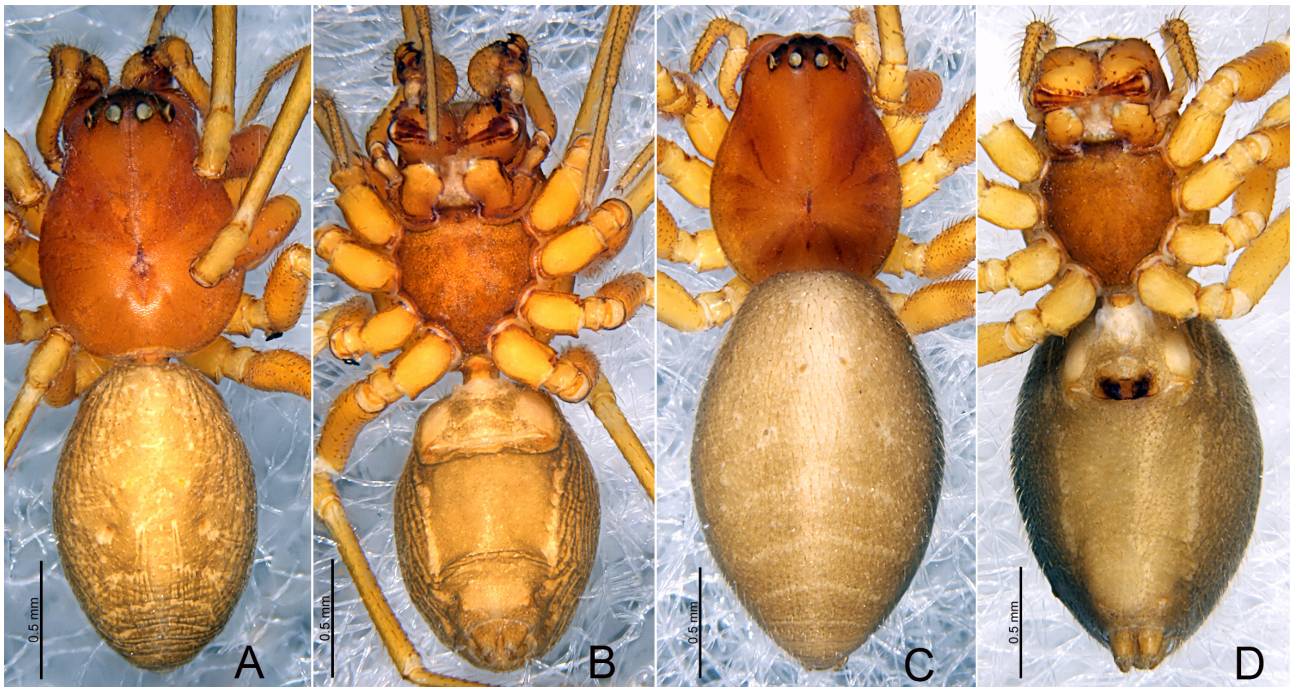


FIGURE 114. *Hylyphantes graminicola* (Sundevall, 1830), male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

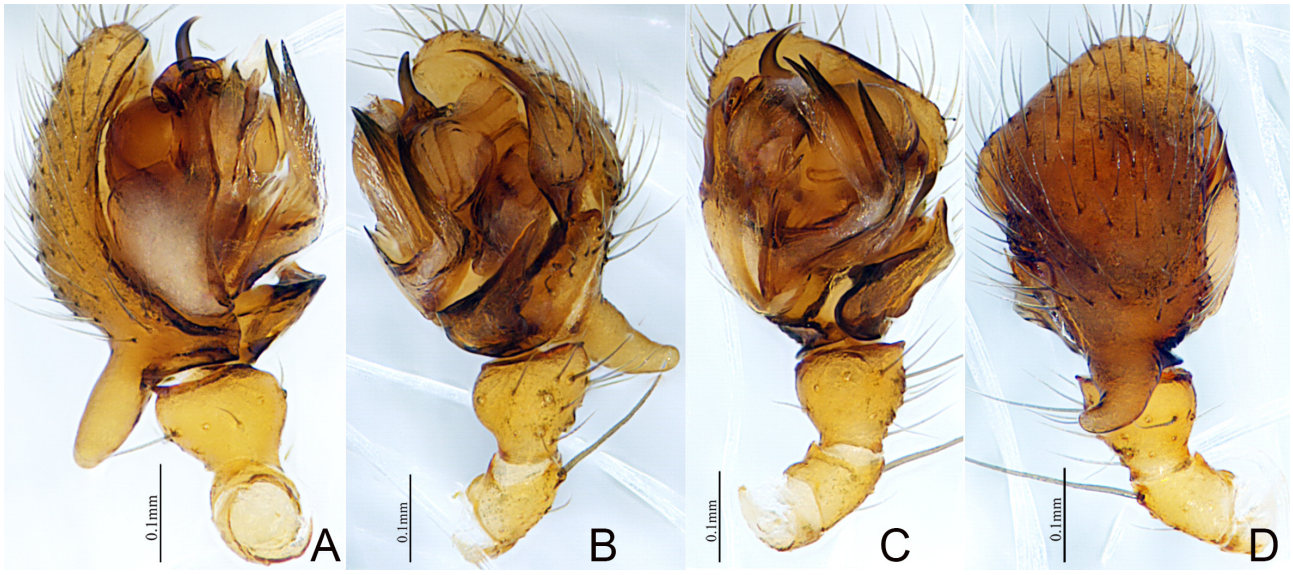


FIGURE 115. *Indophantes wushanensis* Irfan, Wang & Zhang, 2023, male. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

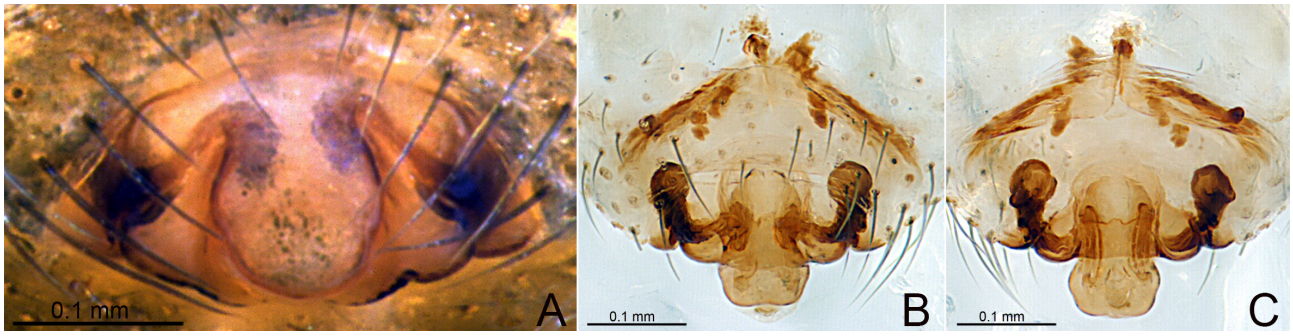


FIGURE 116. *Indophantes wushanensis* Irfan, Wang & Zhang, 2023 female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

Genus *Kaestneria* Wiehle, 1956 (长指蛛属)

Type species. *Linyphia dorsalis* Wider, 1834; gender feminine.

Remark. *Kaestneria* comprises seven species (including three species known from males and one from females) distributed in China, Europe, Indonesia (Sumatra, Belitung Is.) Japan, Mongolia, North America and Russia (Europe to South Siberia and Far East) (WSC 2024).

Kaestneria bicultrata Chen & Yin, 2000 (双刺长指蛛)

Figures 118–120, 315

Kaestneria bicultrata Chen & Yin, 2000: 88, figs 17–20 (♀); Yin *et al.* 2012: 502, figs 233a–d (♀); Zhao & Li 2014: 27, figs 47A–D, 48A–E, 49A, B (♂).

Material examined. 1♂1♀, **CHINA, Hunan Prov.:** Liuyang City, Mudu Vill., Daweishan NFP, 28.43416°N, 114.04668°E, 315 m, 13.I.2018, G.C. Zhou *et al.* leg.

Distribution. China (Hunan and Yunnan Provinces, Fig. 315), Indonesia (Sumatra, Belitung Is.)

Lenis Irfan, Zhang & Peng, gen. n. (柔蛛属)

Figures 121–124, 313

Type species: *Lenis longiabdominis* **sp. n.**

Etymology. The genus name is derived from Latin adjective "*lenis*" meaning "soft" referring to the embolus not sclerotized in male palp. Gender masculine.

Diagnosis. The new genus is closely related to *Linyphia* and *Microlinyphia* in having the similar paracymbium; lamella with two to three projections and the spiral ducts in epigyne (Figs 121A–D, 122A, B, 123A–D; Helsdingen 1969, figs 21–28; Helsdingen 1970, figs 1–6), but it can be distinguished by the terminal apophysis reduced, hidden on unexpended palp same as in *M. pusilla* (Figs 121A–D, 122A, B; vs. conspicuous, distinct and prominently visible on unexpended palp in *L. triangularis*). Embolus small similar as in *L. triangularis* (Figs 121A, B, D, 122A, B; vs. long, whip-like in *M.*

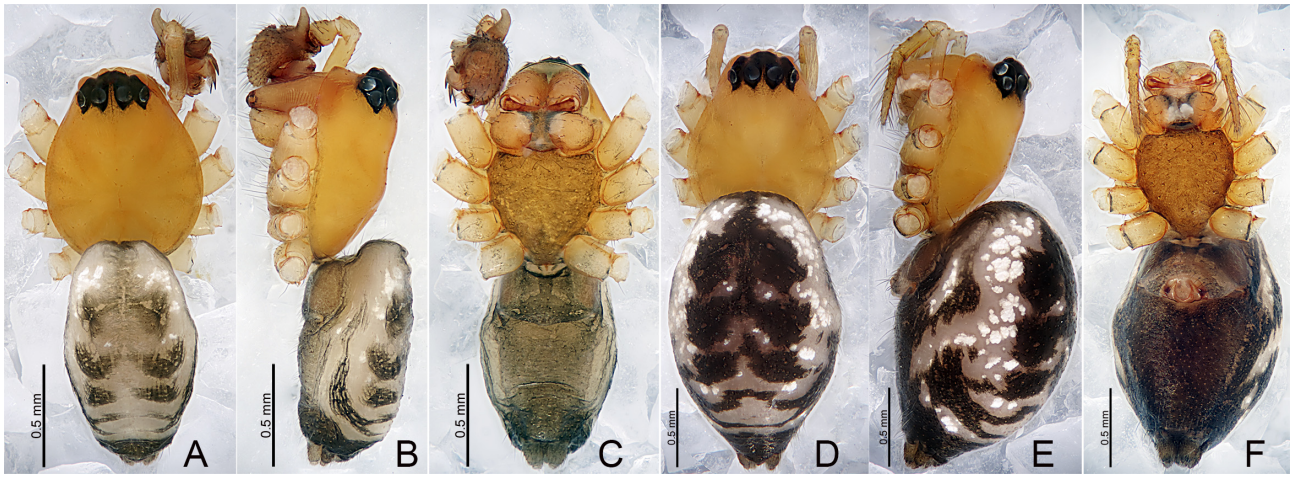


FIGURE 117. *Indophantes wushanensis* Irfan, Wang & Zhang, 2023 male (A–C) and female (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.



FIGURE 118. *Kaestneria bicultrata* Chen & Yin, 2000 male. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

pusilla). Epigyne with broad median plate, ventral socket absent in scape in new genus (Figs 123A–D; vs. scape with ventral socket both in *Linypia* and *Microlinyphia*).

Description. Same as for type species.

Composition. *Lenis* **gen. n.** belongs to the subfamily Linyphiinae and is erected here as a monotypic genus to accommodate *L. longiabdominis* **sp. n.**.

Distribution. Known only from the type locality (Fig. 313).

***Lenis longiabdominis* Irfan, Zhang & Peng, sp. n. (长腹类蛛)**

Figures 121–124, 313

Types. Holotype ♂, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.33400°N, 110.42625°E, 1340 m, 28.IV.2016, W. Liu *et al.* leg. **Paratypes:** 14♂1♀, with same data as for holotype; 2♂1♀, Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg.; 1♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1710).

Etymology. The specific epithet is derived from the Latin adjective "*longus*" meaning "long" and noun "*abdomen*" in genitive case, referring to the long opisthosoma.

Diagnosis. See diagnosis of the genus.

Description. Male (holotype, Figs 122C, 124C). Total length: 4.47. Carapace 1.69 long, 1.13 wide, yellowish brown, cervical, fovea and radial grooves distinct.

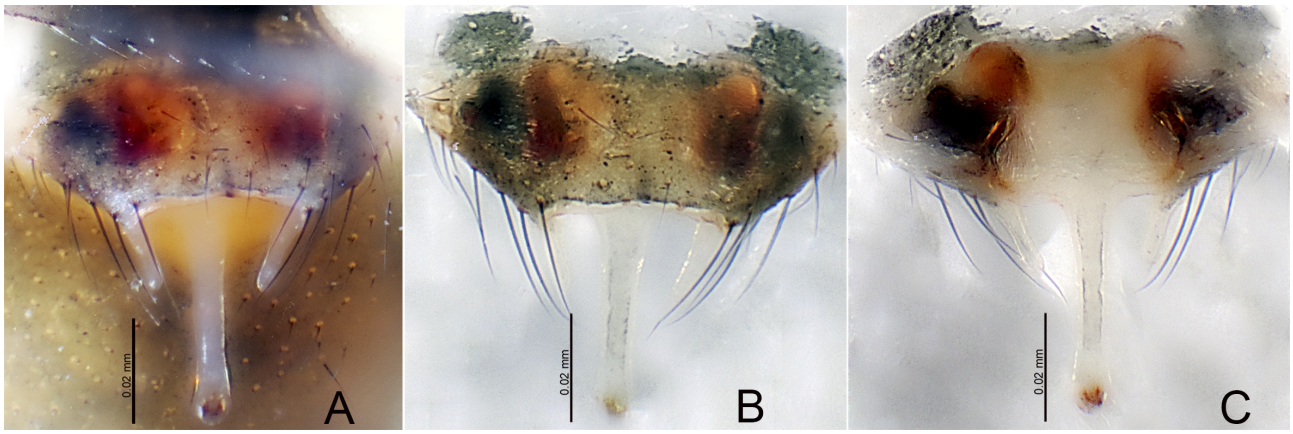


FIGURE 119. *Kaestneria bicultrata* Chen & Yin, 2000, female. **A** Epigyne, ventral view; **B** Epigyne, lateral view; **C** Vulva, dorsal view.

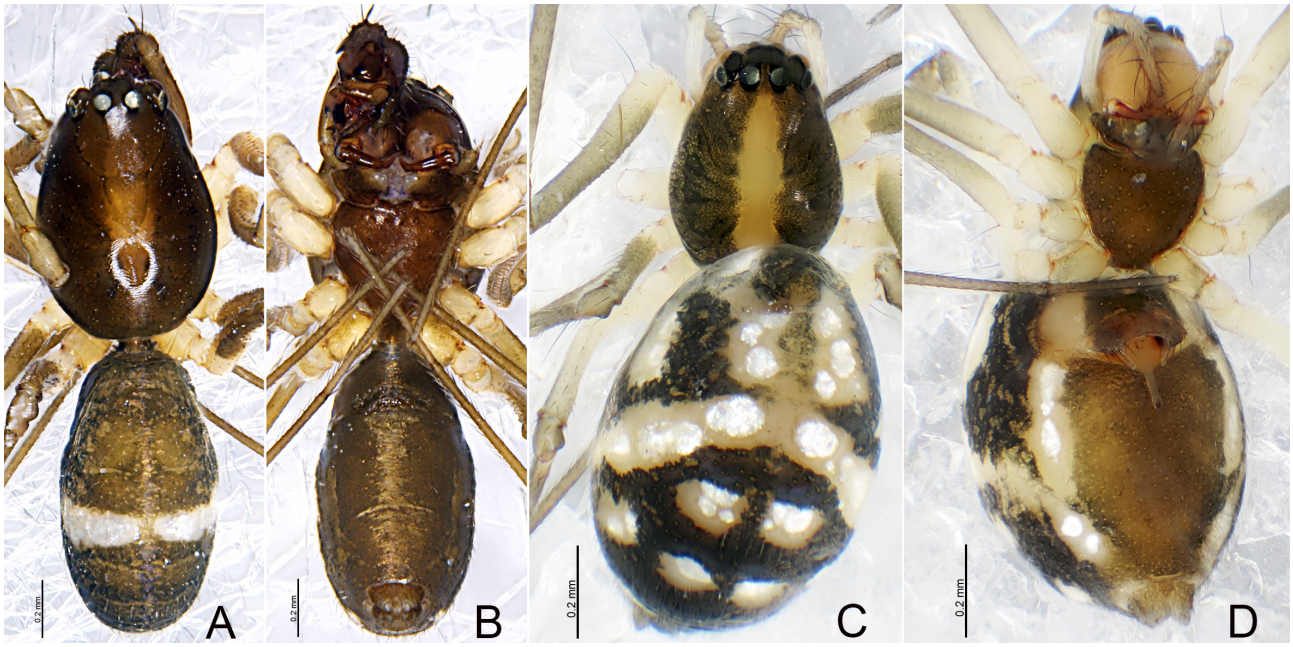


FIGURE 120. *Kaestneria bicultrata* Chen & Yin, 2000, male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

Clypeus 0.41 high. Chelicerae dorsal margin with small outgrowths provided with setae, with five promarginal and five retromarginal teeth. Sternum longer than wide, yellow with microsetae, mid ventrally with round black patch. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.07, ALE 0.09, PME 0.07, PLE 0.07, AME–AME 0.05, PME–PME 0.09, AME–ALE, 0.09, PME–PLE 0.10, AME–PME 0.13, ALE–ALE 0.48, PLE–PLE 0.52, ALE–PLE contiguous. Length of legs: I 17.15 (4.16, 4.99, 5.92, 2.08), II 12.53 (3.28, 3.55, 4.12, 1.58), III 6.59 (1.81, 1.85, 2.03, 0.90), IV 10.01 (2.84, 2.74, 3.29, 1.14). TmI 0.78, TmIV 0.82. Tibial spine formula: 2-2-2-2. Opisthosoma 2.78 long, 0.86 wide, cylindrical, pale to yellowish, with alternative brown and irregular white patches followed by black patch on lateral side; ventral side pale with few irregular white patches and posteriorly with a patch of fine fine setae near the base of spinnerets.

Palp (Figs 121A–D, 122A, B): Femur almost equals to the collective length of patella, tibia and cymbium. Patella shorter than tibia, dorsally with a long thick spine. Tibia conic, with two retrolateral and one dorsal trichobothria, with several long spines; cymbium unmodified, oval in dorsal view; proximal part of paracymbium (PC) somewhat rectangular with several spines, distal arm long, transparent with protruding tip; tegulum (T) with rounded protrusion as tegular apophysis on latero-apical margin pointing in anterior direction; distal suprategular apophysis (DSA) tongue-like, dorsal tip hook-shaped. Lamella with five apophyses. Terminal apophysis (TA) reduced, thumb-shaped, barely seen on unexpended palp. Median membrane (MM) finger-like, transparent. Embolus (E) simple, distal part curved.

Female (one of the paratypes, Figs 124D, E): Total length: 4.58. Carapace 1.50 long, 1.06 wide, pale, cervical, fovea and radial grooves distinct. Clypeus 0.30 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, pale with microsetae, mid ventrally with round black patch. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.08, ALE 0.09, PME 0.09, PLE 0.09, AME–AME 0.04, PME–PME 0.06, AME–ALE, 0.06, PME–PLE 0.08, AME–PME 0.10, ALE–ALE 0.42, PLE–PLE 0.45, ALE–PLE contiguous. Length of legs: I 11.19 (2.95, 3.25, 3.36, 1.63), II 9.23 (2.48, 2.66, 2.75, 1.34), III 5.61 (1.64, 1.59, 1.57, 0.81), IV 7.12 (2.39, 2.22, 1.47, 1.04). TmI 0.73, TmIV 0.69. Tibial spine formula: 2-2-2-2. Opisthosoma 3.08 long, 1.43 wide, cylindrical, all other morphological character same as in male, except pale to dusky grey in color.

Epigyne (Figs 123A–D): Scape (SC) protruding, robust, longer than wide, ventral socket absent. Copulatory openings (CO) narrow, present posteriorly. Anterior wall mid ventrally with a tuft of thick spines. Spiral ducts (SD) with 2.5 turns; turning points (TP) and spermathecae present at apex anteriorly; spermathecae (S) present anteriorly at the apex of spiral ducts, pointing away from each other.

Distribution. Known only from the type locality (Hubei Province, Fig. 313).

Genus *Lepthyphantes* Menge, 1866 (斑皿蛛属)

Type species. *Lepthyphantes muscicola* Menge, 1866; gender masculine.

Remark. *Lepthyphantes* comprises 164 species (including 62 species known from females and 17 species from males) distributed worldwide (Europe to South Siberia and Far East) (WSC 2024).

Note. Both of the new species described here belong to *Lepthyphantes* s.lat. and not to *Lepthyphantes* s.str. sensu Saaristo & Tanasevitch, 1996b: 176 (WSC 2024).

Lepthyphantes ellipticus Irfan, Zhang & Peng, sp. n. (椭圆斑皿蛛)

Figures 125–127, 313

Types. Holotype ♂ (HNU–HB2016–04–30), **CHINA, Hubei Prov.:** Xuanen Co., Shadaogou Town, Qiyimei Mountain Nature Reserve, 29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu et al. leg. **Paratypes:** 1♂1♀, with same data as for holotype (HNU–HB2016–04–30).

Etymology. The specific epithet is derived from the Latin noun "*ellipticus*", meaning "elliptical" and referring to the spermathecae elliptical in epigyne.

Diagnosis. The male of *Lepthyphantes ellipticus* **sp. n.** resembles those of *L. frondeus* **sp. n.**, and *L. longihamatus* in having the similar lamella characteristic and female resembles those of *L. brevihamatus* Bosmans, 1985 in having the similar scape and stretcher (Figs 125A–D, 126A–D, 128A–D, 129A–E; Bosmans 1985, figs 8a–d, Tanasevitch 2014, figs 14–16), but can be distinguished by the proximal cymbial apophysis tail-like in *L. ellipticus* **sp. n.** (Figs 125A–D), vs. somewhat rectangular in *L. frondeus* **sp. n.** and *L. longihamatus*); the distal arm of paracymbium retrolateral margin wave-like in *L. ellipticus* **sp. n.** (Fig. 125B), vs. thumb-shaped with blunt end in *L. brevihamatus* and leaf-shaped in *L. frondeus* **sp. n.**); terminal apophysis tube-shaped, strongly curved in retrolateral view in *L. ellipticus* **sp. n.** (Fig. 125B), vs. cross-fingers shaped in *L. frondeus* **sp. n.** (Fig. 128B) and with J-shaped in *L. longihamatus*). Spermathecae finger-shaped in *L. ellipticus* **sp. n.** (Figs 126A–D), vs. S-shaped oval in *L. brevihamatus*); posterior median plate trapezoid in *L. ellipticus* **sp. n.** (Fig. 126D), vs. ear-lobe shaped in *L. brevihamatus* and rectangular in *L. frondeus* **sp. n.**).

Description. Male (holotype, Figs 127A–C): Total length: 1.96. Carapace 0.94 long, 0.60 wide, yellowish green. Clypeus 0.23 high. Chelicerae with one promarginal and one retromarginal teeth. Sternum longer than wide, blackish brown with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.06, ALE 0.09, PME 0.06, PLE 0.08, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.05, ALE–ALE 0.30, PLE–PLE 0.33, ALE–PLE contiguous. Length of legs: I 5.32 (1.34, 1.71, 1.42, 0.85), II 4.29 (1.09, 1.37, 1.14, 0.69), III 3.13 (0.83, 0.96, 0.86, 0.48), IV 4.29 (1.21, 1.32, 1.14, 0.62). TmI and TmIV present. Tibial spine formula: 2-2-2-2. Opisthosoma 1.02 long, 0.74 wide, oval, dusky grey, dorsally with three

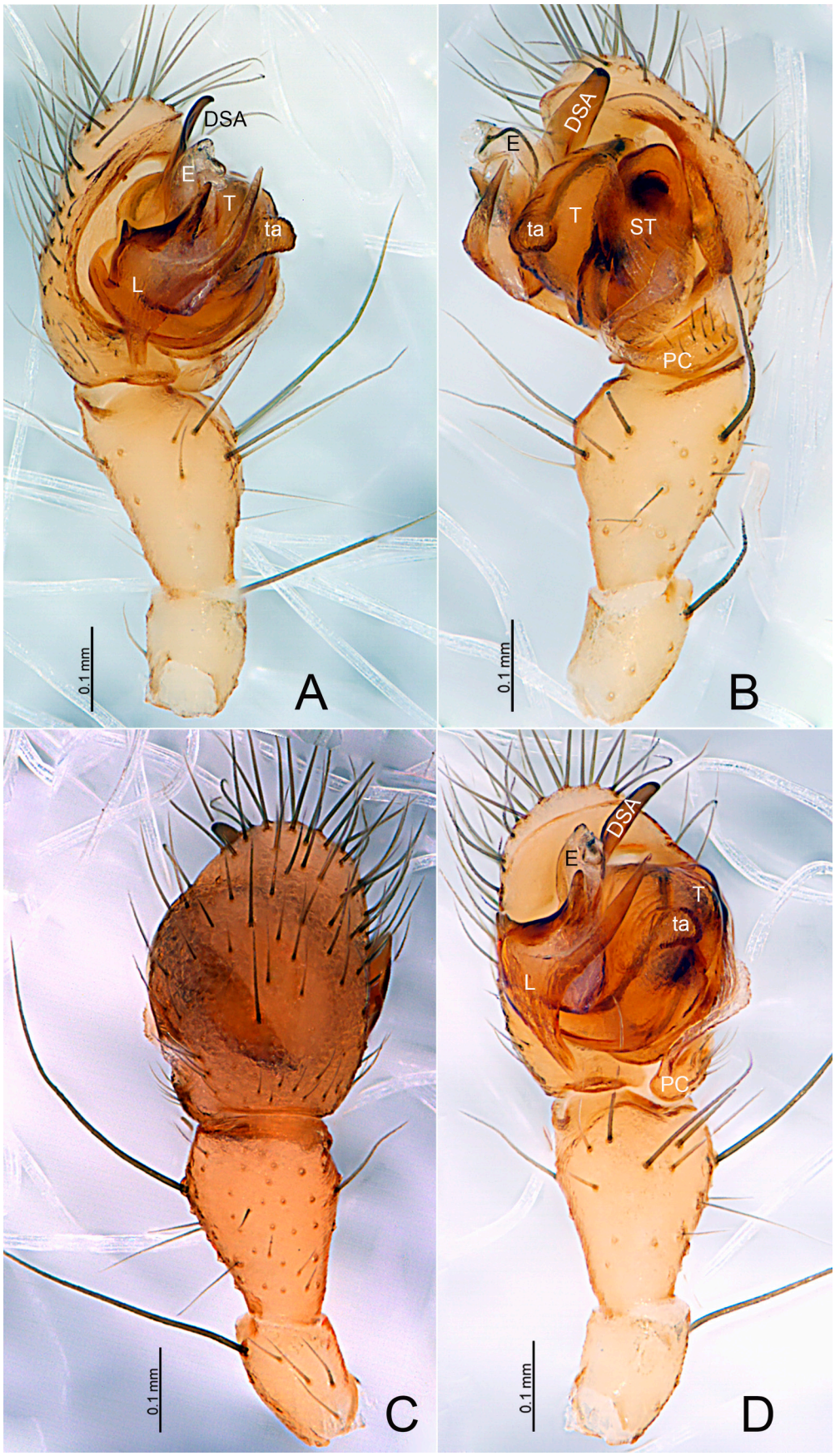


FIGURE 121. *Lenis longiabdominis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; LC—lamell; MM—median membrane; PC—paracymbium; ST—subtegulum; T—tegulum; ta—tegular apophysis.

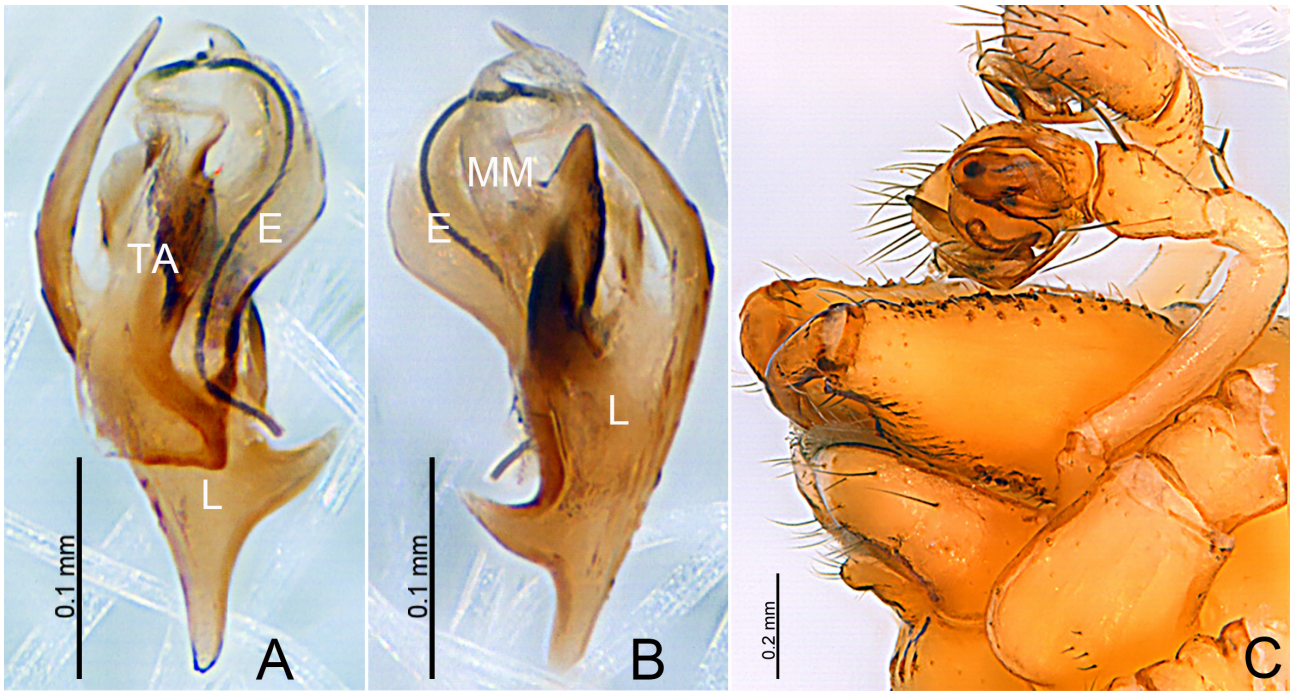


FIGURE 122. *Lenis longiabdominis* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, retrolateral view; **C** Chelicerae, lateral view. Abbreviations: E—embolus; L—lamella; MM—median membrane.

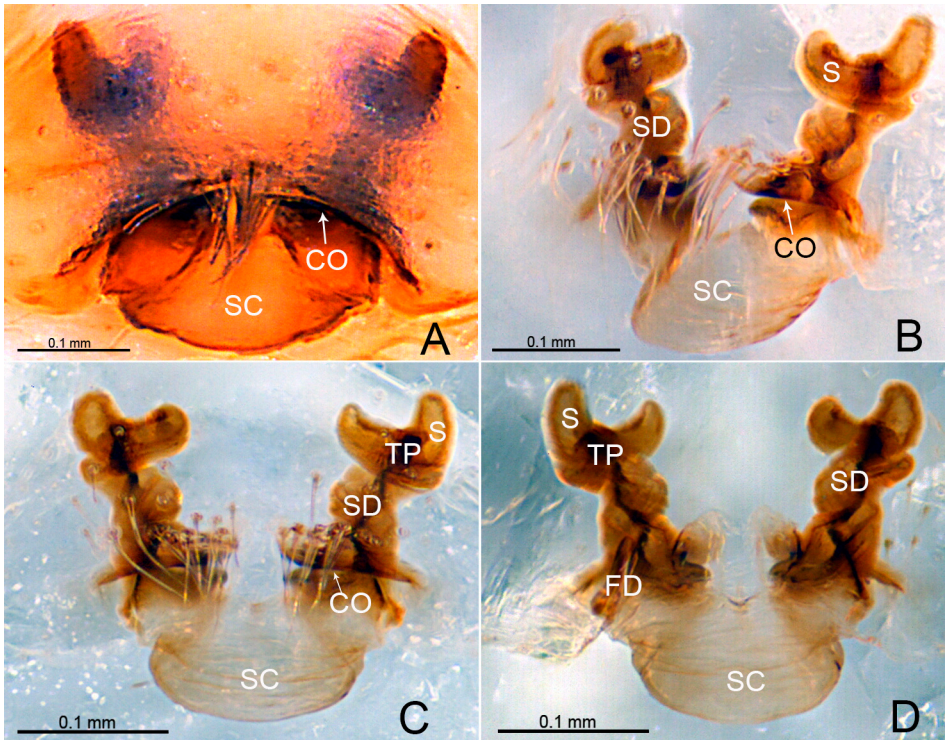


FIGURE 123. *Lenis longiabdominis* **sp. n.**, female paratype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: CO—copulatory opening; EG—entrance groove; FD—fertilization duct; TP—turning point; S—spermatheca; SC—scape; SD—spiral duct; SF—spiral fold.

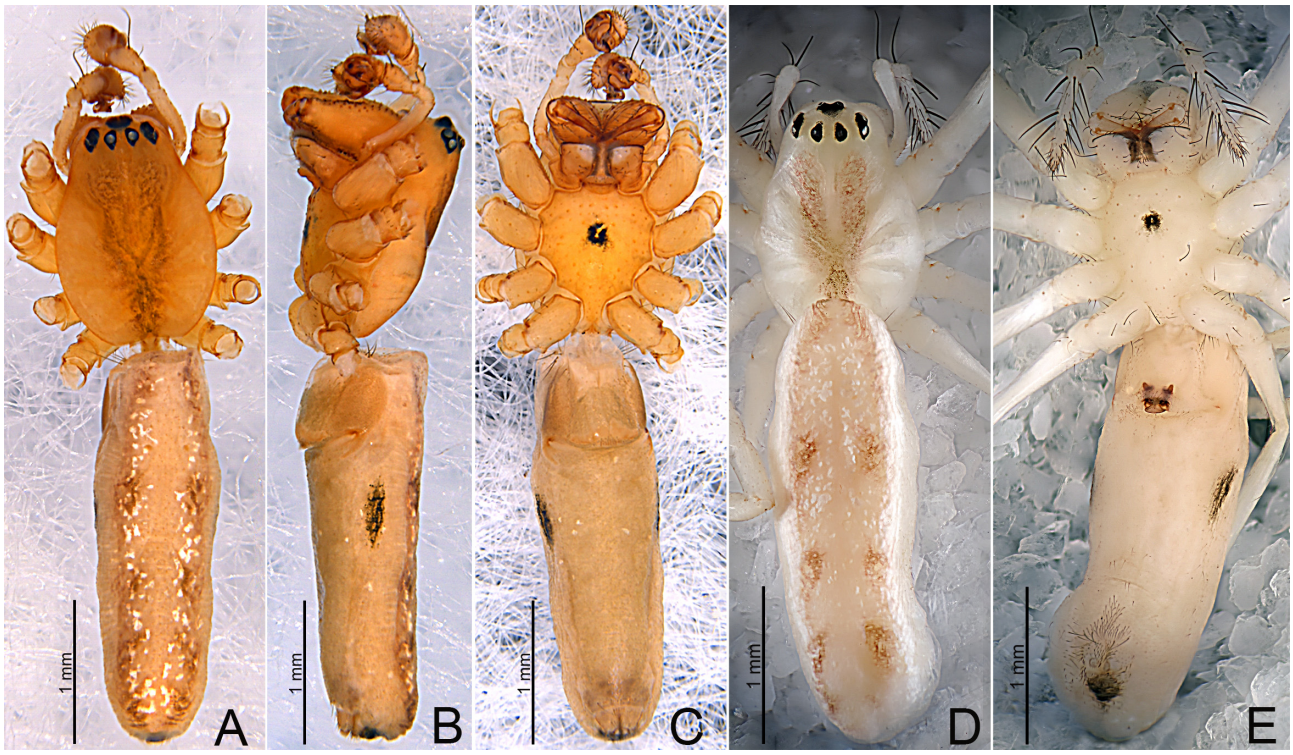


FIGURE 124. *Lenis longiabdominis* **sp. n.**, male holotype (A–C) and female paratype (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

chevrons extending laterally followed by irregular white patches; ventral side brown with a white patch near the base of spinnerets.

Palp (Figs 125A–D): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, with a long dorsal spine. Tibia conic, distal margin with a depression in reterolateral view, with two retrolateral and one dorsal trichobothria; cymbium retrolateral margin with a shallow depression at the base, with a long tubercle as proximal cymbial apophysis (PCA) at the proximal end; paracymbium (PC) basal part wider than long, with five spines, lateral arm with a thumb-shaped projection at lower ventral margin, distal part sclerotized, somewhat triangular, distal arm tip with a knob, retrolateral margin wave-like, with blunt tip. Pit hook (PH) large, ventral part somewhat rectangular with pointed dorsal tip. Radix (R) longer than wide, bean-shaped, with Fickert's gland (fg); terminal apophysis (TA) sclerotized, robust, at the base with a projection, distal end curved. Lamella characteristica (LC) relatively sclerotized, curved, pointing towards the terminal apophysis in retrolateral view; embolus proper (EP) attached to the prolateral side of radix, longer than wide, distal part slightly widen, gradually narrow towards apex, with bifurcated tip.

Female (one of the paratypes, Figs 127D–F): Total length: 2.13. Carapace 0.81 long, 0.69 wide, yellowish green. Clypeus 0. 21 high. Chelicerae with five promarginal and three retromarginal teeth. Sternum longer than wide, dark brown with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.06, PLE 0.07, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.06, ALE–ALE 0.28, PLE–PLE 0.31, ALE–PLE contiguous. Length of legs: I 4.53 (1.21, 1.38, 1.17, 0.77), II 3.81 (1.07, 1.21, 0.91, 0.62), III 2.76 (0.88, 0.79, 0.62, 0.47), IV 3.63 (1.06, 1.07, 0.92, 0.58). TmI and TmIV present. Tibial spine formula: 2-2-2-2. Opisthosoma 1.32 long, 0.95 wide, all the other morphological character same as in male, except brownish in color.

Epigyne (Figs 126A–D): Protruding; scape broad, wider than long, with a deep notch distally in ventral view; proximal part of scape (PPS) somewhat quadrate, narrowing anteriorly; stretcher (ST) globular with a socket ventrally; entrance groove (EG) inside lateral pockets; Lateral pockets (LP) ear lobe shaped expanding laterally; posterior median plate (PMP) trapezoid; spermathecae (S) elliptical, long, almost touches the anterior margin of the epigynal plate, situates dorso-mesally.

Distribution. Known only from the type localities (Hubei Province, Fig. 313).

Lepthyphantes frondeus Irfan, Zhang & Peng, sp. n. (叶状斑皿蛛)

Figures 128–130, 307, 313, 315

Types. Holotype ♂, **CHINA, Hunan Prov.:** Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Wenfeng Vill., 29.352935°N, 110.608325°E, 582 m, 23.IV.2016, W. Liu *et al.* leg. **Paratypes:** 1♂2♀, with same data as for holotype male. **Hubei Prov.:** 3♀, Xuanen Co., Wanzhai Township, Banchang Vill., 30.147022°N, 109.612693°E, 721 m, 04.IV.2016, W. Liu *et al.* leg.; **Chongqing:** 1♂1♀,

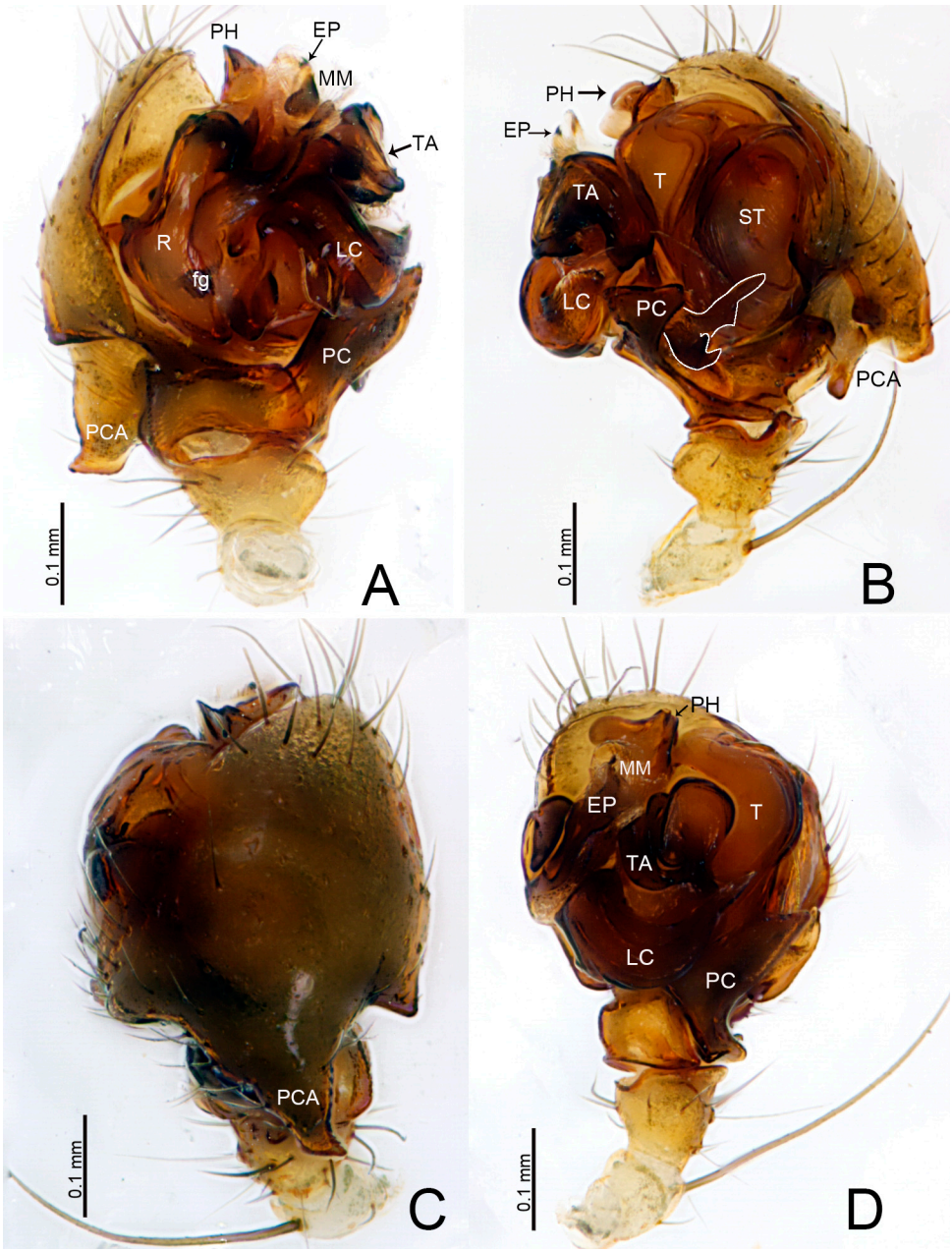


FIGURE 125. *Lepthyphantes ellipticus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: E—embolus; EP—embolus proper; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PCA—proximal cymbial apophysis; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis.

Nanchuan Co., Dayou Town, 28.99736°N, 107.33591°E, 1021 m, 13.VIII.2015, X.J. Peng *et al.* leg. (HNU–CQ–IV–1508).

Etymology. The specific epithet is derived from the Latin adjective "*frondeus*", meaning "leafy" and referring to the leaf-shaped distal arm apex of paracymbium in male palp.

Diagnosis. The male of *Lepthyphantes frondeus* **sp. n.** resembles those of *L. ellipticus* **sp. n.** and *L. longihamatus* in having the similar lamella charactristica and female resembles those of *L. brevihamatus* and *L. ellipticus* **sp. n.** in having the similar scape and stretcher (Figs 128A–E, 129A–D; Bosmans 1985, figs 8a–g), but can be distinguished by the distal arm of paracymbium leaf-shaped in *L. frondeus* **sp. n.** (Fig. 128B), vs. thumb-shaped with blunt end in *L. brevihamatus* and retrolateral margin wave-like in *L. ellipticus* **sp. n.**); terminal apophysis cross-fingers shaped in *L. frondeus* **sp. n.** (Fig. 128A), vs. tube-shaped, strongly curved in retrolateral view in *L. ellipticus* **sp. n.** (Fig. 125B) and with J-shaped in *L. longihamatus*). Spermathecae oval, situates dorso-mesally in *L. frondeus* **sp. n.** (Fig. 129E; S-shaped, present dorso-laterally in *L. brevihamatus* and finger-like in *L. ellipticus* **sp. n.**); posterior median plate rectangular in *L. frondeus* **sp. n.** (Fig. 129D; vs. ear-lobe shaped in *L. brevihamatus* and trapezoid in *L. ellipticus* **sp. n.**).

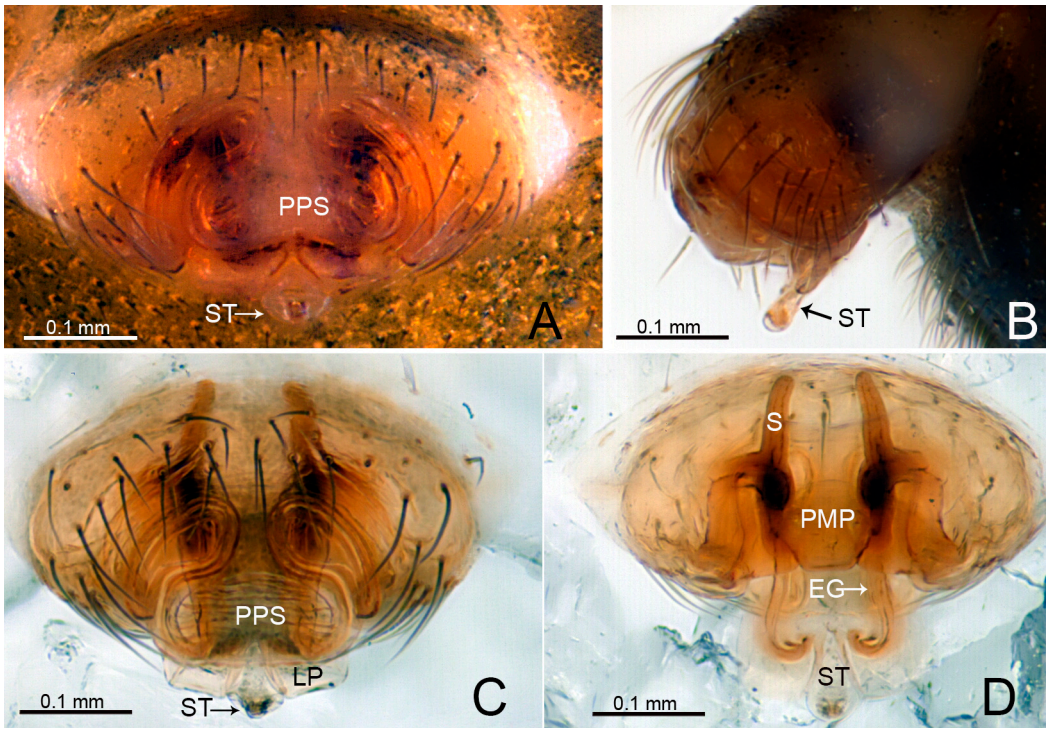


FIGURE 126. *Lepthyphantes ellipticus* **sp. n.**, female paratype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **C** Vulva, dorsal view. Abbreviations: EG—entrance groove; LP—lateral pocket; PMP—posterior median plate; PPS—proximal part of scape; S—spermatheca; ST—stretcher.

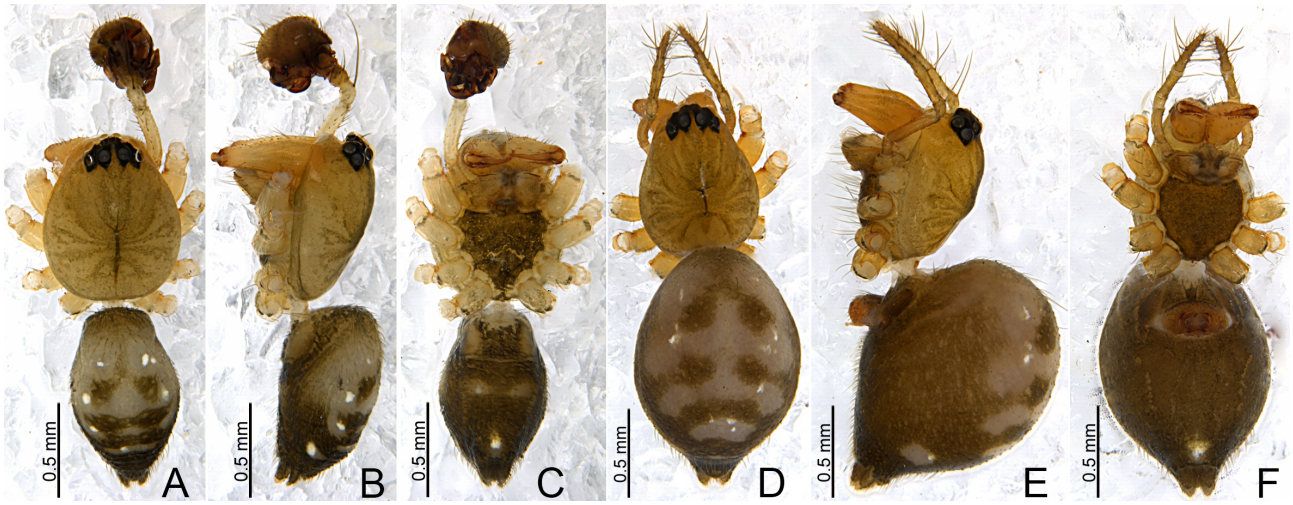


FIGURE 127. *Lepthyphantes ellipticus* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

Description. Male (holotype, Figs 130A–C): Total length: 2.07. Carapace 0.97 long, 0.84 wide, yellowish brown. Clypeus 0.29 high. Chelicerae with one promarginal and two retromarginal teeth. Sternum longer than wide, brownish black with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.06, ALE 0.08, PME 0.08, PLE 0.07, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.04, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.33, PLE–PLE 0.35, ALE–PLE contiguous. Length of legs: I 5.10 (1.23, 1.71, 1.35, 0.81), II 4.26 (1.07, 1.37, 1.13, 0.69), III 3.58 (1.19, 1.01, 0.87, 0.51, 0.51), IV 4.06 (1.16, 1.15, 1.14, 0.61). TmI and TmIV present. Tibial spine formula: 2-2-2-2. Opisthosoma 1.19 long, 0.63 wide, oval, dusky grey, dorsally with brown band followed by four pairs of white patches; lateral side with white patches; ventral side brownish black with a white patch near the base of spinnerets.

Palp (Figs 128A–D): Femur unmodified, almost longer than both patella and tibia. Patella shorter than tibia with a long dorsal spine. Tibia conic, with 2 retrolateral and 1 dorsal trichobothria; proximal cymbial apophysis (PCA) bean-shaped and the other tubele broad with blunt end; cymbium retrolateral margin with a shallow depression at

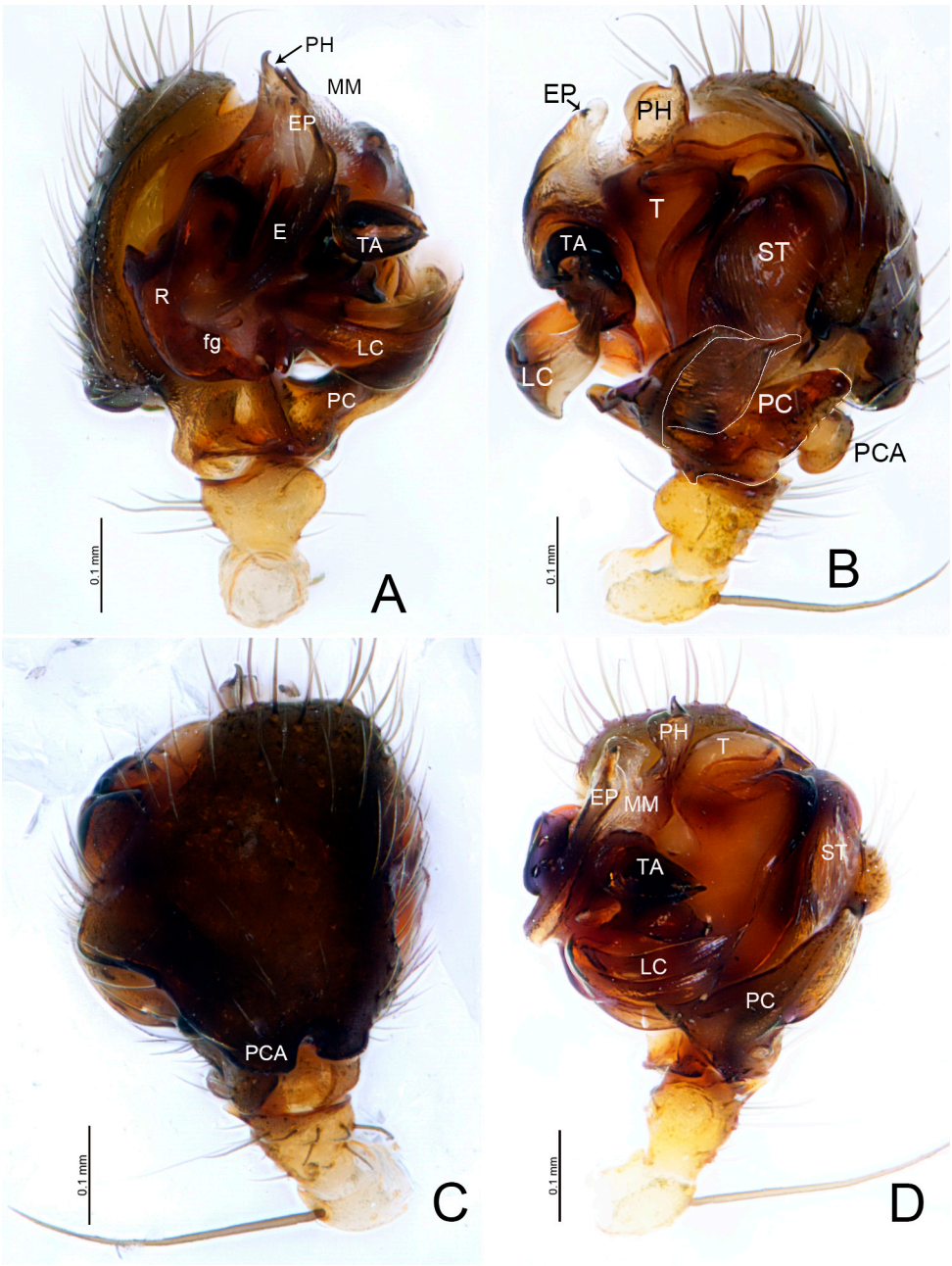


FIGURE 128. *Lepthyphantes frondeus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: E—embolus; EP—embolus proper; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PCA—proximal cymbial apophysis; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis.

the base, proximal cymbial apophysis (PCA) bifurcated at the proximal end; paracymbium (PC) proximal wider than long, with small projection and with fine spines, distal arm leaf-shaped, with finger like tip. The ventral part of the pit hook (PH) broad slightly excavated with narrow hook-shaped dorsal tip. Radix (R) longer than wide with Fickert's gland (fg) present at proximal end; lamella characteristica (LC) relatively sclerotized, curved, longer than wide with pointed end; terminal apophysis (TA) cross-fingers shaped with pointed end; embolus proper almost one and half times longer than the radix.

Female (one of the paratypes, Figs 130D–F): Total length: 1.92. Carapace 0.83 long, 0.66 wide, yellowish brown. Clypeus 0. 24 high. Chelicerae with 5 promarginal and 3 retromarginal teeth. Sternum wider than long, brownish black with microsetae. Eyes, AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.07, PLE 0.06, AME–AME 0.03, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.03, AME–PME 0.07, ALE–ALE 0.27, PLE–PLE 0.30, ALE–PLE contiguous. Length of legs: I 4.35 (1.19, 1.39, 1.06, 0.71), II 3.74 (1.05, 1.17, 0.89, 0.63), III 2.88 (0.93, 0.86, 0.66, 0.43), IV 3.46 (1.11, 1.10, 0.69, 0.56). TmI and TmIV present. Tibial spine formula: 2-2-2-2. Opisthosoma 1.19 long, 0.78 wide, all the other morphological character same as in male except darker in color.

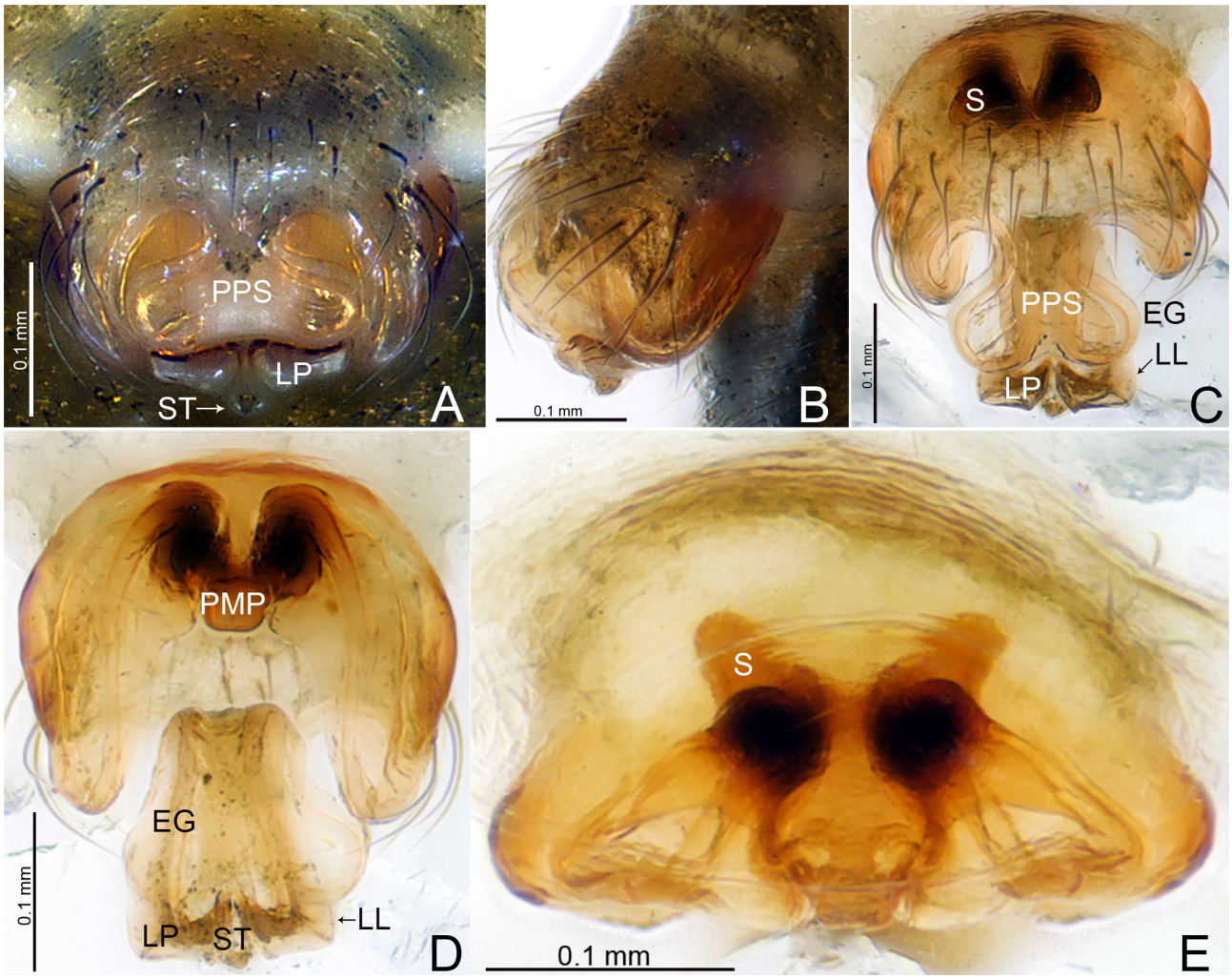


FIGURE 129. *Lepthyphantes frondeus* **sp. n.**, female paratype. **A, C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view; **E** Vulva, anterior view. Abbreviations: EG—entrance groove; LP—lateral pocket; PMP—posterior median plate; PPS—proximal part of scape; S—spermatheca; ST—stretcher.

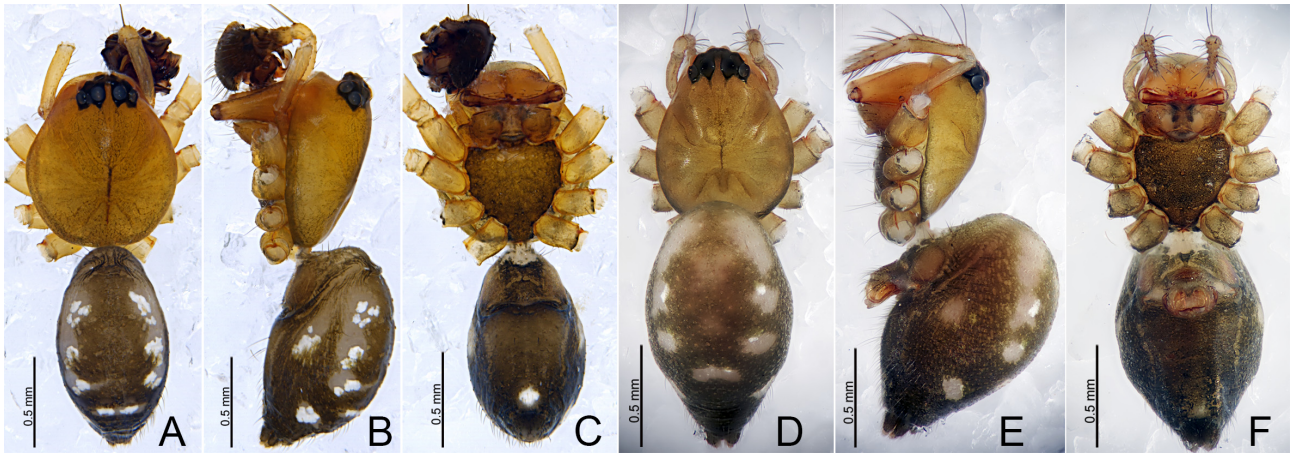


FIGURE 130. *Lepthyphantes frondeus* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

Epigyne (Figs 129A–E): Protruding, scape broad, wider than long, with a deep notch distally in ventral view, proximal part of scape (PPS) oval, narrowing anteriorly; stretcher (ST) relatively small with a socket ventrally; entrance groove (EG) inside lateral pockets; Lateral pockets (LP) earlobe-shaped expanding laterally; posterior median plate (PMP) small, quadrate; spermathecae (S) small, situates dorso-mesally.

Distribution. Known only from the type localities (Chongqing, Hubei and Hunan Provinces, Figs 307, 313, 315).

Genus *Linyphia* Latreille, 1804 (皿蛛属)

Type species. *Araneus triangularis* Clerck, 1757; gender feminine.

Remark. *Linyphia* comprises 72 species (including 43 species known from females and ten from males) distributed worldwide (WSC 2024).

Linyphia songziyuanensis Irfan, Zhang & Peng, sp. n. (送子园皿蛛)

Figures 131, 313

Types. Holotype ♀, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.3406°N, 110.4131°E, 1320 m, 26.IV.2016, W. Liu *et al.* leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Linyphia songziyuanensis* **sp. n.** resembles *L. yangmingensis* (Figs 131A–D; Yin *et al.* 2012, figs 236a–d), but can be distinguished by the dorsal plate projection rectangular in *L. songziyuanensis* **sp. n.** (Figs 131A–C; vs. somewhat triangular); spermathecae located dorso-laterally, pointing away from each other in *L. songziyuanensis* **sp. n.** (Fig. 131D; vs. situates dorso-mesally, pointing towards each other); spiral folds with three and half turns in *L. songziyuanensis* **sp. n.** (Fig. 131D; vs. with one and half turns).

Description. Female (Figs 131E–G): Total length: 4.77. Carapace 1.94 long, 1.35 wide, yellow, fovea, cervical and radial grooves distinct. Clypeus 0.23 high. Chelicerae with five promarginal and four retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.06, ALE 0.11, PME 0.08, PLE 0.11, AME–AME 0.09, PME–PME 0.11, AME–ALE, 0.11, PME–PLE 0.14, AME–PME 0.15, ALE–ALE 0.56, PLE–PLE 0.61, ALE–PLE contiguous. Length of legs: I 10.95 (2.83, 3.21, 3.32, 1.59), II 9.18 (2.51, 2.63, 2.73, 1.31), III 5.60 (1.62, 1.61, 1.54, 0.83), IV 7.15 (2.37, 2.25, 1.43, 1.10). TmI present. Tibial spine formula: 2-2-2-2. Opisthosoma 2.77 long, 1.34 wide, cylindrical, grey with irregular white patches and longitudinal white strip on each side extending posteriorly; ventral side grey with irregular white patches.

Epigyne (Figs 131A–D): Scape (SC) protruding, robust; cavity with a projection of rectangular shaped on each side; copulatory openings (CO) narrow, covered by the lateral walls. Spiral folds (SF) coiled before entering the spermathecae; turning point (TP) and spermathecae present at apex anteriorly; spermathecae (S) oval, present dorso-laterally, pointing away from each other. Fertilization ducts (FD) present postero-laterally.

Male. Unknown.

Distribution. Known only from the type locality (Hubei Province, Fig. 313).

Genus *Mecopisthes* Simon, 1926 (额突蛛属)

Type species. *Erigone sila* O. Pickard-Cambridge, 1873; gender masculine.

Remark. *Mecopisthes* comprises 17 species (including one species known from females and one from males) distributed in Caucasus (Russia), China, Europe, Israel, Japan, Turkmenistan and Turkey (WSC 2024).

Mecopisthes rhomboidalis Gao, Zhu & Gao, 1993 (梭形额突蛛)

Figures 132, 315

Mecopisthes rhomboidalis Gao, Zhu & Gao, 1993: 40, figs 1–2 (♀).

Material examined. 1♀, **CHINA, Hunan**, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.087272°N, 112.67114°E, 125 m, 09.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Hubei and Hunan Provinces, Fig. 315).

Genus *Micrargus* Dahl, 1886 (后沟蛛属)

Type species. *Neriene herbigradus* Blackwall, 1854; gender masculine.

Remark. *Micrargus* Dahl, 1886 comprises 16 species (including two species known from females and one from males) distributed across Holarctic and Uganda (WSC 2024).

Micrargus longiembolus Irfan, Zhang & Peng, sp. n. (长栓后沟蛛)

Figures 133–136, 316

Types. Holotype ♂ (HNU–SCDC–18–02), **CHINA, Sichuan Prov.:** Ganzi Co., Daocheng Co., Xianggelila Town, Yading Vill., Yading Scenic Area, 29.007525°E, 100.26764°N, 3763 m, 03.X.2018, M. Irfan & M. Liao leg. **Paratypes:** 11♂21♀, with same data as for holotype (HNU–SCDC–18–02).

Etymology. The specific epithet is derived from the Latin adjective "*longus*" meaning "long" and the noun "*embolus*" referring to long embolus in male palp typical of this species.

Diagnosis. *Micrargus longiembolus* **sp. n.** resembles

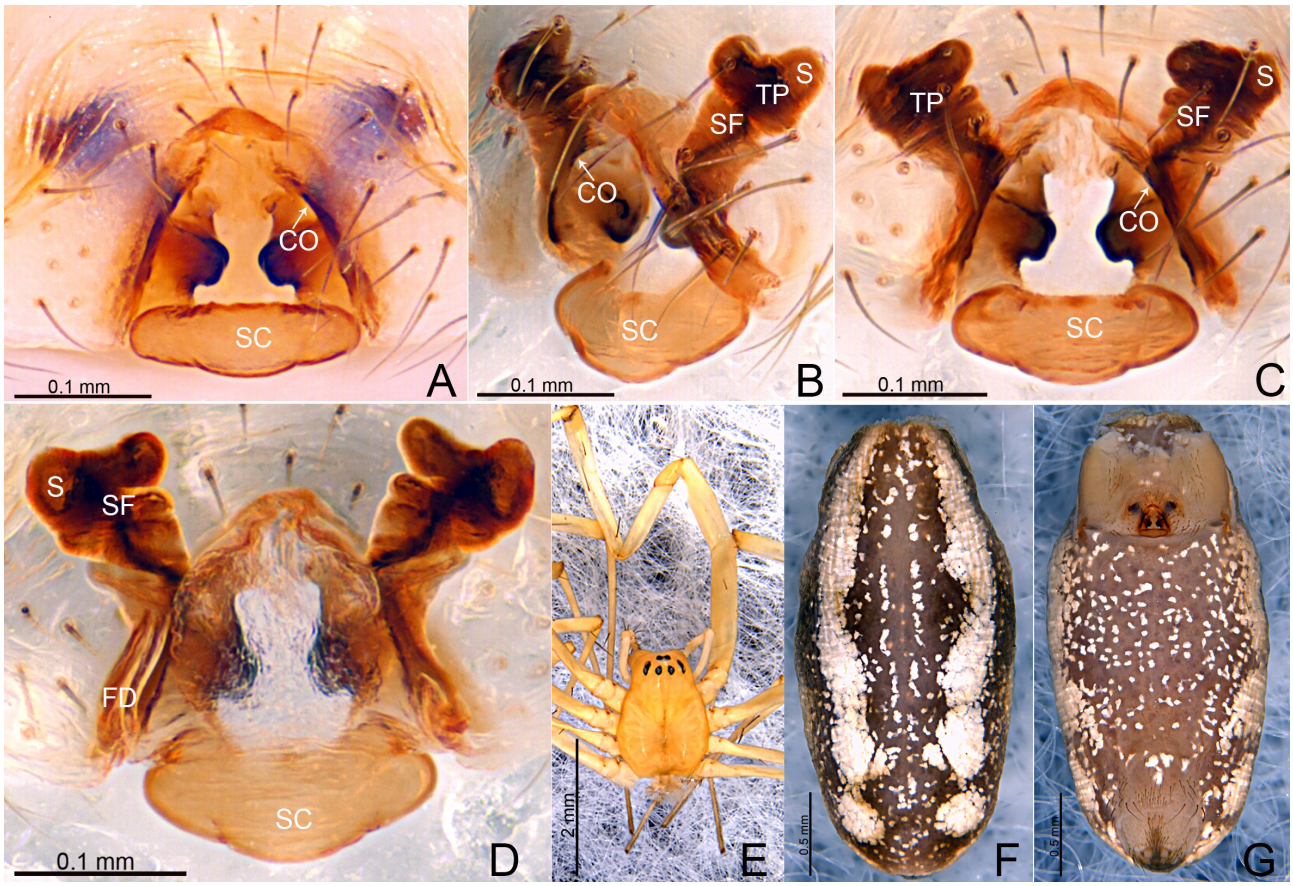


FIGURE 131. *Linyphia songziyuanensis* **sp. n.**, female holotype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view; **E**, **F** Habitus, dorsal view; **G** Opisthosoma, ventral view. Abbreviations: CO—copulatory opening; EG—entrance groove; FD—fertilization duct; TP—turning point; S—spermatheca; SC—scape; SF—spiral fold.

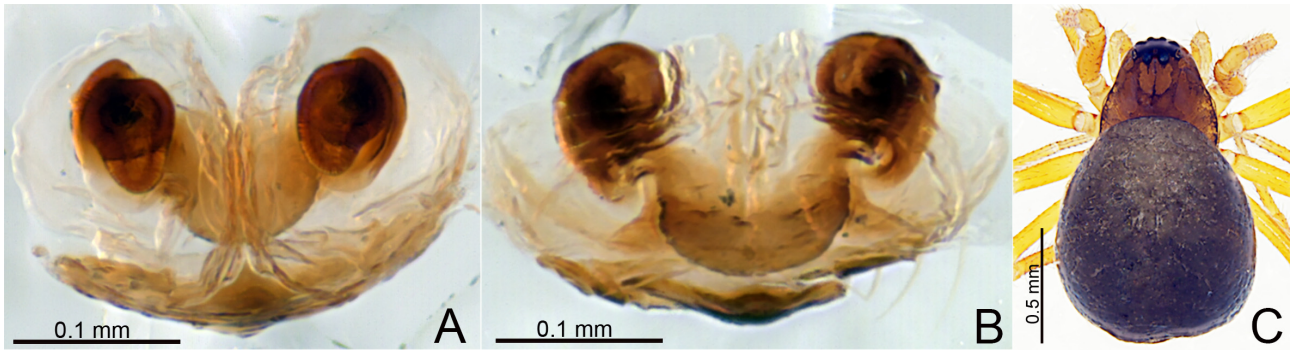


FIGURE 132. *Mecopisthes rhomboidalis* Gao, Zhu & Gao, 1993, female. **A** Epigyne, ventral view; **B** Vulva, dorsal view; **C** Habitus, dorsal view.

M. alpinus in having similar embolus and distal suprategular apophysis of male palp and spermathecae in epigyne (Figs 133A–C, 134A, B; Relys & Weiss 1997, figs 16–18, 25–27), but can be distinguished by the paracymbium distal arm tip C-shaped in *M. longiembolus* **sp. n.** (Figs 133B; vs. hook-shaped); dorsal tibial apophysis somewhat triangular with pointed end in *M. longiembolus* **sp. n.** (Figs 133D; vs. thumb-shaped). The ventral plate of epigyne with a septum anteriorly in *M. longiembolus* **sp. n.** (Figs 135A, D; vs. septum absent); copulatory ducts present dorsolaterally in *M. longiembolus* **sp. n.** (Figs 135A, D; vs. present dorsomesally).

Description. Male (holotype, Figs 136A, B): Total length: 1.40. Carapace 0.63 long, 0.48 wide, brown, cephalic region strongly elevated, with cephalic pits, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish brown with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.06, PME 0.05, PLE 0.04, AME–AME 0.01, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.03, AME–PME 0.05, ALE–ALE 0.22, PLE–PLE 0.24, ALE–PLE contiguous. Length of legs: I 1.42 (0.43, 0.47, 0.27, 0.25),

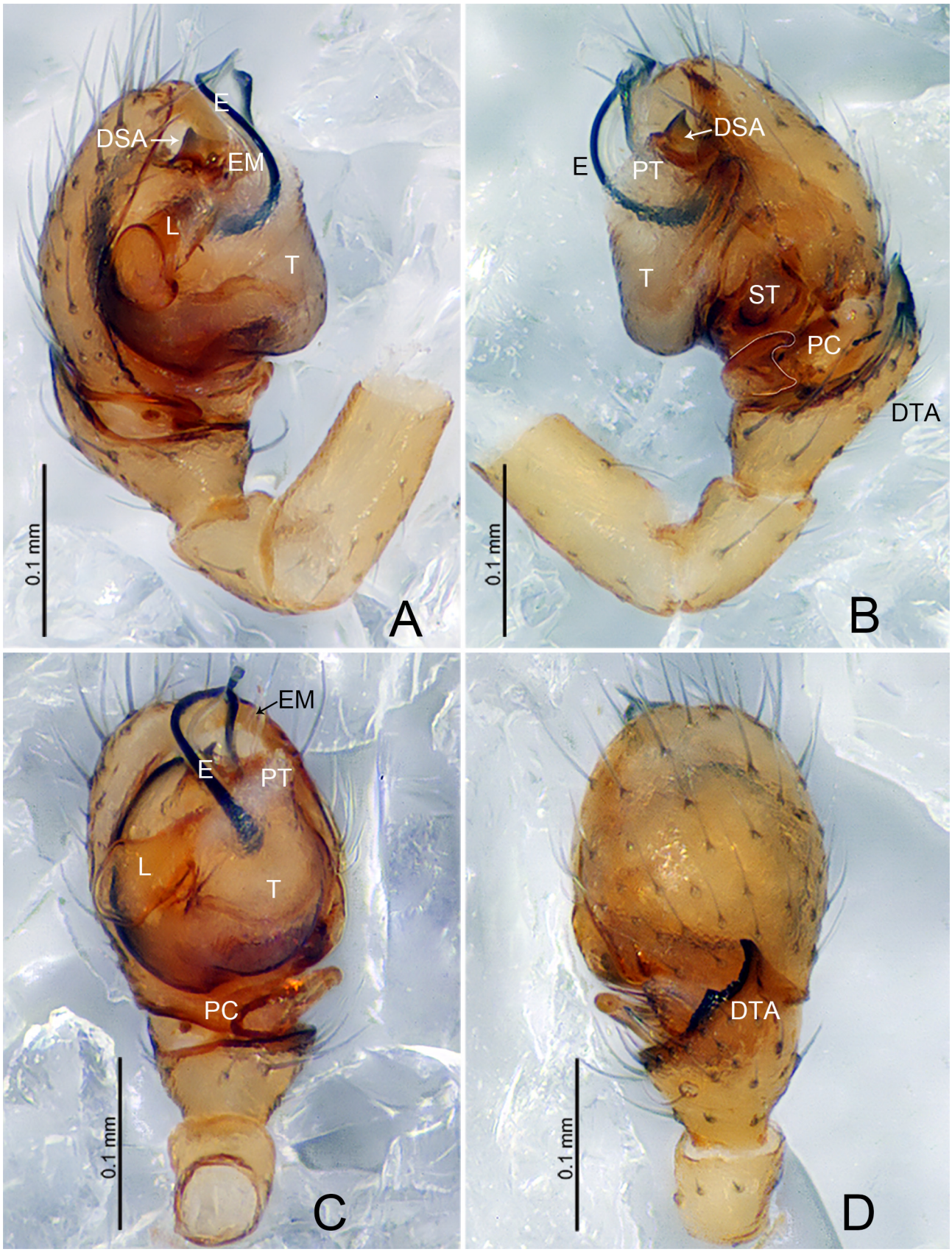


FIGURE 133. *Micrargus longiembolus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; L—lamella; PC—paracymbium; PT—protegulum; ST—subtegulum; T—tegulum.

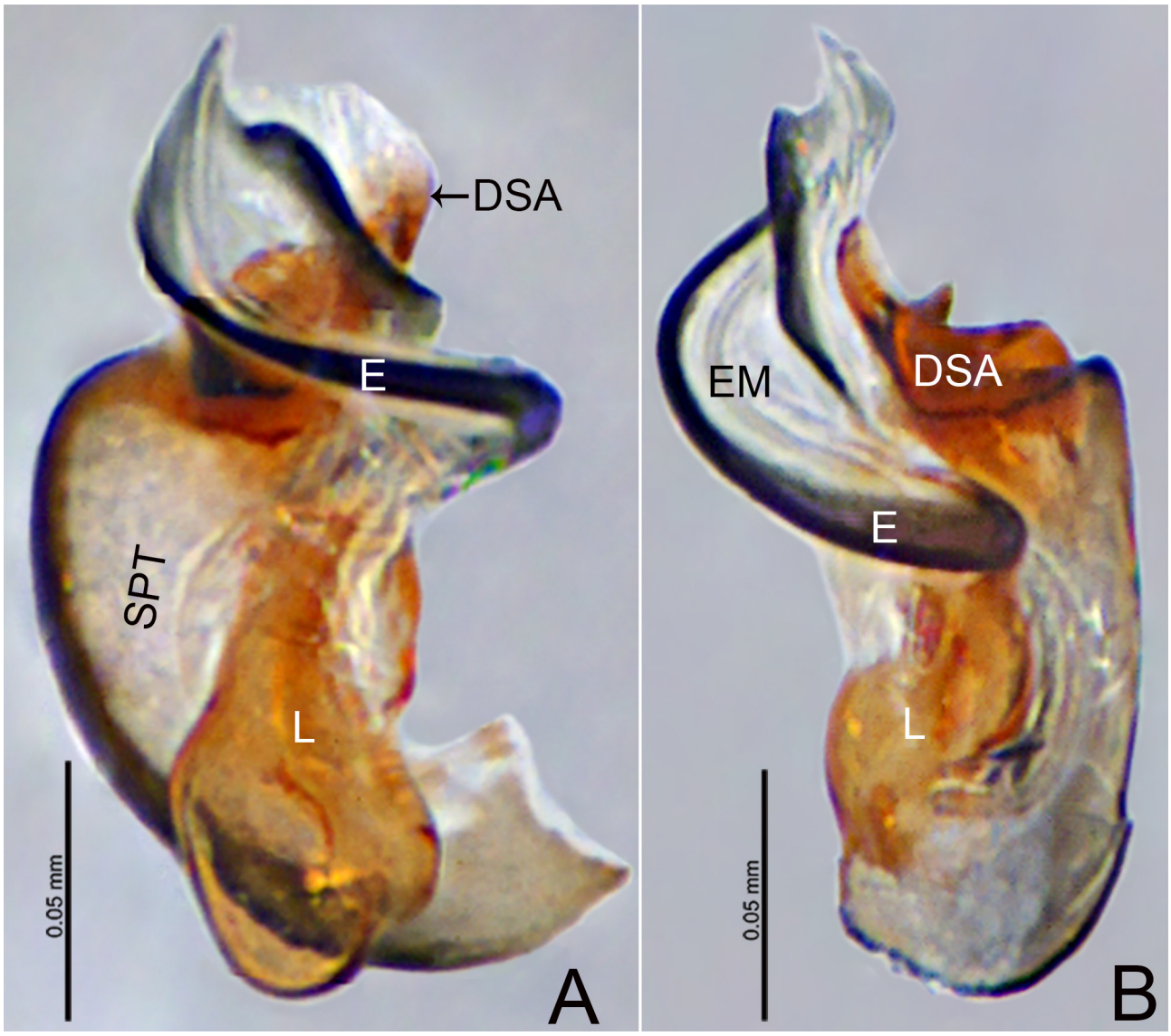


FIGURE 134. *Micrargus longiembolus* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, retrolateral view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; Em—embolic membrane; L—lamella; SPT—suprategulum.

II 1.3 (0.38, 0.44, 0.23, 0.25), III 1.13 (0.33, 0.37, 0.21, 0.22), IV 1.5 (0.46, 0.52, 0.27, 0.25). TmI and TmIV present. Tibial spine formula: 2-2-1-1. Opisthosoma 0.81 long, 0.59 wide, oval, yellowish, proximally with two pairs of sigillae, with irregular light patches.

Palp (Figs 133A–D, 134A, B): Femur unmodified, as long as both patella and tibia. Patella as long as tibia, mesally curved. Tibia conical, wider at distal end, with one retrolateral and one dorsal trichobothria, dorsal tibial apophysis (DSA) sclerotized, wider at proximal end, tapering towards the tip; cymbium unmodified, globular in dorsal view; paracymbium (PC) small, hook-shaped, basal part with spines; tegulum (T) almost round, proximally bulging above the subtegulum, protegulum (PT) distinctly developed, membranous; distal end of distal suprategular apophysis tip with a notch. Lamella (L) longer than wide, sclerotized, anterior part grooved and slightly curved in prolateral view, moderately long, slightly overlapping the suprategulum. Embolic membrane (EM) running along the embolus. Embolus (E) sclerotized, whipe like, extending above the apex of cymbium.

Female (one of paratype, Figs 136C, D): Total length: 1.45. Carapace 0.59 long, 0.47 wide, brown, cephalic region slightly elevated, cervical and radial grooves distinct. Clypeus 0.11 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish brown with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.05, PME 0.05, PLE 0.04, AME–AME 0.01, PME–PME 0.03, AME–ALE, 0.02, PME–PLE 0.03, AME–PME 0.04, ALE–ALE 0.20, PLE–PLE 0.22, ALE–PLE contiguous. Length of legs: I 1.33 (0.41, 0.45, 0.22, 0.25), II 1.26 (0.39, 0.42, 0.22, 0.23), III 1.13 (0.32, 0.36, 0.22, 0.23), IV 1.44 (0.45, 0.50, 0.24, 0.25). TmI and TmIV present.

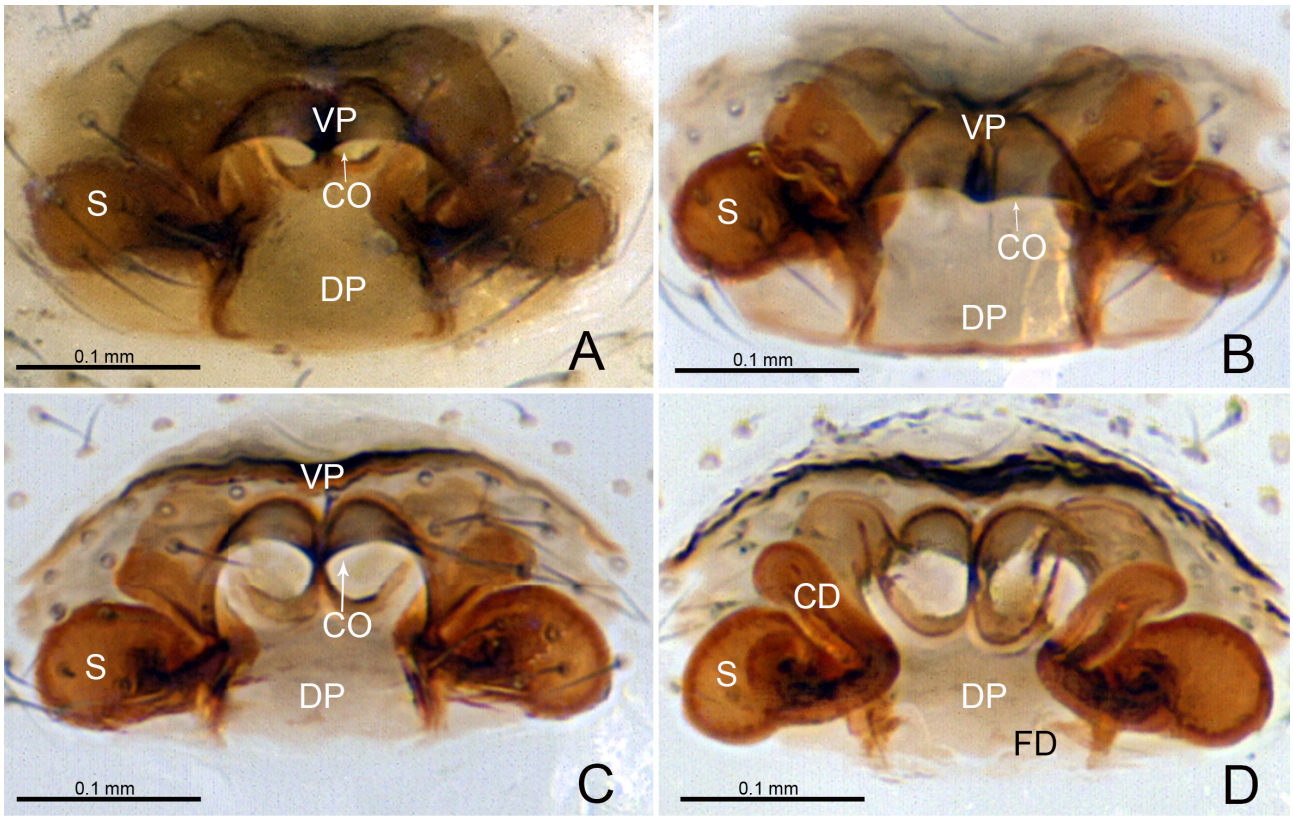


FIGURE 135. *Micrargus longiembolus* **sp. n.**, female paratype. **A–C** Epigyne, ventral view; **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

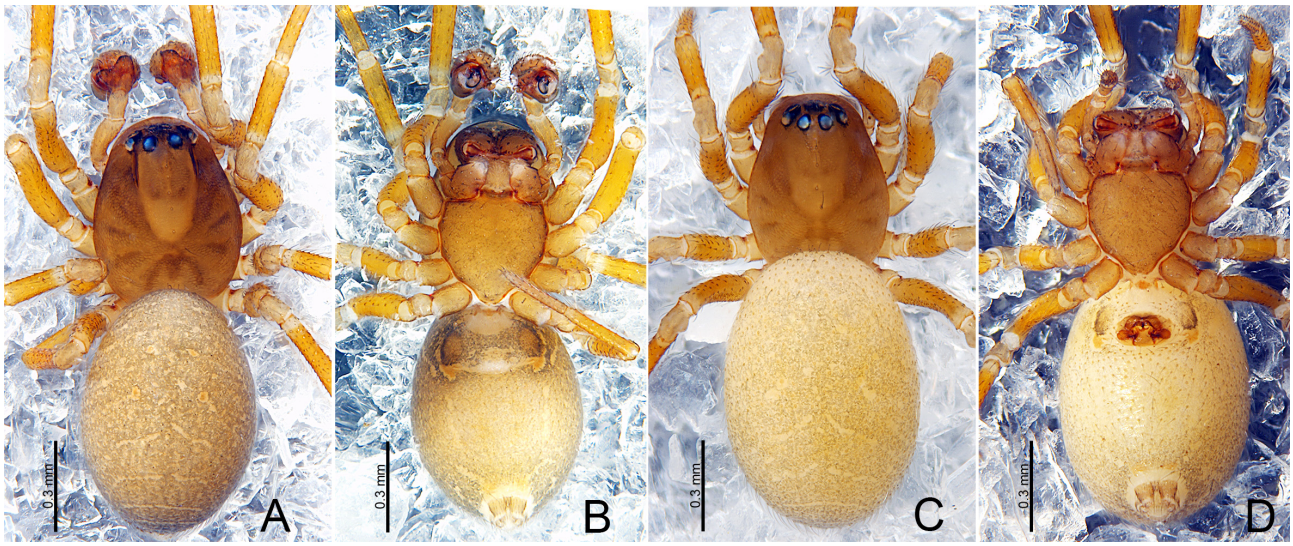


FIGURE 136. *Micrargus longiembolus* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

Tibial spine formula: 2-2-1-1. Opisthosoma 0.93 long, 0.65 wide, oval, yellowish, dorsally with irregular light patches.

Epigyne (Figs 135A–D): Ventral plate (VP) sclerotized, wider than long, anteriorly partly covering the dorsal plate; dorsal plate (DP) somewhat rectangular, as long as wide; copulatory opening (CO) present anteriorly at the junction of dorsal and ventral plate; copulatory ducts (CD) helical, forming 2 turns before entering the spermathecae; spermathecae (S) globular; fertilization ducts (FD) long, extending mesally.

Distribution. Known only from the type locality (Sichuan Province, Fig. 316).

Genus *Microlinyphia* Gerhardt, 1928 (小皿蛛属)

Type species. *Linyphia pusilla* Sundevall, 1830; gender feminine.

Remark. *Microlinyphia* comprises 14 species (including two species known from females) distributed across Africa, Holarctic and Palearctic (WSC 2024).

Microlinyphia zhejiangensis (Chen, 1991) (浙江小皿蛛)

Figures 137, 138, 315

Lepthyphantes zhejiangensis Chen, 1991: 163, figs 1A–D (♂♀); Song *et al.* 1999: 186, figs 103MN, S–T (mf).

Microlinyphia zhejiangensis Saaristo *et al.* 2006: 384 (Tmf from *Lepthyphantes*).

Material examined. 2♀, **CHINA, Hunan Prov.:** Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Wenfeng Vill., 29.352935°N, 110.608325°E, 582 m, 23.IV.2016, W. Liu *et al.* leg.

Distribution. China (Hunan and Zhejiang Provinces, Fig. 315).

Genus *Microneta* Menge, 1869 (褶蛛属)

Type species. *Microneta quisquiliarum* Menge, 1869; gender feminine.

Remark. *Microneta* comprises 11 species (including six species known from males and two from females) distributed in Brazil, Holarctic, New Guinea, Peru, St. Vincent, (WSC 2024).

Microneta acutalis Irfan, Zhang & Peng, sp. n. (尖褶蛛)

Figures 139–141, 315

Types. Holotype ♂ (HNU–HN–IV–1759), **CHINA, Hunan Prov.:** Shaoyang City, Suining Co., Zhaishi Town, Tieshanlin Vill., Huangshan National Nature Reserve, 26.37646°N, 110.10573°E, 1129 m, 26.X.2017, G.C. Zhou leg. **Paratypes:** 2♀, with same data as for holotype female (HNU–HN–IV–1759).

Etymology. The specific epithet is derived from the Latin adjective "*acutalis*" meaning "pointed" and referring to pointed pit hook in male palp.

Diagnosis. *Microneta acutalis* **sp. n.** resembles *M. circumacta* **sp. n.** and *M. viaria* in having the similar paracymbium (Figs 139A–D; Figs 142A–D; Wiehle 1956, figs 217–222, Zhang *et al.* 2022, figs 43E–G), but can be distinguished by the proximal cymbial apophysis almost as wide as proximal end of tibia in *M. acutalis* **sp. n.** (Fig. 139D; vs. about half the width of proximal end of tibia in *M. circumacta* **sp. n.** and about more than half the width of proximal end of tibia in *M. viaria*); the tip of embolus almost touches the tegulum, parallel to the distal arm of paracymbium in prolateral view in *M. acutalis* **sp. n.** (Figs 139A, B), vs. away from tip of tegulum, perpendicular to the distal arm of paracymbium in *M. circumacta* **sp. n.** and touches both the tip of tegulum and the distal arm of paracymbium in prolateral view in *M. viaria*). The female of *M. circumacta* **sp. n.** resembles those of *M. maliuxiensis* **sp. n.** and *M. viaria* in having the similar proximal part of scape in epigyne (Figs 140A–D; Figs 144A–C; Zhang *et al.* 2022, figs 43C, D), and can be distinguished by the spermathecae round in *M. acutalis* **sp. n.** (Fig. 140D; vs. oval both in *M. maliuxiensis* **sp. n.** and *M. viaria*); anterior part of the scape one and half times longer than the width of posterior median plate in *M. acutalis* **sp. n.** (Figs 140B, D; vs. three times longer than the width of posterior median plate in *M. maliuxiensis* **sp. n.** and almost as long as the width of posterior median plate in *M. viaria*).

Description: Male (holotype, Figs 141A, B): Total length: 2.41; carapace 1.02 long, 0.91 wide, yellowish, fovea, cervical and radial grooves distinct. Clypeus

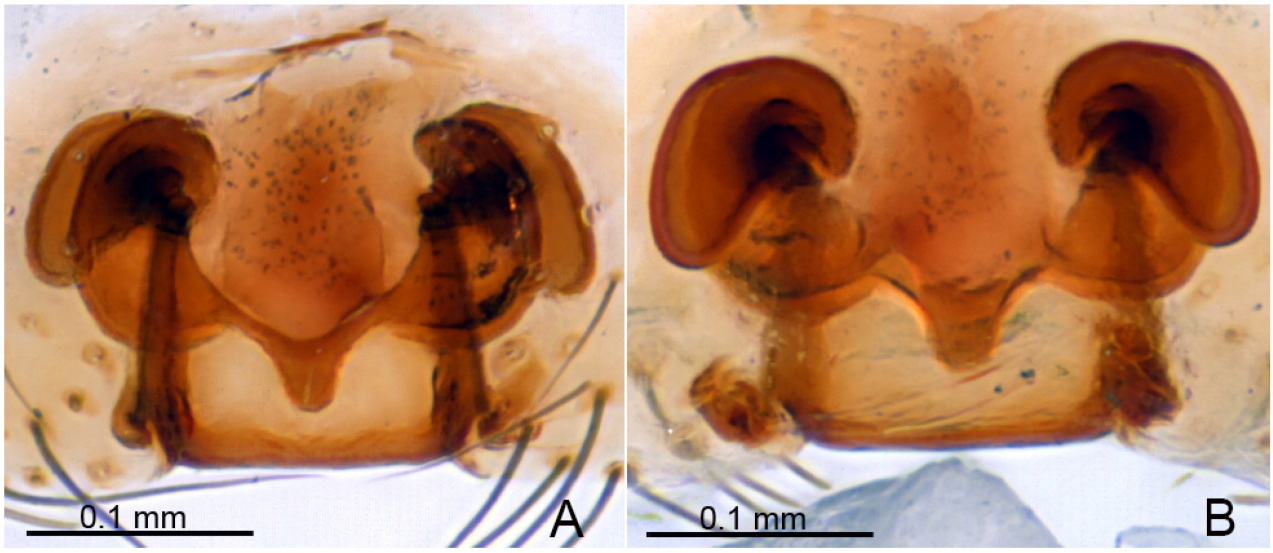


FIGURE 137. *Microlinyphia zhejiangensis* (Chen, 1991), female. **A** Epigyne, ventral view; **B** Vulva, dorsal view.



FIGURE 138. *Microlinyphia zhejiangensis* (Chen, 1991), female. **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

0.26 high. Chelicerae with two promarginal and four retromarginal teeth. Sternum longer than wide, pale with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.08, PME 0.07, PLE 0.07, AME–AME 0.02, AME–ALE, 0.05, AME–PME, 0.07, PME–PME 0.06, PME–PLE 0.05, ALE–ALE 0.32, PLE–PLE 0.35, ALE–PLE 0.02. Length of legs: I 3.25 (0.91, 1.07, 0.76, 0.51), II 2.99 (0.88, 0.94, 0.68, 0.49), III 2.70 (0.76, 0.91, 0.57, 0.46), IV 3.65 (0.99, 1.29, 0.88, 0.49). TmI and TmIV present. Tibial spine formula: 2-2-2-2. Opisthosoma 1.39 long, 0.84 wide, oval, brown.

Palp (Figs 139A–D): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, ventrally grooved. Tibia conic with one retrolateral and one dorsal trichobothria; cymbium truncated, retrolateral margin with a shallow depression at the base, proximal cymbial apophysis (PCA) somewhat rectangular with round margin; paracymbium (PC) apical pocket (appo) long, the basal part with spines. Pit hook (PH) longer than

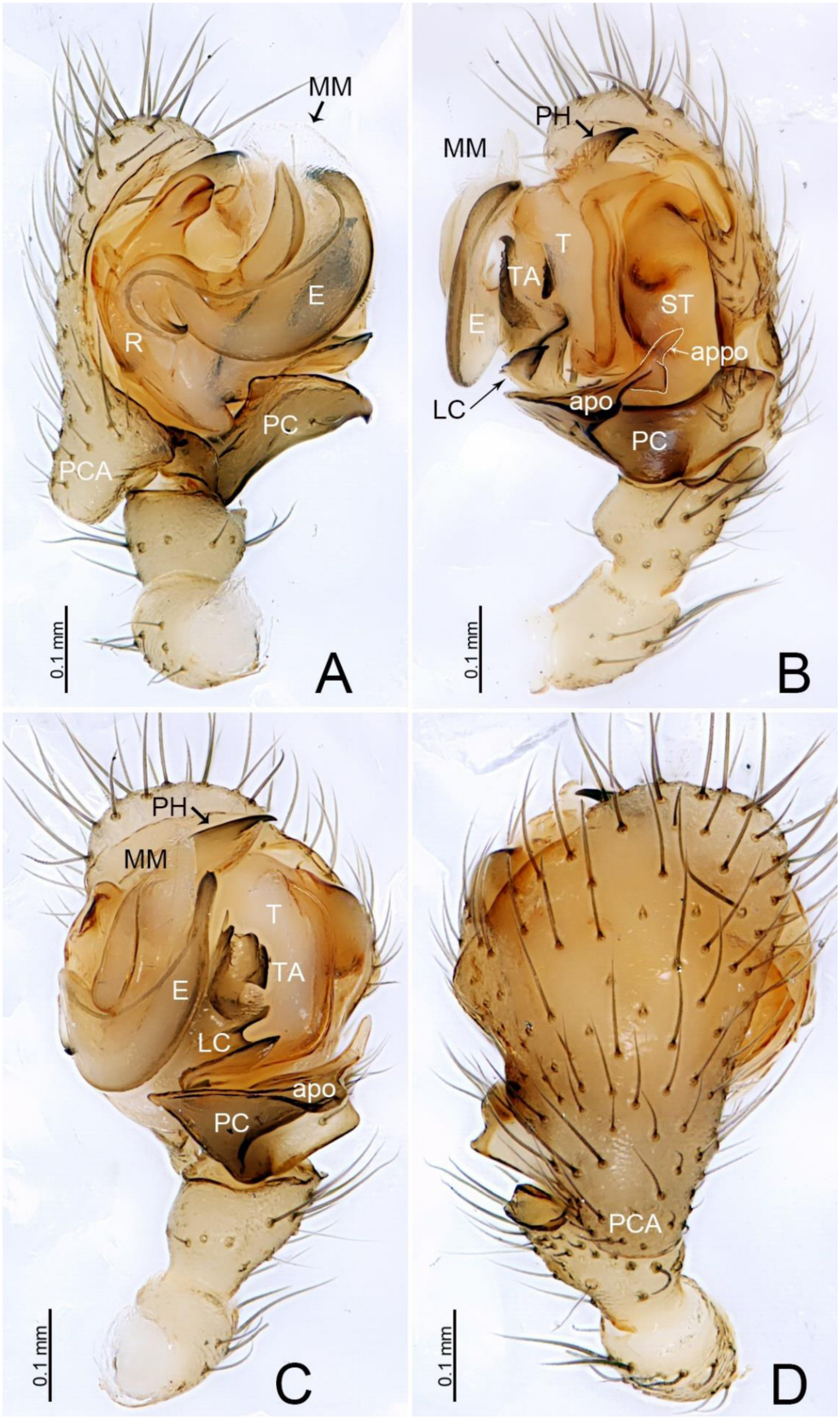


FIGURE 139. *Microneta acutalis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: apo—anterior pocket of paracymbium; appo—apical pocket of paracymbium; E—embolus; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PCA—proximal cymbial apophysis; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis.

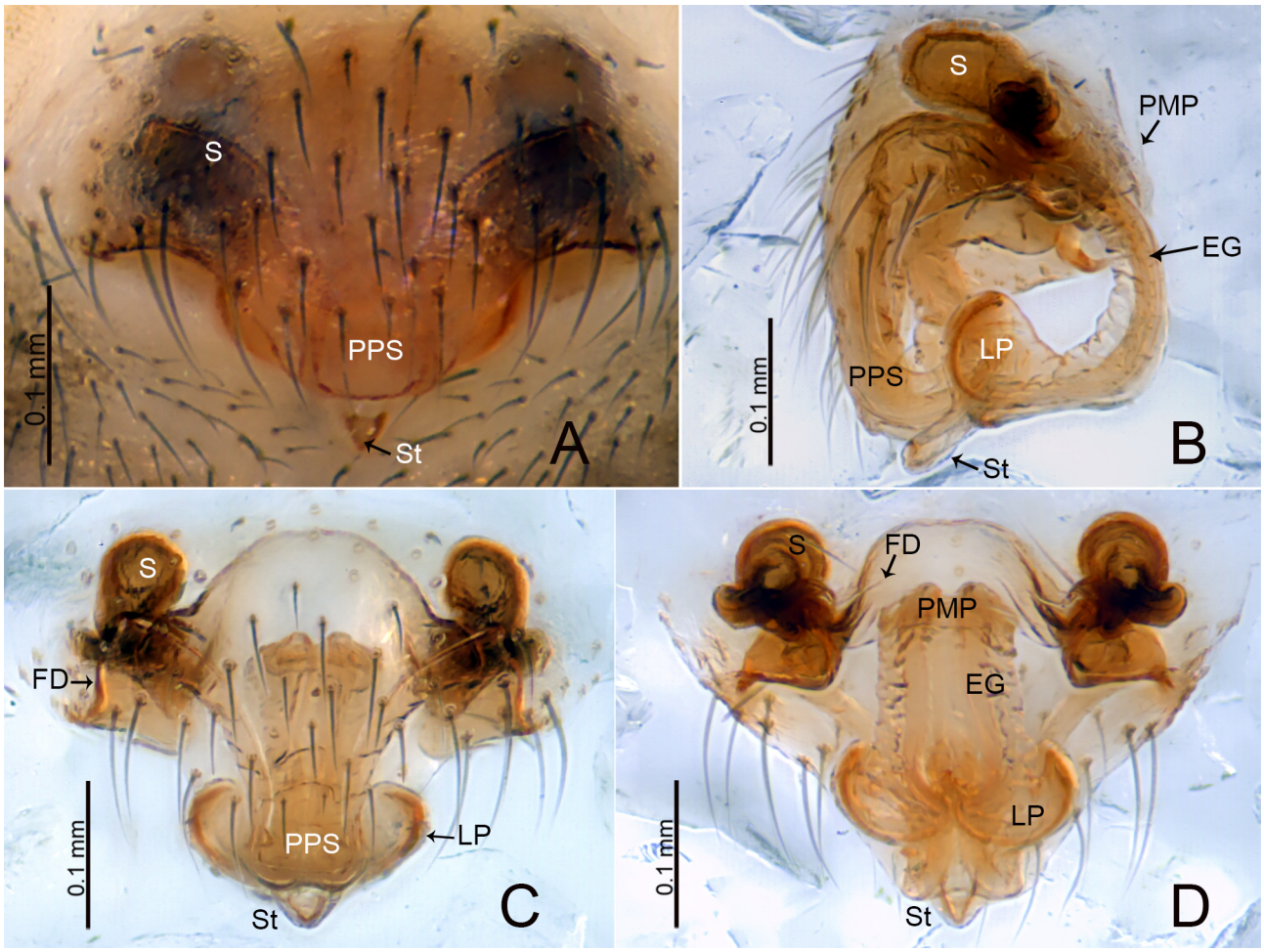


FIGURE 140. *Microneta acutalis* **sp. n.**, female paratype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: EG—entrance groove; FD—fertilization duct; LP—lateral pocket; PMP—posterior median plate; PPS—proximal part of scape; S—spermatheca; ST—stretcher.

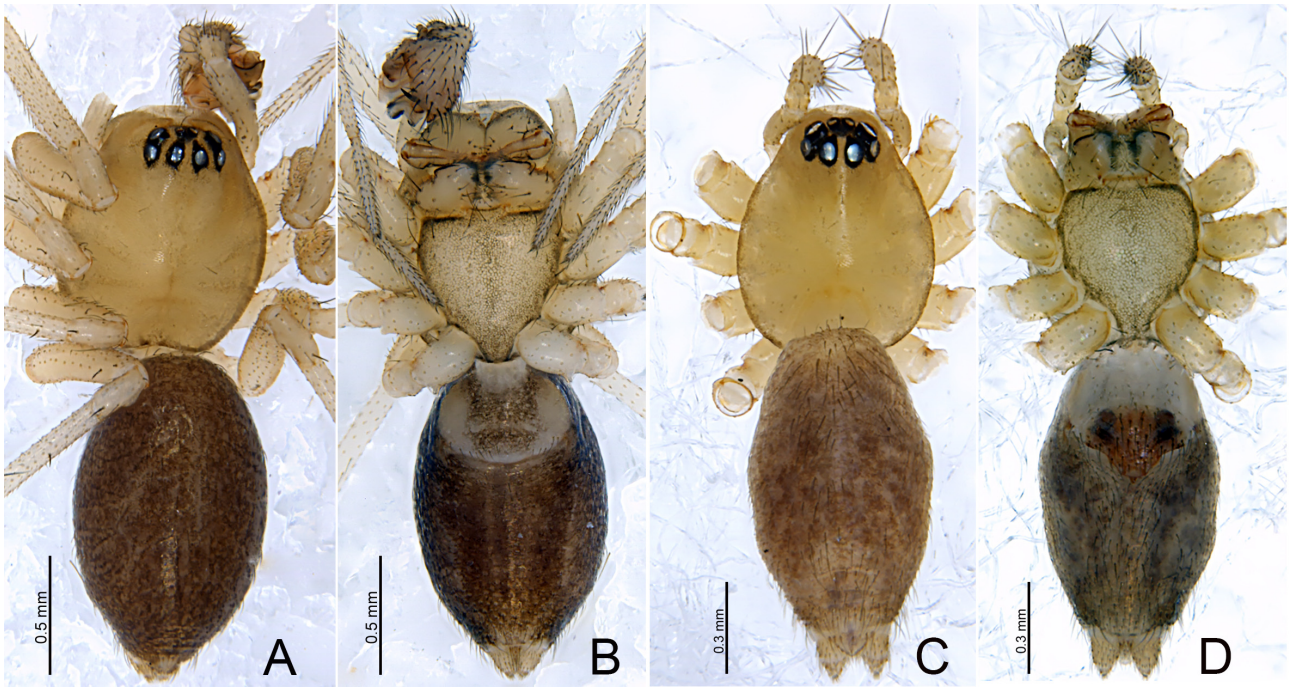


FIGURE 141. *Microneta acutalis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

wide with pointed end. Radix (R) with a small projection at the base of embolus, with sclerotized curved tip; median membrane (MM) well-developed with serrated margin, lamella characteristica (LC) with 2 spikes and ending in a large prong; terminal apophysis (TA) flap-like, widened at distal end, tip with several teeth. Embolus (E) crescent shaped with finger-like tip; thumb protruding above to the embolus in prolateral view.

Female (paratype, Figs 141C, D): Total length: 1.92. Carapace 0.76 long, 0.66 wide, yellowish. Clypeus 0.16 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, pale with microsetae. Eyes: AER recurved, PER procurved slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.06, PLE 0.05, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.24, PLE–PLE 0.26, ALE–PLE contiguous. Length of legs: I 2.94 (0.84, 1.03, 0.59, 0.48), II 2.65 (0.75, 0.89, 0.58, 0.43), III 2.36 (0.66, 0.77, 0.54, 0.39), IV 3.23 (0.89, 1.12, 0.71, 0.51). TmI and TmIV present. Tibial spine formula: 2-2-2-2. Opisthosoma 1.16 long, 0.61 wide, oval, brown to dusky grey.

Epigyne (Figs 140A–D): Protruding; posterior part of scape (PPS) wider than long in ventral view with well-developed stretcher (ST); entrance groove (EG) inside lateral pockets; lateral pockets (LP) ear lobe shaped expanding laterally; posterior median plate (PMP) almost rectangular; spermathecae (S) globular, present anterolaterally.

Distribution: Known only from the type locality (Hunan Province, Fig. 315).

Microneta circumacta Irfan, Zhang & Peng, sp. n. (曲状褶蛛)

Figures 142, 143, 317.

Types. Holotype ♂ (HNU–XZ–0004), **CHINA,** Xizang Linzhi city, Bomi Co., Gongxiang Guangde Vill., 30.28173°N, 94.76779°E, 2238 m, 12.I.2017, Q. Cai leg.

Etymology. The specific epithet is derived from the Latin adjective "*circumactus*" meaning "curved" and referring to curved embolus in male palp.

Diagnosis. *Microneta circumacta* **sp. n.** resembles *M. acutalis* **sp. n.** and *M. viaria* in having the similar paracymbium (Figs 142A–D; Figs 139A–D; Wiehle 1956, figs 217–222, Zhang *et al.* 2022, figs 43E–G), but can be distinguished by the proximal cymbial apophysis about half the width of proximal end of tibia in *M. circumacta* **sp. n.** (Fig. 142D; vs. almost as wide as proximal end of tibia in *M. acutalis* **sp. n.** and about more than half the width of proximal end of tibia in *M. viaria*); the tip of embolus away from tip of tegulum, perpendicular to the distal arm of paracymbium in prolateral view in *M. circumacta* **sp. n.** (Figs 142A, B), vs. almost touches the tegulum, parallel to the distal arm of paracymbium in *M. acutalis* **sp. n.** and touches both the tip of tegulum and the distal arm of paracymbium in prolateral view in *M. viaria*).

Description: Male (Figs 143A, B): Total length: 2.52; carapace 1.17 long, 0.95 wide, yelowish brown, fovea, cervical and radial grooves distinct. Clypeus 0.29 high. Chelicerae with two promarginal and four retromarginal teeth. Sternum longer than wide, brown with microsetae. Eyes: AER recurved, PER straight and slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.07, PLE 0.08, AME–AME 0.03, PME–PME 0.05, AME–ALE, 0.03, PME–PLE 0.04, ALE–ALE 0.31, PLE–PLE 0.34, ALE–PLE 0.02. Length of legs: I 3.57 (1.01, 1.17, 0.80, 0.59), II 3.21 (0.94, 1.03, 0.74, 0.50), III 2.75 (0.76, 0.92, 0.64, 0.43), IV 3.87 (1.06, 1.31, 0.94, 0.56). TmI and TmIV present. Tibial spine formula: 2-2-2-2. Opisthosoma 1.44 long, 0.96 wide, oval, greenish black.

Palp (Figs 142A–D): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, ventrally grooved. Tibia conic, with two retrolateral and one dorsal trichobothria; cymbium truncated, retrolateral margin with a shallow depression at the base, proximal cymbial apophysis (PCA), quadrate, with blunt end; paracymbium (PC) apical pocket (appo) long, anterior pocket (apo) curved, posterior pocket short and curved, the basal part with spines. Pit hook (PH) basally broad leaf-shaped distally with curved pointed end. Radix (R) with a small projection at the base of embolus, with sclerotized curved tip; median membrane (MM) well-developed with serrated margin, lamella characteristica (LC) with two spikes and ending in a large prong; terminal apophysis (TA) flap-like, widened at distal end, tip with several teeth; embolus (E) crescent shaped with pointed tip, perpendicular to the cymbium; thumb (TH) reaching below the embolus.

Female: Unknown.

Distribution: Known only from the type locality (Xizang Province, Fig. 317).

Microneta maliuxiensis Irfan, Zhang & Peng, sp. n. (麻柳溪褶蛛)

Figures 144, 145, 312

Types. Holotype ♀ (HNU–HB–IV–1715), **CHINA, Hubei Prov.:** Enshi Co., Huangjindong Town, Maliuxi Vill., 30.03902°N, 109.14274°E, 1114 m, 19.V.2017, M. Irfan & G.C. Zhou leg. **Paratypes:** 6♀, with same data as for holotype female (HNU–HB–IV–1715).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. The female of *M. maliuxiensis* **sp. n.** resembles those of *M. circumacta* **sp. n.** and *M. viaria* in having the similar proximal part of scape in epigyne (Figs 144A–D; Figs 140A–C; Zhang *et al.* 2022, figs 43C, D), and can be distinguished by the spermathecae oval in *M. maliuxiensis* **sp. n.** (Fig. 144D; vs. round both in *M. acutalis* **sp. n.** and *M. viaria*); anterior part of the scape three times longer than the width of posterior median plate in *M. maliuxiensis* **sp. n.** (Figs 14 0B, D; vs. one and half times longer than the width of posterior median plate in *M. acutalis* **sp. n.** and almost as long as the width of posterior median plate in *M. viaria*).

Description. Female (holotype, Figs 145A, B): Total length: 1.92. Carapace 0.76 long, 0.66 wide, yellowish.

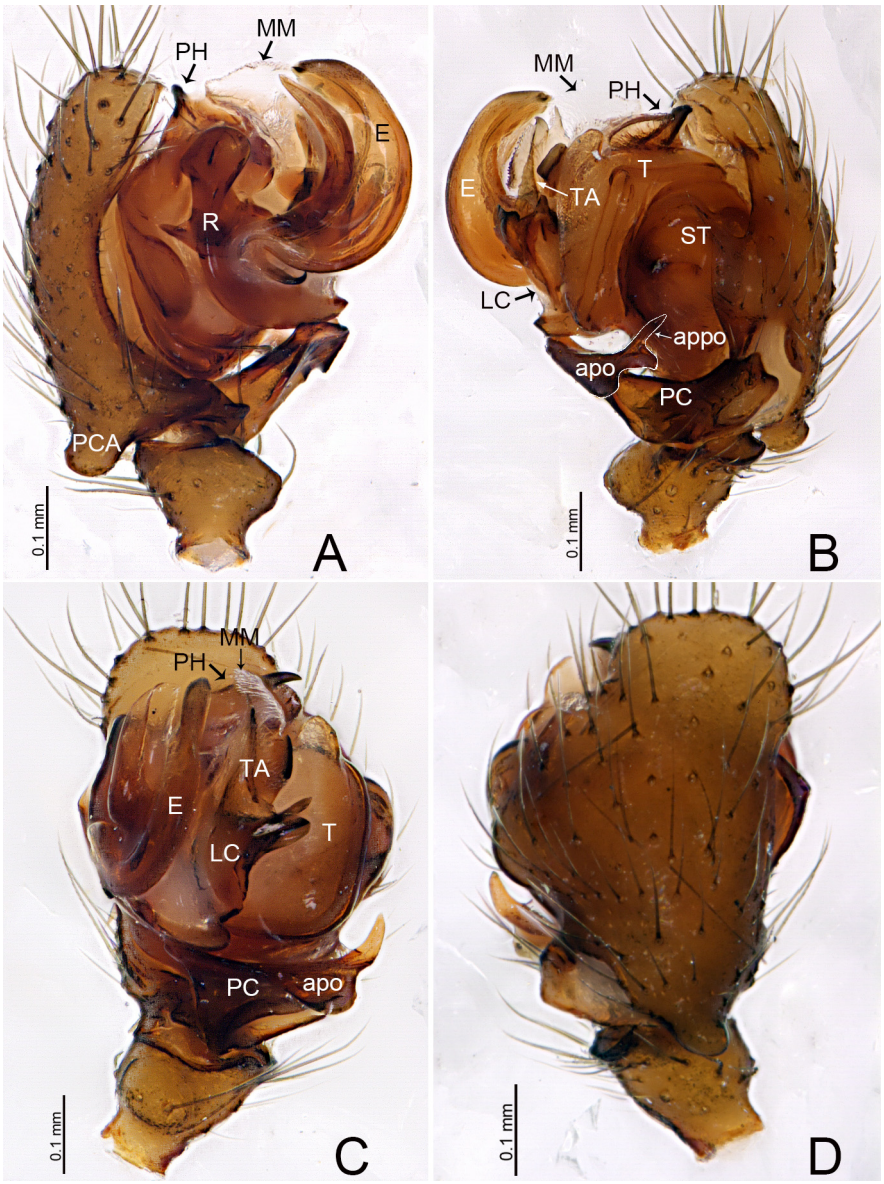


FIGURE 142. *Microneta circumacta* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: apo—anterior pocket of paracymbium; appo—apical pocket of paracymbium; E—embolus; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PCA—proximal cymbial apophysis; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis.

Clypeus 0.16 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish green with microsetae. Eyes: AER recurved, PER procurved slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.06, PLE 0.05, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.24, PLE–PLE 0.26, ALE–PLE contiguous. Length of legs: I 2.94 (0.84, 1.03, 0.59, 0.48), II 2.65 (0.75, 0.89, 0.58, 0.43), III 2.36 (0.66, 0.77, 0.54, 0.39), IV 3.23 (0.89, 1.12, 0.71, 0.51). TmI and TmIV present. Tibial spine formula: 2-2-2-2. Opisthosoma 1.16 long, 0.61 wide, oval, brownish green.

Epigyne (Figs 144A–C): Protruding; posterior part of scape (PPS) wider than long in ventral view with well-developed stretcher (ST), anterior part of scape two times longer than proximal part of scape; entrance groove (EG) inside lateral pockets; lateral pockets (LP) ear lobe shaped expanding laterally; posterior median plate (PMP) almost rectangular; spermathecae (S) present anterolaterally.

Male. Unknown.

Distribution. Known only from the type locality (Hubei Province, Fig. 312).

Microneta orthogonia (Irfan, Wang & Zhang, 2023) comb. n. (矩褶蛛)

Agyneta orthogonia Irfan, Wang & Zhang, 2023b: 4, figs 1A–D, 2A–E, 3A–B (♂♀).

Distribution. China (Chongqing).

Remarks. The genital organs of *Agyneta orthogonia*

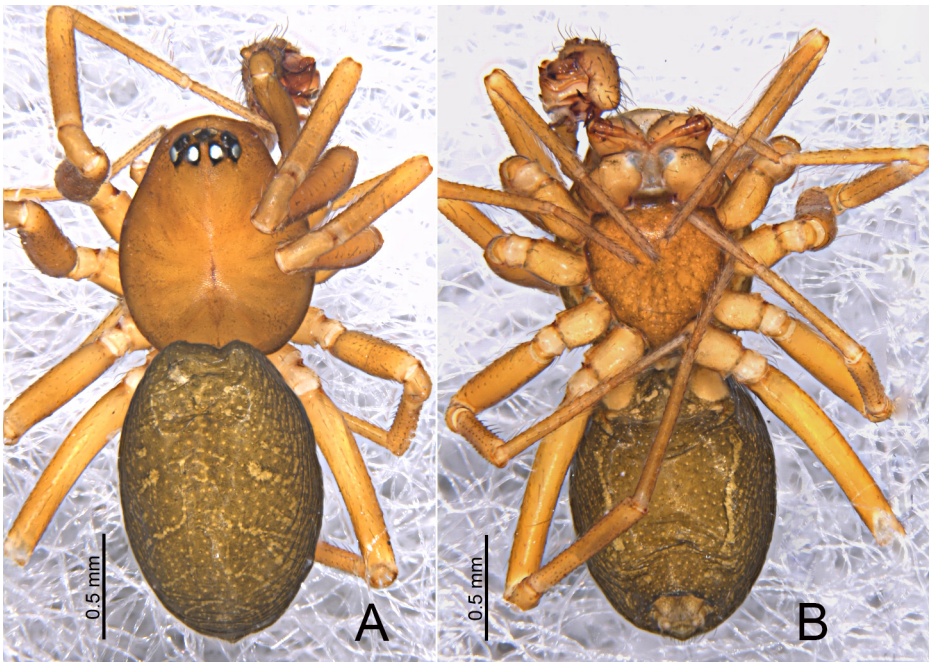


FIGURE 143. *Microneta circumacta* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

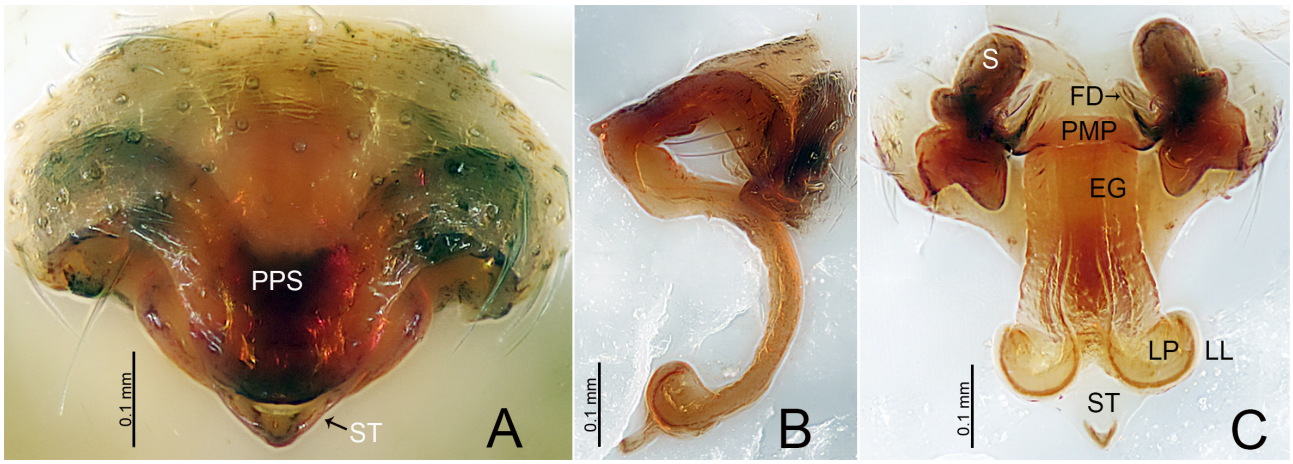


FIGURE 144. *Microneta maliuxiensis* **sp. n.**, female holotype. **A** Epigyne, ventral view; **B** Epigyne, lateral view; **C** Vulva, dorsal view. Abbreviations: EG—entrance groove; FD—fertilization duct; LL—lateral lobe; LP—lateral pocket; PMP—posterior median plate; PPS—proximal part of scape; S—spermatheca; ST—stretcher.

Irfan, Wang & Zhang, 2023 resemble those of the genus *Microneta* because the embolic division is similar to those in *M. circumacta* **sp. n.** and *M. maliuxiensis* **sp. n.**, and its epigyne also resembles that of *M. circumacta* **sp. n.**. On the basis of structural affiliation, it is proposed here as *Microneta orthogonia* (Irfan, Wang & Zhang, 2023) **comb. n.**.

Genus *Nasoonaria* Wunderlich & Song, 1995 (鼻蛛属)

Type species. *Nasoonaria sinensis* Wunderlich & Song, 1995; gender feminine.

Remark. *Nasoonaria* comprises seven species (including one species known from males) distributed in China (Yunnan), Indonesia (Sumatra), Laos, Myanmar, Thailand and Vietnam (WSC 2024).

Nasoonaria nonggangensis Irfan, Zhang & Peng, sp. n. (弄岗鼻蛛)

Figures 146–149, 309

Types. Holotype ♂, **CHINA, Guangxi Prov.:** Nonggang Town, Nonggang Nature Reserve, 22.47318°N, 106.95792°E, 184 m, 25.X.2017, Q. Cai leg. **Paratypes:** 9♂11♀, with same data as for holotype; 1♂, Chongzuo District, Zuozhou Town, Zhenguang He Vill., 29.07466°N, 107.07221°E, 297 m, 28.VIII.2015, Q. Cai leg. (HNU–GX–0001); 1♂, Chongzuo District, Jiangzhou District, Zuozhou Town, Guanghe Vill., 22.57013°N, 107.41671°E,

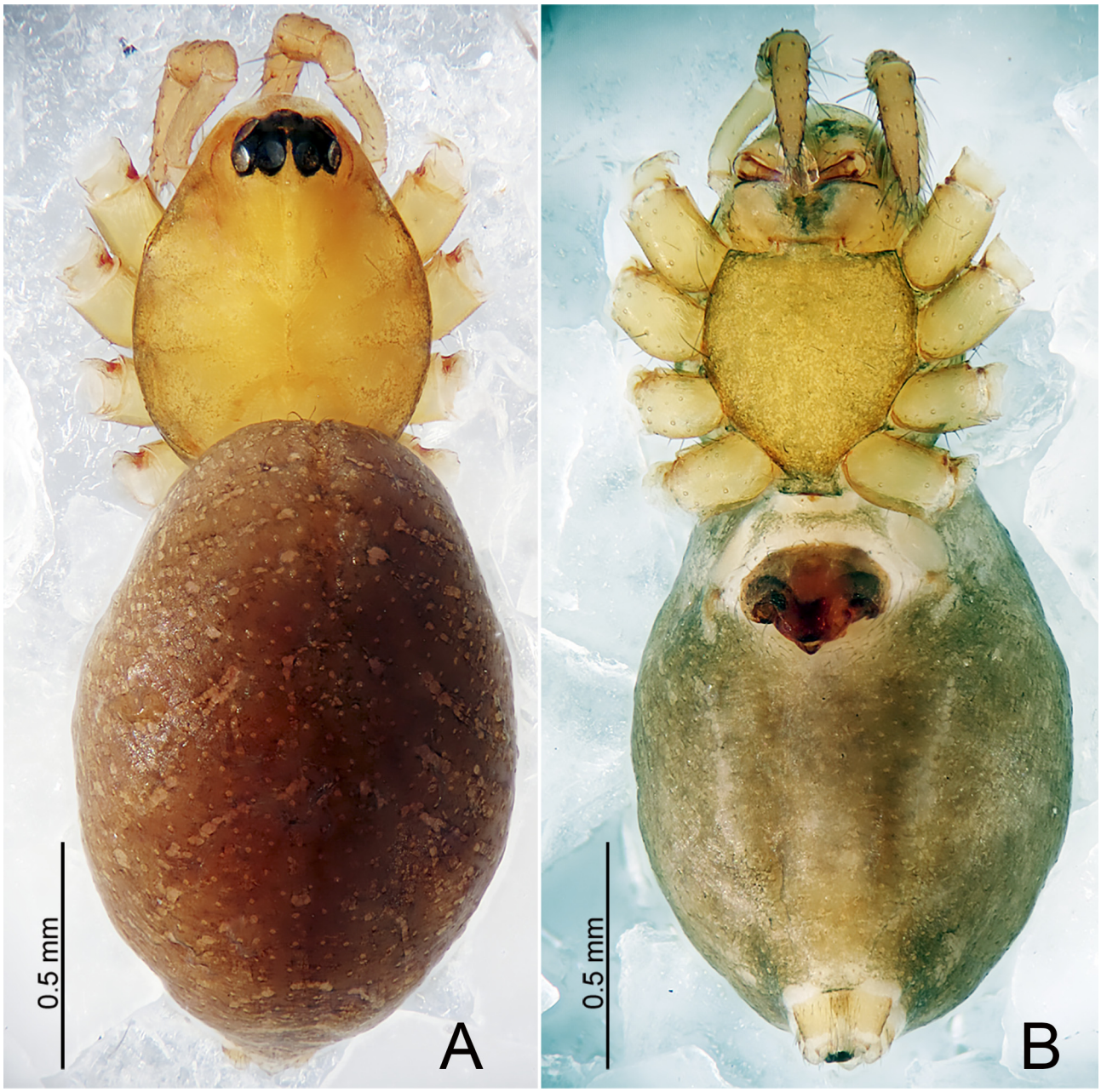


FIGURE 145. *Microneta maliuxiensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

276 m, 31.VIII.2015, Q. Cai leg. (HNU–GX–0004); 2♂, Chongzuo District, Jiangzhou District, Zuozhou Town, Guanghe Vill., 22.60530°N, 107.42795°E, 224 m, 09.IX.2015, Q. Cai leg. (HNU–GX–0013); 11♂9♀, Nonggang Town, Nonggang Nature Reserve, 22.47318°N, 106.95792°E, 184 m, 25.X.2017, Q. Cai leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. The male of *Nasoonaria nonggangensis* **sp. n.** resembles that of *N. pseudoembolica* in having similar long distal suprategular apophysis (Figs 146A–D, 148A, D; Tanasevitch 2019, figs 14–17), but can be distinguished by the paracymbium J-shaped in *N. nonggangensis* **sp. n.** (Figs 146B, 148D; vs. L-shaped); cymbial retrobasal process present in *N. nonggangensis* **sp. n.** (Figs 146B, 148D; vs. absent); radix longer than wide in *N. nonggangensis* **sp. n.** (Figs 146A, 148A; vs. almost round). The female of *N. nonggangensis* **sp. n.** resembles those of *N. orthogonia* in having the similar spermathecae present posterolaterally on dorsal plate (Figs 147A–C, 148B, C; Irfan *et al.* 2022, figs 222A–C), and can be distinguished by the copulatory ducts present mid dorsally forming broad loop in *N. nonggangensis* **sp. n.** (Figs 147A–C, 148B, C; vs. with long loop extending anteriorly).

Description. Male (holotype, Figs 149A–C): Total length: 1.81. Carapace 0.75 long, 0.58 wide, brown, cervical and radial grooves distinct; cephalic pits present mid dorsally behind the posterior row of eyes, cephalic region strongly elevated with thick setae. Clypeus 0.16 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum longer than wide, dark brown with microsetae. Eyes: AER recurved, PER straight,

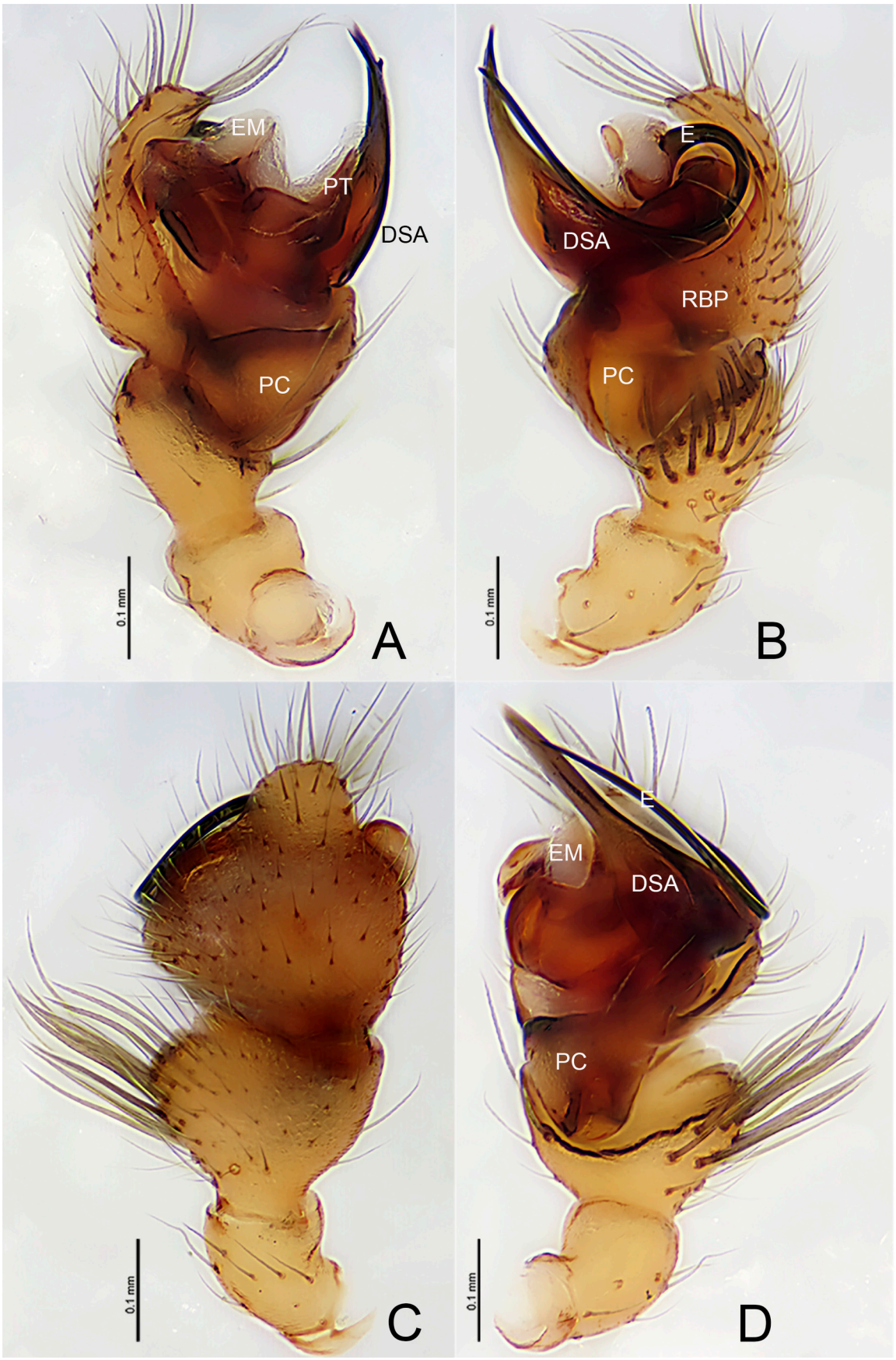


FIGURE 146. *Nasoonaria nonggangensis* **sp. n.**, male holotype palp. **A** prolateral view; **B** retrolateral view; **C** dorsal view; **D** ventral view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; Em—embolic membrane; PC—paracymbium; PT—protegulum; RBP—cymbial retrobasal process.

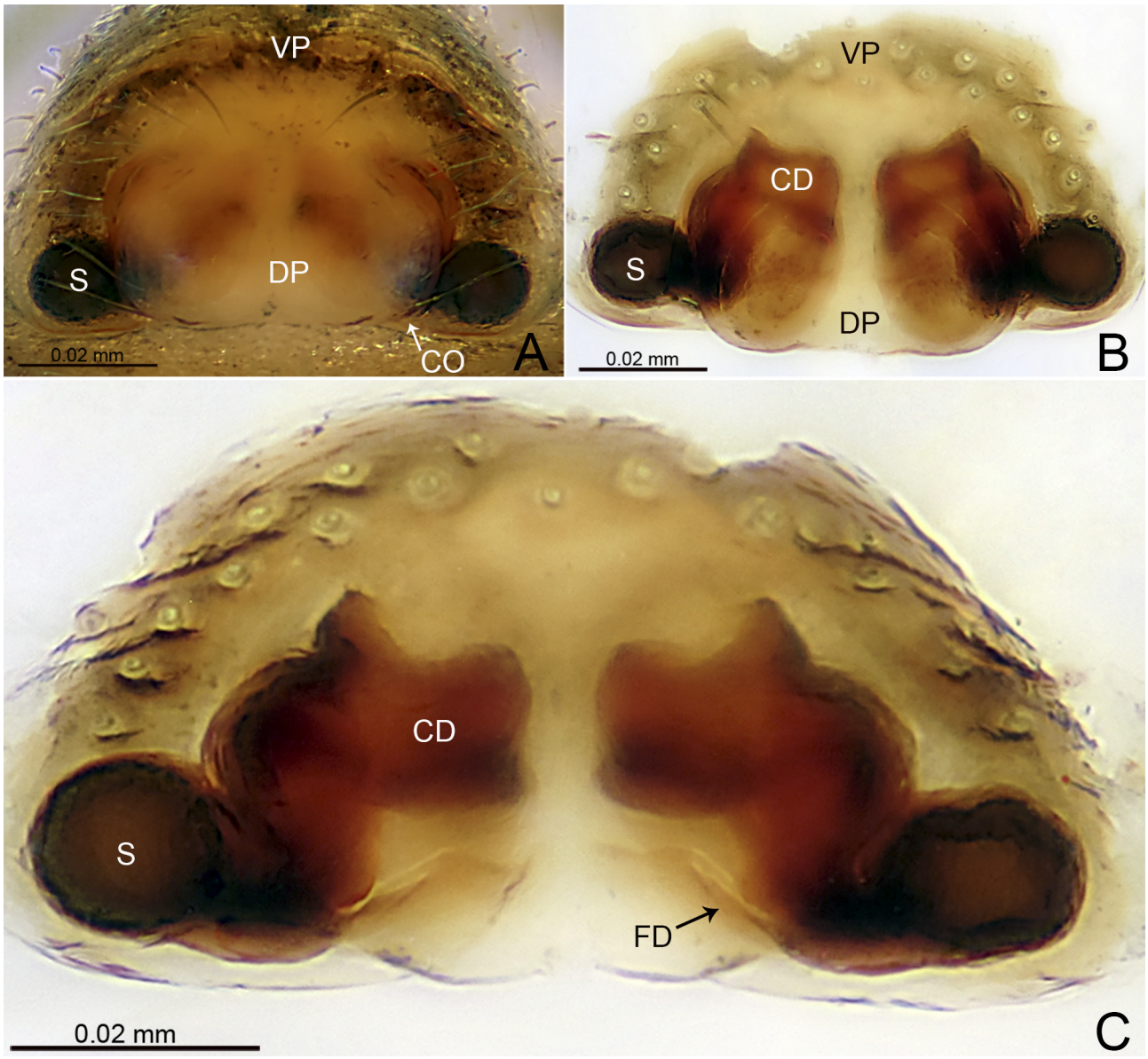


FIGURE 147. *Nasoonaria nonggangensis* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

slightly wider. Eye sizes and interdistances: AME 0.06, ALE 0.08, PME 0.08, PLE 0.07, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.06, PME–PLE 0.04, AME–PME 0.04, ALE–ALE 0.28, PLE–PLE 0.31, ALE–PLE contiguous. Length of legs: I 2.61 (0.73, 0.84, 0.60, 0.41), II 2 50 (0.70, 0.82, 0.56, 0.42), III 1.98 (0.57, 0.59, 0.46, 0.36), IV 2.63 (0.75, 0.83, 0.62, 0.43). TmI and TmIV present. Tibial spine formula: 2-2-1-1. Opisthosoma 1.12 long, 0.69 wide, oval, dusky grey, posteriorly with 3 chevrons, base of spinnerets with black patch, laterally greenish, ventral side dusky grey.

Palp (Figs 146A–D, 148A, D): Femur unmodified, as long as both patella and tibia. Patella shorter than tibia, ventrally grooved. Tibia conic, with two retrolateral and one dorsal trichobothria, retrolateral margin with several thick spines; Cymbium unmodified, cymbial retrobasal process (RBP) somewhat rectangular, partly covering subtegulum; paracymbium (PC) ventrally grooved, distal arm tip hook-shaped; protegulum (PT) simple, tip transparent; distal suprategular apophysis (DSA) basally broad, ventrally grooved, gradualy narrowing towards the tip. Embolic membrane (EM) reduced. Embolus (E) long, whip-like, slightly curved, L-shaped.

Female (one of the paratypes, Figs 149D–F): Total length: 1.96. Carapace 0.74 long, 0.55 wide, yellowish brown, cervical and radial grooves distinct; cephalic region slightly elevated with microsetae. Clypeus 0.15 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum longer than wide, brown with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.04, PLE 0.07, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.04, ALE–ALE 0.27, PLE–PLE 0.31, ALE–PLE contiguous. Length of legs: I 2.6 (0.75, 0.84, 0.57, 0.44), II 2.44 (0.70, 0.79, 0.54, 0.41), III 2.03 (0.61, 0.60, 0.49, 0.33), IV 2.64 (0.76, 0.84,

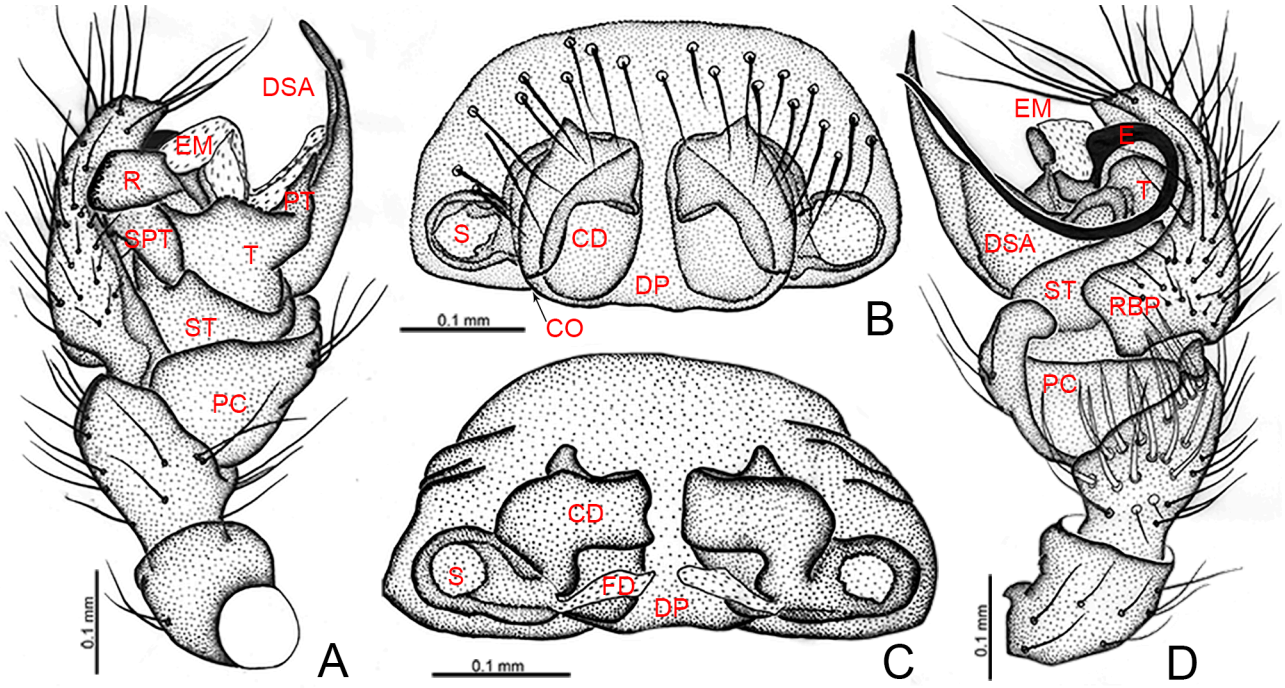


FIGURE 148. *Nasoonaria nonggangensis* **sp. n.**, male holotype (A, D) and female paratype (B, C). **A** Palp, prolateral view; **B** Epigyne, ventral view; **C** Vulva, dorsal view; **D** Palp, retrolateral view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; DSA—distal supratregular apophysis; E—embolus; Em—embolic membrane; FD—fertilization duct; PC—paracymbium; PT—protegulum; R—radix; RBP—cymbial retrobasal process; S—spermatheca; VP—ventral plate.

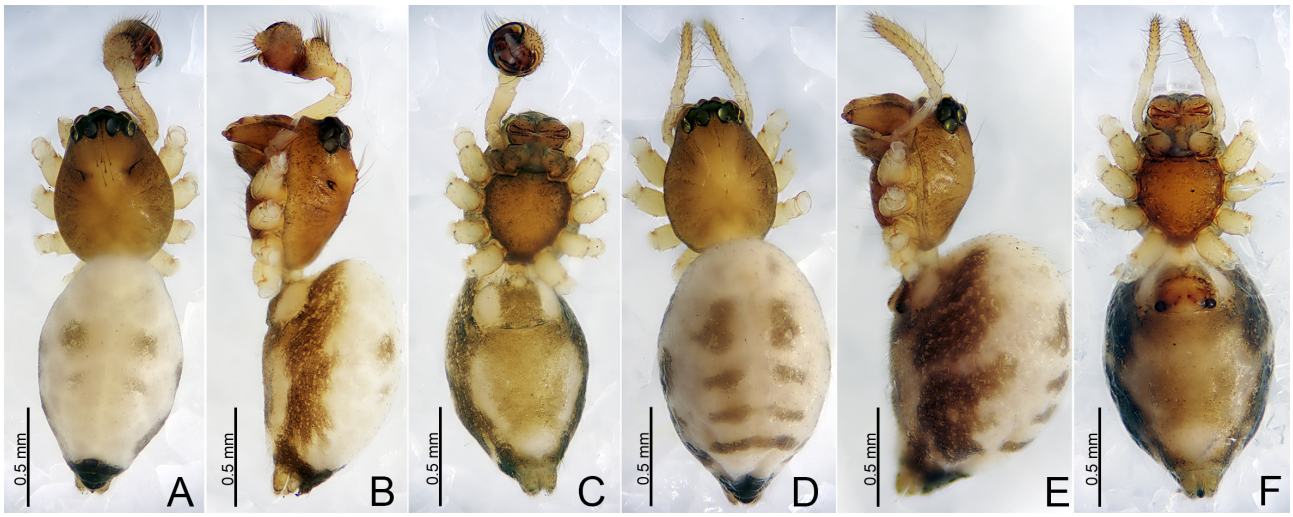


FIGURE 149. *Nasoonaria nonggangensis* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

0.63, 0.41). TmI and TmIV present. Tibial spine formula: 2-2-1-1. Opisthosoma 1.26 long, 0.85 wide, oval, dusky grey, posteriorly with three chevrons, base of spinnerets with black patch; ventral side grey.

Epigyne (Figs 147A–C, 148B, C): Ventral plate (VP) reduced. Dorsal plate (DP) wider than long, completely exposed. Copulatory opening (CO) situates posteriorly; copulatory ducts (CD) broad, extending anteriorly then turn back to spermathecae. Spermathecae (S) globular, spaced by threediameters. Fertilization ducts (FD) directed mesally.

Distribution. Known only from the type localities (Guangxi Province, Fig. 309).

Genus *Nematogmus* Simon, 1884 (疣舟蛛属)

Type species. *Theridion sanguinolentum* Walckenaer, 1841; gender masculine.

Remark. *Nematogmus* comprises seven species (including three species known from females) distributed in Caucasus, China, Europe, Indonesia, Japan, Korea, Malaysia, Nepal, North Africa, Russia (Europe to Far East), Sri Lanka and Vietnam (WSC 2024).

***Nematogmus ligulatus* Irfan, Zhang & Peng, sp. n. (舌状疣舟蛛)**
Figures 150–152, 307, 313

Types. Holotype ♂, **CHINA, Hubei Prov.:** Xuanen Co., Zhang Tanhe Township, Mahuping Vill., 29.97436°N, 109.582645°E, 509 m, 05.V.2016, W. Liu *et al.* leg. **Paratypes:** 1♂7♀, with same data as for holotype; 1♂2♀, Shimen Co., Huping Mountain, Jinban Mountain Vill., 30.00013°N, 110.05099°E, 440 m, 14.VI.2014, C. Wang *et al.* leg.; **Chongqing:** 1♂, Nanchuan Co., Dayou Town, 28.997361°N, 107.33591°E, 1021 m, 13.VIII.2015, X.J. Peng *et al.* leg.

Etymology. The specific epithet is derived from the Latin adjective "*ligulatus*" meaning "in the form of tongue", referring tongue-like tailpiece in male palp.

Diagnosis. *Nematogmus ligulatus* **sp. n.** resembles *N. longior* in having the similar tailpiece, cymbium with conspicuous outwardly curved apophysis, embolic membrane lamina curved, extending upright in male palp and the epigyne with coiled copulatory ducts (Figs 150A–D, 151A–C; Song & Li 2008, figs 3, 4), and can be distinguished by the tibia with one triangular retrolateral tooth in *N. ligulatus* **sp. n.** (Figs 150B, C; vs. with two teeth). In epigyne, ventral plate scape absent, the lateral walls curved inward, forming a conspicuous hole on each side posteriorly in *N. ligulatus* **sp. n.** (Figs 151A–C; vs. short scape present, forms lip-like structure); copulatory ducts with three and half spiral coils in *N. ligulatus* **sp. n.** (Fig. 151C; vs. with two spiral coils); dorsal plate rectangular in *N. ligulatus* **sp. n.** (Fig. 151C; vs. trapezoidal).

Description. Male (holotype, Figs 152A–C): Total length: 1.91. Carapace 0.79 long, 0.73 wide, yellow, fovea, cervical and radial grooves distinct; cephalic pits present behind the PLEs; cephalic region slightly elevated. Clypeus 0.22 high. Chelicerae with three promarginal and four retromarginal teeth. Sternum wider than long, dark orange with microsetae. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.05, PLE 0.05, AME–AME 0.03, PME–PME 0.05, AME–ALE, 0.05, PME–PLE 0.06, AME–PME 0.06, ALE–ALE 0.31, PLE–PLE 0.32, ALE–PLE contiguous. Length of legs: I 4.56 (1.34, 1.40, 1.13, 0.69), II 4.19 (1.23, 1.31, 1.04, 0.61), III 2.98 (0.90, 0.86, 0.75, 0.47), IV 3.39 (1.04, 0.94, 0.81, 0.50). TmI 0.63, TmIV absent. Tibial spine formula: 1-1-1-1. Opisthosoma 1.29 long, 0.71 wide, oval, pink, dorsally with two pairs of sigillae.

Palp (Figs 150A–D): Femur unmodified, as long as both patella and tibia. Patella as long as tibia. Tibia widened distally with one retrolateral triangular tooth, retrolateral tibial apophysis (RTA) rectangular and the prolateral tip extending towards the lateral wall of the cymbium, as well as with one retrolateral and one prolateral trichobothria; cymbium of peculiar shaped, with a conspicuous outwardly curved apophysis; dorsal side of cymbium with a row of minute warts, each bearing a seta; paracymbium (PC) L-shaped, distal arm tip hook-shaped; tegulum (T) mesal to subtegulum, with thumb-shaped ventral apophysis extending towards the patella; protegulum (PT) transparent, ribbonlike, curved; distal suprategular apophysis (DSA) with distal end broad round, slightly grooved, arranged above the base of embolic membrane. Column (C) semicircular with blunt end in ventral view. Tailpiece (TP) of embolic division tongue-shaped with blunt tip; embolic membrane (EM) with long curved lamina extending upright; embolus (E) long, coiled.

Female (one of the paratypes, Figs 152D–F): Total length: 2.02. Carapace 0.8 long, 0.73 wide, yellow, fovea, cervical and radial grooves distinct; cephalic region slightly elevated. Clypeus 0.17 high. Chelicerae with four promarginal and four retromarginal teeth. Sternum wider than long, dark orange with microsetae. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.04, PME–PME 0.06, AME–ALE, 0.05, PME–PLE 0.06, AME–PME 0.05, ALE–ALE 0.31, PLE–PLE 0.32, ALE–PLE contiguous. Length of legs: I 4.56 (1.31, 1.39, 1.16, 0.70), II 4.35 (1.27, 1.33, 1.08, 0.67), III 3.32 (1.01, 0.95, 0.84, 0.52), IV 4.02 (1.20, 1.23, 1, 0.59). TmI 0.64, TmIV absent. Tibial spine formula: 1-1-1-1. Opisthosoma 1.41 long, 1.01 wide, oval, pink, dorsally with two pairs of sigillae.

Epigyne (Figs 151A–C): Ventral plate (VP) lateral walls curved inward, with conspicuous holes on each side posteriorly with copulatory openings (CO). Dorsal plate (DP) rectangular, strongly overlapping the ventral plate; copulatory ducts (DP) with spiral coils extending anteriorly. Spermathecae (S) somewhat U-shaped, with short globular arms slightly overlapping with long, oblong arms. Fertilization ducts (FD) short, directed mesally.

Distribution. Known only from the type localities (Chongqing and Hubei Province, Figs 307, 313).

***Nematogmus sanguinolentus* (Walckenaer, 1841) (橙色疣舟蛛)**
Figures 153–155, 307, 313, 315

Theridion sanguinolentum Walckenaer, 1841: 326 (♀).
Nematogmus sanguinolentus Simon 1884: 615, figs 431–432 (♂♀); Yin *et al.* 2012: 513, figs 240a–e (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♀, **CHINA, Chongqing:** Youyang Co., Dingshi Town, Xiaba Vill., 28.756128°N, 108.56898°E, 557 m, 25.V.2017, G.C. Zhou *et al.* leg.; **Hubei Prov.:** 1♀, Enshi Co., Xingdou MNNR, 30.04581°N, 109.13635°E, 1151 m, 17.V.2017, G.C. Zhou *et al.* leg.; 3♂1♀, Enshi Co., Huangjindong Town, Maliuxi Village 29.95240°N, 109.01717°E, 785 m, 20.V.2017, G.C. Zhou *et al.* leg.; **Hunan Prov.:** 1♀, Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Wenfeng Vill., 29.352935°N, 110.608325°E, 582 m, 23.IV.2016, W. Liu *et al.* leg.; 1♀, Xiangxi, Baojing Co., Maogou Town, Bake Vill., Baiyun MNNR, 28.663953°N, 109.38880°E, 670 m, 28.V.2017, G.C. Zhou *et al.* leg.;

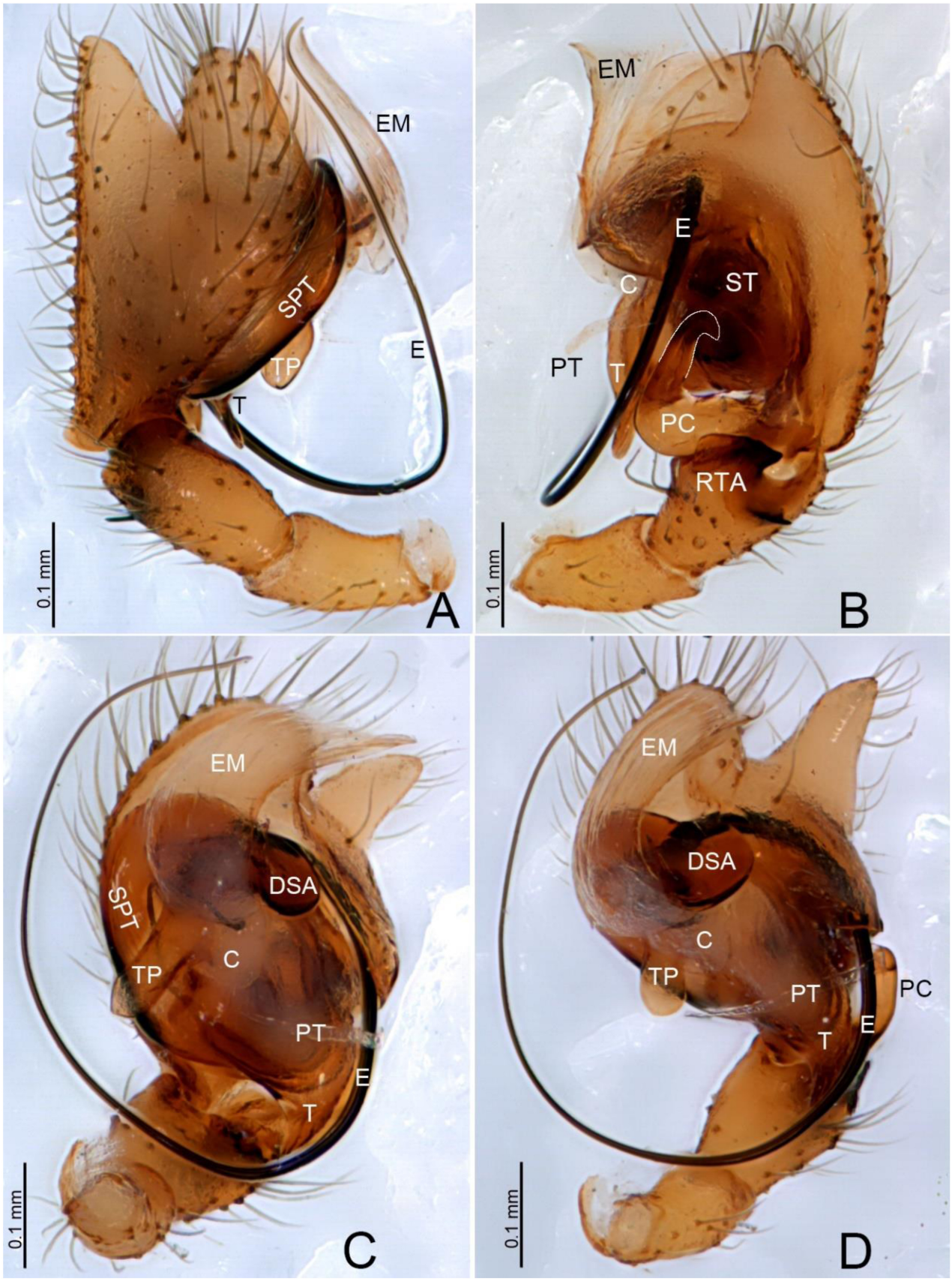


FIGURE 150. *Nematogmus ligulatus* **sp. n.**, male holotype. **A** Palp, dorsal view; **B**, **D** Palp, retrolateral view; **C** Palp, ventral view. Abbreviations: C—column; DSA—distal suprategular apophysis; E—embolus; EM—embolic membrane; PC —paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece of radix.

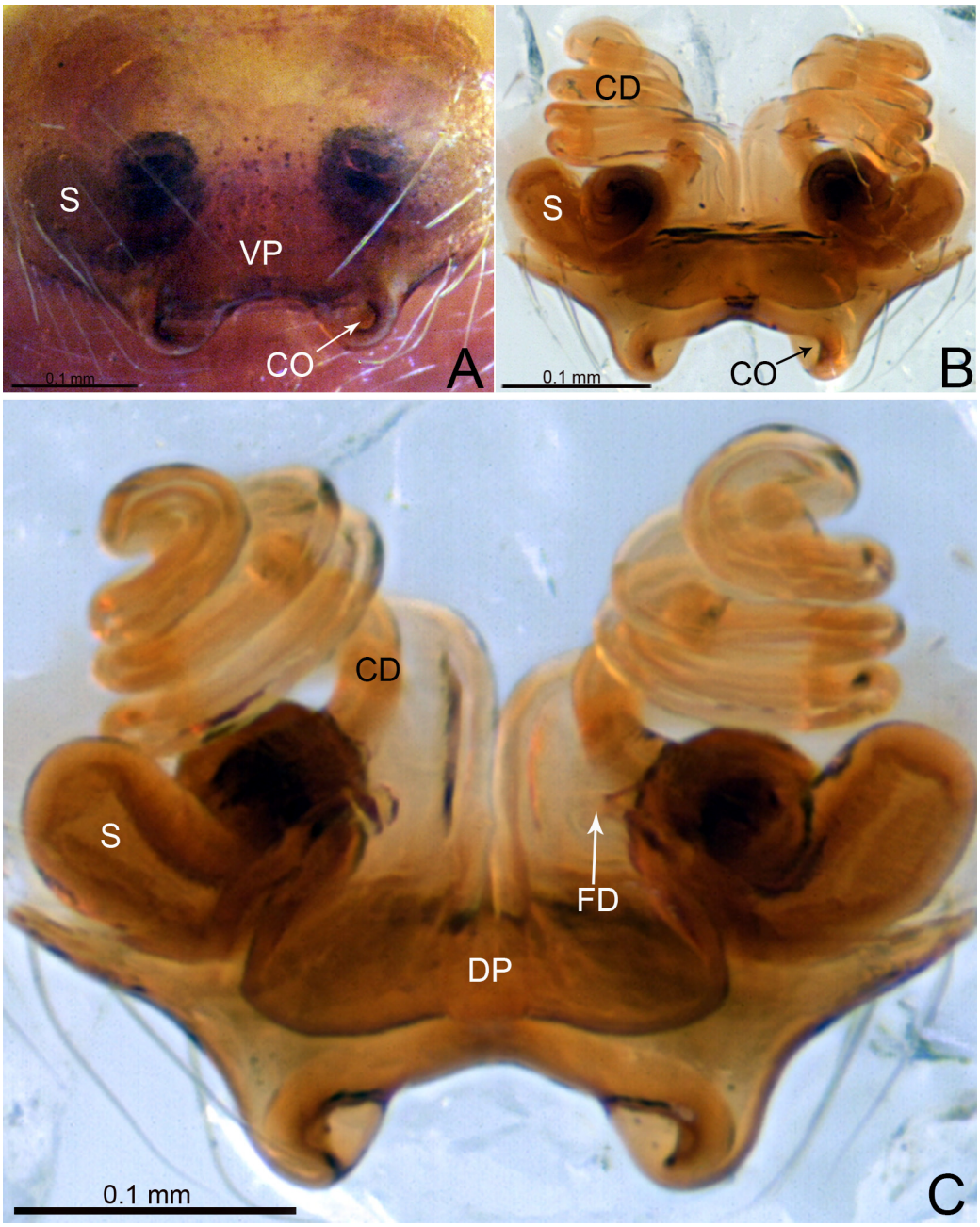


FIGURE 151. *Nematogmus ligulatus* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

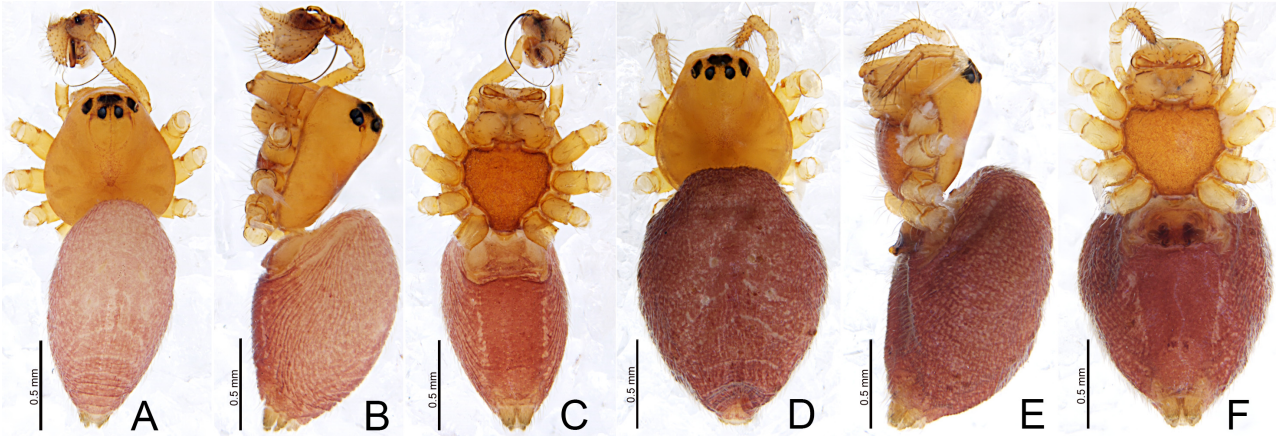


FIGURE 152. *Nematogmus ligulatus* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

1♀, Xiangxi, Co., Yongshun Co., Xiaoxi Town, Xiaoxi Vill., Xiaoxi NNR, 28.80661°N, 110.26575°E, 502 m, 03.VIII.2017, X.J. Peng *et al.* leg.

Distribution. Europe, North Africa, Caucasus, Russia (Europe to Far East), China (Beijing, Chongqing, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jilin, Liaoning, Sichuan, Xinjiang, Yunnan and Zhejiang Provinces, Figs 307, 313, 315), Korea, Japan.

Genus *Nippononeta* Eskov, 1992 (日蛛属)

Type species. *Nippononeta. kurilensis* Eskov, 1992.

Remark. *Nippononeta* comprises 25 species (including three species known from females and two from males) distributed in China Japan, Korea, Mongolia and Russia (WSC 2024).

Nippononeta alpina (Li & Zhu, 1993) (山地日蛛)

Figures 156–158, 307, 315

Macrargus alpinus Li & Zhu, in Song *et al.* 1993: 863, figs 21A–I (♂♀).

Nippononeta alpina Bao *et al.* 2017: 137, figs 2A–K, 3A–H, 4A–H, 5A–H (♂♀ transferred from *Macrargus*). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined: 2♂, **CHINA, Chongqing:** Youyang Co., Dingshi Town, Xiaba Vill., 28.756128°N, 108.56898°E, 557 m, 25.V.2017, G.C. Zhou *et al.* leg.; 1♂1♀, Chongqing, Pengshui Co., Mowei MSS, 29.18643°N, 108.050811°E, 1568 m, 25.VII.2017, M. Irfan & G.C. Zhou leg.; 2♂3♀, Youyang Co., Xiaoba Town, Xinqiao Vill., 28.83778°N, 108.72372°E, 924 m, 25.V.2017/27.V.2017, G.C. Zhou *et al.* leg.; 1♂1♀, Chongqing, Youyang Co., Taohuayuan Scenic Spot, 28.85096°N, 108.75037°E, 995 m, 23.VII.2017, M. Irfan & G.C. Zhou leg.; **Hunan Prov.:** 1♀, Huaihua City, Huitong Co., Tuanhe Town, Diaotang Vill., Yingzuijie NNR, 26.90186°N, 109.93529°E, 390 m, 29.X.2017, G.C. Zhou *et al.* leg.; 1♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.100208°N, 112.658819°E, 189 m, 10.V.2017, G.C. Zhou *et al.* leg.; 1♀, Ningxiang Co., Huaminglou Town, Tanzi Vill., 28.032005°N, 112.640872°E, 72 m, 09.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Chongqing, Fujian, Hubei, Hunan, Figs 307, 315).

Nippononeta coreana (Paik, 1991) (朝鲜日蛛)

Figures 159–161, 307, 308, 310, 313, 315

Macrargus coreanus Paik, 1991e: 2, figs 30–38 (♀); Li *et al.* 1996: 10, figs 1–7 (♂♀).

Nippononeta coreana Eskov 1992: 159 (transferred from *Macrargus*); Yan *et al.* 2015: 104, figs 4A–H, 5A–D, 6A–H (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined: 6♂15♀, **CHINA, Chongqing:** Pengshui Co., Mowei MSS, 29.16079°N, 108.03732°E, 1564 m, 26.VII.2017, M. Irfan & Zhou G.C. leg.; 1♀, Youyang Co., Xiaoba Town, Xinqiao Vill., 28.83698°N, 108.72222°E, 933 m, 22.VII.2017, Irfan M. & G.C. Zhou leg.; **Guangdong Prov.:** 1♂, Shaoguan City, Ruyuan County, Tongtianzhu, 24.9882389°N, 113.1194778°E, 690 m, H.Q. Yin *et al.* leg.; **Guizhou Prov.:** 1♂, Tongren City, Shiqian Co., Pingshan Town, Fodingshan Vill., Fodingshan NNR, 27.34899°N, 108.16272°E, 666 m, 01.XI.2017 G.C. Zhou leg.; **Hubei Prov.:** 1♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg.; **Hunan Prov.:** 1♂3♀, Ningxiang City, Huaminglou Town, Shili Vill., 28.09035°N, 112.6670°E, 163 m, 09.V.2017, G.C. Zhou *et al.* leg.; 2♂6♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.100208°N, 112.658819°E, 189 m, 10.V.2017, G.C. Zhou *et al.* leg.; 1♂, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.10046°N, 112.66057°E, 209 m, 12.XI.2017, G.C. Zhou leg.; 4♀, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.1002°N, 112.5277°E, 187 m, 24.X.2017, G.C. Zhou leg.; 1♂, Liuyang City, Mudu Vill., Daweishan NFP, 28.43388°N, 114.03376°E, 379 m, 14.I.2018, G.C. Zhou *et al.* leg.; 1♂, Xiangxi, Co., Yongshun Co., Xiaoxi Town, Xiaoxi Vill., Xiaoxi NNR, 28.80661°N, 110.26575°E, 502 m, 03.VIII.2017, X.J. Peng *et al.* leg.; 1♂, Huaihua City, Yuan Ling Co., Jiemuxi Town, Xue Zongxi Vill., Jiemuxi NNR, 28.87690°N, 110.44164°E, 399 m, 10.VIII.2017, X.J. Peng *et al.* leg.

Distribution. China (Chongqing, Guangdong, Guangxi, Guizhou, Hubei, Hunan and Jilin Provinces, Figs 307, 308, 310, 313, 315), Korea.

Genus *Oedothorax* Bertkau, 1883 (瘤胸蛛属)

Type species. *Neriene gibbosa* Blackwall, 1841; gender masculine.

Remark. *Oedothorax* comprises 38 species (including eight species known from males only and 11 from females only) distributed in worldwide (WSC 2024).

Oedothorax collinus Ma & Zhu, 1991 (毛丘瘤胸蛛)

Figsures 162–164, 313

Oedothorax collinus Ma & Zhu, 1991a: 27, figs 1–9 (♂♀); Song *et al.* 1999: 199, figs 113F–G, N (♂♀); Yin *et al.* 2012: 542, figs 258a–e (♂♀); Lin *et al.* 2022: 543 (incertae sedis).

Material examined: 1♀, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.33400°N, 110.42625°E, 1340 m, 28.IV.2016, W. Liu *et al.* leg.; 1♂, Xuanen Co., Shadaogou Town, Qizimei Mountain, 29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu *et al.*; 1♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95008°N, 109.02562°E, 863 m, 20.V.2017, G.C. Zhou *et al.* leg.; 1♀, Jietou Township, Datang Vill., Daheling Ganjiao, 25.74556°N, 98.69630°E, 2030 m, 15.V.2006, X.J. Peng *et al.* leg.

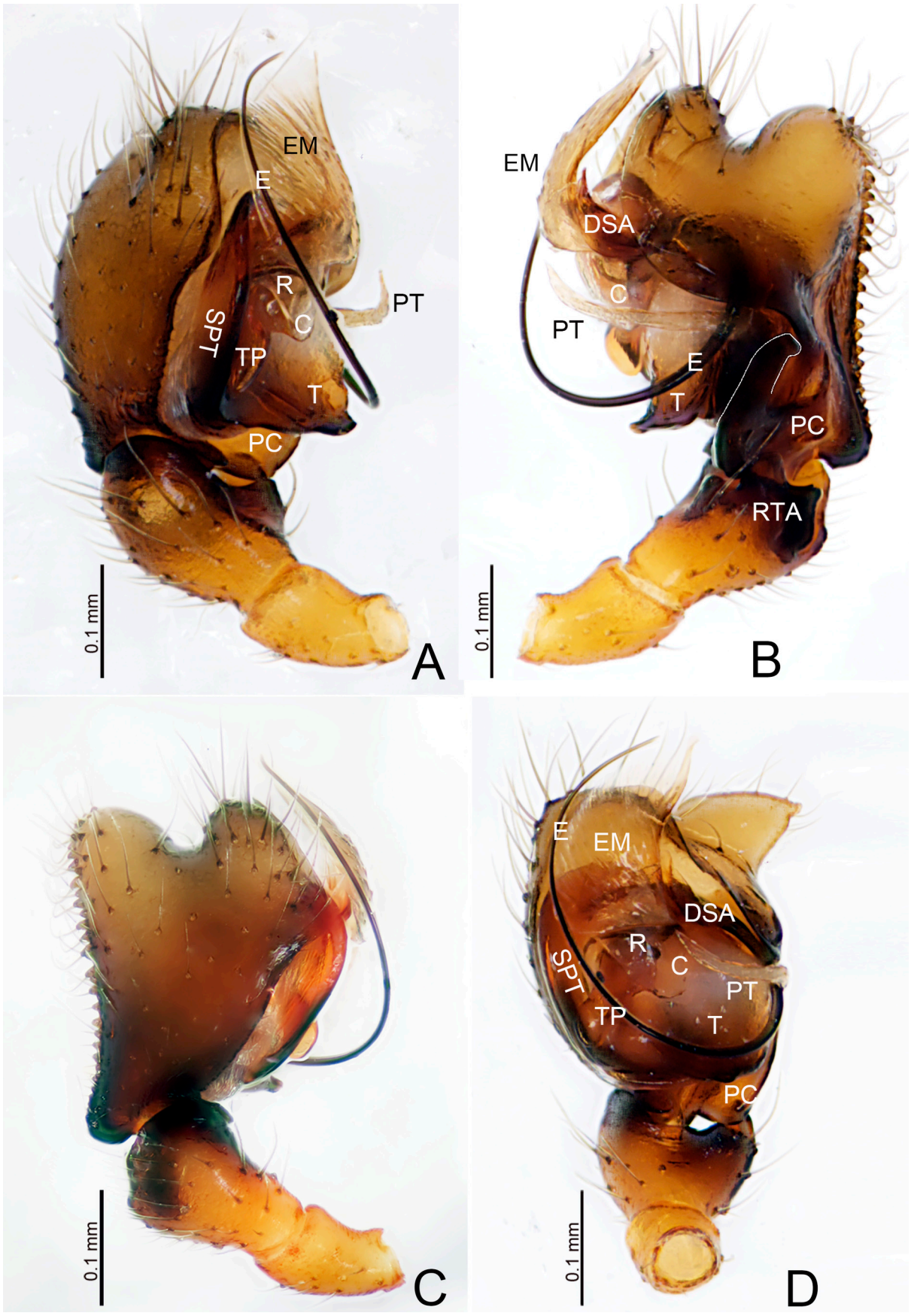


FIGURE 153. *Nematogmus sanguinolentus* (Walckenaer, 1841). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: C—column; DSA—distal suprategular apophysis; E—embolus; EM—embolic membrane; PC —paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece of radix.

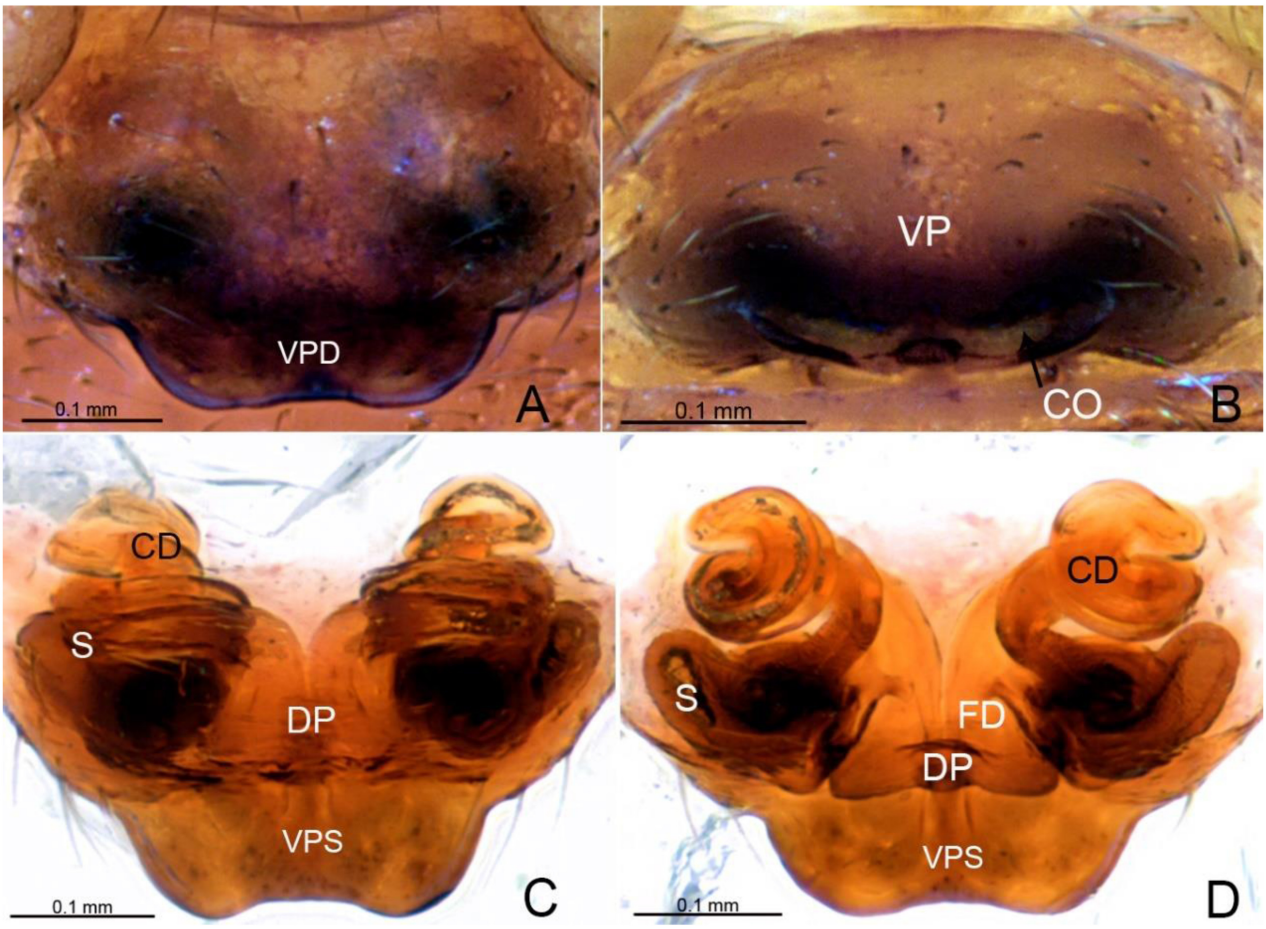


FIGURE 154. *Nematogmus sanguinolentus* (Walckenaer, 1841), female. **A**, **B** Epigyne, ventral view; **C**, **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

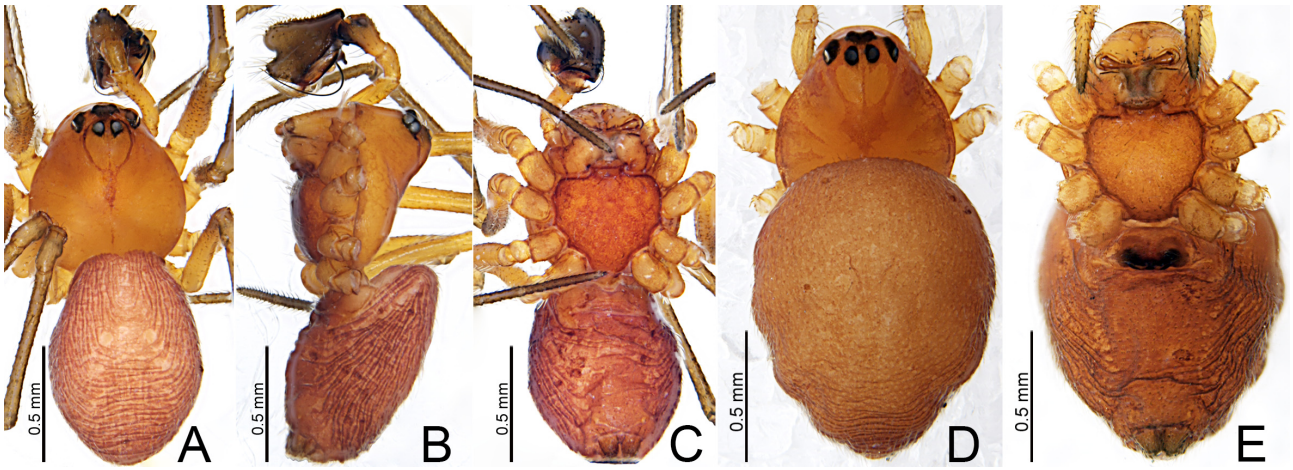


FIGURE 155. *Nematogmus sanguinolentus* (Walckenaer, 1841), male (A–C) and female (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

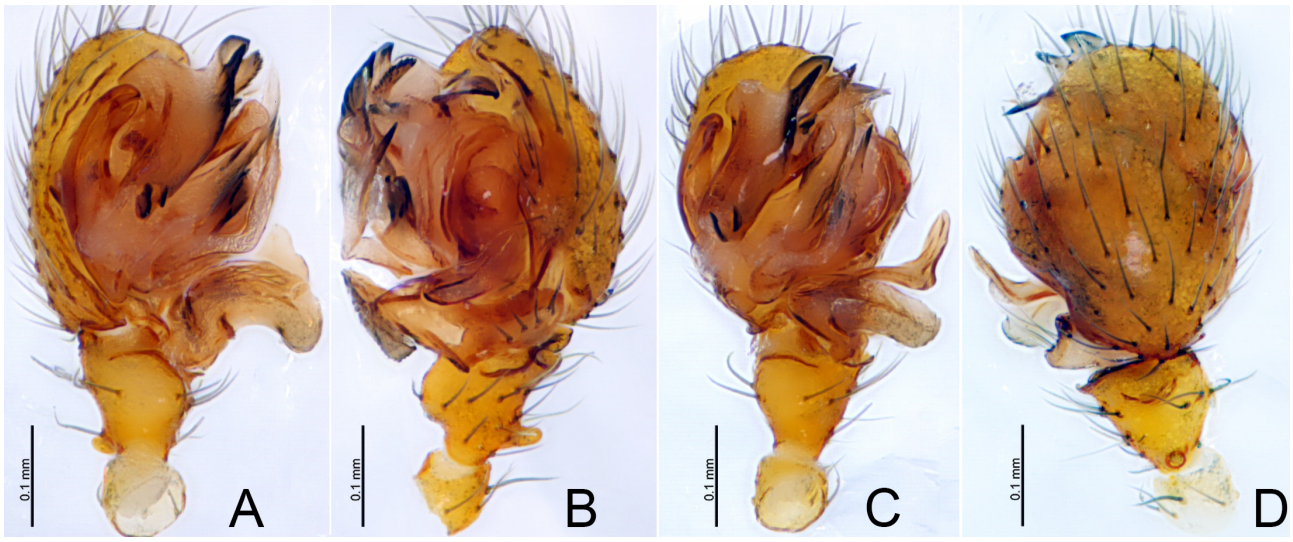


FIGURE 156. *Nippononeta alpina* (Li & Zhu, 1993). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

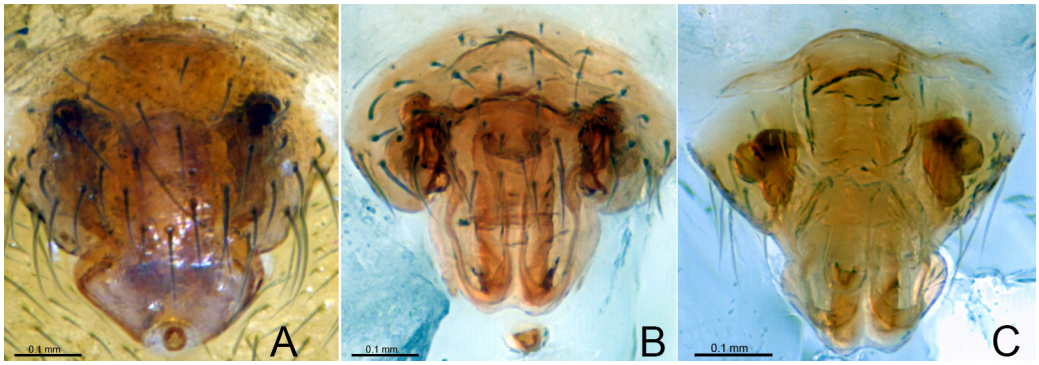


FIGURE 157. *Nippononeta alpina* (Li & Zhu, 1993), female. **A** Epigyne, ventral view; **B** Epigyne, lateral view; **C** Vulva, dorsal view.

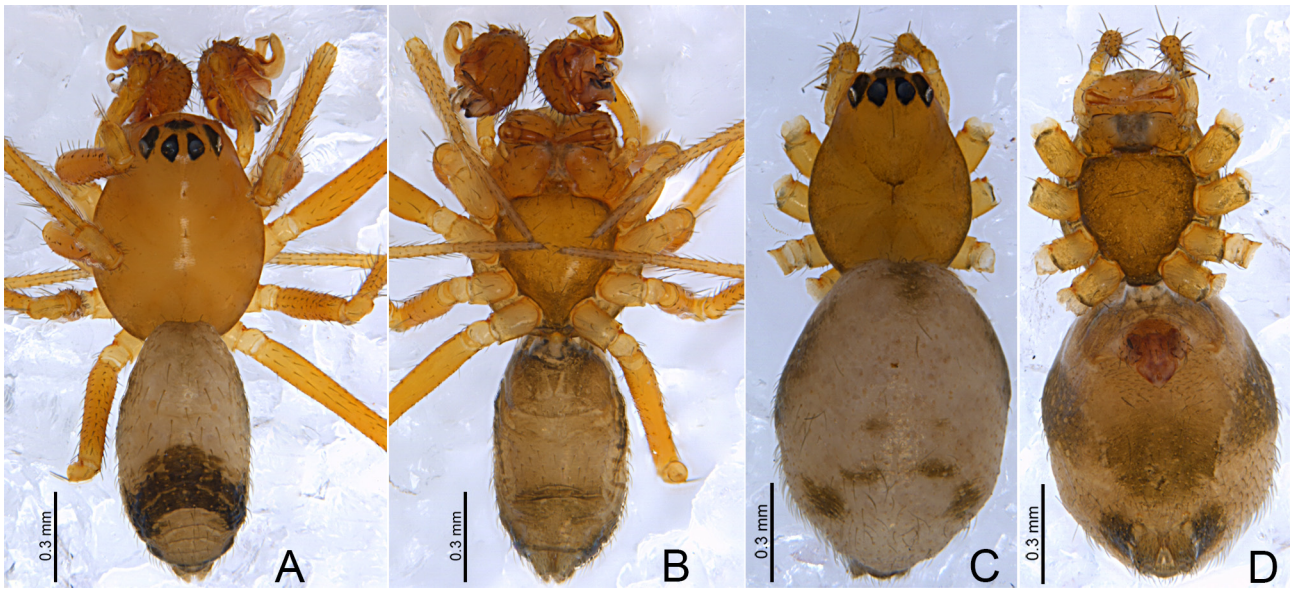


FIGURE 158. *Nippononeta alpina* (Li & Zhu, 1993), male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

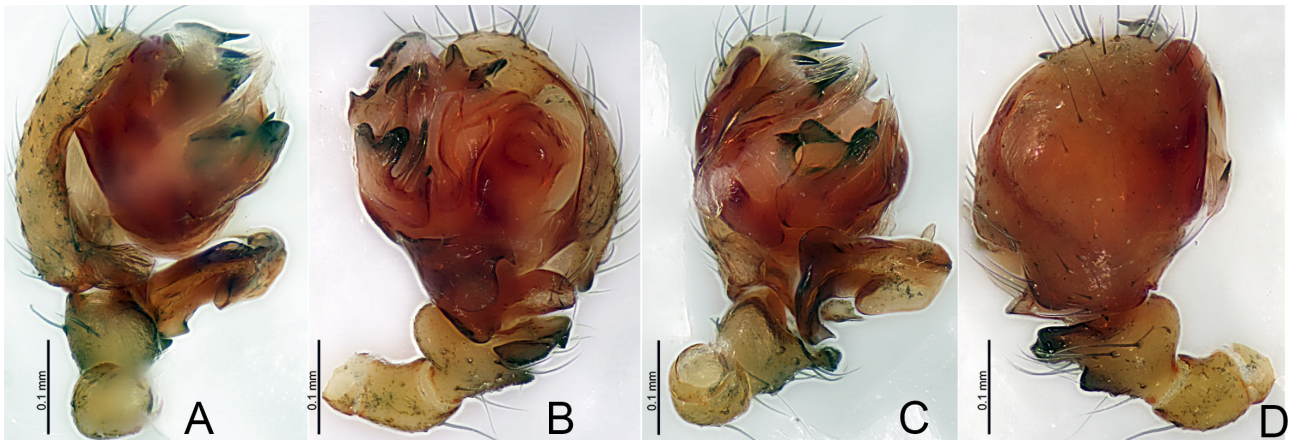


FIGURE 159. *Nippononeta coreana* (Paik, 1991) . **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

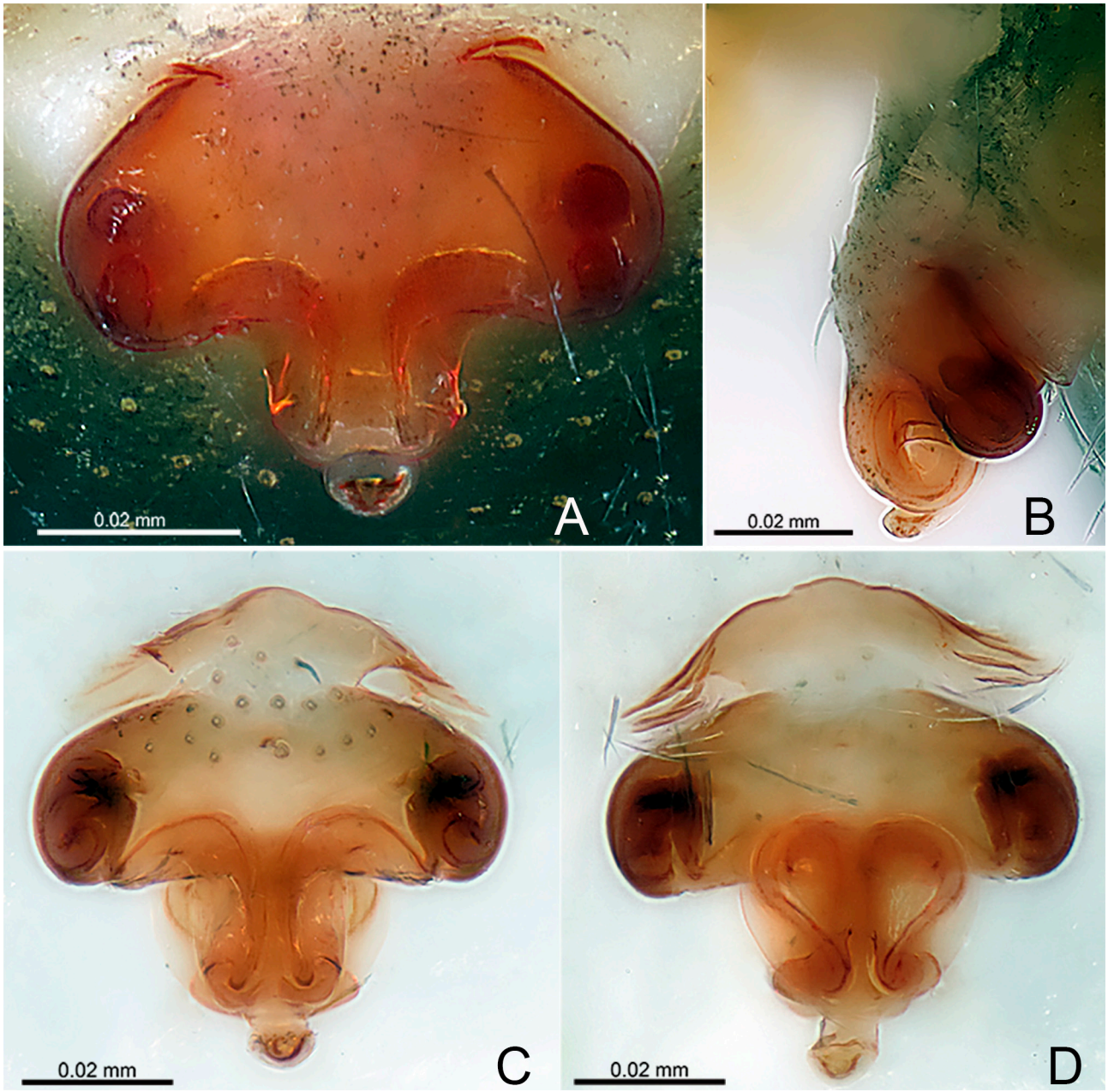


FIGURE 160. *Nippononeta coreana* (Paik, 1991), female. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view.

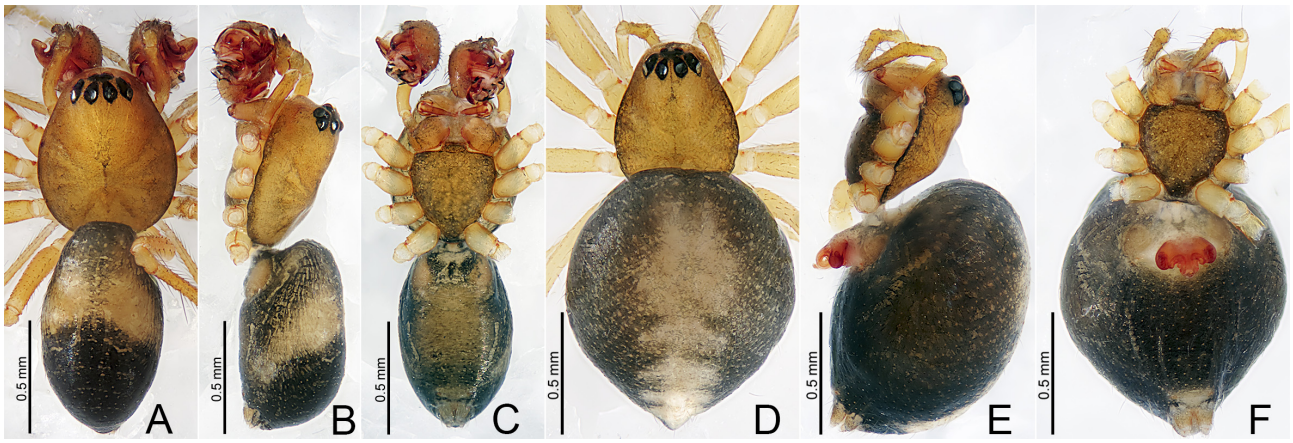


FIGURE 161. *Nippononeta coreana* (Paik, 1991), male (A–C) and female (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

Distribution. China (Hubei, Hunan and Guizhou Provinces, Fig. 313).

Oedothorax fortis Irfan, Zhang & Peng, sp. n. (粗壮瘤胸蛛)

Figures 165–168, 315

Types. Holotype ♂ (HNU–HNHS–18–08), **CHINA, Hunan Prov.:** Hengyang City, Nanyue District, Nanyue Town, Huangzhu Vill., 27.262258°N, 112.73683°E, 160 m, 18.I.2018, G.C. Zhou & L.Y. Wang leg. **Paratypes:** 3♂7♀, with same data as for holotype (HNU–HNHS–18–08); 1♀, Liuyang City, Mudu Vill., Daweishan NFP, 28.42459°N, 114.09753°E, 1212 m, 13.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–01); 2♀, Liuyang City, Mudu Vill., Daweishan NFP, 28.43567°N, 114.03376°E, 286 m, 14.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–04); 1♂3♀, Liuyang City, Mudu Vill., Daweishan NFP, 28.43388°N, 114.03376°E, 379 m, 14.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–05); 1♂1♀, Liuyang City, Liuyang City, Daweishan Town, Zhongduan Vill., 28.45404°N, 113.96450°E, 193 m, 14.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–06).

Etymology. The specific epithet is derived from the Latin adjective "*fortis, -e*" meaning "stout" and referring to embolus being stout.

Diagnosis. The male of *Oedothorax fortis* **sp. n.** resembles that of *O. unciger* Tanasevitch, 2020 in having the similar embolic division, protegulum and distal arm tip of paracymbium slightly curved (Figs 165A–D, 166A, B; Tanasevitch 2020, figs 7–12), but can be distinguished by the dorsal tibial apophysis longer than wide, tip curved with blunt end in *O. fortis* **sp. n.** (Fig. 165A, B, D; vs. distal end faintly bifid apically); embolus large, knife-shaped in *O. fortis* **sp. n.** (Fig. 166A, B; vs. small, bent near middle). The female of *Oedothorax fortis* **sp. n.** can be distinguished from all other congeners by the ventral plate tapering posteriorly and dorsal plate trapezoid (Figs 167A, B).

Description. Male (holotype, Figs 168A–C): Total length: 1.70. Carapace 0.77 long, 0.58 wide, yellowish brown, cephalic region strongly elevated, with cephalic pits, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum shield-like, yellow with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.05, PME 0.04, PLE 0.05 AME–AME 0.01, PME–PME 0.11, AME–ALE, 0.05, PME–PLE 0.06, AME–PME 0.13, ALE–ALE 0.23, PLE–PLE 0.25, ALE–PLE contiguous. Length of legs: I 1.88 (0.56, 0.66, 0.34, 0.32), II 1.72 (0.50, 0.60, 0.33, 0.29), III 1.45 (0.43, 0.49, 0.27, 0.26), IV 1.89 (0.59, 0.66, 0.36, 0.28). TmI 0.62 and TmIV 0.61. Tibial spine formula: 2-2-1-1. Opisthosoma 0.93 long, 0.66 wide, oval, dusky grey.

Palp (Figs 165A–D, 166A, B): Femur unmodified, as long as both patella and tibia. Patella as long as tibia, ventrally grooved. Tibia conical, wider at distal end, with one retrolateral and one dorsal trichobothria, dorsal tibial apophysis (DTA) longer than wide, tip slightly curved; cymbium unmodified, globular in dorsal view; paracymbium (PC) J-shaped, distal arm tip hook-shaped with blunt end, outer margin of basal part with five spines; tegulum (T) almost round, protegulum (PT) distinctly developed, membranous, almost completely covering the embolic division in retrolateral view; distal suprategular apophysis (DSA) with a small projection distally, sclerotized, apical end membranous. Radix (R) longer than wide, with round margin. Embolic membrane (EM) barely visible on undissected palp, with serrated end. Embolus (E) sclerotized, knife-shaped in prolateral view.

Female (paratype, Figs 168D, E): Total length: 1.71. Carapace 0.71 long, 0.53 wide, yellowish brown, cephalic region slightly elevated fovea, cervical and radial grooves distinct. Clypeus 0.13 high. Chelicerae with four promarginal and four retromarginal teeth. Sternum longer than wide, yellowish with grey patches and microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.06, PME 0.04, PLE 0.04, AME–AME 0.01, PME–PME 0.05, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.07,

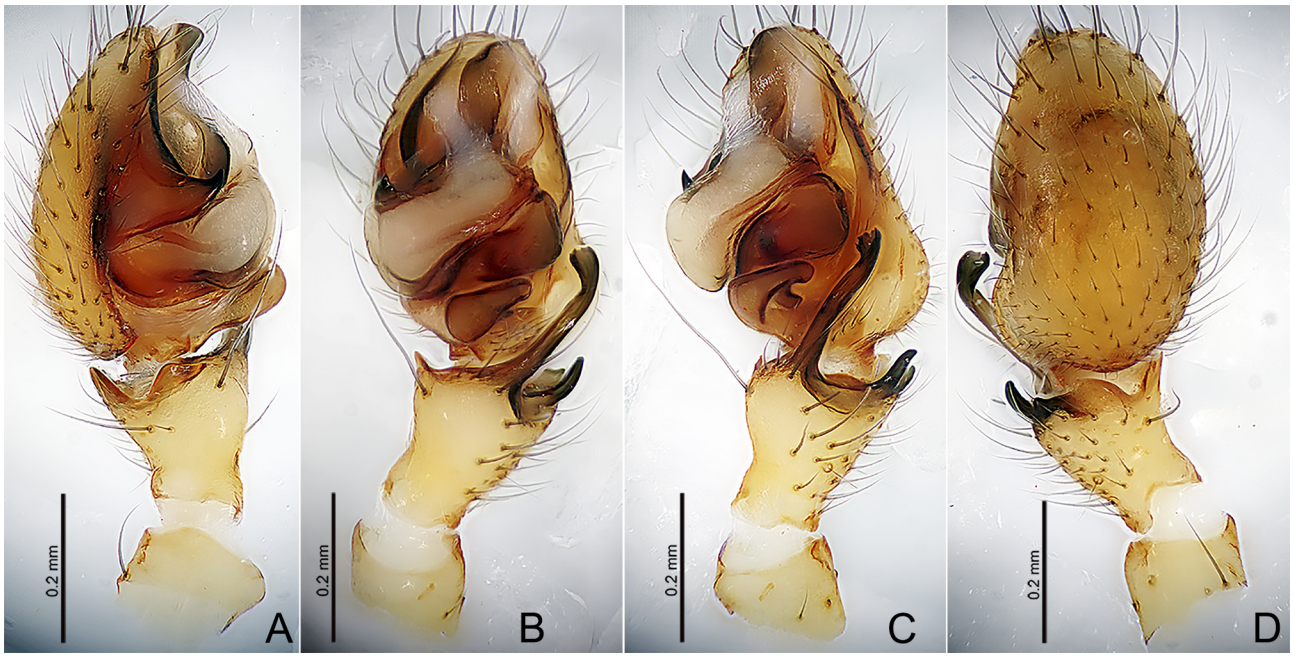


FIGURE 162. *Oedothorax collinus* Ma & Zhu, 1991, male. **A** Palp, prolateral view; **B** Palp, v ventral iew; **C** Palp, retrolateral view; **D** Palp, dorsal view.

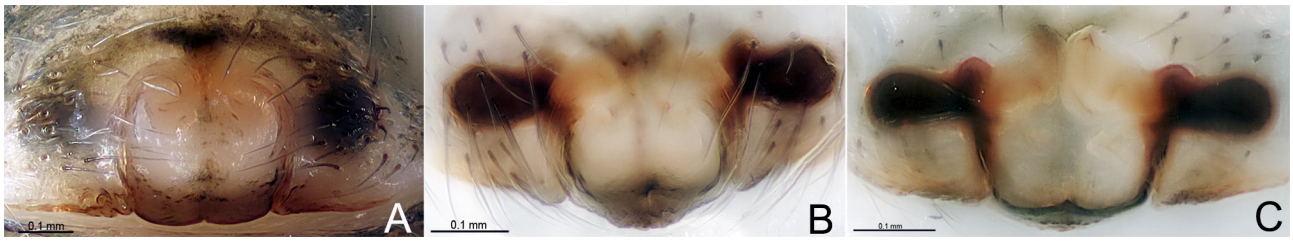


FIGURE 163. *Oedothorax collinus* Ma & Zhu, 1991, female. **A** Epigyne, ventral view; **B** Epigyne, lateral view; **C** Vulva, dorsal view.

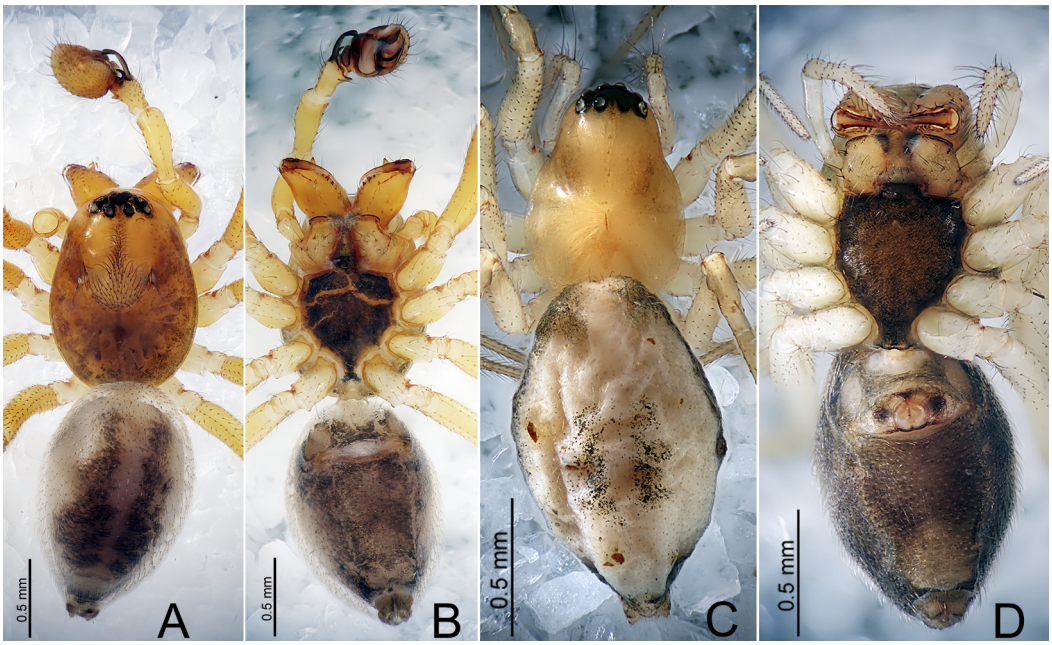


FIGURE 164. *Oedothorax collinus* Ma & Zhu, 1991, male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

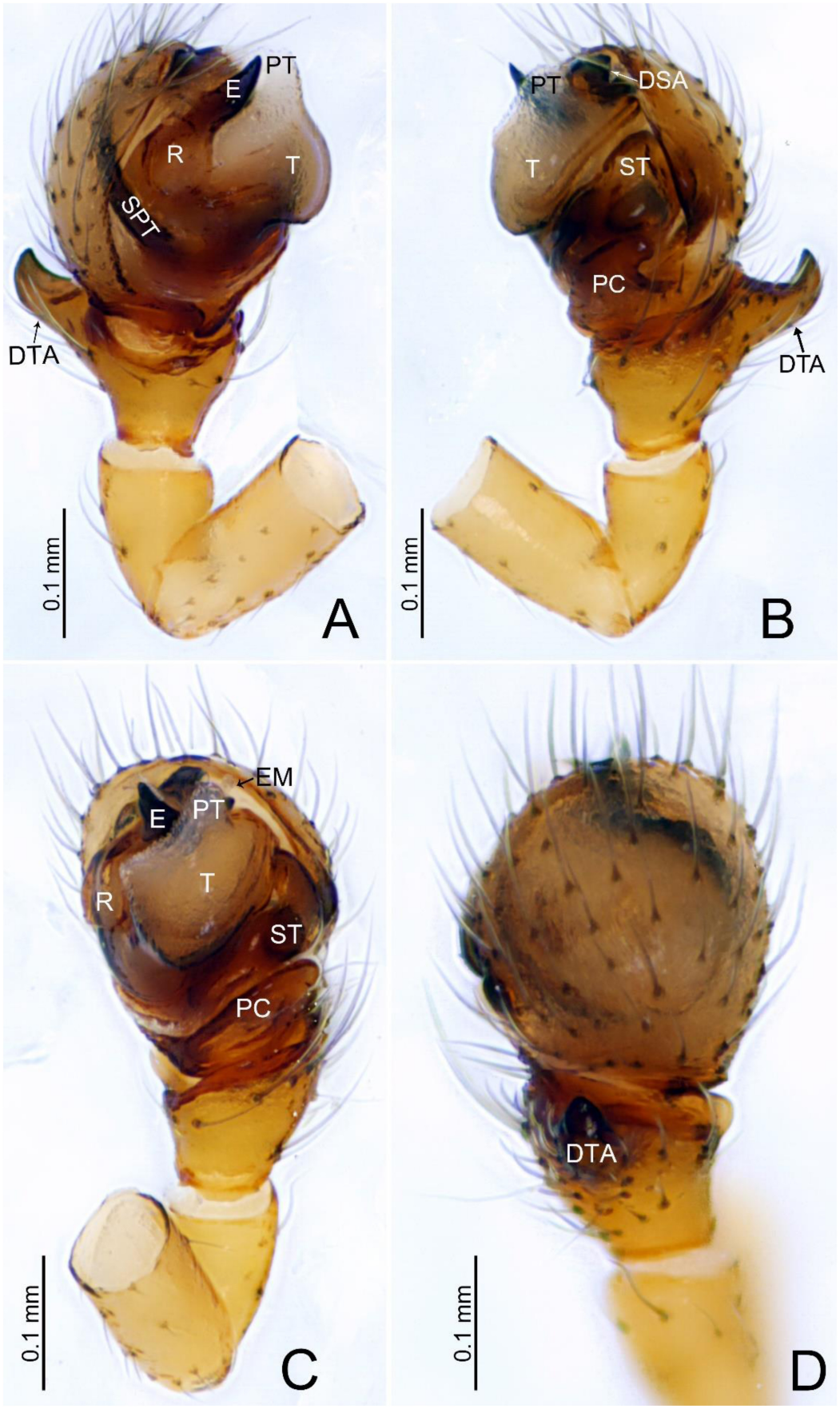


FIGURE 165. *Oedothorax fortis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; PC—paracymbium; PT—protegulum; R—radix; SPT—suprategulum; ST—subtegulum; T—tegulum.

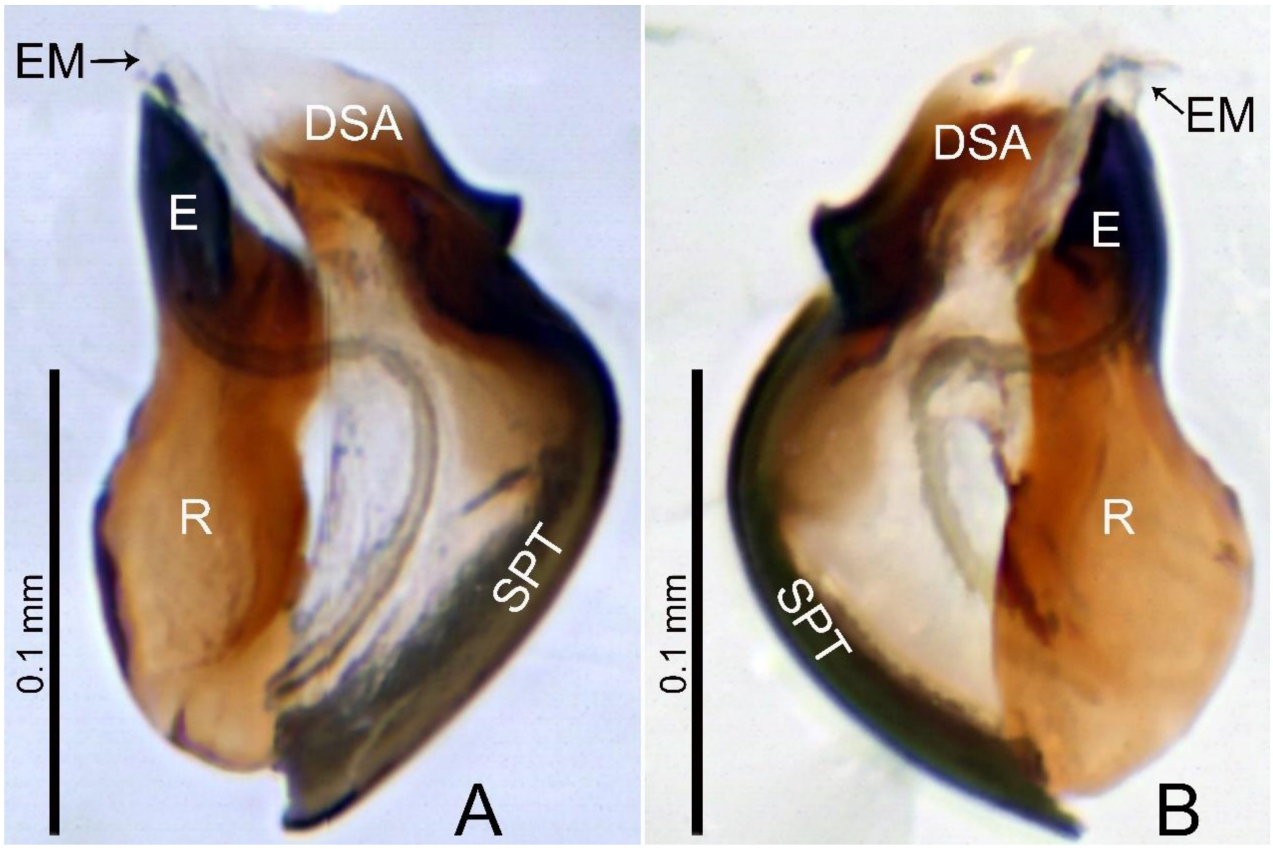


FIGURE 166. *Oedothorax fortis* **sp. n.**, male paratype palp. **A**, **B** Embolic division. Abbreviations: DSA—distal supratregular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; R—radix; SPT—suprategulum.

ALE–ALE 0.21, PLE–PLE 0.23, ALE–PLE contiguous. Length of legs: I 1.74 (0.53, 0.61, 0.31, 0.29), II 1.59 (0.49, 0.53, 0.29, 0.28), III 1.43 (0.42, 0.48, 0.27, 0.26), IV 1.84 (0.56, 0.66, 0.35, 0.27). TmI 0.65 and TmIV 0.61. Tibial spine formula: 2-2-1-1. Opisthosoma 1 long, 0.74 wide, oval, dusky grey, with irregular light patches, ventral side with one pair of longitudinal light grey band.

Epigyne (Figs 167A–D): Ventral plate (VP) sclerotized, posterior margin narrow, beaked-shaped, prominent in lateral view; dorsal plate (DP) not covered by ventral plate, posterior margin round; copulatory opening (CO) arched, present at the junction of dorsal and ventral plate; copulatory ducts (CD) simple, fused at the beginning; spermathecae (S) globular, present dorsolaterally; fertilization ducts (FD) short, extending mesally.

Distribution. Known only from the type localities (Hunan Province, Fig. 315).

Genus *Oia* Wunderlich, 1973 (伊亚蛛属)

Type species. *Oia sororia* Wunderlich, 1973; gender feminine.

Remark. *Oia* comprises six species distributed in China (Henan, Taiwan and Yunnan), India, Korea, Japan, Nepal, Russia (Far East) and Vietnam (WSC 2024).

Oia baiyunensis Irfan, Zhang & Peng, sp. n. (白云伊亚蛛)

Figures 169–171, 315

Types. Holotype ♂ **(**HNU–HN–IV–1715**), CHINA, Hunan Prov.:** Xiangxi, Baojing Co., Maogou Town, Baiping Vill., Baiyun MNNR, 28.61789°N, 109.40585°E, 298 m, G.C. Zhou *et al.* leg. **Paratypes:** 1♀, with same data as for holotype (HNU–HN–IV–1715).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Oia baiyunensis* **sp. n.** resembles *O. imadatei* in having similar thick, robust spine in male palp and ventral plate in epigyne in female (Figs 169A–D, 170A–D; Lv *et al.* 2015, figs 2A–E), but can be distinguished by the dorsal tibial apophysis short with broad distal end in *O. baiyunensis* **sp. n.** (Figs 169A–C; vs. two times longer than tibial apophysis of *O. baiyunensis* **sp. n.**); distal end of embolus relatively thick in *O. baiyunensis* **sp. n.** (Figs 169A, D; vs. filiform); copulatory openings present mid ventrally lower to anterior margin of epigynal plate in *O. baiyunensis* **sp. n.** (Figs 170A–D; vs. present mid ventrally at the anterior margin of epigynal plate); spermathecae kidney-shaped in *O. baiyunensis* **sp. n.** (Figs 170A–D; vs. round).

Description. Male (holotype, Figs 171A, B): Total length: 1.38. Carapace 0.61 long, 0.45 wide, yellow, cephalic region elevated, ocular quad triangular, mid

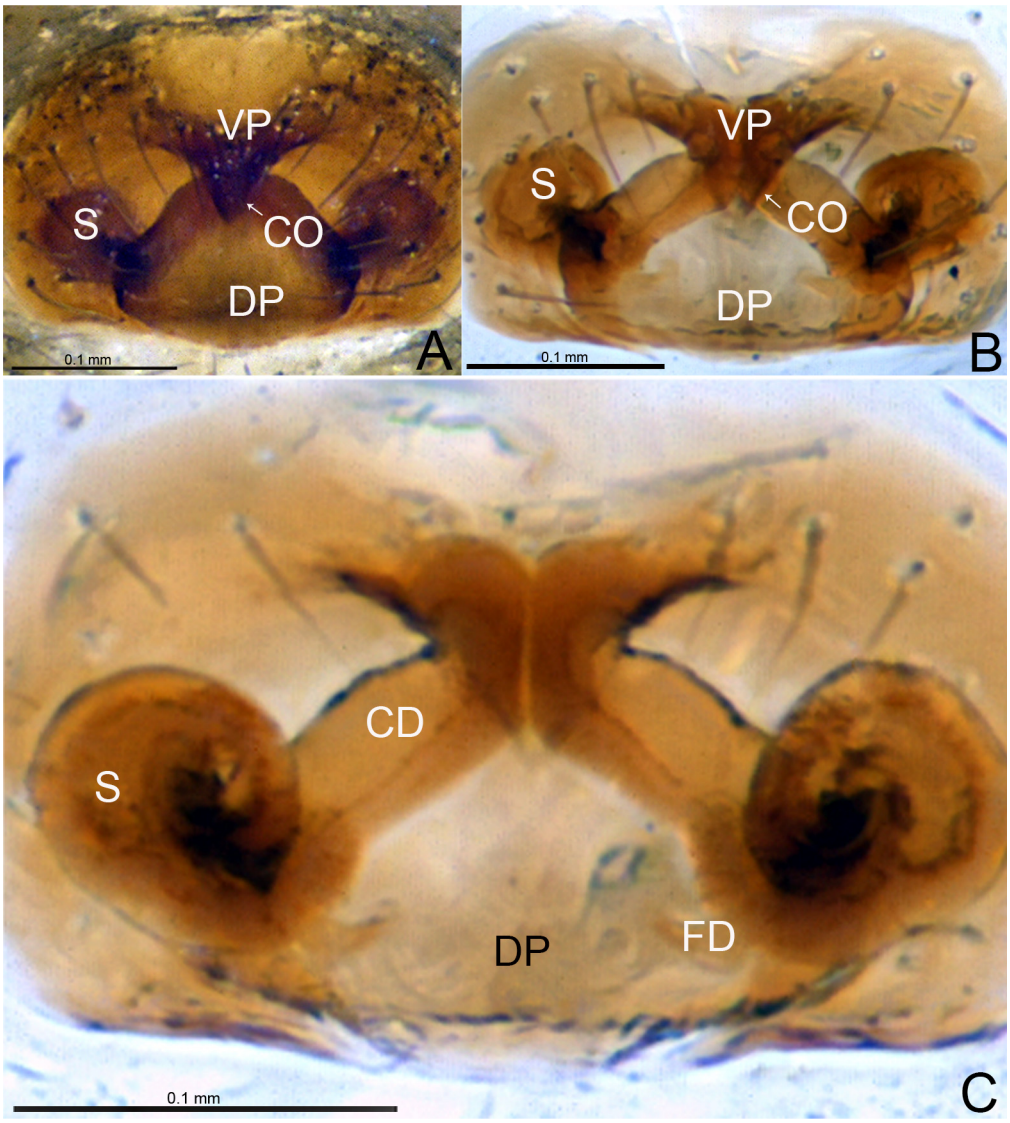


FIGURE 167. *Oedothorax fortis* **sp. n.**, female (one of paratypes). **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

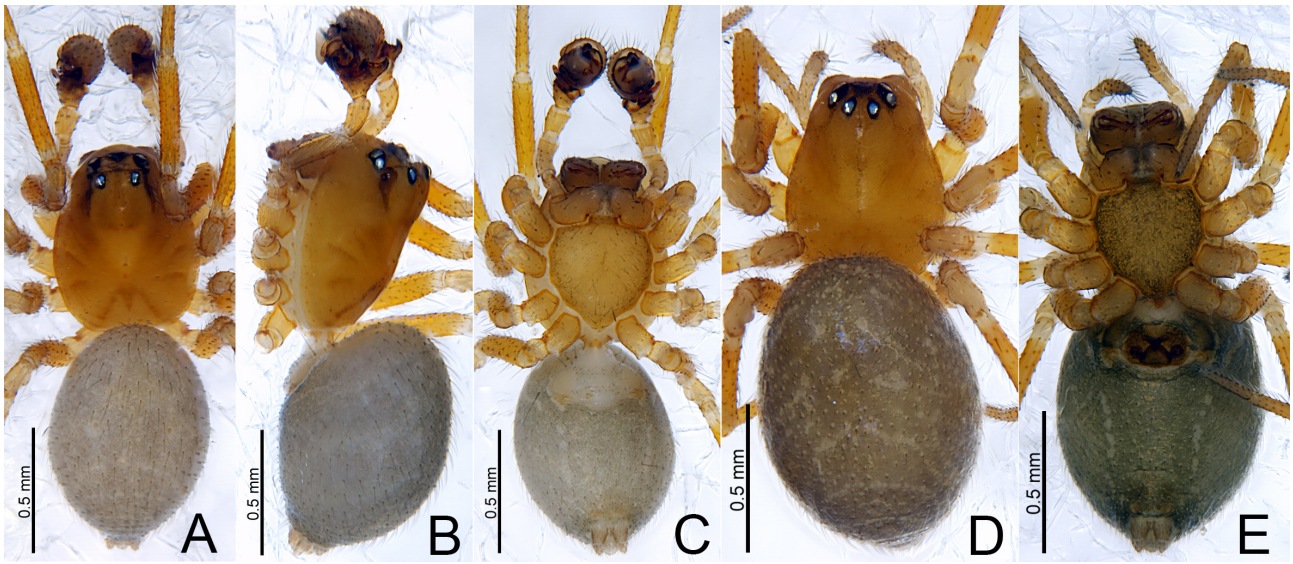


FIGURE 168. *Oedothorax fortis* **sp. n.**, male holotype (A–C) and female paratype (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

dorsally with three setae, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wider, yellowish grey with microsetae. Eyes: AER recurved, PER slightly recurved, wider than AER. Eye sizes and interdistances: AME 0.02, ALE 0.04, PME 0.03, PLE 0.04, AME–AME 0.01, PME–PME 0.01, AME–ALE, 0.01, PME–PLE 0.01, AME–PME 0.04, ALE–ALE 0.12, PLE–PLE 0.14, ALE–PLE contiguous. Length of legs: I 1.44 (0.44, 0.50, 0.24, 0.26), II 1.31 (0.39, 0.44, 0.23, 0.25), III 1.11 (0.34, 0.36, 0.20, 0.21), IV 1.43 (0.45, 0.49, 0.26, 0.23). TmI present and TmIV absent. Tibial spine formula: 1-1-1-1. Opisthosoma 0.77 long, 0.46 wide, oval, yellow.

Palp (Figs 169A–D): Femur unmodified, as long as both patella and tibia. Patella one and half times longer than tibia. Tibia mid dorsally with a thick, robust spine, with one retrolateral trichobothria, dorsal tibial apophysis (DTA) sclerotized, with beak-shaped in prolateral view with pointed end; cymbium unmodified, globular in ventral view; paracymbium (PC) C-shaped; distal suprategular apophysis (DSA) robust, proximally with small tooth. Median membrane (MM) arises from the ventral side of the radix, broad, oval, extending upward; embolus (E) long, thick, sclerotized, arises at 6 o'clock, slightly extending above the cymbium.

Female (one of paratype, Figs 171C, D): Total length: 1.23. Carapace 0.58 long, 0.42 wide, yellow, cephalic region elevated, ocular quad triangular, mid dorsally three setae, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wider, yellowish grey with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.02, ALE 0.04, PME 0.03, PLE 0.04, AME–AME 0.02, PME–PME 0.01, AME–ALE, 0.01, PME–PLE 0.01, AME–PME 0.04, ALE–ALE 0.15, PLE–PLE 0.17, ALE–PLE contiguous. Length of legs: I 1.22 (0.38, 0.41, 0.21, 0.22), II 1.16 (0.37, 0.39, 0.20, 0.20), III 0.95 (0.31, 0.28, 0.18, 0.18), IV 1.19 (0.37, 0.40, 0.21, 0.21). TmI present and TmIV absent. Tibial spine formula: 1-1-1-1. Opisthosoma 0.76 long, 0.43 wide, oval, yellow.

Epigyne (Figs 170A–D): Ventral plate (VP) longer than wide, posterior end round; copulatory opening (CO) present anteriorly on ventral plate; copulatory ducts (CD) long, sinuous; spermathecae (S) present dorso-laterally at the anterior end of epigyne; fertilization ducts (FD) small, extending mesally.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Oia lata Irfan, Zhang & Peng, sp. n. (宽伊亚蛛)

Figures 172, 173, 315

Types. Holotype ♂ (HNU–HN–IV–1759), **CHINA, Hunan Prov.:** Shaoyang City, Suining Co., Zhaishi Town, Tieshanlin Vill., Huangshan NNR, 26.37646°N, 110.10573°E, 1129 m, 26.X.2017, G.C. Zhou leg. **Paratype:** 1♂, with same data as for holotype (HNU–HN–IV–1759).

Etymology. The specific epithet is derived from the Latin adjective "*latus*" meaning "broad" and referring to the broad prolateral tibial apophysis in male palp.

Diagnosis. *Oia lata* **sp. n.** resembles *O. breviprocessia* and *O. imadatei* in having the similar thick, robust tibial dorsal spine (Figs 172A–D; Song & Li, 2010, figs 40–44; Lv *et al.* 2015, figs 2A–E), but can be distinguished by the tibia with three apophyses in *O. lata* **sp. n.** (Figs 172A–D; vs. with one tibial apophysis both in *O. breviprocessia* and *O. imadatei*).

Description. Male (holotype, Figs 173A, B): Total length: 1.37. Carapace 0.67 long, 0.49 wide, yellow, cephalic region elevated, ocular quad triangular, mid dorsally with 4 setae, cervical and radial grooves distinct Clypeus 0.14 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wider, yellow with microsetae. Eyes: AER recurved, PER slightly recurved, wider than AER. Eye sizes and interdistances: AME 0.02, ALE 0.04, PME 0.03, PLE 0.03, AME–AME 0.02, PME–PME 0.01, AME–ALE, 0.01, PME–PLE 0.02, AME–PME 0.05, ALE–ALE 0.13, PLE–PLE 0.14, ALE–PLE contiguous. Length of legs: I 1.65 (0.52, 0.57, 0.28, 0.28), II 1.59 (0.48, 0.53, 0.28, 0.30), III 1.26 (0.37, 0.41, 0.24, 0.24), IV 1.67 (0.53, 0.56, 0.32, 0.26). TmI present and TmIV absent. Tibial spine formula: 1-1-1-1. Opisthosoma 0.80 long, 0.53 wide, oval, dusky grey.

Palp (Figs 172A–D): Femur unmodified, as long as both patella and tibia. Patella with the distal end broader than the proximal, almost equal to the collective length of tibia and cymbium. Tibia with one retrolateral and one dorsal trichobothria, with a long, dorsal thick spine, with curved pointed tip extending beyond the dorsal tibial apophysis; retrolateral tibial apophysis (RTA) wider than long, with round margin; dorsal tibial apophysis (DTA) somewhat triangular in dorsal view, prolateral tibial apophysis (PTA) triangular, gradually narrow towards tip; cymbium unmodified, globular in ventral view; paracymbium (PC) sclerotized, J-shaped, distal arm tip hook-shaped; tegulum (T) with a transparent protegulum (PT); distal suprategular apophysis (DSA) sclerotized, long, slightly curved, protruding above the apex of cymbium;. Tailpiece (TP) of embolic division prominent, wider than long, tongue-shaped in ventral view; median membrane (MM) with distal broad end, covered by the tailpiece in ventral view; embolus (E) sclerotized, long with pointed end.

Female. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Oia yinae Irfan, Zhang & Peng, sp. n. (尹氏伊亚蛛)

Figures 174–176, 307, 315

Types. Holotype ♂ (HNU–CQ–IV–1718), **CHINA, Chongqing:** Youyang Co., Taohuayuan Scenic Spot, 28.85096°N, 108.75037°E, 995 m, 23.VII.2017, M. Irfan & G.C. Zhou leg. **Paratypes:** 3♂7♀, with same data as for holotype (HNU–CQ–IV–1718); 1♀, Chongqing, Youyang Co., Taohuayuan Scenic Spot, 28.852636°N, 108.754442°E, 954 m, 26.V.2017, G.C. Zhou *et al.* leg.

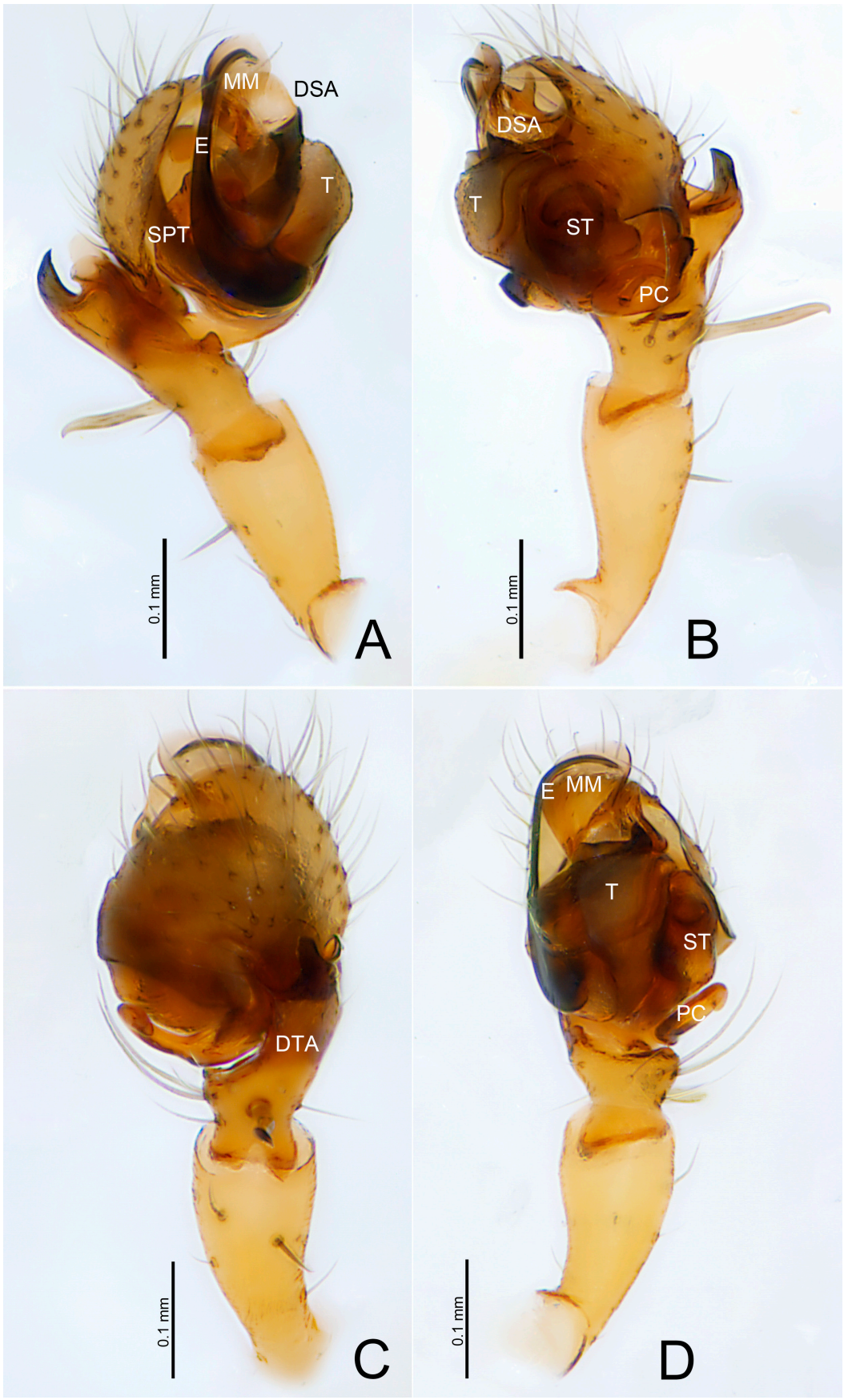


FIGURE 169. *Oia baiyunensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; MM—median membrane; PC—paracymbium; SPT—suprategulum; ST—subtegulum; T—tegulum.

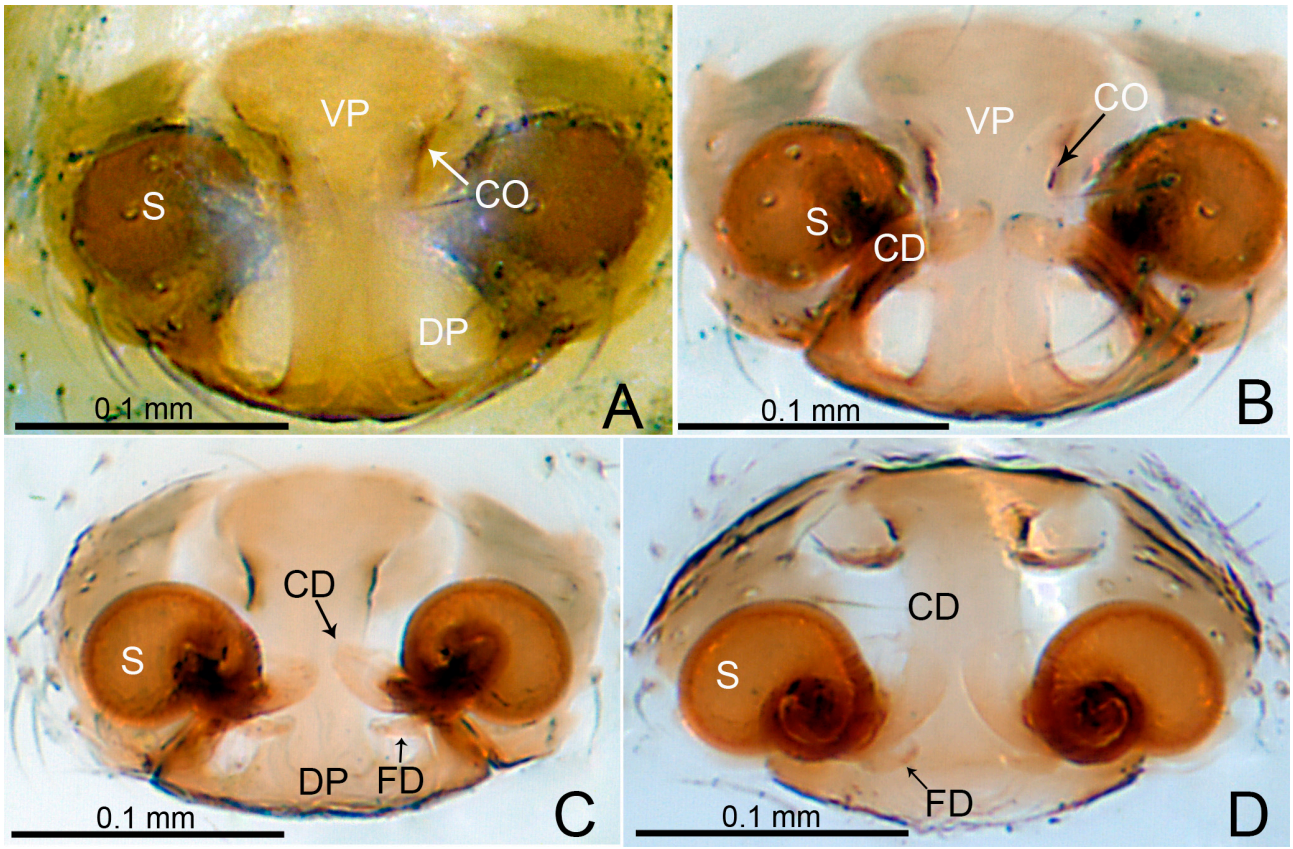


FIGURE 170. *Oia baiyunensis* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C**, **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

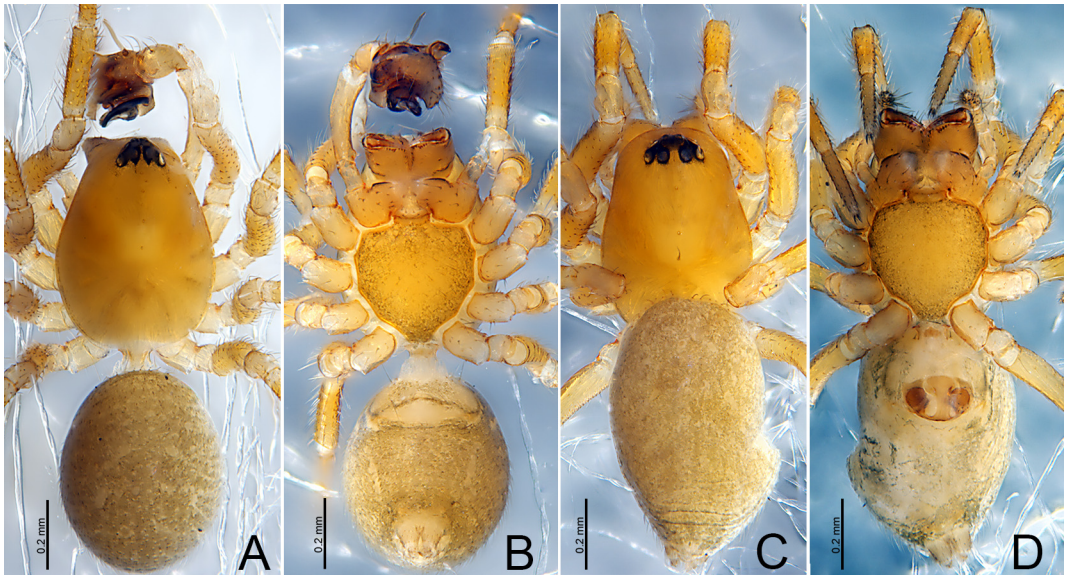


FIGURE 171. *Oia baiyunensis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

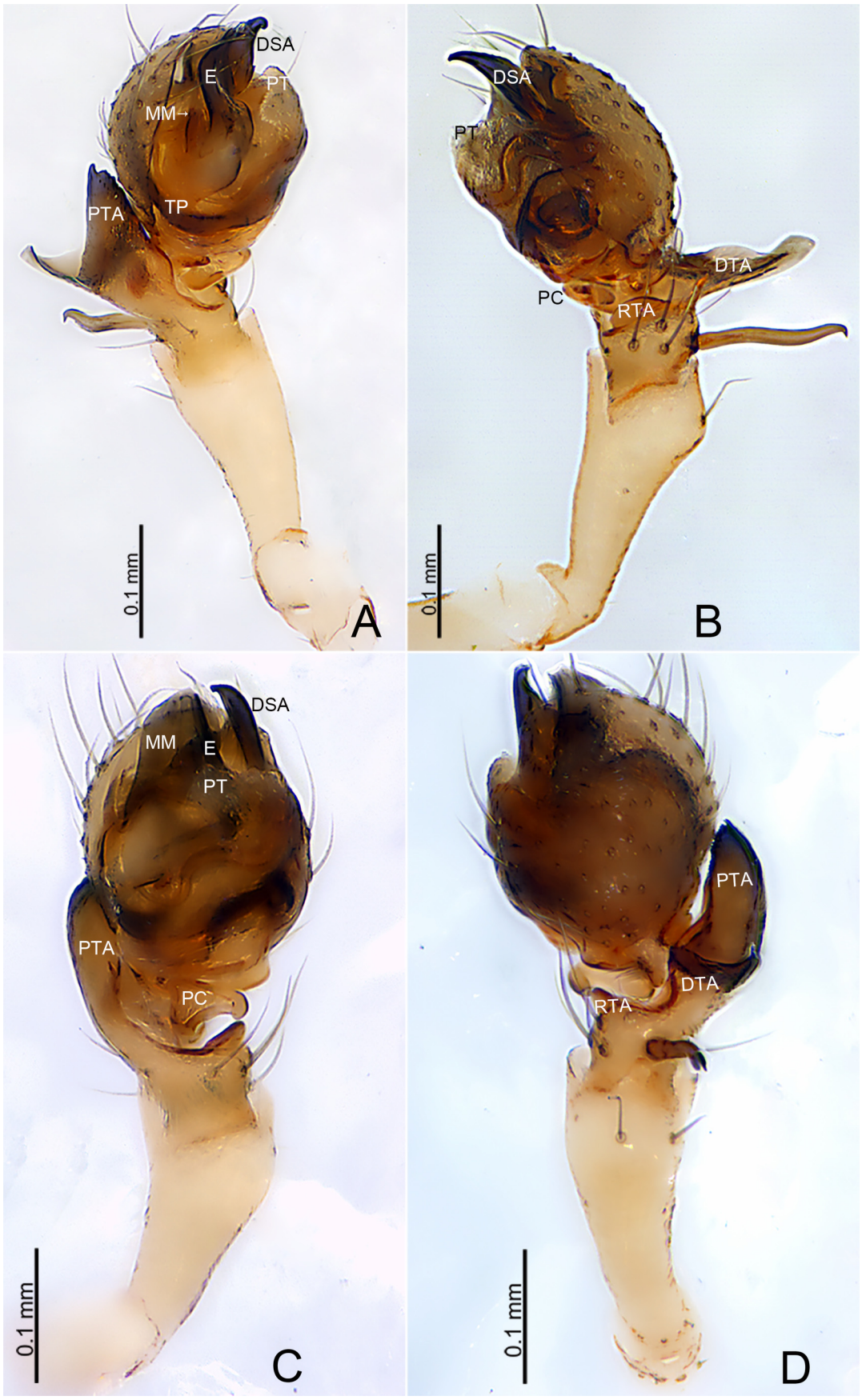


FIGURE 172. *Oia lata* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; MM—median membrane; PC—paracymbium; PTA—prolateral tibial apophysis; RTA—retrolateral tibial apophysis; ST—subtegulum; T—tegulum.

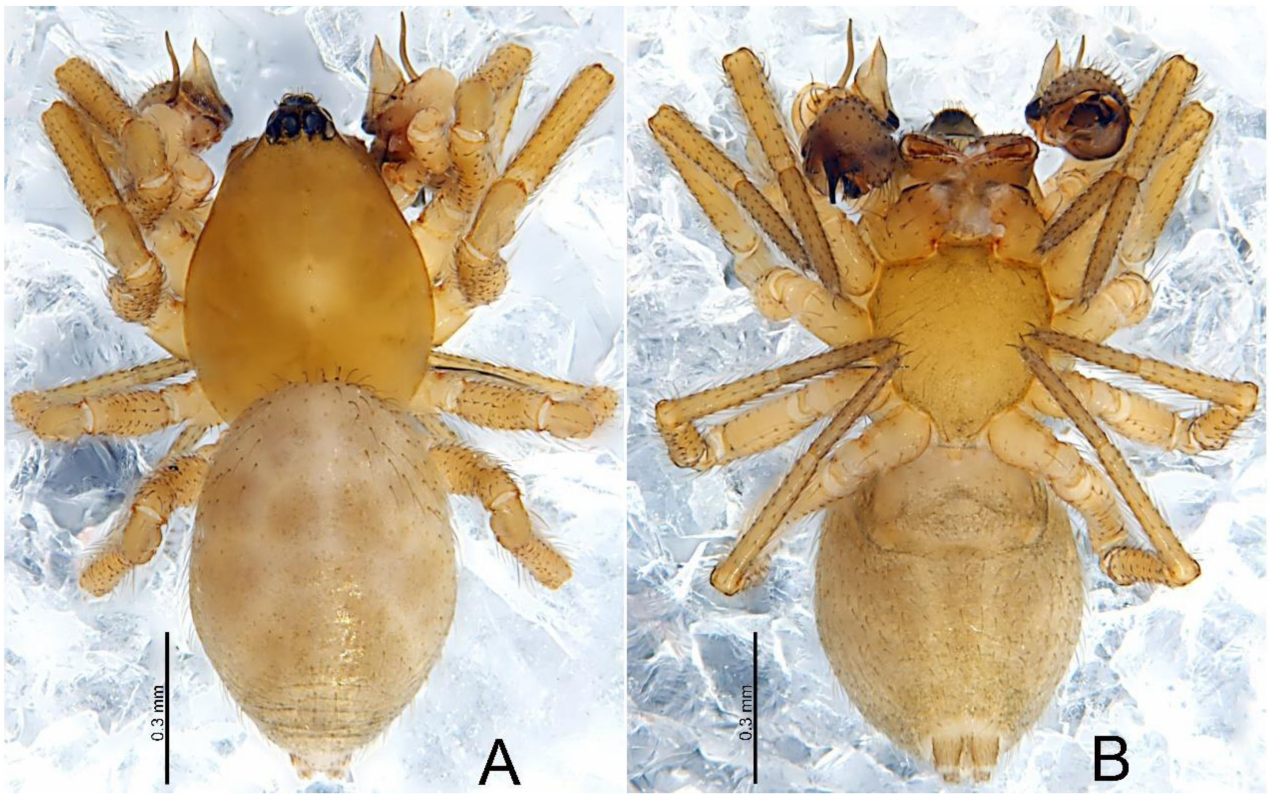


FIGURE 173. *Oia lata* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

(HNU–CQ–IV–1709); **Hunan Prov.:** 2♂2♀, Changsha City, Yuelu District, Yuelu Mountain, 28.19012°N, 112.94269°E, 141 m, 06.XI.2016, Irfan M. & Zhou G.C.; 3♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.100208°N, 112.658819°E, 189 m, 10.V.2017, G.C. Zhou *et al.* leg. (HNU–HN–IV–1707); 1♂, Liuyang City, Mudu Vill., Daweishan NFP, 28.43567°N, 114.03376°E, 286 m, 14.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–04).

Etymology. The epithet is the patronym in honor of Prof. Yin C.M. (late), who contributed to the taxonomy of Chinese spiders; noun in gentive case.

Diagnosis. *Oia yinae* **sp. n.** resembles *O. imadatei* in having tibia with a long, thick spine and all the parts of epigyne with the similar pattern (Figs 174A–E, 175A–C; Lv *et al.* 2015, figs 2A–E), and can be distinguished by the paracymbium C-shaped in *O. yinae* **sp. n.** (Figs 174B, D; vs. J-shaped); embolus long, thick, sclerotized, arises from the ventral side of the radix, strongly curved almost touches the retrolateral margin of cymbium in *O. yinae* **sp. n.** (Figs 174A–E; vs. short, arises from the prolateral side of the palp); distal tip of dorsal tibial apophysis beak-shaped in *O. yinae* **sp. n.** (Figs 174B, D; vs. sickle-shaped). Copulatory ducts anteriorly protruding above the spermathecae in *O. yinae* **sp. n.** (Figs 175A–C; vs. retained below the spermathecae).

Description. Male (holotype, Figs 176A–C): Total length: 1.07. Carapace 0.53 long, 0.44 wide, yellow, cephalic region elevated, ocular quad triangular, mid dorsally three setae, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wider, yellow with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.02, ALE 0.04, PME 0.03, PLE 0.04, AME–AME 0.005, PME–PME 0.01, AME–ALE, 0.01, PME–PLE 0.01, AME–PME 0.05, ALE–ALE 0.11, PLE–PLE 0.13, ALE–PLE contiguous. Length of legs: I 1.35 (0.43, 0.48, 0.22, 0.22), II 1.20 (0.38, 0.43, 0.20, 0.19), III 1 (0.31, 0.32, 0.20, 0.17), IV 1.30 (0.41, 0.44, 0.25, 0.20). TmI present and TmIV absent. Tibial spine formula: 1-1-1-1. Opisthosoma 0.69 long, 0.46 wide, oval, dusky grey with irregular green patches, ventral side dusky grey to light green.

Palp (Figs 174A–E): Femur unmodified, almost longer than both patella and tibia. Patella 1/2 length of the cymbium; the tibia mid dorsally with a thick, robust spine, with one dorsal trichobothria, dorsal tibial apophysis (DTA) sclerotized, with blunt end; cymbium conical, broad at distal end; paracymbium (PC) semicircular with blunt tip.. Median membrane (MM) arises from the ventral side of the radix, broad, curved, covering most of the internal structures; tailpiece (TP) of embolic division sclerotized, slightly curved, pointing towards tibia; embolus (E) long, thick, sclerotized, arises from the ventral side of the radix, strongly curved almost touches the retrolateral margin of cymbium.

Female (one of paratype, Figs 176D–F): Total length: 1.19. Carapace 0.52 long, 0.39 wide, yellow, cephalic region elevated, ocular quad triangular, mid dorsally three setae, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wider, yellow

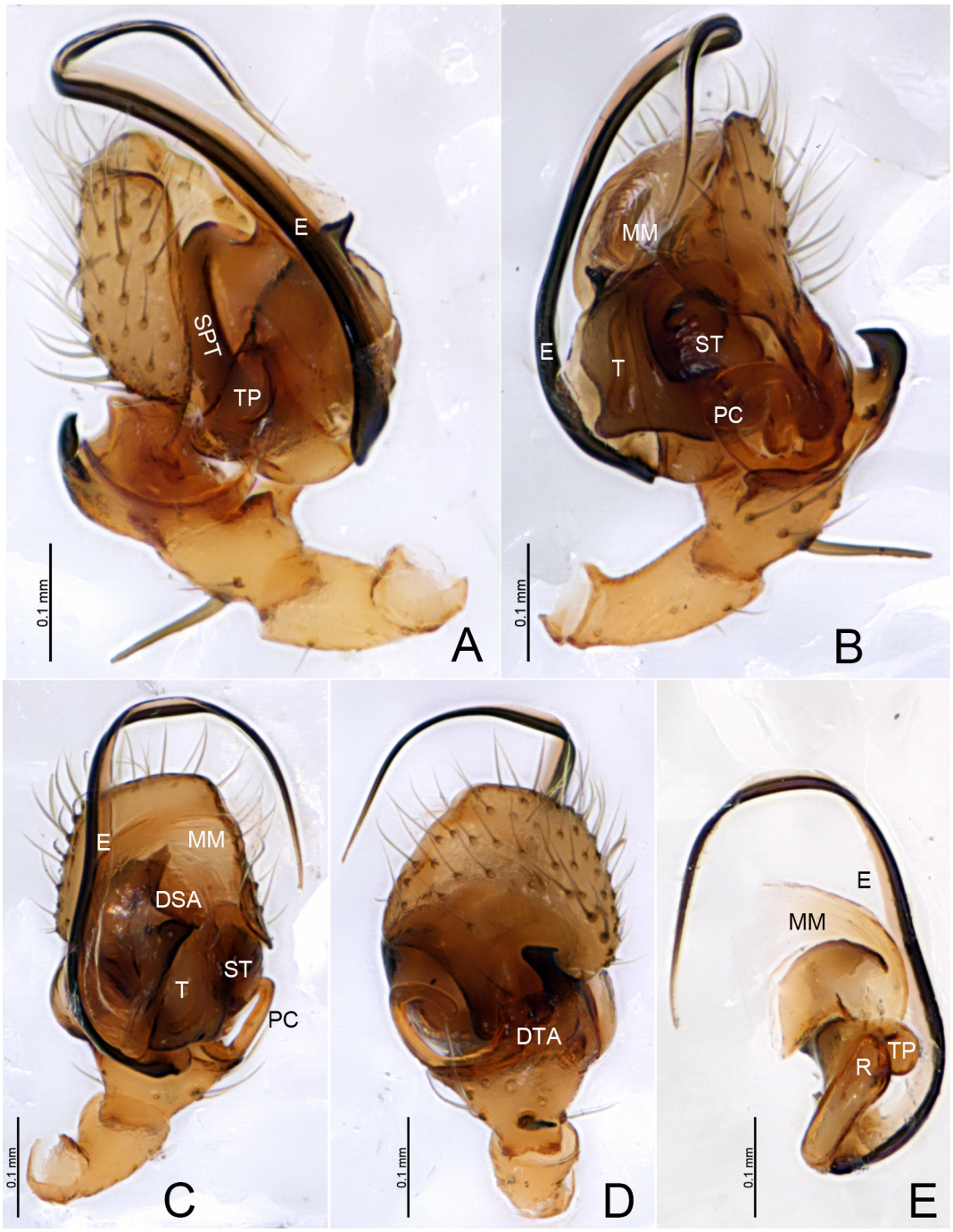


FIGURE 174. *Oia yinae* **sp. n.**, male holotype (A–D), male (one of paratypes, E). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view; **E** Embolic division, dorsal view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; MM—median membrane; PC—paracymbium; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece of radix.

with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.01, PME–PME 0. 03, AME–ALE, contiguous, PME–PLE 0.01, AME–PME 0.03, ALE–ALE 0.14, PLE–PLE 0.16, ALE–PLE contiguous. Length of legs: I 1.14 (0.38, 0.39, 0.18, 0.19), II 1.06 (0.35, 0.36, 0.17, 0.18), III 0.88 (0.27, 0.29, 0.16, 0.16), IV 1.11 (0.36, 0.41, 0.16, 0.18). TmI present and TmIV absent. Tibial spine formula: 1-1-1-1. Opisthosoma 0.77 long, 0.55 wide, oval, dusky grey with irregular yellow patches, ventral side dusky grey with green patches.

Epigyne (Figs 175A–C): Ventral plate (VP) longer than wide, concave, posterior end round, relatively broad than anterior end; copulatory opening (CO) present anteriorly on ventral plate; copulatory ducts (CD) long, anteriorly protruding above the spermathecae; spermathecae (S) globular, present dorso-laterally at the anterior end of epigyne; fertilization ducts (FD) small, extending mesally.

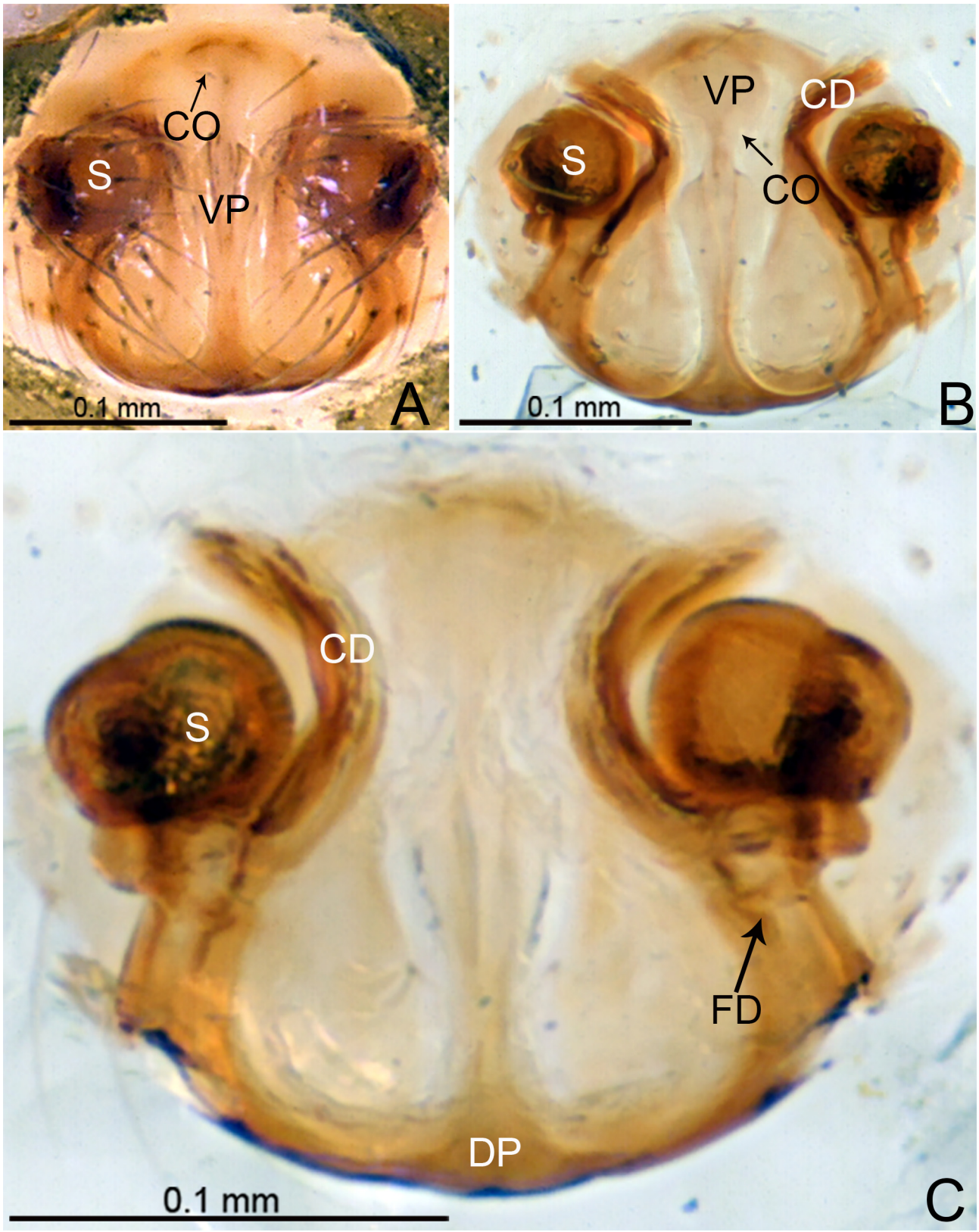


FIGURE 175. *Oia yinae* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

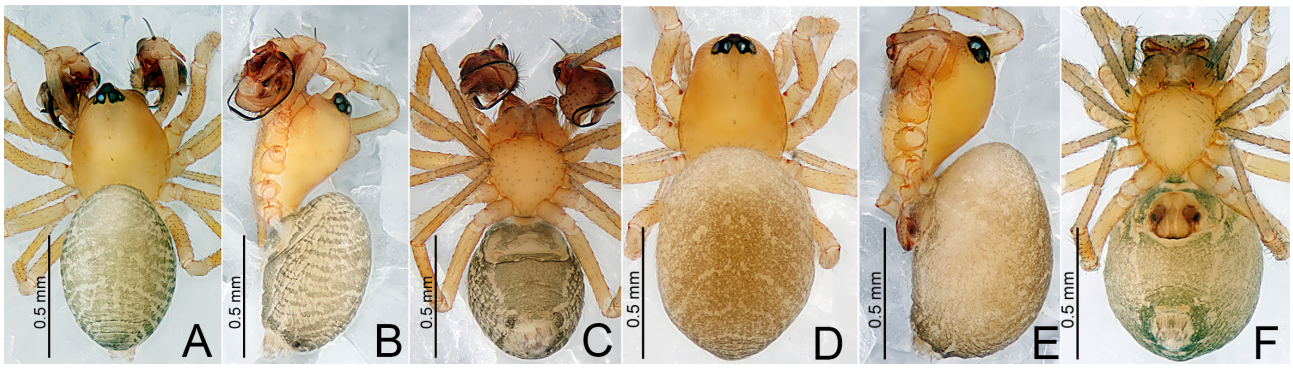


FIGURE 176. *Oia yinae* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

Distribution. Known only from the type localities (Chongqing and Hunan Province, Figs 307, 305).

Genus *Oilinyphia* Ono & Saito, 1989 (奥皿蛛属)

Type species. *Oilinyphia peculiaris* Ono & Saito, 1989.

Remark. *Oilinyphia* comprises three species distributed in China, Japan and Thailand (WSC 2024).

Oilinyphia daxuensis Irfan, Zhang & Peng, sp. n. (大徐奥皿蛛)

Figures 177–179, 317

Types. Holotype ♂ (HNU–XZ–0011), **CHINA, Xizang:** Changdu City, Mangkang Co., Qufuka Township, Daxu Vill., 29.06600°N, 97.07995°E, 3412 m, 25.V.2017, Y. Zhen & Q. Cai leg. **Paratypes:** 1♀, Mangkang Co., Rumei Town, 29.82621°N, 98.39941°E, 3980 m, 30.IV.2017, Q. Cai leg. (HNU–XZ–0008); 1♀, Mangkang Co., Xuzhong Township, Haza Vill., Jumei Group, 29.19672°N, 98.79543°E, 3208 m, 23.IV.2017, Q. Cai leg. (HNU–XZ–0003).

Etymology. This specific name derived from the type locality; adjective.

Diagnosis. *Oilinyphia daxuensis* **sp. n.** resembles *O. hengji* in having the similar somatic morphology of both sexes, U-shaped paracymbium in male palp and the ventral plate wide, extended mesally with a truncated end in epigyne (Figs 177A–D, 178A–C; Zhao & Li 2014, figs 69–72), but can be distinguished by the lamella longer than wide, proximal end sword-shaped with pointed end in *O. daxuensis* **sp. n.** (Figs 177A–D; vs. sinuous with three apophyses); embolus sickle-shaped in dorsal view, distal tip hook-shaped in retrolateral view in *O. daxuensis* **sp. n.** (Fig. 177C; vs. sclerotized, slightly curved with blunt end); distal suprategular apophysis curved, distal end with knob in *O. daxuensis* **sp. n.** (Figs 177B, C; vs. thorn-shaped). Female can be differentiated by the median extension of the spermathecae oval in *O. daxuensis* **sp. n.** (Figs 178B, C; vs. globular); copulatory duct almost equal the length of posterior margin of ventral plate in *O. daxuensis* **sp. n.** (Figs 178B, C; vs. almost half the length of posterior margin of ventral plate).

Description. Male (holotype, Figs 179A, B): Total length: 1.33. Carapace 0.57 long, 0.45 wide, dark brown, round posteriorly, with long thick setae. Clypeus 0.21 high. Chelicerae with one promarginal and two retromarginal teeth. Sternum shield-like, dark brown with microsetae. Eyes: AER recurved, PER straight. Eye sizes and interdistances: AME 0.06, ALE 0.07, PME 0.05, PLE 0.06, AME–AME 0.01, PME–PME 0.05, AME–ALE, 0.03, PME–PLE 0.03, AME–PME 0.06, ALE–ALE 0.28, PLE–PLE 0.28, ALE–PLE contiguous. Length of legs: I 1. 81 (0.44, 0.57, 0.51, 0.29), II 1. 73 (0.39, 0.55, 0.47, 0.32), III 1.41 (0.37, 0.42, 0.35, 0.27), IV 1.83 (049, 0.56, 0.45, 0.33). Legs with annuli; formula IV-I-II-III. TmI 0.36 and TmIV 0.26. Tibial spine formula: 2-2-2-2. Opisthosoma 0.82 long, 0.57 wide, oval, blackish brown, with attenuated posterior tip, adorned with ridges and papillae.

Palp (Figs 177A–D, 178D): Femur unmodified, almost longer than patella, tibia and cymbium. Patella as long as tibia, dorsally with long spine. Tibia conic, with one reterolateral trichobothria; cymbium unmodified, small, round in dorsal view, with spines; paracymbium (PC) U-shaped; protegulum (PT) reduced; distal suprategular apophysis (DSA) curved, distal end with knob. Median membrane (MM) slender, short with attenuated tip. Lamella (L) longer than wide, proximal end gradually narrow towards tip with pointed end, distal end relatively broad with teeth in ventral view. Embolus (E) sickle-shaped in dorsal view, distal tip hook-shaped in retrolateral view.

Female (one of the paratypes, Figs 179C, D): Total length: 1.71. Carapace 0.61 long, 0.48 wide, dark brown, round posteriorly, with long thick spines. Clypeus 0.12 high. Chelicerae with one promarginal and two retromarginal teeth. Sternum shield-like, dark brown with microsetae. Eyes: AER recurved, PER straight. Eye sizes and interdistances: AME 0.05, ALE 0.06, PME 0.06, PLE 0.05, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.02, AME–PME 0.05, ALE–ALE 0.26, PLE–PLE 0.27, ALE–PLE contiguous. Length of legs: I 1. 98 (0.56, 0.59, 0.51, 0.32), II 1. 88 (0.55, 0.56, 0.43, 0.34), III 1.56 (0.45, 0.42, 0.38, 0.31), IV 2.02 (0.58,

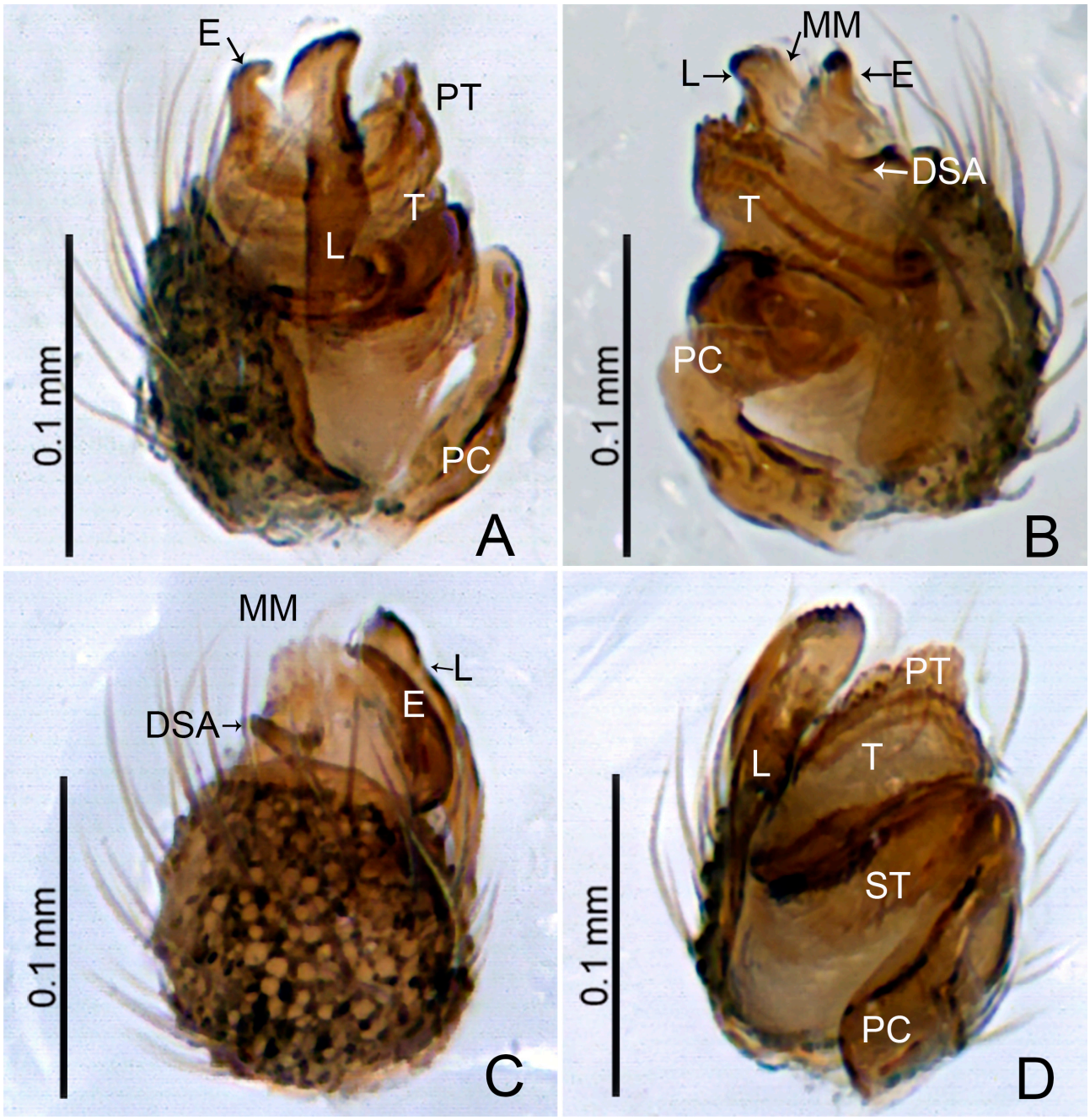


FIGURE 177. *Oilinyphia daxuensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; L—lamella; MM—median membrane; PC—paracymbium; ST—subtegulum; T—tegulum.

0.62, 0.46, 0.36). Legs with annuli; formula IV-I-II-III. TmI 0.32 and TmIV 0.23. Tibial spine formula: 2-2-2-2. Opisthosoma 1.23 long, 0.79 wide, same coloration and pattern as in male.

Epigyne (Figs 178A–C): Ventral plate (VP) wide, extended mesally with a truncated end; copulatory ducts (CD) short, simple, directly enters the spermathecae. Spermathecae (S) present at the apex, spaced by less than their diameters. Fertilization ducts (FD) short, extending upward.

Distribution. Known only from type localities (Xizang Province, Fig. 317).

Oilinyphia pengqi (Lin & Li, 2024) comb. n. (彭玘奥皿蛛)

Chrosiothes pengqi Lin & Li, in Lin *et al*., 2024: 70, figs 61A–B, 72A (described with ♀).

Distribution. China (Chongqing).

Remarks. *Chrosiothes pengqi* was described by Lin & Li *in* Lin *et al.* (2024) and placed in family Theridiidae. The opisthosoma of *C. pengqi* is adorned with ridges and papillae. The epigyne of *C. pengqi* resembles those of all other congeners in the genus *Oilinyphia*. The epigyne of *C. pengqi* is similar to those in *Oilinyphia daxuensis* **sp.**

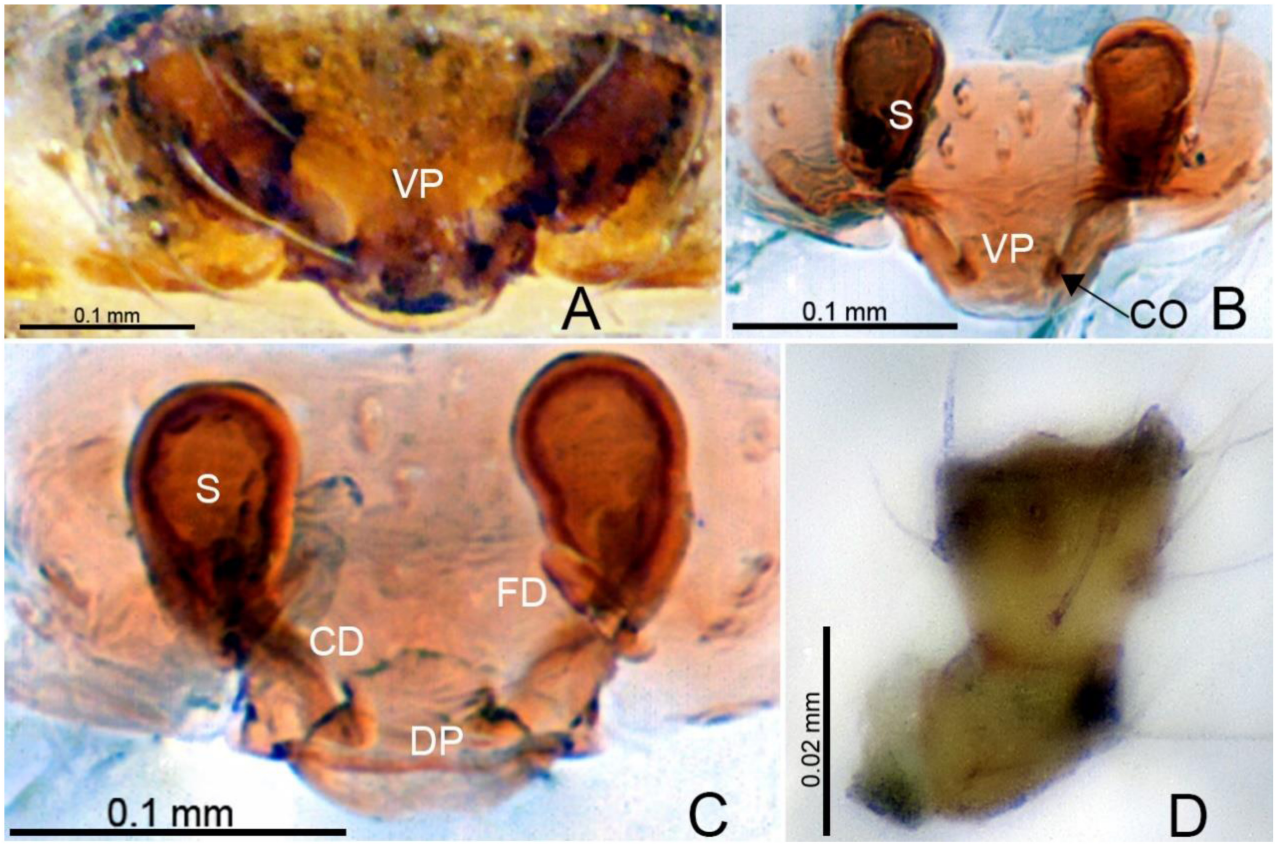


FIGURE 178. *Oilinyphia daxuensis* **sp. n.**, female paratype (A–C), male holotype (D). **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view; **D** Palp, patella and tibia retrolateral view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

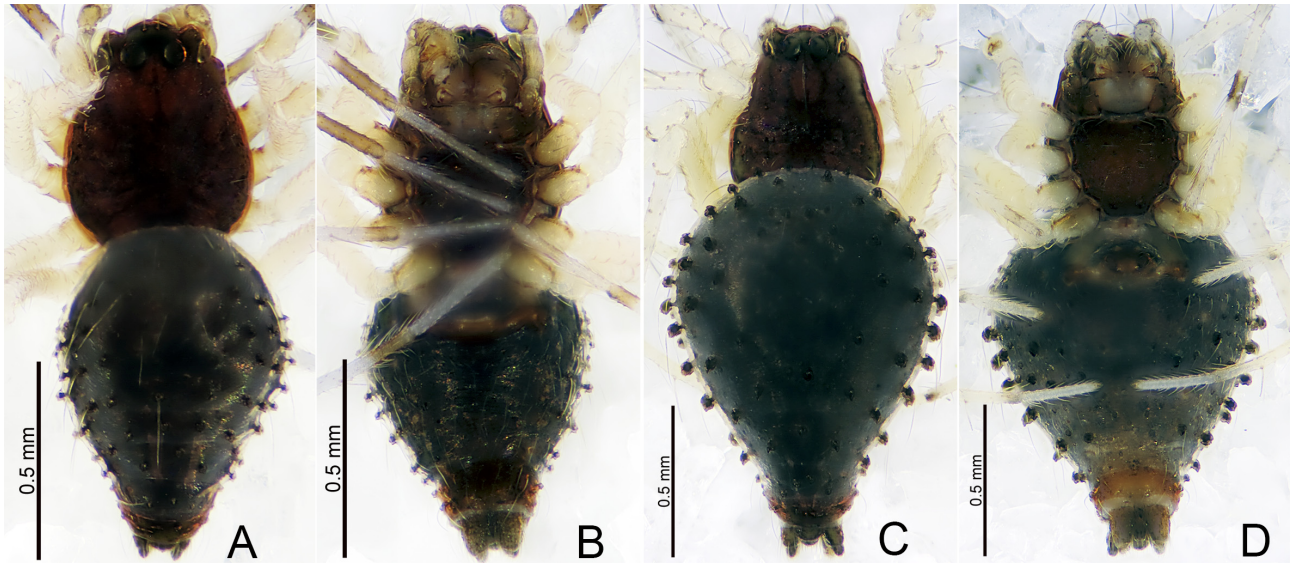


FIGURE 179. *Oilinyphia daxuensis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

n., *O. hengji* Zhao & Li, 2014, *O. jadbounorum* Ponksee & Tanikawa, 2010, *O. peculiaris* Ono & Saito, 1989, *O. wenfengensis* **sp. n.** and *O. xinqiaoensis* **sp. n.**. On the basis of structural and morphological affiliation, it is proposed here as *Oilinyphia pengqi* (Lin & Li, 2024) **comb. n.**.

Oilinyphia wenfengensis Irfan, Zhang & Peng, sp. n. (文峰奥皿蛛)

Figures 180, 181, 315

Types. Holotype ♀, **CHINA, Hunan Prov.:** Zhangjiajie Co., Wulingyuan district, Suoxiyu town, Wenfeng Vill., 110.599815°E, 29.331437°N, 457 m, 22.IV.2016, leg. W. Liu *et al.* leg.

Etymology. The specific epithet is derived from type locality; adjective.

Diagnosis. *Oilinyphia wenfengensis* **sp. n.** resembles *O. hengji* in having the similar somatic morphology and epigyne (Figs 180A–C, 181A, B; Zhao & Li 2014, figs 71A–C), but can be differentiated by the posterior end of ventral plate relatively broad in *O. wenfengensis* **sp. n.** (Figs 180A, B; vs. narrow); spermathecae spaced by two diameters in *O. wenfengensis* **sp. n.** (Figs 180A–C; vs. spaced by half of diameters).

Description. Female (holotype, Figs 181A, B): Total length: 1.68. Carapace 0.65 long, 0.51 wide, dark brown, round posteriorly, the ocular region narrows, with long thick spines. Clypeus 0.18 high. Chelicerae with one promarginal and three retromarginal teeth. Sternum shield-like, black with microsetae. Eyes: AER recurved, PER slightly recurved. Eye sizes and interdistances: AME 0.05, ALE 0.05, PME 0.04, PLE 0.06, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.06, ALE–ALE 0.26, PLE–PLE 0.28, ALE–PLE contiguous. Length of legs: I 1.92 (0.53, 0.62, 0.41, 0.36), II 1.87 (0.49, 0.59, 0.44, 0.35), III 1.51 (0.42, 0.46, 0.37, 0.26), IV 1.98 (0.55, 0.62, 0.48, 0.33). TmI 0.32 and TmIV 0.21. Tibial spine formula: 2-2-2-2. Opisthosoma 1.03 long, 0.87 wide, oval, blackish brown, adorned with ridges and papillae.

Epigyne (Figs 180A–C): Ventral plate (VP) wide, extended mesally with a truncated end, median extension of the ventral plate almost rectangular posteriorly; copulatory ducts (CD) short, simple; spermathecae (S) oval, present anterolaterally; fertilization ducts (FD) short, turning upwards.

Male. Unknown.

Distribution. Known only from type locality (Hunan Province, Fig. 315).

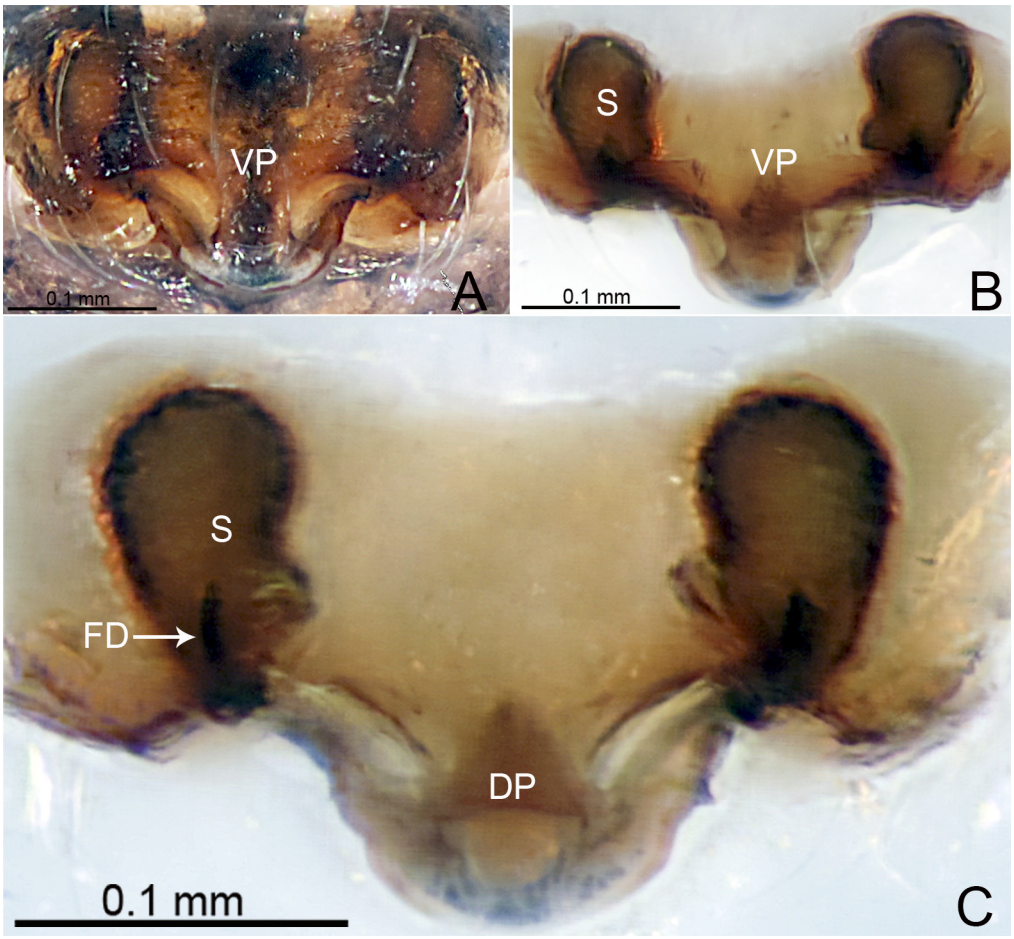


FIGURE 180. *Oilinyphia wenfengensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

***Oilinyphia xinqiaoensis* Irfan, Zhang & Peng, sp. n. (新桥奥皿蛛)**
Figures 182–183, 307

Types. Holotype ♀, **CHINA, Chongqing:** Youyang Co., Xiaoba Town, Xinqiao Vill., 28.837783°N, 108.723728°E, 924 m, 25.V.2017, G.C. Zhou *et al.* leg. (HNU–CQ–IV–1715). **Paratype** 1♀, with same data as for holotype (HNU–CQ–IV–1715).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Oilinyphia xinqiaoensis* **sp. n.** resembles *O. hengji* in having the spermathecae spaced by one diameter in epigyne (Figs 1821A–C; Zhao & Li 2014, figs 71A–C), but can be distinguished by the spermathecae oval in *O. xinqiaoensis* **sp. n.** (Figs 182A–C; vs. globular).

Description. Female (holotype, Figs 183A, B): Total length: 1.62. Carapace 0.59 long, 0.49 wide, dark brown, round posteriorly, with long thick setae. Clypeus 0.16 high. Chelicerae with one promarginal and three retromarginal teeth. Sternum shield-like, black with microsetae. Eyes: AER recurved, PER slightly recurved. Eye sizes and interdistances: AME 0.06, ALE 0.06, PME 0.04, PLE 0.06, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.06, ALE–ALE 0.27, PLE–PLE 0.28, ALE–PLE contiguous. Length of legs: I 2 (0.56, 0.62, 0.43, 0.39), II 1.98 (0.52, 0.61, 0.49, 0.37), III 1.59 (0.42, 0.49, 0.39, 0.29), IV 2.09 (0.59, 0.63, 0.50, 0.37). TmI 0.31 and TmIV 0.19. Tibial spine formula: 2-2-2-2. Opisthosoma 1.24 long, 1.07 wide, oval, blackish brown, adorned with ridges and papillae.

Epigyne (Figs 182A–C): Ventral plate (VP) wide, extended mesally with a truncated end, median extension of the ventral plate almost rectangular posteriorly; copulatory ducts (CD) short, simple; spermathecae (S) spaced by one diameter; fertilization ducts (FD) short, turning upwards.

Male. Unknown.

Distribution. Known only from type localities (Chongqing, Fig. 307).

***Oilinyphioides* Irfan, Zhang & Peng, gen. n. (类奥皿蛛属)**

Type species: *Oilinyphioides triangularis* **sp. n.**

Etymology. The genus name is a combination of *Oilinyphia* and the Latin suffix "*oides*" due to the resemblance of male and female body to *Oilinyphia* Ono & Saito, 1989). Gender masculine.

Diagnosis. The new genus is closely related to *Oilinyphia* Ono & Saito, 1989 in having the similar somatic morphology in both sexes and the embolus filiform (Figs 184A–D; Ono & Saito, 1989, figs 1–5; Ponksee & Tanikawa, 2010, fig. 2; Zhao & Li 2014, figs 71A–C), but

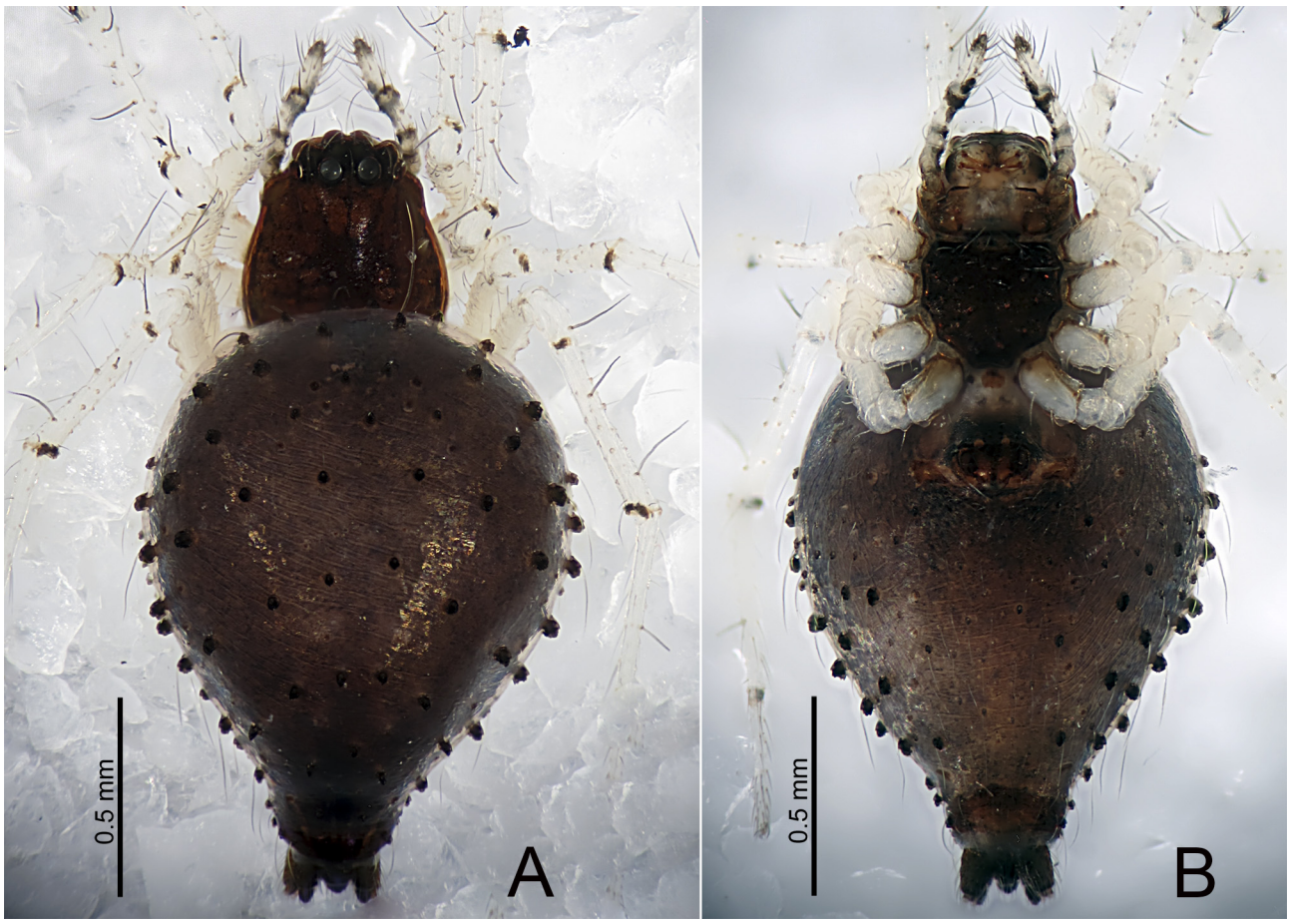


FIGURE 181. *Oilinyphia wenfengensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

can be distinguished by the distal arm of paracymbium much broad and almost completely covers the most part of the subtegulum and tegulum in *Oilinyphioides* **gen. n.** (Figs 184B, D; vs. paracymbium U-shaped); tailpiece and embolic membrane absent in *Oilinyphioides* **gen. n.** (Figs 184A, B, D; vs. present). The ventral and dorsal plates of epigyne completely separated from each other in *Oilinyphioides* **gen. n.** (Figs 185A–D; vs. both plates connected with each other posteriorly); dorsal plate with a broad round scapoid posteriorly in epigyne in *Oilinyphioides* **gen. n.** (Figs 185A–D; vs. scapoid absent); copulatory ducts form a longitudinal loop before entering the spermathecae in *Oilinyphioides* **gen. n.** (Figs 185A–D; vs. with spiral coils in *O. peculiaris*; short, simple in *O. hengji* and *O. jadbounorum*).

Description. Same as for type species.

Composition. *Oilinyphioides* **gen. n.** belongs to the subfamily Erigoninae and erected here monotypic genus to accommodate *O. triangularis* **sp. n.**.

Distribution. China (Chongqing and Hunan, Figs 307, 315).

***Oilinyphioides triangularis* Irfan, Zhang & Peng, sp. n. (三角类奥皿蛛)**

Figure 184–186, 307, 315

Types. Holotype ♂ (HNU–HN–IV–1735), **CHINA, Hunan Prov.**: Changde City, Taoyuan Co., Shaping Town, Saiyang Vill., Wuyunjie NNR, 28.61471°N, 110.40767°E, 208 m, 06.VIII.2017, X.J. Peng *et al.* leg. **Paratypes:** 3♀ with same data as for holotype male (HNU–HN–IV–1735);

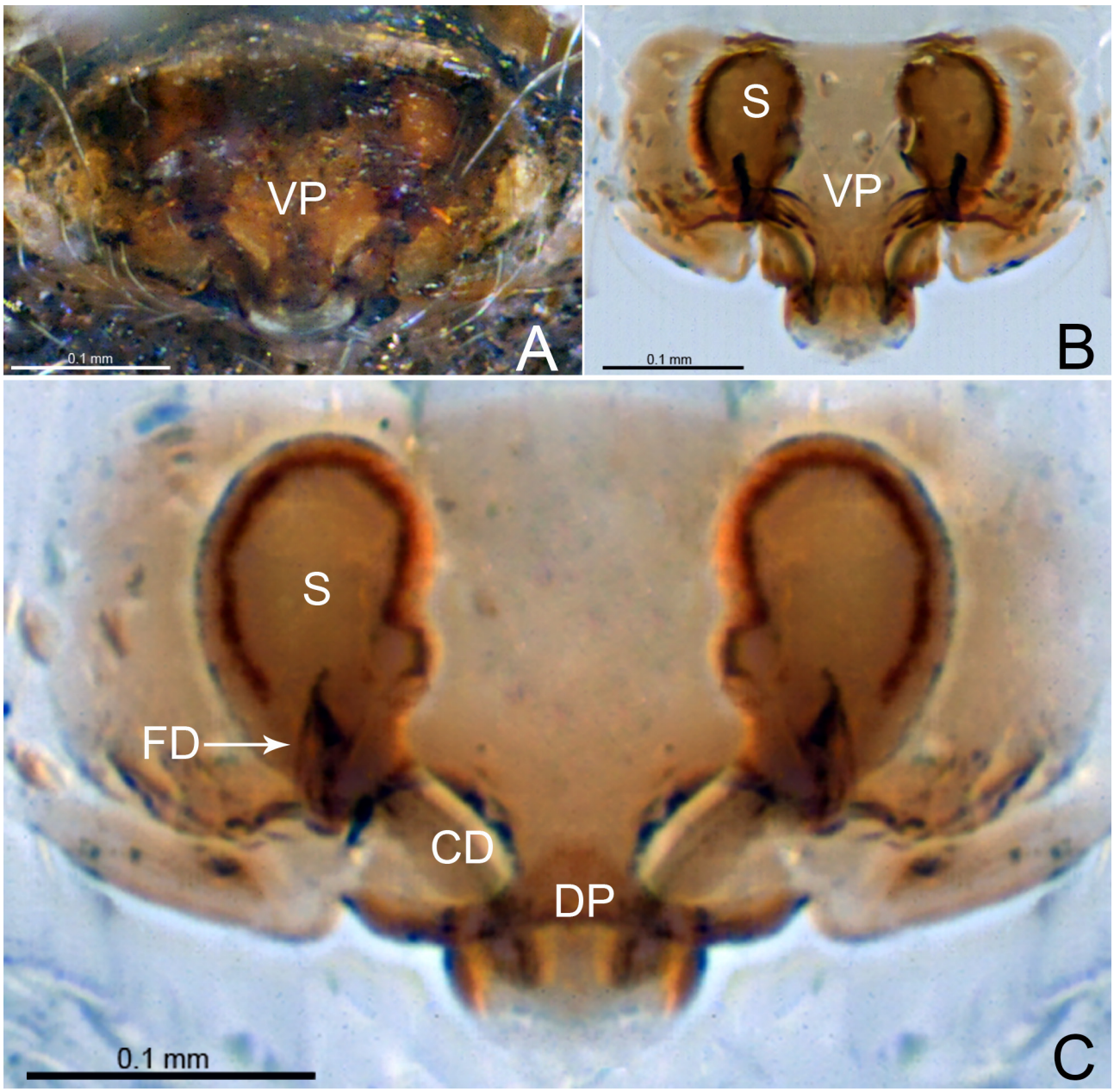


FIGURE 182. *Oilinyphia xinqiaoensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

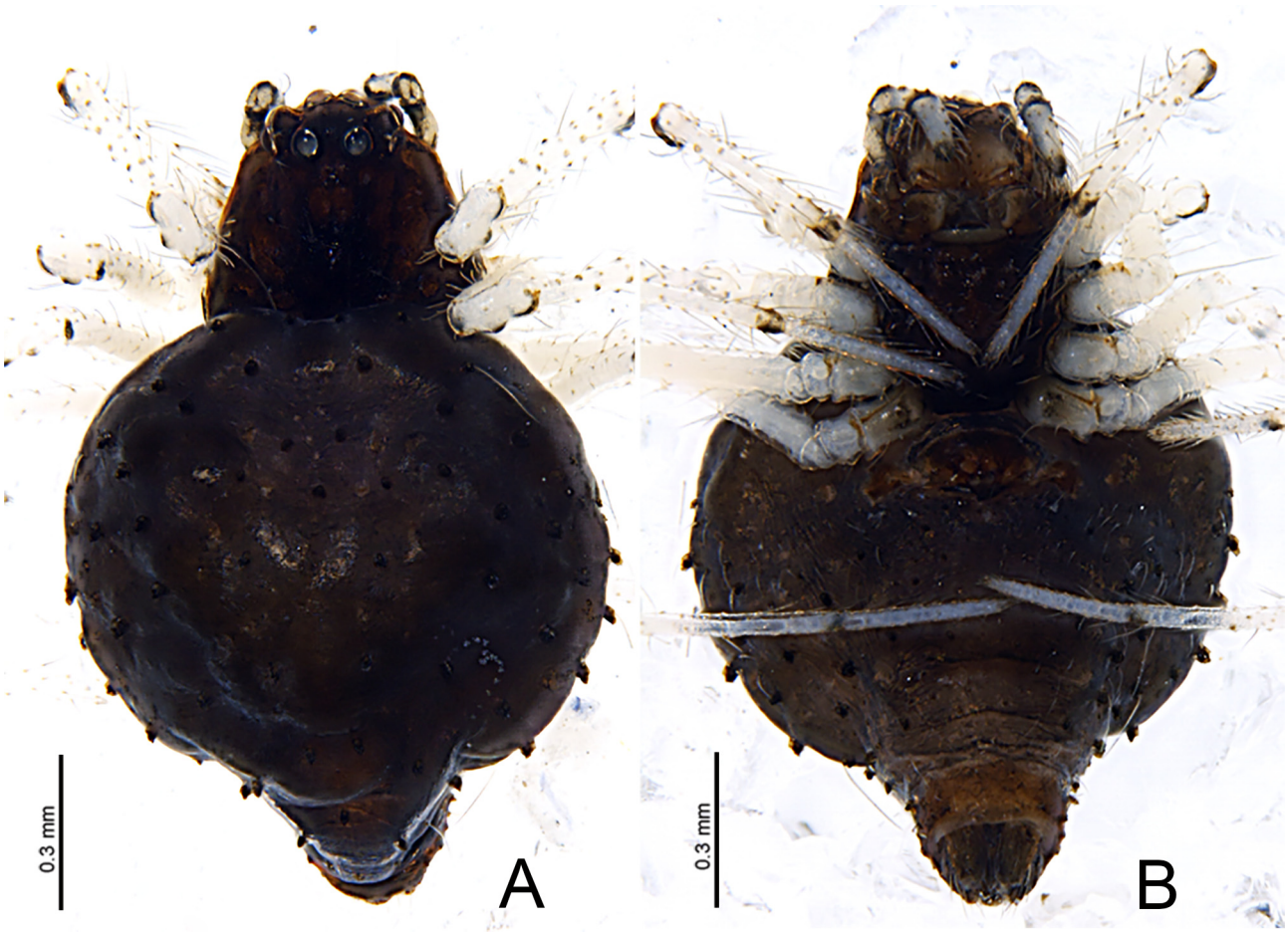


FIGURE 183. *Oilinyphia xinqiaoensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

1♀, Huaihua City, Huitong Co., Tuanhe Town, Diaotang Vill., Yingzuijie NNR, 26.89206°N, 109.93273°E, 168 m, 30.X.2017, G.C. Zhou leg. (HNU–HN–IV–1770); 6♀, Xiangxi Co., Xiaoxi Town, Xiaoxi Vill., Xiaoxi NNR, 28.81125°N, 110.27326°E, 697 m, 02.VIII.2017, X.J. Peng *et al.* leg. (HNU–HN–IV–1724); **Chongqing:** 1♀, Pengshui Co., Mowei MSS, 29.16067°N, 108.03687°E, 1548 m, 23.V.2017, G.C. Zhou *et al.* leg. (HNU–CQ–IV–1702); 1♀, Nanchuan Co., Dayou Town, 28.99736°N, 107.33591°E, 1021 m, 13.VIII.2015, X.J. Peng *et al.* leg. (HNU–CQ–IV–1508).

Etymology. The specific epithet is derived from the Latin adjective "*triangularis*", meaning "triangular" and referring to the triangular distal arm of paracymbium in male.

Diagnosis. See the diagnosis of *Oilinyphioides* **gen. n.**.

Description. Male (holotype, Figs 186A, B): Total length: 1.33. Carapace 0.62 long, 0.55 wide, dark brown, round posteriorly, the ocular region narrows, with long thick setae. Clypeus 0.21 high. Chelicerae with one promarginal and two retromarginal teeth. Sternum shield-like, black with microsetae. Eyes: AER recurved, PER slightly recurved. Eye sizes and interdistances: AME 0.08, ALE 0.09, PME 0.07, PLE 0.07, AME–AME 0.01, PME–PME 0.08, AME–ALE, 0.03, PME–PLE 0.06, AME–PME 0.07, ALE–ALE 0.35, PLE–PLE 0.36, ALE–PLE contiguous. Length of legs: I 1.73 (0.46, 0.56, 0.41, 0.30), II 1.71 (0.47, 0.53, 0.42, 0.29), III 1.4 (0.37, 0.44, 0.34, 0.25), IV 1.71 (0.49, 0.52, 0.39, 0.31). TmI 0.36 and TmIV 0.29. Tibial spine formula: 2-2-2-2. Opisthosoma 0.85 long, 0.55 wide, oval, black, adorned with ridges and papillae.

Palp (Figs 184A–D): Femur unmodified, as long as patella, tibia and cymbium. Patella shorter than tibia, dorsally with long spine, mesally grooved. Tibia conic, with one reterolateral and one dorsal trichobothria, posterior margin broad in reterolateral view; cymbium small, oval, desely covered with spines; paracymbium (PC) robust, distal arm almost triangular, covers most part of the subtegulum and tegulum; protegulum absent; distal suprategular apophysis (DSA) longer than wide, sword-shaped, extends above the apex of cymbium. Embolic division: Radix (R) oval, proximal end with 3 disks, like projections stacking over one another. Terminal apophysis and median membrane absent. Embolus (E) long, filiform.

Female (one of the paratypes, Figs 186C, D): Total length: 1.76. Carapace 0.61 long, 0.62 wide, dark brown, round posteriorly, the ocular region narrows, with long thick setae. Clypeus 0.11 high. Chelicerae with two promarginal and four retromarginal teeth. Sternum

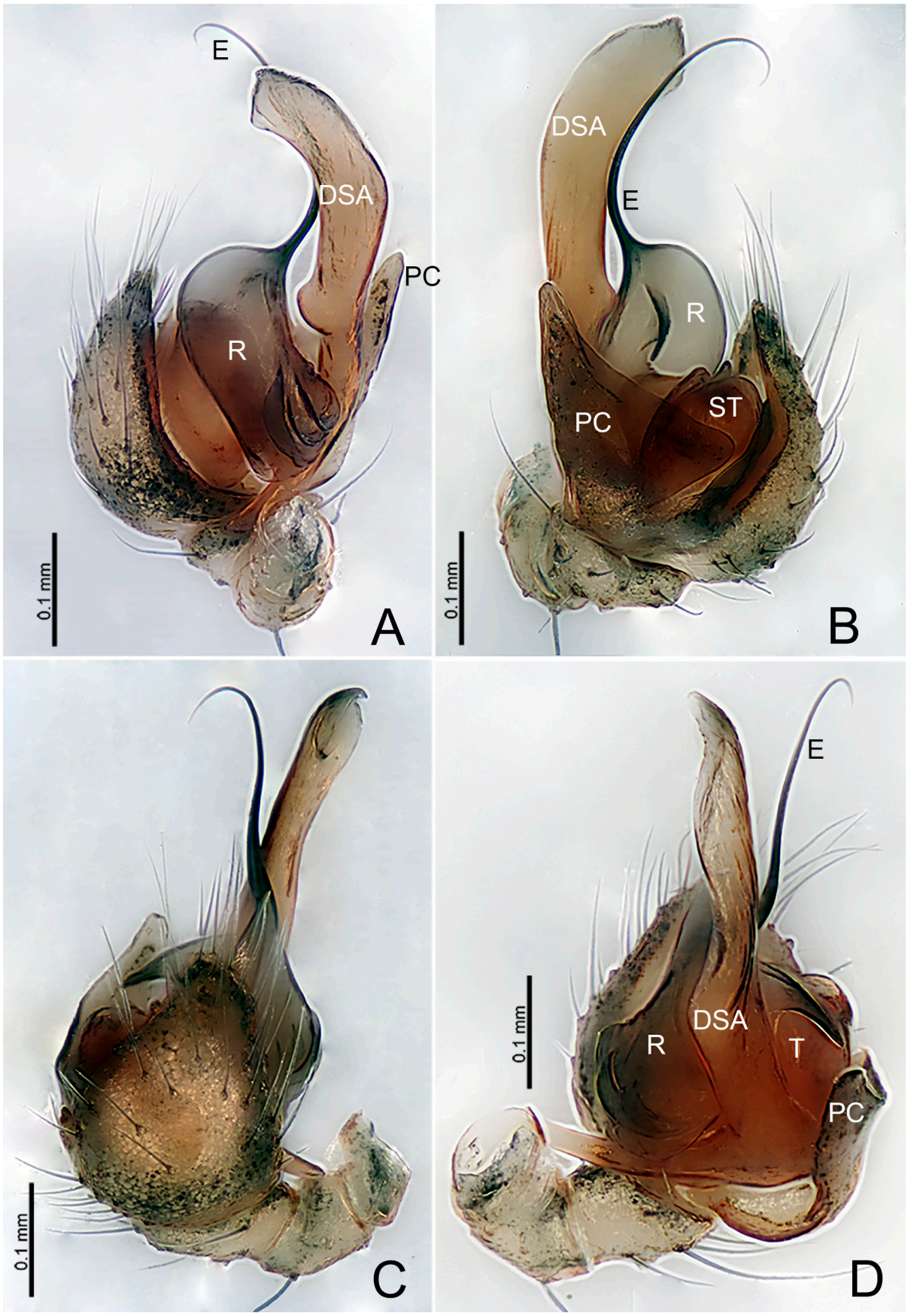


FIGURE 184. *Oilinyphioides triangularis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; PC—paracymbium; ST—subtegulum.

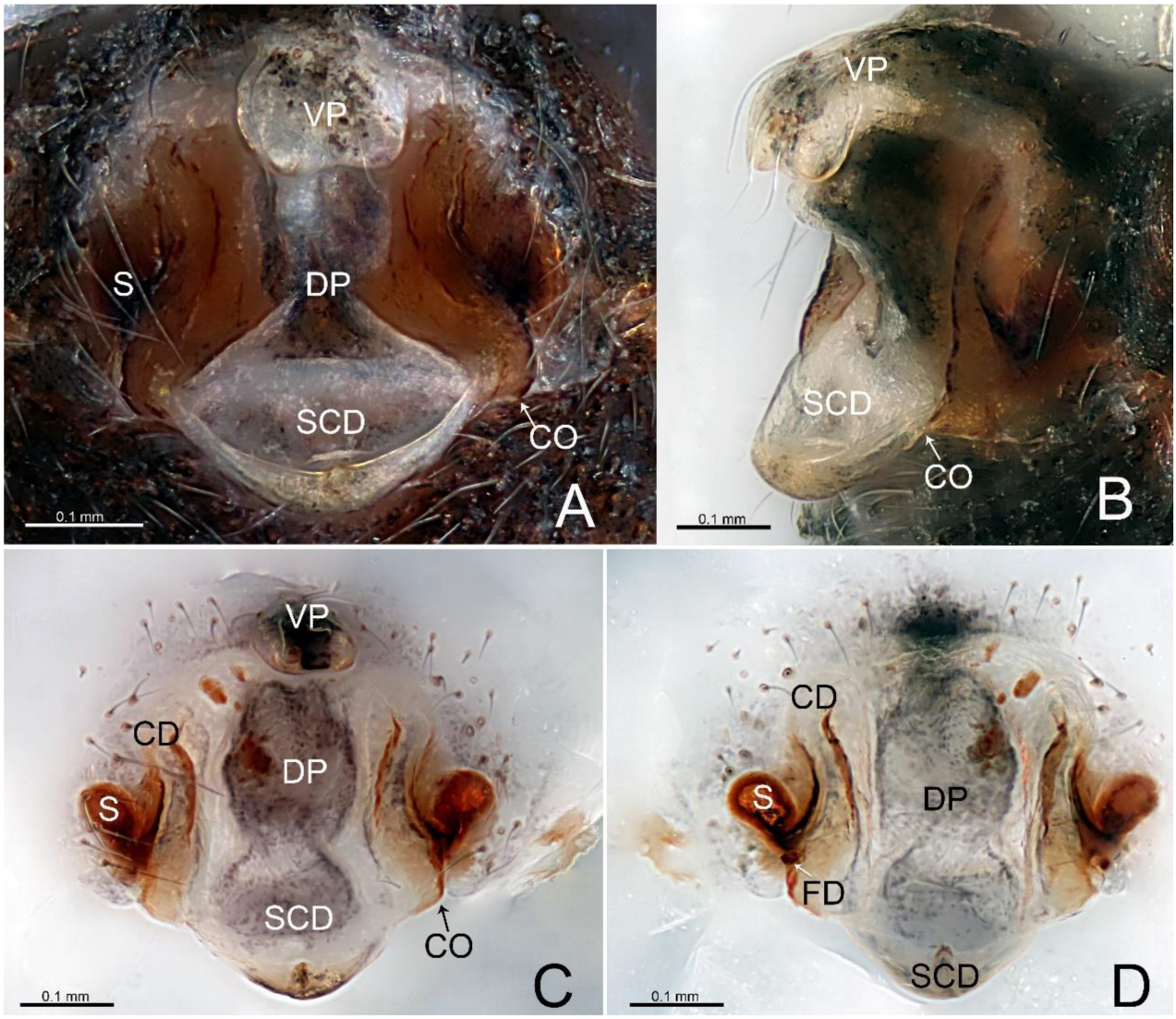


FIGURE 185. *Oilinyphioides triangularis* **sp. n.**, female paratype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; SCD—scapoid; VP—ventral plate.

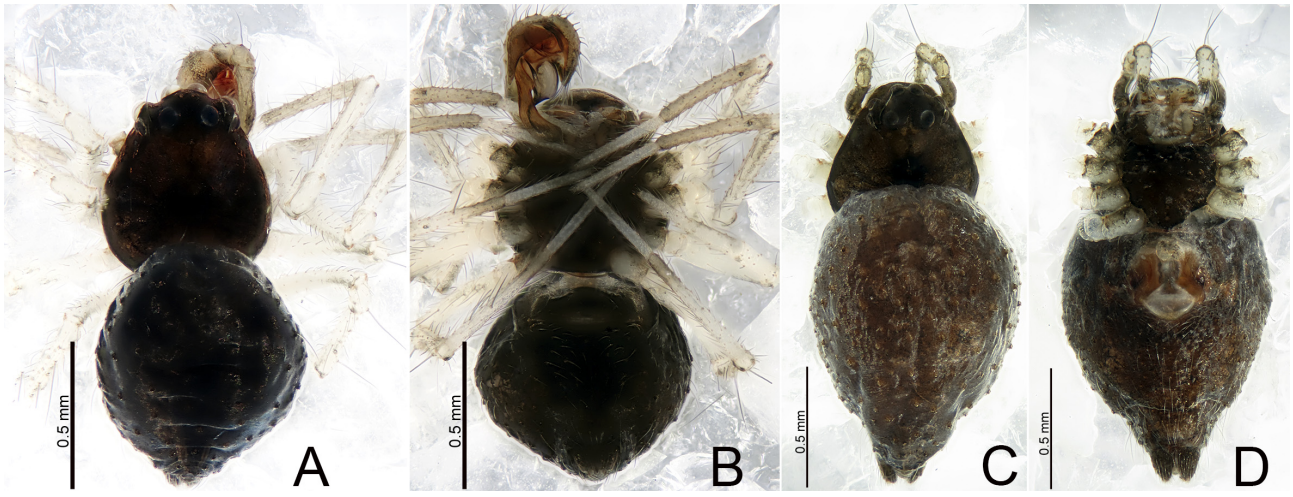


FIGURE 186. *Oilinyphioides triangularis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

shield-like, black with microsetae. Eyes: AER recurved, PER procurved. Eye sizes and interdistances: AME 0.07, ALE 0.07, PME 0.09, PLE 0.07, AME–AME 0.02, PME–PME 0.08, AME–ALE, 0.04, PME–PLE 0.03, AME–PME 0.07, ALE–ALE 0.33, PLE–PLE 0.36, ALE–PLE contiguous. Length of legs: I 2.22 (0.58, 0.68, 0.59, 0.37), II 2.14 (0.54, 0.69, 0.58, 0.33), III 1.83 (0.53, 0.56, 0.46, 0.28), IV 2.28 (0.67, 0.76, 0.52, 0.33). TmI 0.37 and TmIV 0.28. Tibial spine formula: 2-2-2-2. Opisthosoma 1.29 long, 0.88 wide, oval, brown, adorned with ridges and papillae.

Epigyne (Figs 185A–D): Ventral plate (VP) longer than wide, hook-shaped. The ventral and dorsal plates of epigyne completely separated from each other. Dorsal plate (DP) longer than wide, with a broad round scapoid (SCD) posteriorly; copulatory ducts (CD) form a longitudinal loop before entering the spermathecae. Spermathecae (S) globular, present dorso-laterally. Fertilization ducts (FD) small, extending mesally.

Distribution. Known from type localities (Chongqing and Hunan Province, Figs 307, 315).

Genus *Paikiniana* Eskov, 1992 (派克蛛属)

Type species. *Cornicularia bella* Paik, 1978; gender feminine.

Remark. *Paikiniana* comprises ten species (including three species known from males) distributed in China, Korea and Japan (WSC 2024).

Paikiniana lurida (Seo, 1991) (黄褐派克蛛)

Figures 187–189, 313, 315

Walckenaeria lurida Seo, 1991: 37, figs 7–13 (♂).

Paikiniana lurida Song & Li 2008: 96, figs 46–57 (♂♀, transferred from *Walckenaeria*); Ono 2011: 122, figs 1–10 (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined: 1♀, **CHINA, Hunan Prov.:** Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.10046°N, 112.66057°E, 209 m, 12.XI.2017, G.C. Zhou leg.; 1♂, Hengyang City, Nanyue District, Nanyue Town, Huangzhu Vill., 27.262258°N, 112.73683°E, 160 m, 18.I.2018, G.C. Zhou & L.Y. Wang leg.: **Hubei Prov.:** 1♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 30.00166°N, 109.74093°E, 1234 m, 14.V.2017, G.C. Zhou *et al.* leg.

Distribution. Korea, Japan, China (Hubei, Hunan and Sichuan Provinces, Figs 313, 315).

Genus *Parameioneta* Locket, 1982 (玲蛛属)

Type species. *Parameioneta spicata* Locket, 1982; gender feminine.

Remark. *Parameioneta* comprises eight species (including one species known from males and one from females) distributed in China, Indonesia, Malaysia (peninsula), Thailand and Vietnam (WSC 2024).

Parameioneta bilobata Li & Zhu, 1993 (二叶玲蛛)

Figures 190–192, 313, 315

Parameioneta bilobata Li & Zhu, in Song *et al.* 1993: 867, figs 28A–M (♂♀); Yin *et al.* 2012: 545, figs 260a–e (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined: 1♀, **CHINA, Hubei Prov.:** Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg. 2♂3♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 30.03902°N, 109.14274°E, 1114 m, 19.V.2017, M. Irfan & G.C. Zhou leg.; **Hunan Prov.:** 1♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.10020°N, 112.65881°E, 189 m, 10.V.2017, G.C. Zhou *et al.* leg.; 1♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.10271°N, 112.65350°E, 172 m, 10.V.2017, G.C. Zhou *et al.* leg.; 2♀, Ningxiang Co., Huaminglou Town, Tanzi Vill., 28.032005°N, 112.640872°E, 72 m, 09.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Fujian, Guizhou, Hubei and Hunan Provinces, Figs 313, 315), Vietnam.

Genus *Platyspira* Song & Li, 2009 (扁旋蛛属)

Type species. *Platyspira tanasevitchi* Song & Li, 2009.

Remark. *Platyspira* a monotypic genus decribed from China (WSC 2024).

Platyspira tanasevitchi Song & Li, 2009 (泰氏扁旋蛛)

Figures 193–195, 313

Platyspira tanasevitchi Song & Li, 2009: 62, figs 1–18 (♂♀).

Material examined: 1♂2♀, **CHINA, Hubei Prov.:** Lichuan City, Tenglongdong Scenic Spot, Tenglong Cave, 30.33373°N, 108.98644°E, 1054 m, 26.VIII.2017, M. Irfan & G.C. Zhou leg. (HNU–HB–IV–1728).

Distribution. China (Guizhou and Hubei Provinces, Fig. 313).

Genus *Prosoponoides* Millidge & Russell-Smith, 1992 (面蛛属)

Type species. *Prosoponoides hamatum* Millidge & Russell-Smith, 1992; gender neuter.

Remark. *Prosoponoides* comprises 19 species (including nine species known from females and two from males) distributed in China, India, Indonesia (Borneo, Java), Malaysia (peninsula) and Thailand (WSC 2024).

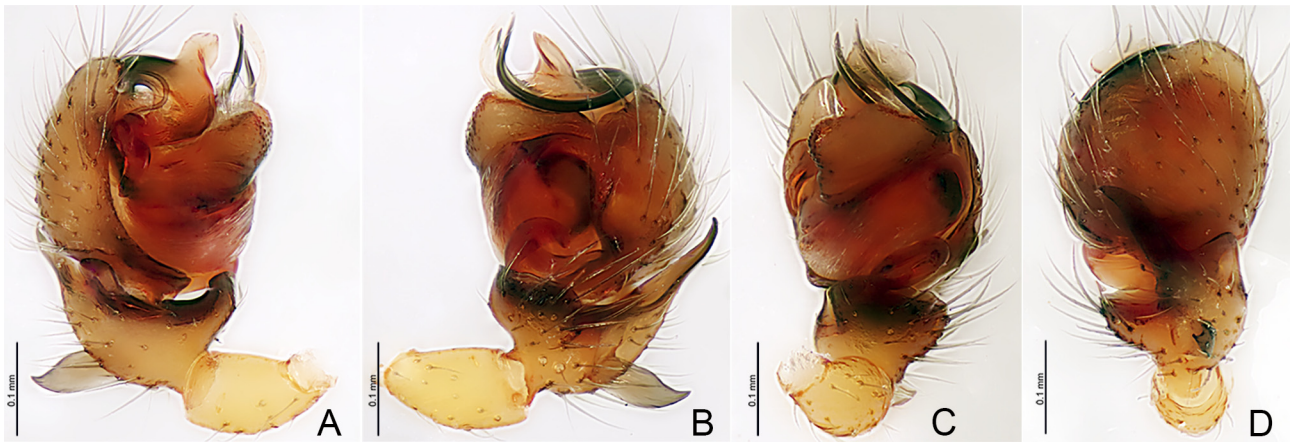


FIGURE 187. *Paikiniana lurida* (Seo, 1991). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

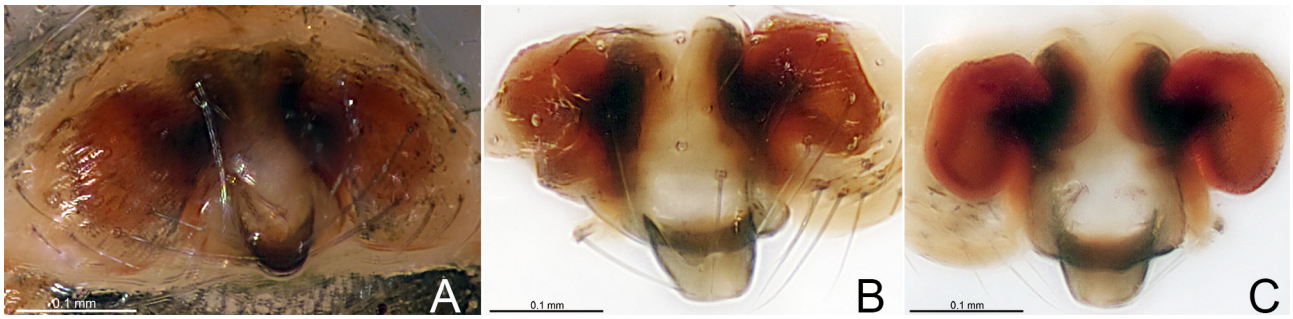


FIGURE 188. *Paikiniana lurida* (Seo, 1991), female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

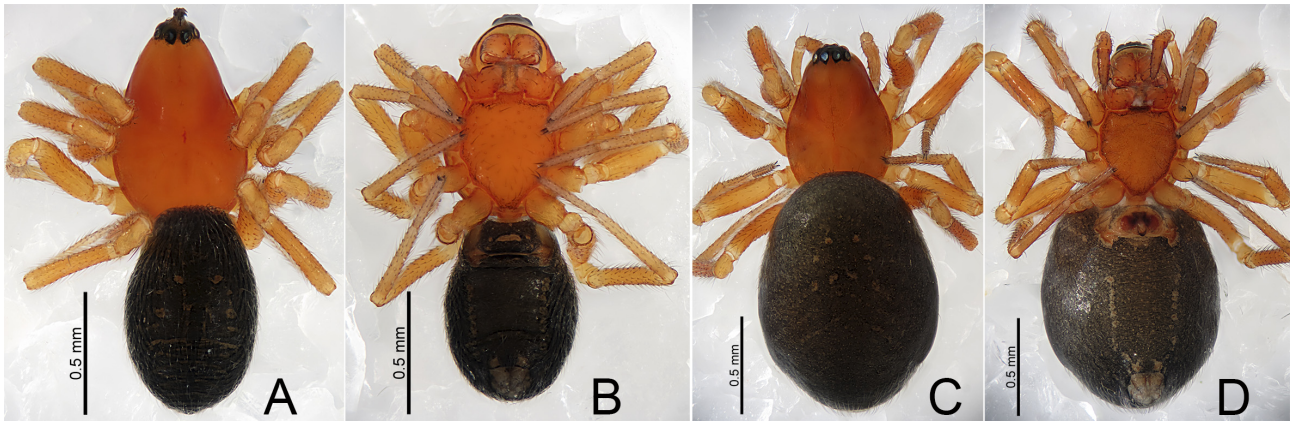


FIGURE 189. *Paikiniana lurida* (Seo, 1991), male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

***Prosoponoides sinensis* (Chen, 1991) (中华面蛛)**
Figures 196–198, 307, 310, 313, 315

Neriene sinensis Chen, 1991: 164, figs 2A–D (♂♀); Song *et al.* 1993: 866, figs 27A–D (♂♀); Song *et al.* 1999: 194, figs 112C, D, M, N (♂♀).

Prosoponoides sinensis Tu & Li 2006: 113, figs 9A–H (transferred ♂♀ from *Neriene*); Irfan *et al.* 2023b: 49, f. 40A–D, 41A–C, 42A–B (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined: 3♀, **CHINA, Chongqing:** Nanchuan Co., Sanquan Town, 29.05947°N, 107.20563°E, 978 m, 11.VIII.2015, leg. X.J. Peng *et al.* leg.; 1♂1♀, Nanchuan Co., Sanquan Town, 29.05274°N, 107.19968°E, 1275 m, 12.VIII.2015, leg. X.J. Peng *et al.* leg.; 1♂6♀, Nanchuan Co., Dayou Town, 28.99736°N, 107.33591°E, 1021 m, 13.VIII.2015, X.J. Peng *et al.* leg.; 8♀, Nanchuan Co., Sanquan Town, 29.06446°N, 107.19151°E, 1167 m, 13.VIII.2015, X.J. Peng *et al.* leg.; 1♀, Nanchuan Co., Sanquan Town, 29.04462 ºN, 107.20483ºE, 927 m, X.J. Peng *et al.* leg.; 1♀, Youyang Co., Taohuayuan Scenic Spot, 28.85096°N, 108.75037°E, 995 m, 23.VII.2017, M. Irfan & G.C. Zhou leg.; 2♀, Pengshui Co., Mowei MSS,

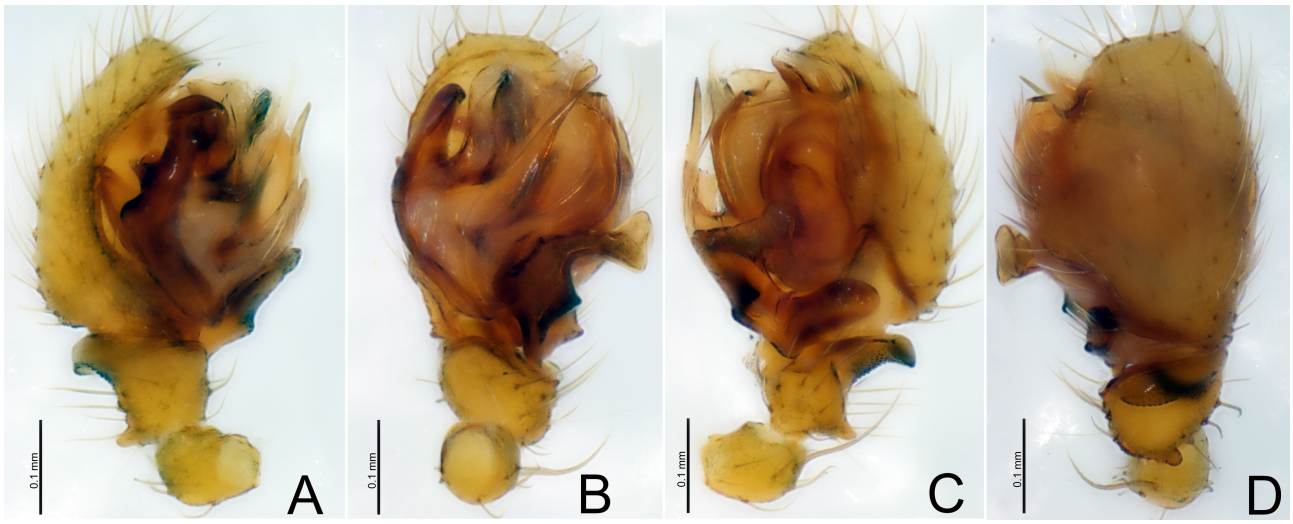


FIGURE 190. *Parameioneta bilobata* Li & Zhu, 1993. **A** Palp, prolateral view; **B** Palp, ventral view; **C** Palp, retrolateral view; **D** Palp, dorsal view.

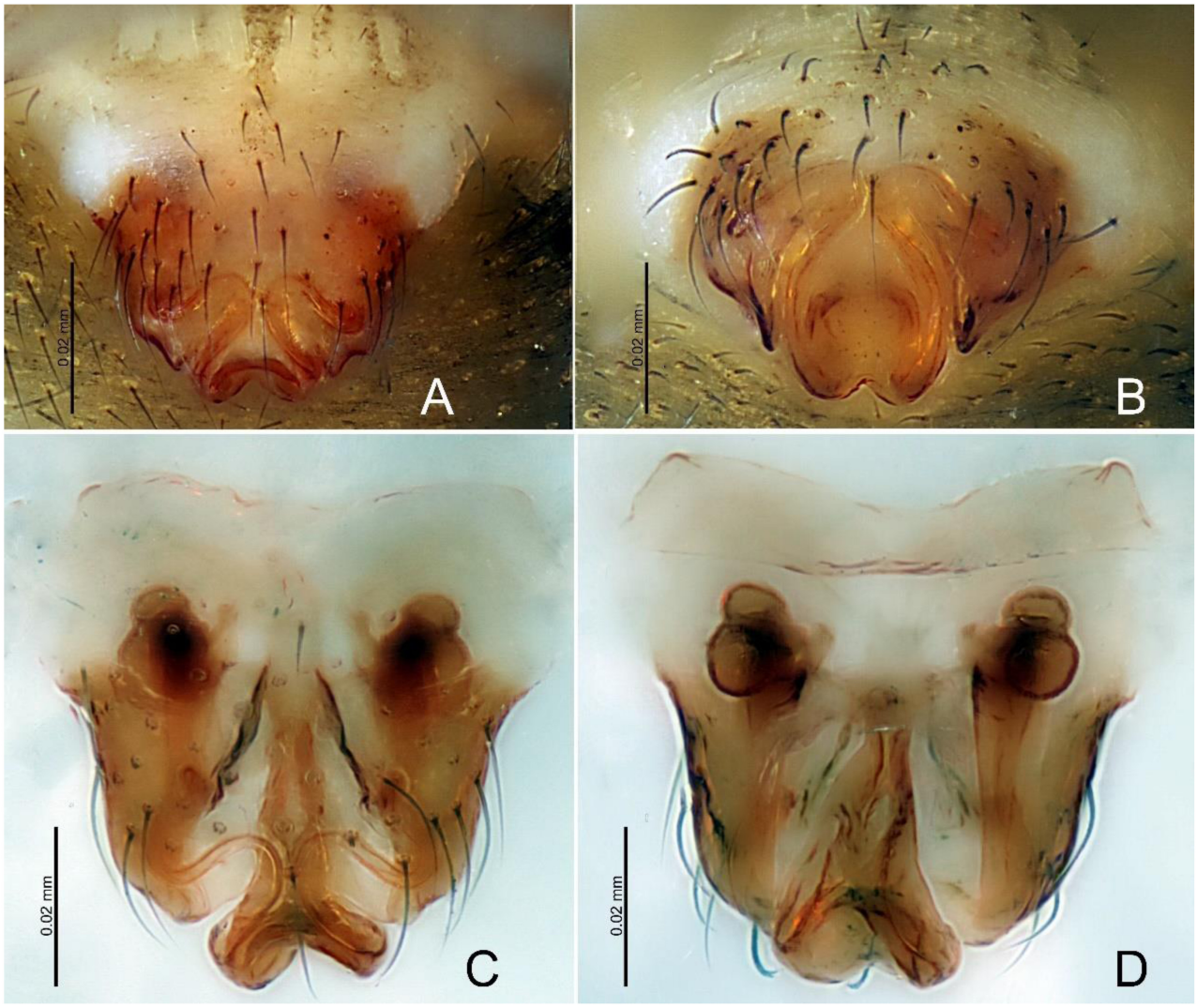


FIGURE 191. *Parameioneta bilobata* Li & Zhu, 1993, female. **A–C** Epigyne, ventral view; **D** Vulva, dorsal view.

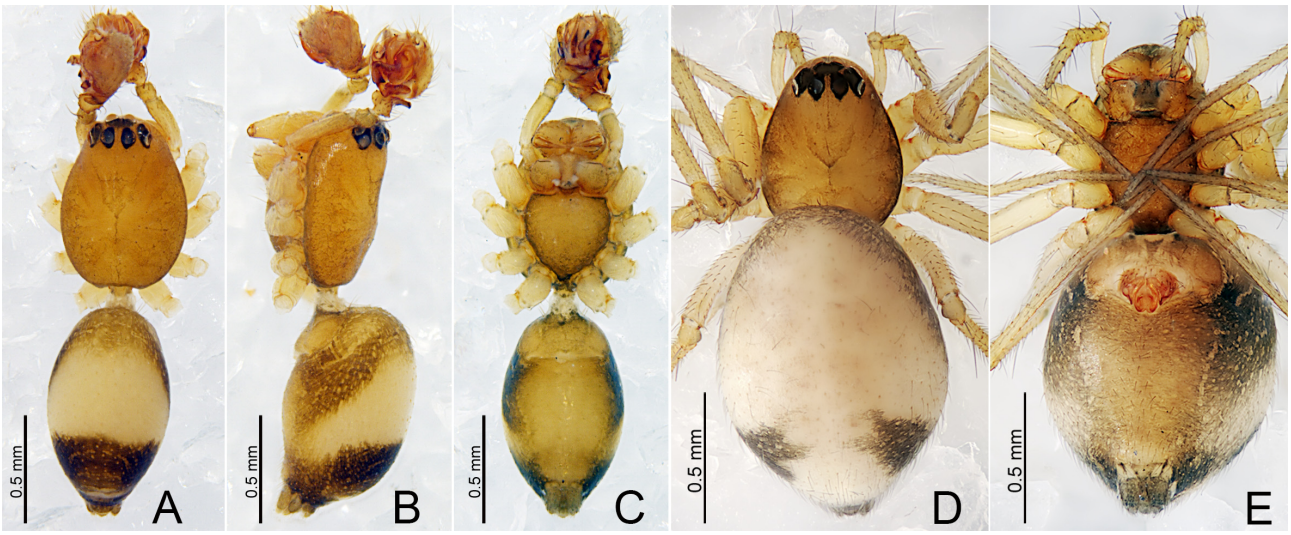


FIGURE 192. *Parameioneta bilobata* Li & Zhu, 1993, male (A–C) and female (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

29.16067°N, 108.03687°E, 1548 m, 23.V.2017, G.C. Zhou *et al.* leg.; 2♀, Youyang Co., Xiaoba Town, Xinqiao Vill., 28.83778°N, 108.72372°E, 924 m, 23.V.2017, G.C. Zhou *et al.* leg.; 1♂, Pengshui Co., Mowei MSS, 29.19612°N, 108.04788°E, 1458 m, 25.VII.2017, M. Irfan & G.C. Zhou leg.; 1♀, Nanchuan Co., Dayou Town, 28.99736°N, 107.33591°E, 1021 m, 13.VIII.2015, X.J. Peng *et al.* leg.; 3♂2♀, Pengshui Co., Mowei MSS, 29.18643°N, 108.050811°E, 1568 m, 25.VII.2017, M. Irfan & G.C. Zhou leg.; 1♀, Pengshui Co., Mowei MSS, 29.19630°N, 108.04870°E, 1563 m, 26.VII.2017, M. Irfan & G.C. Zhou leg.; 1♂, Pengshui Co., Mowei MSS, 29.19612°N, 108.04788°E, 1458 m, 26.VII.2017, M. Irfan & G.C. Zhou leg.; **Hubei Prov.:** 3♀, Enshi Co., Xuaneng, Wanzhai Town, Banchang Vill., 30.06698°N, 109.71306°E, 721 m, 04.V.2016, W. Liu *et al.* leg.; 1♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95008°N, 109.02562°E, 863 m, 20.V.2017, G.C. Zhou *et al.* leg.; 2♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95196°N, 109.01363°E, 825 m, 25.VIII.2017, G.C. Zhou *et al.* leg.; 1♀, Enshi Co., Xuaneng, Changtanghe Town, Dawolong Vill., 30.08346°N, 109.73228°E, 738 m, 16.V.2017, G.C. Zhou *et al.* leg.; 1♂2♀, Enshi Co., Xuaneng Co., Changtanghe Town, Dawolong Vill., 30.06976°N, 109.74897°E, 839 m, 16.V.2017, G.C. Zhou *et al.* leg.; 2♀, Enshi Co., Xuaneng, Changtanghe Town, Dawolong Vill., 30.08361°N, 109.73212°E, 732 m. 15.V.2017, G.C. Zhou *et al.* leg.; 1♀, Enshi Co., Xingdou MNNR, 30.03748°N, 109.14548°E, 1078 m, 19.V.2017, G.C. Zhou *et al.* leg.; 3♂4♀, Enshi Co., Xingdou MNNR, 30.04581°N, 109.13635°E, 1151 m, 17.V.2017, G.C. Zhou leg.; 1♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 29.99053°N, 109.73879°E, 965 m, 13.V.2017, G.C. Zhou *et al.* leg.; 2♂9♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 29.99510°N, 109.74007°E, 1041 m, 14.V.2017, G.C. Zhou *et al.* leg.; **Hunan Prov.:** 1♂1♀, Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Wenfeng Vill., 29.352935°N, 110.608325°E, 582 m, 23.IV.2016, W. Liu *et al.* leg.; 1♀, Xiangxi, Baojing Co., Maogou Town, Bake Vill., Baiyun MNNR, 28.663953°N, 109.38880°E, 670 m, 28.V.2017, G.C. Zhou *et al.* leg.; 1♀, Shaoyang City, Chengbu Co., Rulin Town, Daqiao Vill., 26.34097°N, 110.27828°E, 458 m, 08.IX.2017, G.C. Zhou *et al.* leg.; 1♂, Shaoyang City, Suining Co., Zhaishi Town, Tieshanlin Vill., Huangshan NNR, 26.37646 °N, 110.10573°E, 1129 m, 26.X.2017, G.C. Zhou leg.; 1♂1♀, Changde City, Shimen Co., Hupingshan Town, Jiangping, Xiangtonggou, Daling Vill., 30.03395°N, 110.62506°E, 436 m. 20.X.2014, C. Wang *et al.* leg.; **Guizhou Prov.:** 2♂4♀, Yanhe Co., Mayanghe NNR, 28.65838°N, 108.26033°E, 268 m. 07.VII.2014, C. Wang *et al.* leg.; 2♂4♀, Fanjing County Fanjingshan NNR (Taoyuan Vill., Wuluo Town), 28.00031°N, 108.77995°E, 880 m, 31.VII.2014, C. Wang *et al.* leg.; 1♂4♀, Jiangkou Co., Fanjingshan NNR (Kema Vill., Taiping Town), 27.84272°N, 108.77494°E, 540 m, 01.VIII.2014, X.J. Peng *et al.* leg.; 1♀, Jiangkou Co., Fanjingshan NNR (Kaiwen Vill., Taiping Town), 27.89602°N, 108.79613°E, 600 m, 03.VIII.2014, X.J. Peng *et al.* leg.; 1♀, Tongren City, Shijie Co., Pingshan Township, Fodingshan Vill., Fodingshan NNR, 27.3373°N, 108.15308°E, 617 m, 03.V.2018, D. Li *et al.* leg.

Distribution. China (Chongqing, Fujian, Hubei, Hunan, Guizhou and Zhejiang Provinces, Figs 307, 310, 313, 315).

Genus *Ryojius* Saito & Ono, 2001 (良次蛛属)

Type species. *Ryojius japonicus* Saito & Ono, 2001; gender masculine.

Remark. *Ryojius* comprises six species (including two species known from males only) distributed in China, Korea and Japan (WSC 2024).

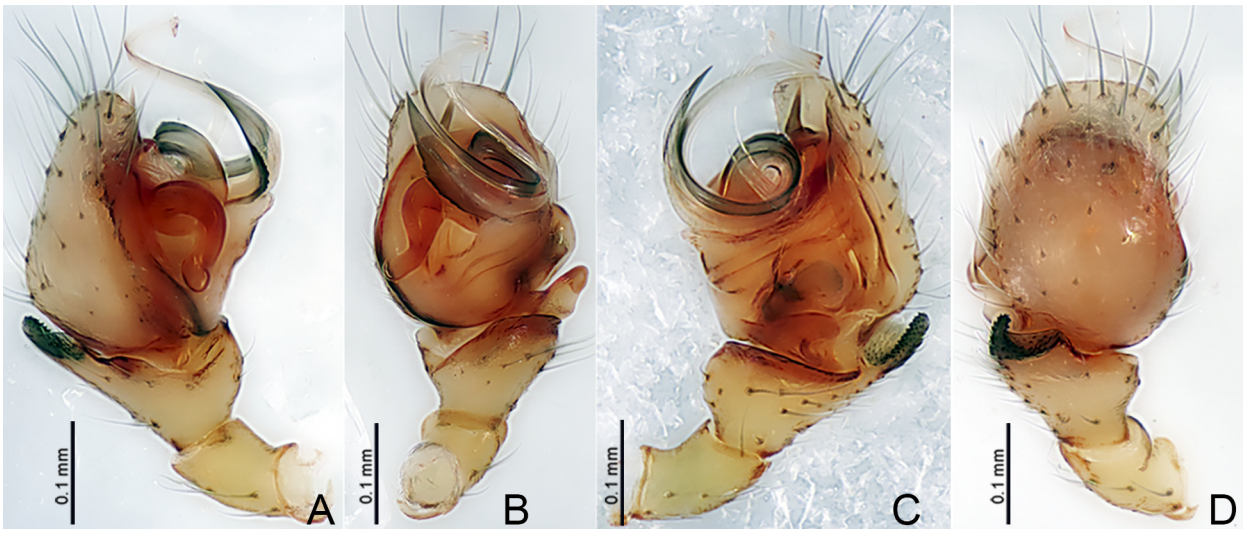


FIGURE 193. *Platyspira tanasevitchi* Song & Li, 2009. **A** Palp, prolateral view; **B** Palp, ventral view; **C** Palp, retrolateral view; **D** Palp, dorsal view.

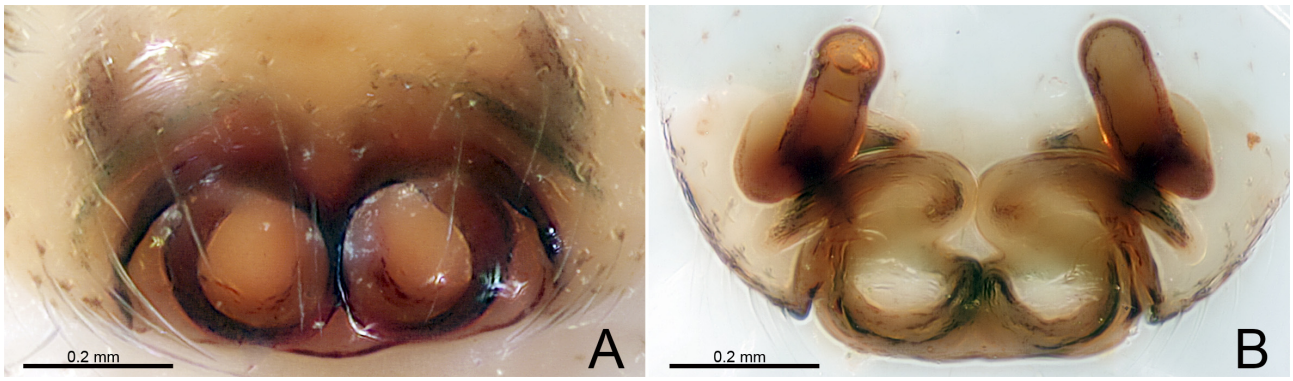


FIGURE 194. *Platyspira tanasevitchi* Song & Li, 2009, female. **A** Epigyne, ventral view; **B** Vulva, dorsal view.

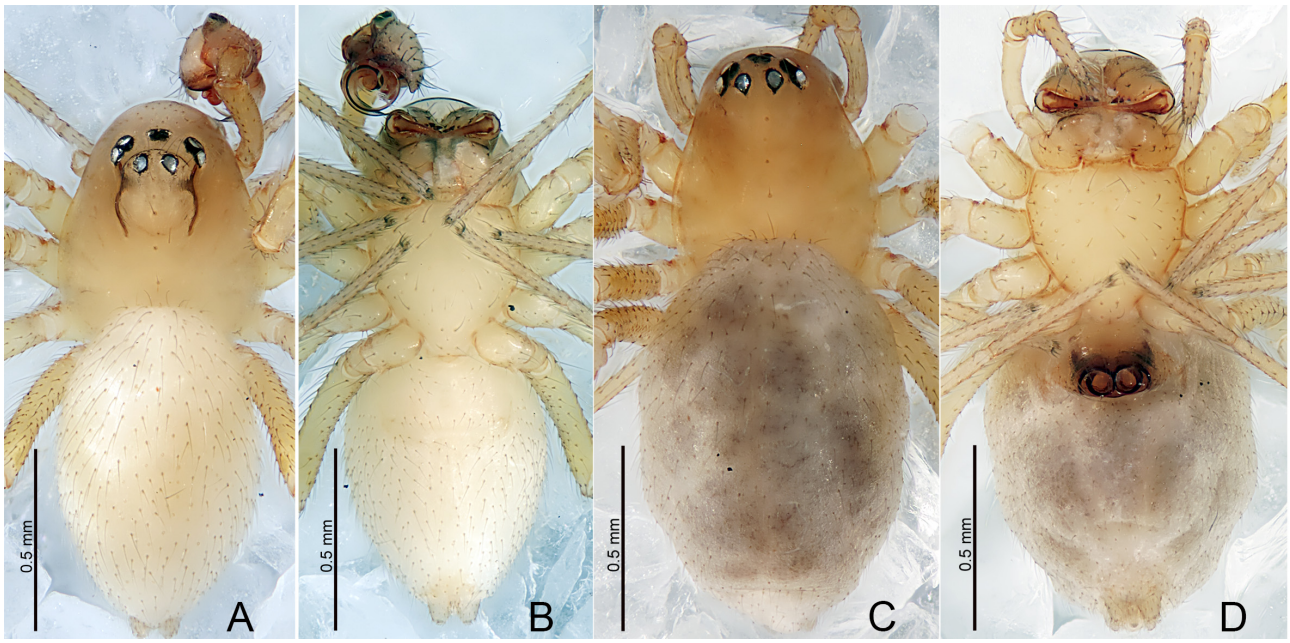


FIGURE 195. *Platyspira tanasevitchi* Song & Li, 2009, male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

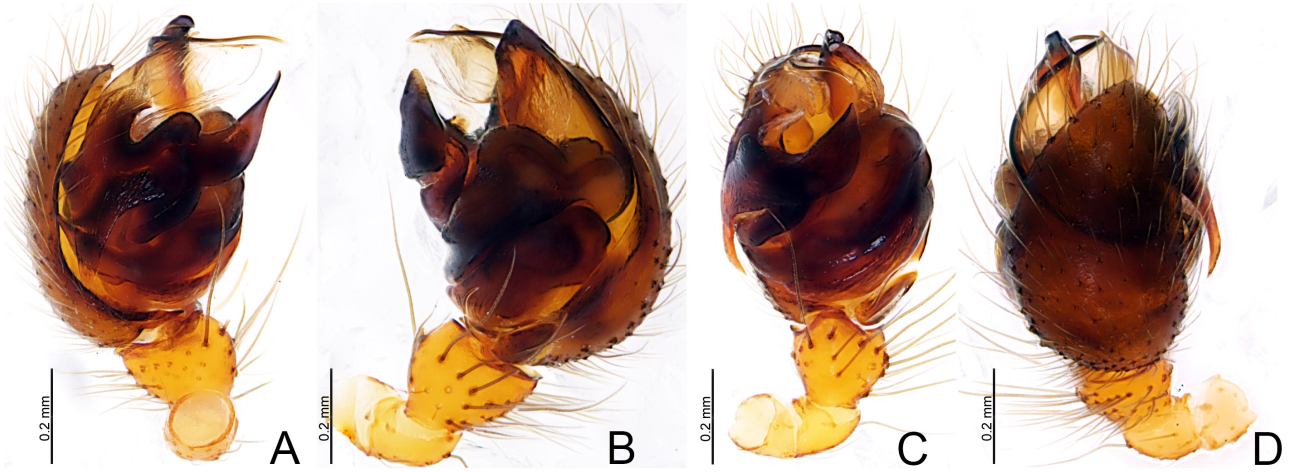


FIGURE 196. *Prosoponoides sinensis* (Chen, 1991). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view.

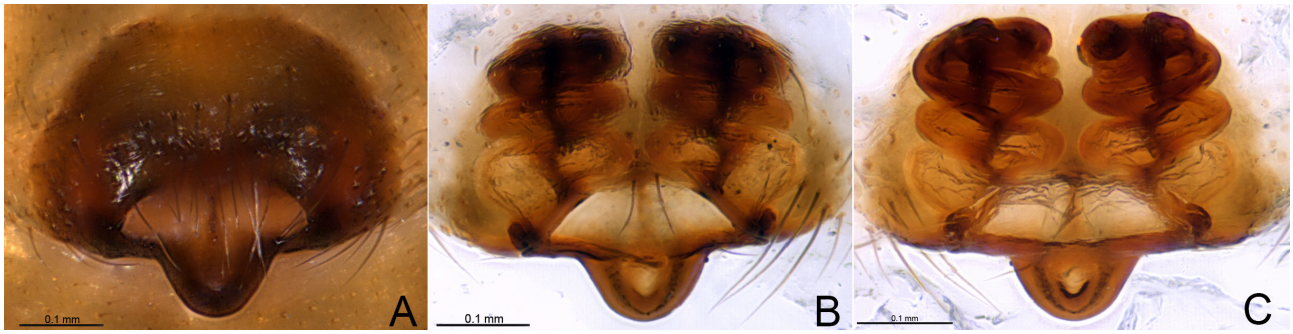


FIGURE 197. *Prosoponoides sinensis* (Chen, 1991), female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

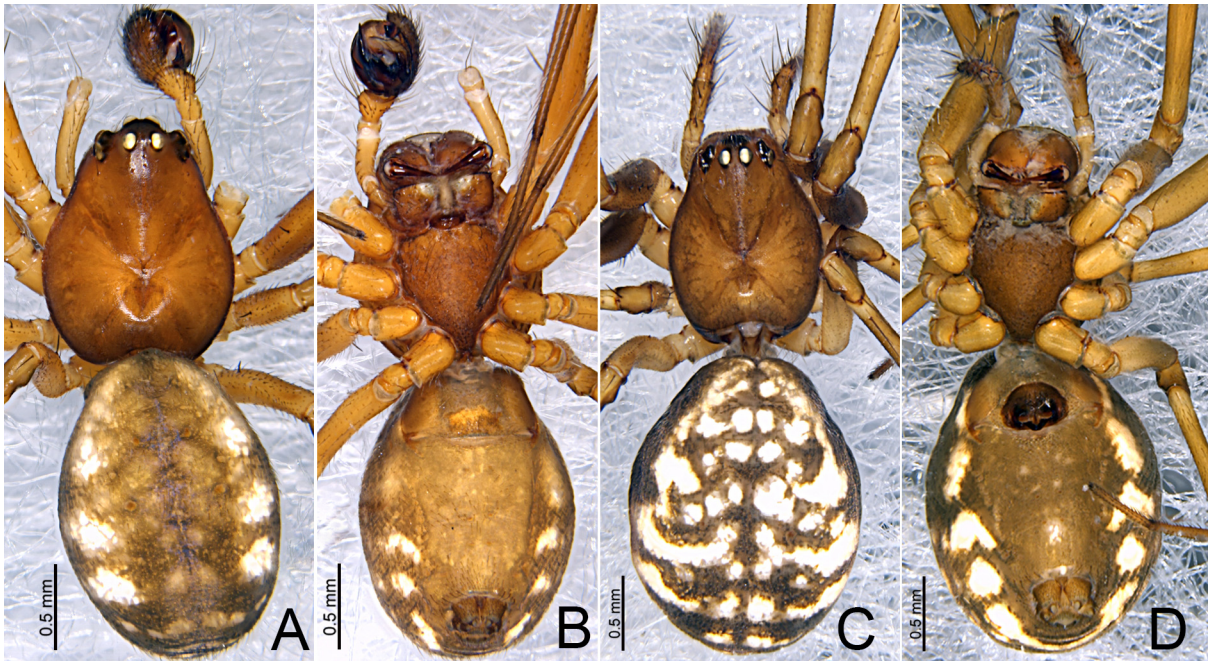


FIGURE 198. *Prosoponoides sinensis* (Chen, 1991), male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

***Ryojius fanjingshanensis* Irfan, Zhang & Peng, sp. n. (梵净山良次蛛)**
Figures 199–201, 310

Types. Holotype ♂ (HNU–GZ–IV–1715), **Guizhou Prov.:** Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 28.00130°N, 108.80578°E, 1160 m, 06.XI.2017, G.C. Zhou leg. **Paratypes:** 1♀, with same data as for holotype male (HNU–GZ–IV–1715).

Etymology. The specific epithet is derived from type locality; adjective.

Diagnosis. *Ryojius fanjingshanensis* **sp. n.** resembles *R. fodingshanensis* **sp. n.** in having the similar radix, lamella characteristica in male palp and stretcher of epigyne (Figs 199A–D, 200A–C; Figs 202A–D, 203A, B), but can be distinguished by at the proximal end of distal arm of paracymbium with depression in *R. fanjingshanensis* **sp. n.** (Figs 199A–D), vs. the distal arm tip with knob in *R. fodingshanensis* **sp. n.** (Figs 202A–D); apex of embolus forked in prolateral view in *R. fanjingshanensis* **sp. n.** (Figs 199A–D), vs. finger-shaped in *R. fodingshanensis* **sp. n.** (Figs 202A–D); dorsal tibial apophysis leaf-shaped in dorsal view in *R. fanjingshanensis* **sp. n.** (Figs 199A–D), vs. beak-shaped in *R. fodingshanensis* **sp. n.** (Figs 202A–D). The posterior margin of basal part of scape wave-like in epigyne in *R. fanjingshanensis* **sp. n.** (Figs 200A–C), vs. V-shaped in *R. fodingshanensis* **sp. n.** (Figs 203A, B).

Description. Male (holotype, Figs 201A, B): Total length: 1.94. Carapace 0.87 long, 0.69 wide, yellowish brown, cervical and radial grooves distinct. Clypeus 0.17 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish green with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.06, PLE 0.06, AME–AME 0.03, PME–PME 0.05, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.05, ALE–ALE 0.25, PLE–PLE 0.28, ALE–PLE 0.01. Length of legs: I 2.4 (0.72, 0.79, 0.52, 0.37), II 2.17 (0.67, 0.69, 0.45, 0.36), III 1.84 (0.57, 0.59, 0.39, 0.29), IV 2.34 (0.69, 0.78, 0.48, 0.39). Tibial spine formula: 2-2-2-2. TmI 0.32 and TmIV absent. Opisthosoma 1.06 long, 0.70 wide, oval, dusky grey, posteriorly with two chevrons; ventral side dusky grey with green patches.

Palp (Figs 199A–D): Femur unmodified, almost longer than patella and tibia. Patella as long as tibia, ventrally grooved, with a long dorsal spine. Tibia conical, with one retrolateral and one dorsal trichobothria, dorsal tibial apophysis (DTA) strongly sclerotized, pointing laterally in dorsal view; cymbium unmodified, retrolateral margin with a shallow depression at the base, oval in dorsal view; paracymbium (PC) strongly scleortized, distal arm with a depression at proximal end, distal tip thumb-shaped with blunt end; distal suprategular apophysis (DSA) small covered by the tegulum with narrow hook-shaped dorsal tip. Radix (R) arch-shaped. Lamella characteristica (LC) with 2 branches extending upward. Terminal apophysis (TA) wide, with broad tip with blunt end. Embolus conspicuously large, posteriorly curved about semicircle, C-shaped, apex strongly sclerotized, bifurcated; thumb short covered by the terminal apophysis; embolus proper (EP) with pointed end.

Female (one of the paratypes, Figs 201C, D): Total length: 2.11. Carapace 0.83 long, 0.63 wide, yellow, cervical and radial grooves distinct. Clypeus 0.17 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.04, PLE 0.06, AME–AME 0.02, PME–PME 0.06, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.04, ALE–ALE 0.27, PLE–PLE 0.29, ALE–PLE 0.01. Length of legs: I 2.26 (0.68, 0.77, 0.45, 0.36), II 2.02 (0.62, 0.65, 0.40, 0.35), III 1.73 (0.51, 0.54, 0.37, 0.31), IV 2.12 (0.63, 0.71, 0.42, 0.36). Tibial spine formula: 2-2-2-2. TmI 0.31 and TmIV absent. Opisthosoma 1.28 long, 0.82 wide, oval, dusky grey, posteriorly with two chevrons; ventral side pale.

Epigyne (Figs 200A–C): Protruding; characterised by conspicuosly wide, posteriorly projecting basal part of scape (BS), posterior margin wave-like, dorsally bearing narrow tongue-shaped stretcher (ST). Distal part of scape (DPS) widened posteriorly with small lateral pockects. Posterior median plate (PMP) rectangular. Spermathecae (S) globular, situates at the apeces.

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

***Ryojius fodingshanensis* Irfan, Zhang & Peng, sp. n. (佛顶山良次蛛)**
Figures 202, 203, 310

Types. Holotype ♂ (HNU–GZ–IV–1706), **CHINA, Guizhou Prov.;** Tongren City, Shiqian Co., Pingshan Town, Fodingshan Vill., Fodingshan NNR, 27.34899°N, 108.16272°E, 666 m, 01.XI.2017, G.C. Zhou leg. **Paratypes:** 1♂1♀, with same data as for holotype male (HNU–GZ–IV–1706).

Etymology. The specific epithet is derived from type locality; adjective.

Diagnosis. *Ryojius fodingshanensis* **sp. n.** resembles *R. fanjingshanensis* **sp. n.** in having the similar radix, lamella characteristica in male palp and stretcher of epigyne (Figs 202A–D, 203A, B; Figs 199A–D, 200A–C), but can be distinguished by at the proximal end of distal arm tip of paracymbium with knob in *R. fodingshanensis* **sp. n.** (Figs 202A–D), vs. the distal arm tip with depression in *R. fanjingshanensis* **sp. n.** (Figs 199A–D); apex of embolus finger-shaped in prolateral view in *R. fodingshanensis* **sp. n.** (Figs 202A–D), vs. forked in *R. fanjingshanensis* **sp. n.** (Figs 199A–D); dorsal tibial apophysis beak-shaped in dorsal view in *R. fodingshanensis* **sp. n.** (Figs 202A–D), vs. leaf-shaped in *R. fanjingshanensis* **sp. n.** (Figs 199A–D). The posterior margin of basal part of scape V- shaped in epigyne in *R. fodingshanensis* **sp. n.** (Figs 203A, B), vs. wave-like in *R. fanjingshanensis* **sp. n.** (Figs 200A–C).

Description. Male (holotype): Total length: 1.97. Carapace 0.91 long, 0.71 wide, yellow, cervical and radial

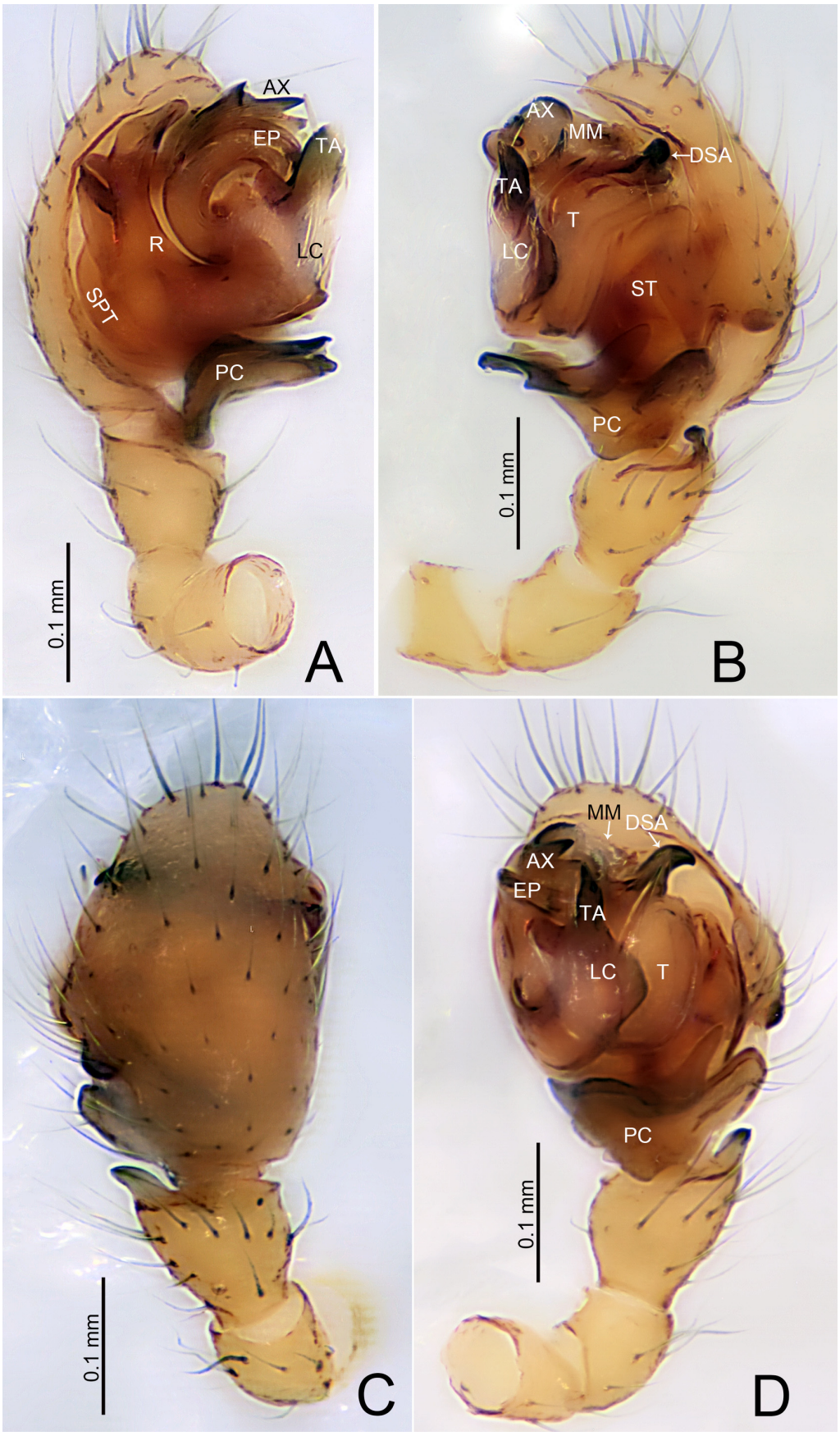


FIGURE 199. *Ryojius fanjingshanensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: AX—apex of embolus; EP—embolus proper; LC—lamella characteristica; MM—median membrane; PC—paracymbium; R—radix; SPT—suprategulum; ST—subtegulum; T—tegulum; TA—terminal apophysis.

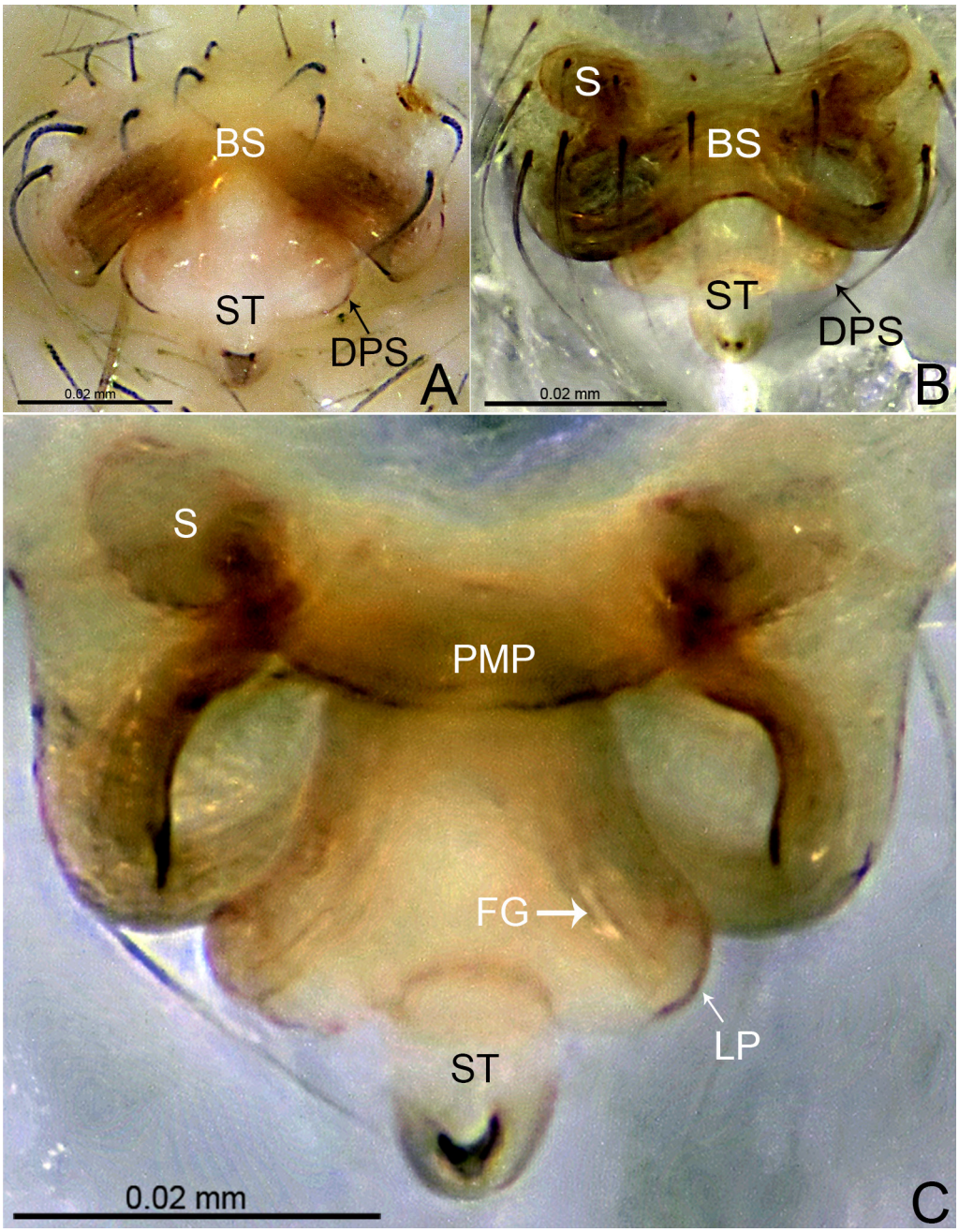


FIGURE 200. *Ryojius fanjingshanensis* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: BS—basal part of scape; DPS—distal part of scape; EG—entrance groove; LP—lateral pocket; PMP—posterior median plate; S—spermatheca; ST—stretcher.

grooves distinct. Clypeus 0.19 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.03, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.03, PME–PME 0.06, AME–ALE, 0.04, PME–PLE 0.07, AME–PME 0.04, ALE–ALE 0.26, PLE–PLE 0.31, ALE–PLE 0.01. Length of legs: I 2.87 (0.84, 1.01, 0.58, 0.44), II 2.57 (0.79, 0.91, 0.49, 0.38), III 2.02 (0.61, 0.67, 0.41, 0.33), IV 2.61 (0.77, 0.95, 0.53, 0.36). TmI 0.31 and TmIV absent. Tibial spine formula: 2-2-2-2. Opisthosoma 1.06 long, 0.70 wide, oval, dusky grey, posteriorly with two chevrons; ventral side dusky grey.

Palp (Figs 202A–D, 203C): Femur unmodified, almost longer than patella and tibia. Patella as long as tibia, ventrally grooved, with a long dorsal spine. Tibia conical, dorsal tibial apophysis (DTA) strongly sclerotized pointing retrolaterally in dorsal view; with one retrolateral and one dorsal trichobothria; cymbium unmodified, retrolateral margin with a shallow depression at the base; paracymbium (PC) strongly scleortized, distal arm tip with knob; distal suprategular apophysis (DSA) small covered by the tegulum with narrow hook-shaped dorsal tip. Radix (R) arch-shaped. Lamella characteristica (LC) with 2 branches extending upwardly. Terminal apophysis (TA) wide, with broad tip. Embolus (E) conspicuously

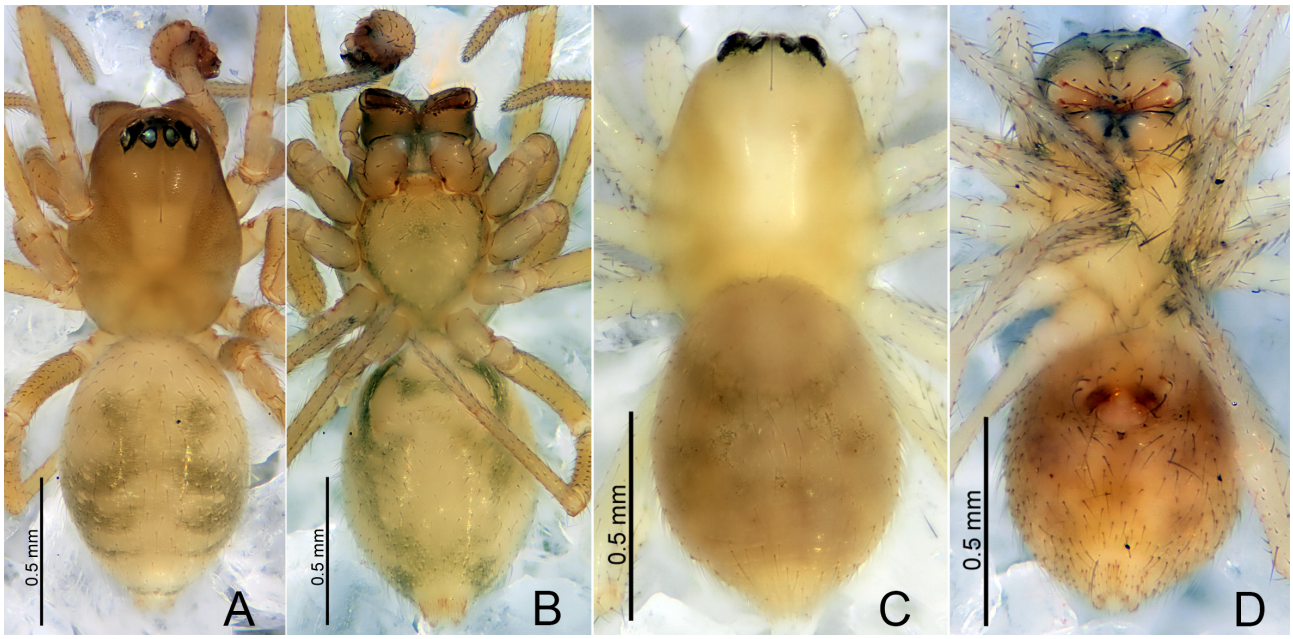


FIGURE 201. *Ryojius fanjingshanensis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

large, posteriorly curved about semicircle, C-shaped, apex strongly sclerotized, finger-shaped with blunt end; thumb short covered by the terminal apophysis; embolus proper (EP) with pointed end.

Female (one of the paratypes): Total length: 1.98. Carapace 0.81 long, 0.63 wide, yellow brown, cervical and radial grooves distinct. Clypeus 0.17 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.07, PLE 0.07, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.03, ALE–ALE 0.26, PLE–PLE 0.31, ALE–PLE 0.01. Length of legs: I 2.42 (0.71, 0.84, 0.48, 0.39), II 2.23 (0.65, 0.77, 0.45, 0.36), III 1.91 (0.61, 0.60, 0.36, 0.34), IV 2.37 (0.74, 0.81, 0.45, 0.37). TmI 0.34 and TmIV absent. Tibial spine formula: 2-2-2-2. Opisthosoma 1.17 long, 0.79 wide, oval, dusky grey, posteriorly with two chevrons; ventral side dusky grey.

Epigyne (Figs 203A, B): Protruding; characterised by conspicuosly wide, posteriorly projecting V-shaped basal part of scape (BS), dorsally bearing narrow tongue-shaped stretcher (ST). Distal part of scape (DPS) widened posteriorly with small lateral pockects. Posterior median plate (PMP) rectangular. Spermathecae (S) globular, situates at the apeces.

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

Ryojius lianghekouensis Irfan, Zhang & Peng, sp. n. (两河口良次蛛)

Figures 204, 205, 313, 315

Types. Holotype ♀ (HNU–HN–IV–1718), **CHINA, Hunan Prov.:** Ningxiang Co., Huaminglou Town, Tanzi Vill., 28.032005°N, 112.640872°E, 72 m, 09.V.2017, G.C. Zhou *et al.* leg. **Paratypes:** 1♀, Hengyang City, Nanyue District, Hengshan NNR, Guanjing Villa, 27.290263°N, 112.70072°E, 1186 m, 19.I.2018, G.C. Zhou *et al.* leg. (HNU–HNHS–18–10); 1♀, Hengyang City, Nanyue District, Hengshan NNR, Hu Heyun Tomb, 27.26710°N, 112.71825°E, 389 m, 19.I.2018, G.C. Zhou *et al.* leg. (HNU–HNHS–18–12); **Hubei Prov.:** 3♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 29.99053°N, 109.73879°E, 965 m, 13.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1701); 1♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 30.00166°N, 109.74093°E, 1234 m, 14.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1703); 2♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 30.03902°N, 109.14274°E, 1114 m, 19.V.2017, M. Irfan & G.C. Zhou leg. (HNU–HB–IV–1715); 1♀, Xuanen Co., Shadaogou Town, Qizimei Mountain, 29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu *et al.* leg.

Etymology. The specific epithet is derived from type locality; adjective.

Diagnosis. The female of *Ryojius lianghekouensis* **sp. n.** resembles that of *R. nanyuensis* in having the similar longer than wide dorsal part of scape, the stretcher and the posterior median plate of epigyne (Figs 204A–D; Figs 207A–D; Tu, Saaristo & Li, 2006 fig. 18), but can be distinguished by the posterior margin of basal part of scape V-shaped in *R. lianghekouensis* **sp. n.** (Figs 204A–D; vs. arch-shaped).

Description. Female (holotype, Figs 207A, B): Total length: 1.62. Carapace 0.75 long, 0.57 wide, light brown, cervical and radial grooves distinct Clypeus 0.28 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish grey with

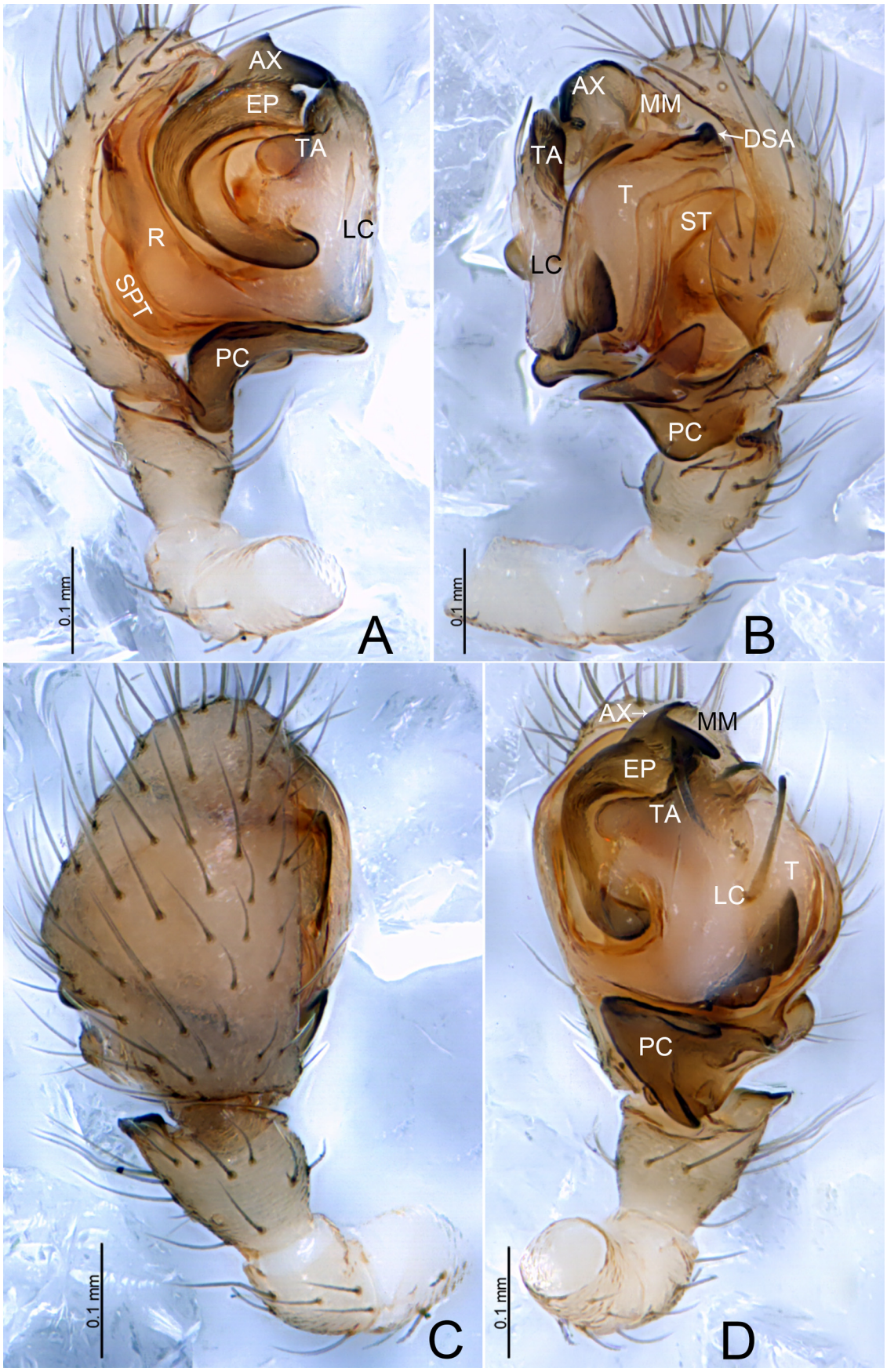


FIGURE 202. *Ryojius fodingshanensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: AX—apex of embolus; EP—embolus proper; LC—lamella characteristica; MM—median membrane; PC—paracymbium; R—radix; SPT—suprategulum; ST—subtegulum; T—tegulum; TA—terminal apophysis.

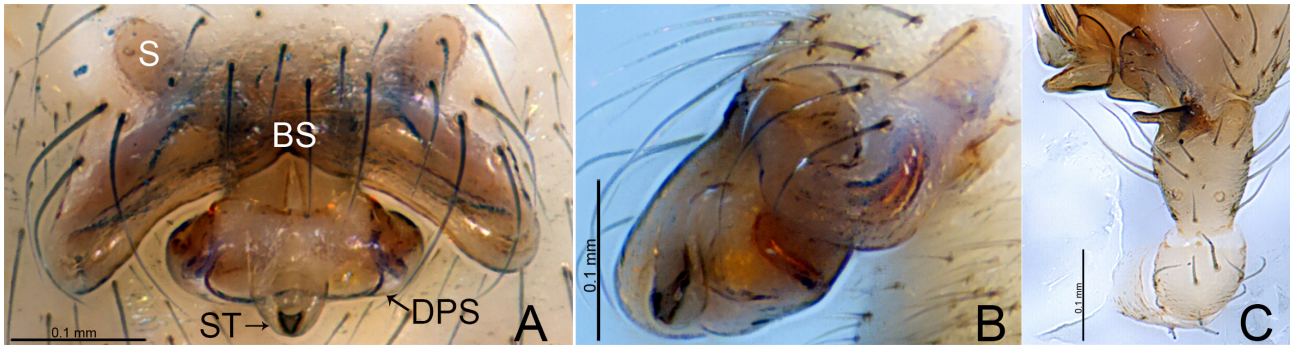


FIGURE 203. *Ryojius fodingshanensis* **sp. n.**, female paratype (A, B) and male holotype (C). **A** Epigyne, ventral view; **B** Epigyne, lateral view; **C** Palp, tibia dorsal view. Abbreviations: BS—basal part of scape; DPS—distal part of scape; EG—entrance groove; LP—lateral pocket; PMP—posterior median plate; S—spermatheca; ST—stretcher.

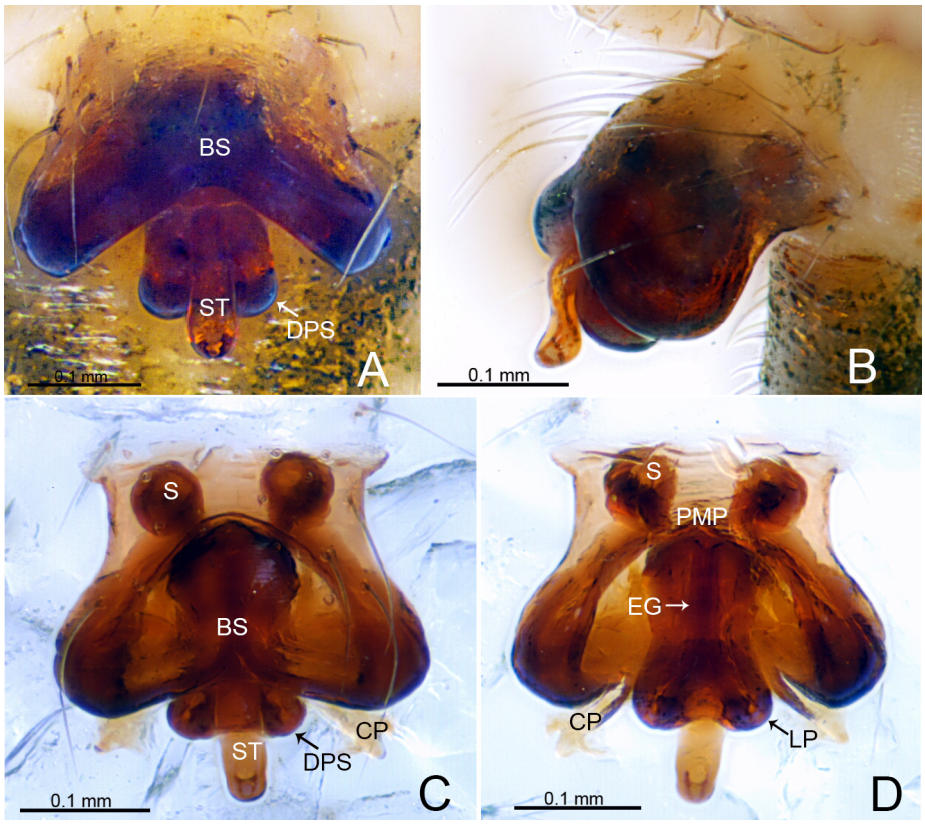


FIGURE 204. *Ryojius lianghekouensis* **sp. n.**, female holotype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: BS—basal part of scape; DPS—distal part of scape; EG—entrance groove; LP—lateral pocket; PMP—posterior median plate; S—spermatheca; ST—stretcher.

microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.05, PME 0.05, PLE 0.06, AME–AME 0.01, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.04, ALE–ALE 0.22, PLE–PLE 0.26, ALE–PLE contiguous. Length of legs: I 1.95 (0.58, 0.66, 0.37, 0.34), II 1.78 (0.54, 0.62, 0.36, 0.26), III 1.59 (0.47, 0.48, 0.33, 0.31), IV 1.97 (0.59, 0.68, 0.41, 0.29). TmI 0.32 and TmIV absent. Tibial spine formula: 2-2-2-2. Opisthosoma 1.04 long, 0.68 wide, oval, pale, posteriorly with two black chevrons; ventral side pale with black patches.

Epigyne (Figs 204A–D): Potruding; characterised by conspicuosly wide, posteriorly projecting scape, posterior end of basal part of scape (BS) V-shaped, dorsally bearing narrow tongue-shaped stretcher (ST). Distal part of scape (DPS) longer than wide with small lateral pockects (LP). Posterior median plate (PMP) rectangular. spermathecae (S) globular, situates at the apeces.

Male. Unknown.

Distribution. Known from type localities (Hubei and Hunan Provinces, Figs 313, 315).

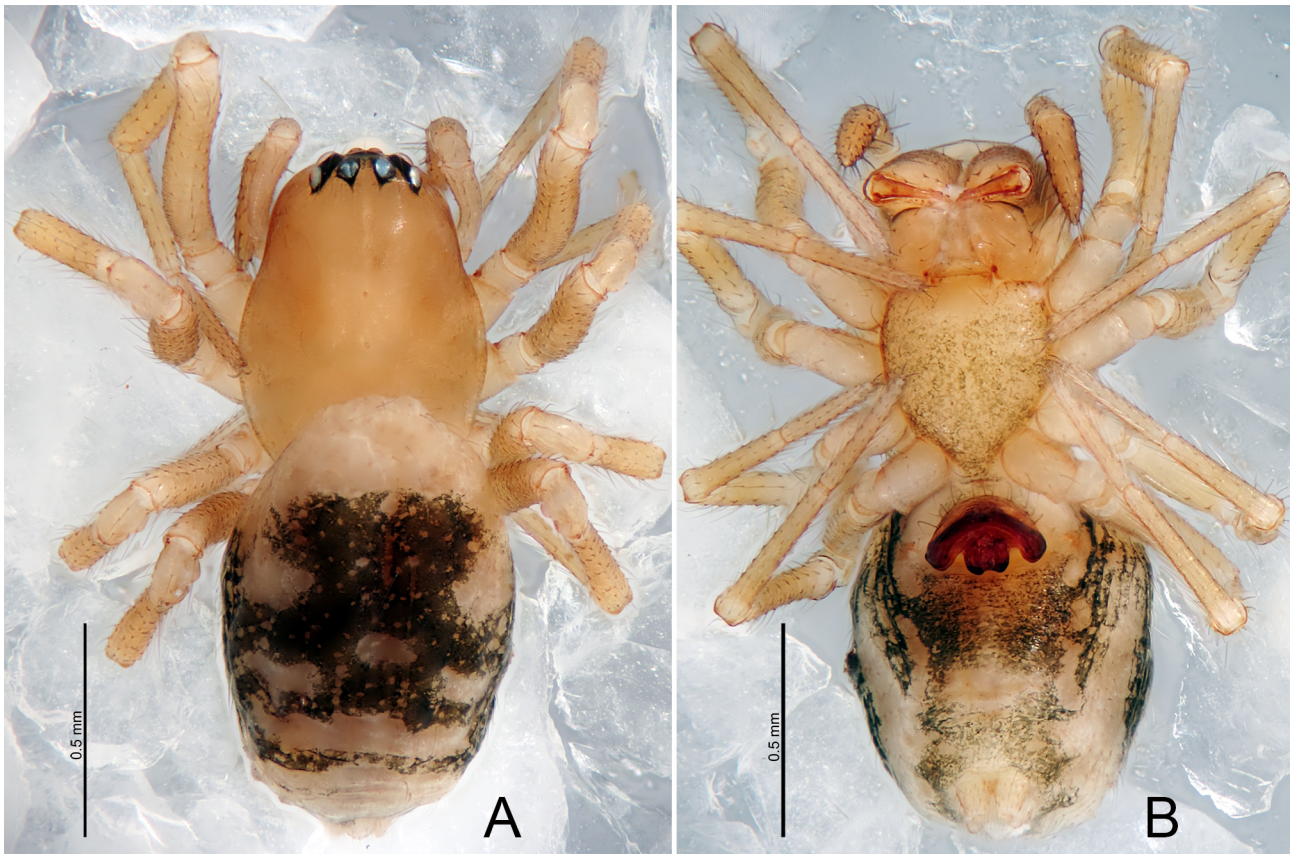


FIGURE 205. *Ryojius lianghekouensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

Ryojius nanyuensis (Chen & Yin, 2000) (南岳良次蛛)

Figures 206, 207, 315

Lepthyphantes nanyuensis Chen & Yin, 2000: 86, figs 1–11 (♂♀).
Ryojius nanyuensis Tu *et al.* 2006: 409, f. 15–23 (transferred ♂♀ from Lepthyphantes); Yin *et al.* 2012: 551, figs 264a–k (♂♀).

Material examined: 2♂2♀, **CHINA, Hunan Prov.:** Hengyang City, Nanyue District, Hengshan NNR, Xiangnan Temple, 27.281136°N, 112.69919°E, 981 m, 19.I.2018, G.C. Zhou *et al.* leg.; 1♂1♀, Shaoyang City, Suining Co., Zhaishi Town, Tieshanlin Vill., Huangshan NNR, 26.37646°N, 110.10573°E, 1129 m, 26.X.2017, G.C. Zhou leg. ; 1♂, Hengyang City, Nanyue District, Hengshan NNR, 03–07.VIII.1995, C.M. Yin leg.

Distribution. China (Hunan Province, Fig. 315).

Genus *Scotinotylus* Simon, 1884 (裂头蛛属) (new to China)

Type species. *Erigone antennata* O. Pickard-Cambridge, 1875; gender masculine.

Remark. *Scotinotylus* comprises 46 species (including 12 species known from females only and one from males only) distributed in Central Asia, Europe, Japan, Kazakhstan, Mongolia, North America and Russia (WSC 2024).

Scotinotylus guizhouensis Irfan, Zhang & Peng, sp. n. (贵州裂头蛛)

Figures 208–211, 307, 310

Types. Holotype ♂ (HNU–GZ–IV–1715), **CHINA, Guizhou Prov.:** Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 28.00130°N, 108.80578°E, 1160 m, 06.XI.2017, G.C. Zhou leg. **Paratypes:** 11♂17♀, with same data as for holotype male (HNU–GZ–IV–1715); **Chongqing:** 2♀, Pengshui Co., Mowei MSS, 29.16079°N, 108.03732°E, 1564 m, 26.VII.2017, M. Irfan & G.C. Zhou leg. (HNU–CQ–IV–1723); 1♀, Pengshui Co., Mowei MSS, 29.19612°N, 108.04788°E, 1458 m, 26.VII.2017, M. Irfan & G.C. Zhou leg. (HNU–CQ–IV–1724).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Scotinotylus guizhouensis* **sp. n.** resembles *S. longiprojectus* **sp. n.** and *S. vettonicus* in having the similar tegulum and the embolic division (Figs 208A–D, 209A–C; Figs 212A–D, 213A–E; Barrientos *et al.* 2020, figs 2e–g, 3a–b), but can be distinguished by the paracymbium J-shaped in *S. guizhouensis* **sp. n.** (Figs 208A–D, 209A–C), vs. basal part of the paracymbium with long projection, hook-shaped pointed end and almost reaches to the proximal end of the tibia in retrolateral view in *S. longiprojectus* **sp. n.** (Figs 212A–D, 213E), C-shaped in *S. vettonicus*; the distal suprategular apophysis long, tongue-shaped, protruding above the embolic membrane in

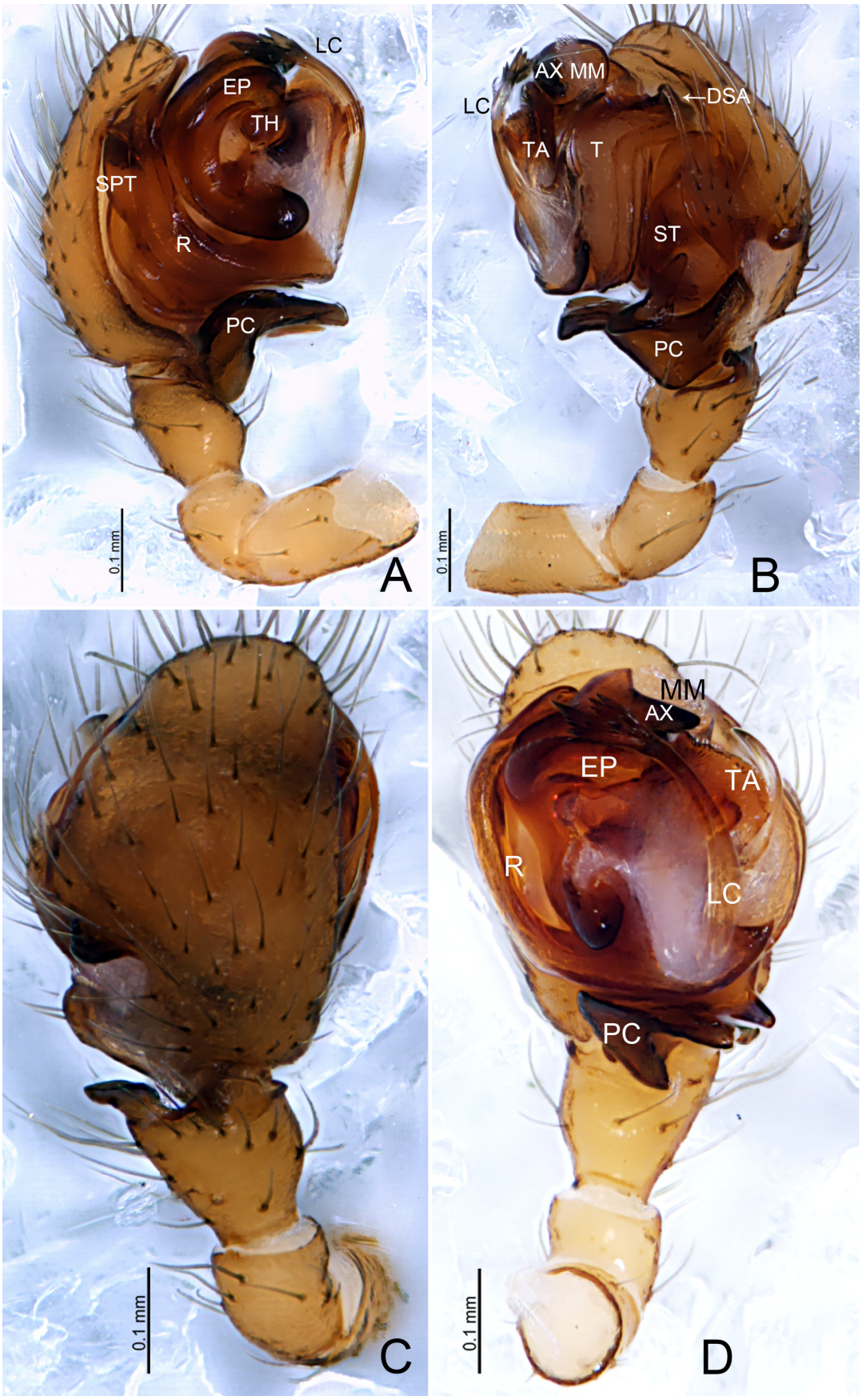


FIGURE 206. *Ryojius nanyuensis* (Chen & Yin, 2000). **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: AX—apex of embolus; EP—embolus proper; LC—lamella characteristica; MM—median membrane; PC—paracymbium; R—radix; SPT—suprategulum; ST—subtegulum; T—tegulum; TA—terminal apophysis.

S. guizhouensis **sp. n.** (Figs 208A, B, 209A–C), vs. small, retained below the embolic membrane in *S. longiprojectus* **sp. n.** (Figs 212A, B, C, 213A–D), absent in *S. vettonicus*; retrolateral tibial apophysis present in *S. guizhouensis* **sp. n.** (Figs 208B, C), vs. absent in *S. longiprojectus* **sp. n.** (Figs 212B, C). Female resembles those of *S. majesticus* and *S. vettonicus* in having the epigyne with long tongue-shaped scapoid on anterior margin (Figs 210A–D; Millidge, 1981, figs 85, 87; Barrientos *et al.* 2020, figs 2c–d), and can be distinguished by the copulatory ducts forming large broad loop extending anteriorly and than turn back to spermathecae in *S. guizhouensis* **sp. n.** (Figs 210C, D; vs. forming long broad loop posteriorly in *S. majesticus*; not forming long loop in *S. vettonicus*); spermathecae present posteriorly on epigynal plate in *S. guizhouensis* **sp. n.** (Figs 210A, D; vs. present anteriorly both in *S. majesticus* and *S. vettonicus*).

Description. Male (holotype, Figs 211A–C): Total length: 1.93. Carapace 0.89 long, 0.67 wide, brown, cephalic region strongly elevated, cephalic pits present behind PLEs, cervical and radial grooves distinct. Clypeus 0.24 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish brown with microsetae. Eyes: AER recurved, PME procurved. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.07, PLE 0.05, AME–AME 0.01, PME–PME 0.06, AME–ALE, 0.03, PME–PLE 0.03, AME–PME 0.07, ALE–ALE 0.26, PLE–PLE 0.29, ALE–PLE contiguous. Length of legs: I 2.40 (0.74, 0.79, 0.48, 0.39), II 2.26 (0.71, 0.74, 0.47, 0.34), III 1.89 (0.56, 0.62, 0.41, 0.30), IV 2.38 (0.69, 0.83, 0.52, 0.34). Tibial spine formula: 2-2-1-1. TmI 0.38 and TmIV absent. Opisthosoma 1.05 long, 0.71 wide, oval, grey, densely covered with fine spines.

Palp (Figs 208A–D, 209A–C): Femur unmodified, almost longer than patella and tibia. Patella one and half times longer than tibia, ventrally grooved. Tibia with one reterolateral and one dorsal trichobothria, retrolateral tibial apophysis (RTA) somewhat triangular; dorsal tibial apophysis (DTA) long, slightly curved, with pointed end in dorsal view; cymbium unmodified, broad at distal end; paracymbium (PC) sclerotized, J-shaped; tegulum (T) ventrally with finger like projection in ventral view; protegulum (PT) broad, membranous, with blunt tip protruding upward; distal suprategular apophysis (DSA) sclerotized, slightly curved, distal end membranous. Tailpiece (TP) of embolic division sclerotized, curved with blunt tip; embolic membrane (EM) running parallel with embolus. Embolus (E) long, sclerotized, coiled, almost forming a complete transverse circle.

Female (paratype, Figs 211D–F): Total length: 1.92. Carapace 0.85 long, 0.66 wide, brown, cephalic region slightly elevated, cervical and radial grooves distinct. Clypeus 0.27 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PME procurved. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME

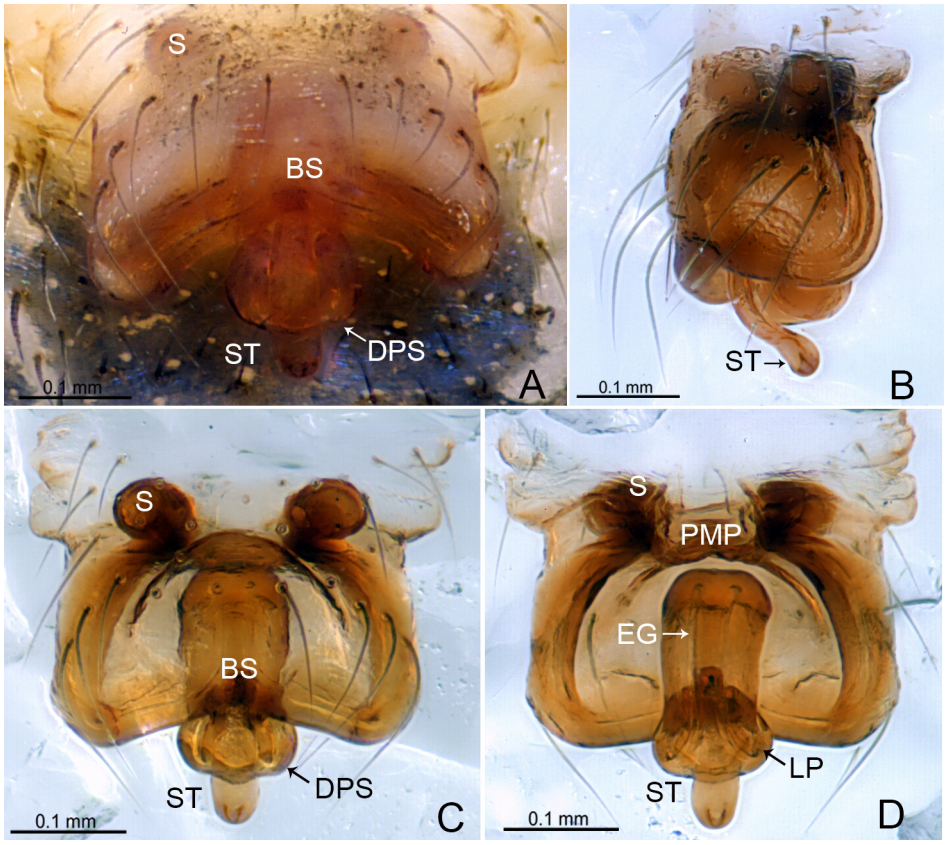


FIGURE 207. *Ryojius nanyuensis* (Chen & Yin, 2000), female. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: BS—basal part of scape; DPS—distal part of scape; EG—entrance groove; LP—lateral pocket; PMP—posterior median plate; S—spermatheca; ST—stretcher.

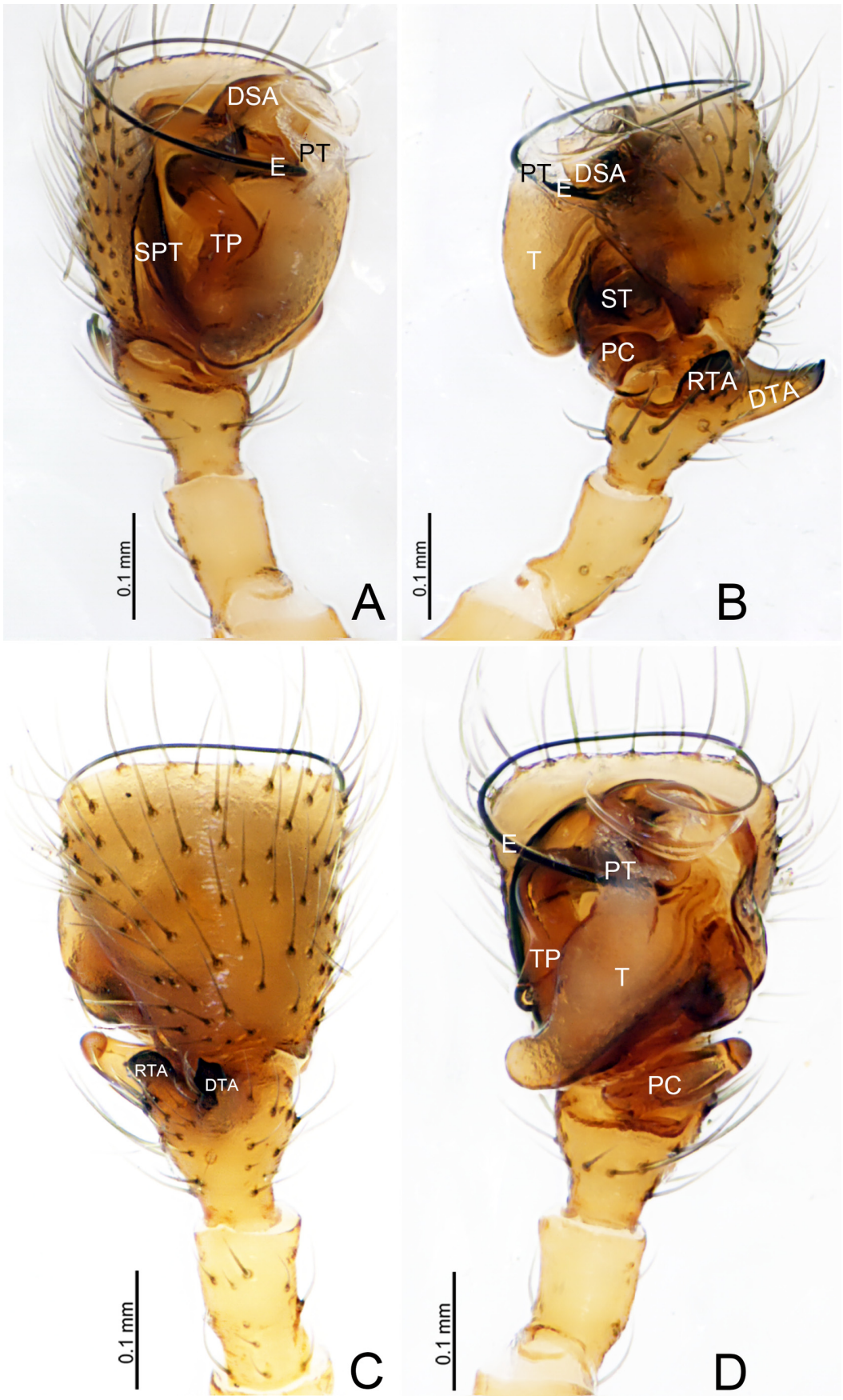


FIGURE 208. *Scotinotylus guizhouensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; PC—paracymbium; PT—protegulum; RTA—retrolateral tibial apophysis; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

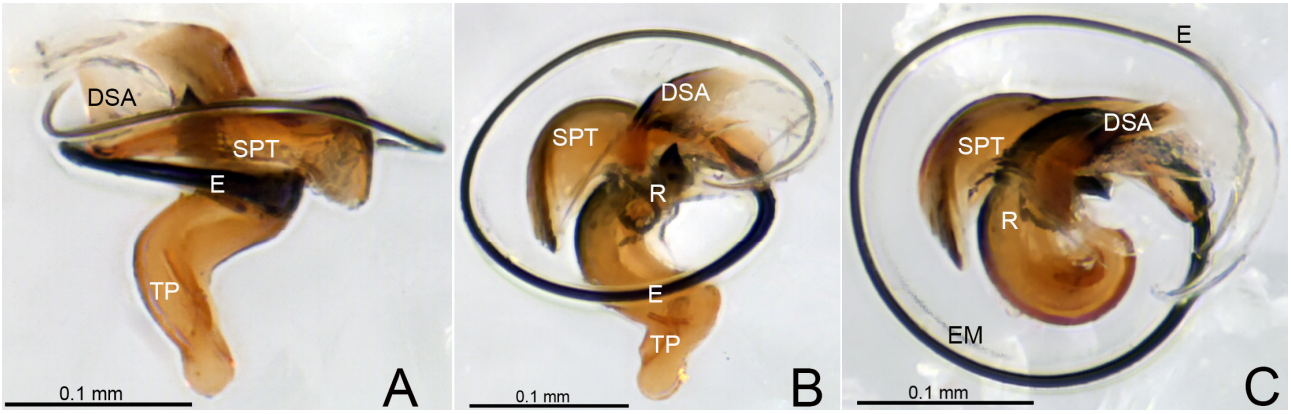


FIGURE 209. *Scotinotylus guizhouensis* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, ventral view; **C** Embolic division, posterior view. Abbreviations: DSA—distal suprategular apophysis; Em—embolus membrane; E—embolus; R—radix; SPT—suprategulum; TP—tailpiece.

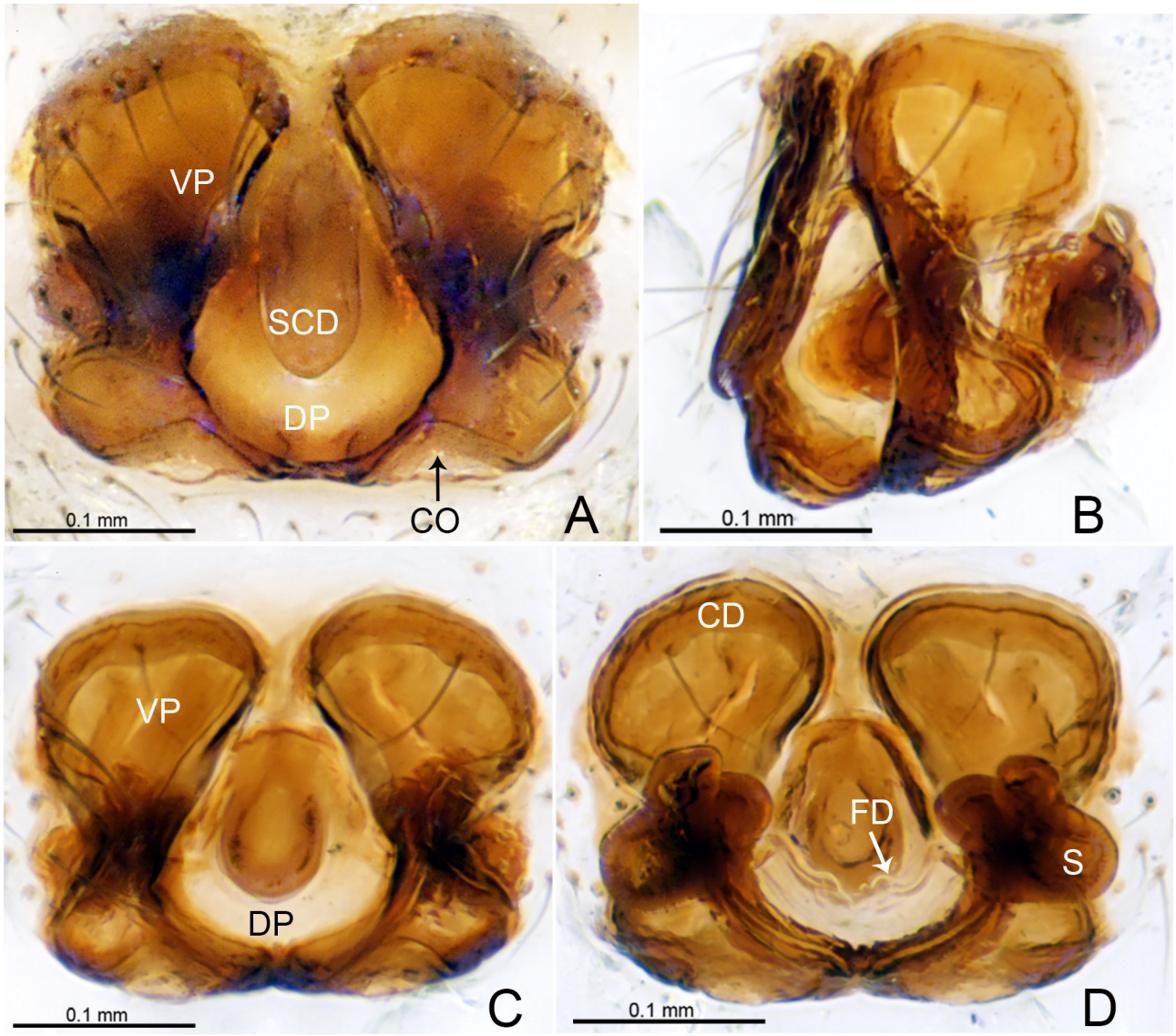


FIGURE 210. *Scotinotylus guizhouensis* **sp. n.**, female paratype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; SCD—scapoid; VP—ventral plate.

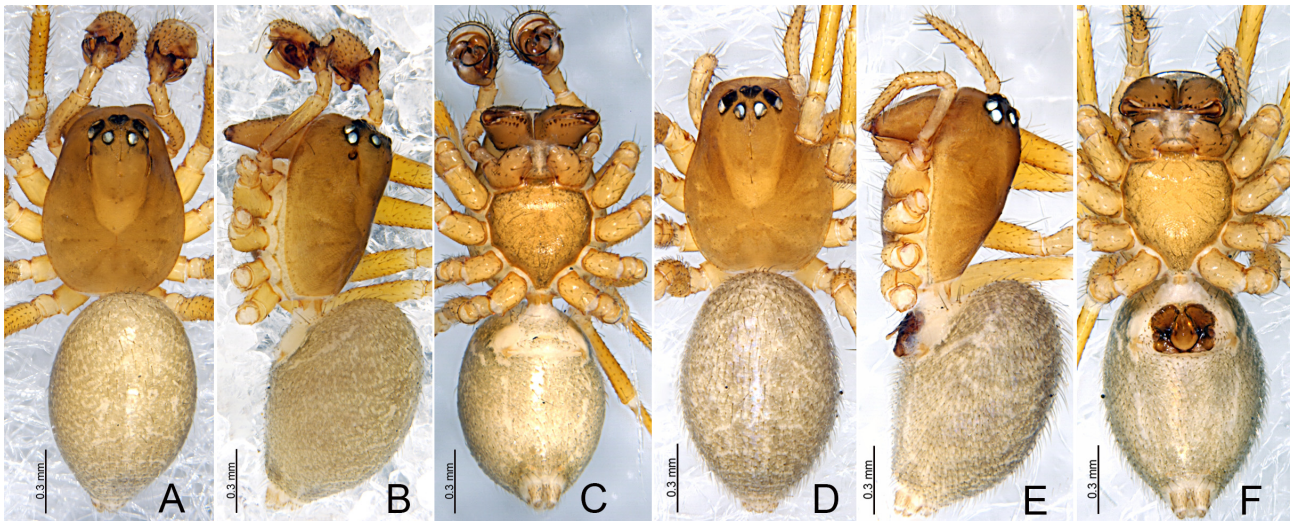


FIGURE 211. *Scotinotylus guizhouensis* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

0.06, PLE 0.06, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.26, PLE–PLE 0.28, ALE–PLE contiguous. Length of legs: I 2.34 (0.73, 0.80, 0.46, 0.35), II 2.08 (0.64, 0.72, 0.38, 0.34), III 1.71 (0.53, 0.56, 0.34, 0.28), IV 2.29 (0.72, 0.80, 0.44, 0.33). Tibial spine formula: 2-2-1-1. TmI 0.36 and TmIV absent. Opisthosoma 1.07 long, 0.77 wide, oval, grey, densely covered with fine spines.

Epigyne (Figs 210A–D): Ventral plate (VP) rectangular in outline; copulatory opening (CO) present poseriorly at the junction of dorsal and ventral plates; copulatory ducts (CD) long, sinuous; dorsal plate (DP) partly visible in ventral view. Scapoid (SCD) originates mid-anteriorly, longer than wide, tongue shaped with blunt end. Spermathecae (S) present near the posterior laterally on dorsal plate. Fertilization ducts (FD) short extending mesally.

Distribution. Known from type localities (Chongqing and Guizhou Province, Figs 307, 310).

Scotinotylus longiprojectus Irfan, Zhang & Peng, sp. n. (长突裂头蛛)

Figures 212–215, 310, 314, 315

Types. Holotype ♂ (HNU–GZ–IV–1715), **CHINA, Guizhou Prov.:** Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 28.00130°N, 108.80578°E, 1160 m, 06.XI.2017, G.C. Zhou leg. **Paratypes:** 32♂41♀, with same data as for holotype male (HNU–GZ–IV–1715); **Hunan Prov.:** 12♂18♀, Shaoyang City, Suining Co., Zhaishi Town, Tieshanlin Vill., Huangshan NNR, 26.37646°N, 110.10573°E, 1129 m, 26.X.2017, G.C. Zhou leg. (HNU–HN–IV–1759); 5♂7♀, Shaoyang City, Chengbu Co., Dajiang Town, Taiping Vill., 26.34007°N, 110.24947°E, 553 m, 09.XI.2017, G.C. Zhou leg. (HNU–HN–IV–1776); 1♀, Shaoyang City, Chengbu Co., Rulin Town, Daqiao Vill., 26.34077°N, 110.27790°E, 527 m, 08.XI.2017, G.C. Zhou leg. (HNU–HN–IV–1773); 1♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.087272°N, 112.67114°E, 125 m, 09.V.2017, G.C., Zhou *et al.* leg. (HNU–HN–IV–1707); 2♂3♀, Liuyang City, Mudu Vill., Daweishan NFP, 28.43388°N, 114.03376°E, 379 m, 14.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–05); **Hubei Prov.:** 6♀, Enshi Co., Xuaneng Co., Changtanghe Town, Dawolong Vill., 30.06976°N, 109.74897°E, 839 m, 16.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1707); 4♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 30.00166°N, 109.74093°E, 1234 m, 14.V.2017, G.C. Zhou *et al.* (HNU–HB–IV–1703); 2♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95008°N, 109.02562°E, 863 m, 20.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1722).

Etymology. The specific epithet is derived from the Latin adjectives "*longus*" and "*projectus*" meaning "long" and "projecting" and referring to the paracymbium with long projection in male palp.

Diagnosis. *Scotinotylus longiprojectus* **sp. n.** resembles *S. guizhouensis* **sp. n.** in having the similar tegulum and the embolic division (Figs 212A–D, 213A–E; Figs 208A–D, 209A–C), but can be distinguished by the basal part of the paracymbium with long projection, hook-shaped pointed end and almost reaches to the proximal end of the tibia in retrolateral view in *S. longiprojectus* **sp. n.** (Figs 212A–C, 213E), projection absent in *S. guizhouensis* **sp. n.** (Figs 208B, C); distal suprategular apophysis small, retained below the embolic membrane in *S. longiprojectus* **sp. n.** (Figs 212A–C, 213A–D), vs. long, tongue-shaped, protruding above the embolic membrane in *S. guizhouensis* **sp. n.** (Figs 208B, C, 209A–C); retrolateral tibial apophysis absent in *S. longiprojectus* **sp. n.** (Fig. 212B), vs. present in *S. guizhouensis* **sp. n.** (Fig. 208B). Female resembles those of *S. pallidus*, *S. protervus* and *S. sacratus* in having the epigyne with a common small cusp-shaped scapoid on anterior margin (Figs 214A–C; Millidge, 1981, figs 36, 41, 72), but can be distinguished by the spermathecae present at posterior

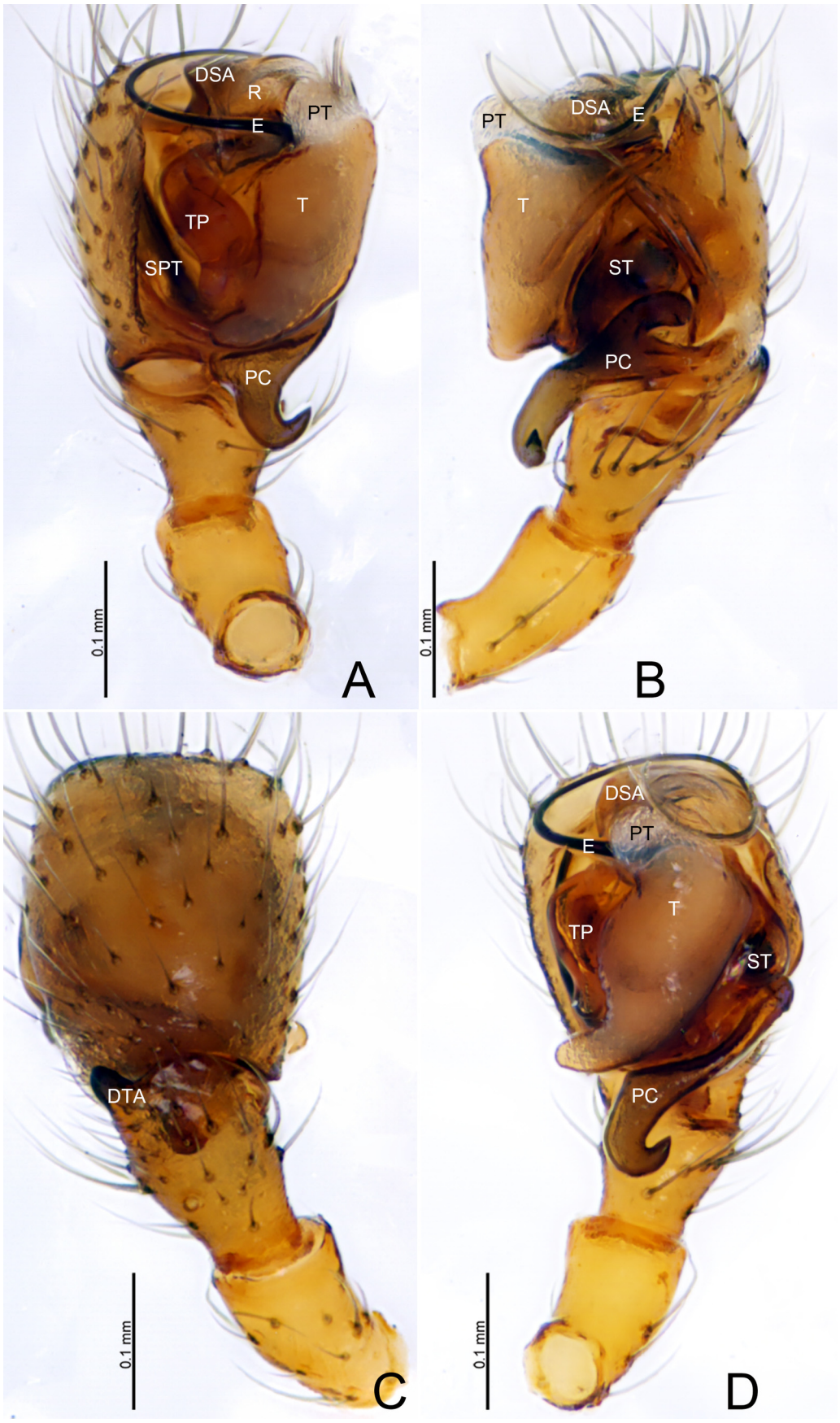


FIGURE 212. *Scotinotylus longiprojectus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

end on dorsal plate in *S. longiprojectus* **sp. n.** (Fig. 214C; vs. present anteriorly).

Description. Male (holotype, Figs 215A–C): Total length: 1.99. Carapace 0.89 long, 0.65 wide, dark brown, cephalic region strongly elevated, cephalic pits present behind PLEs, fovea, cervical and radial grooves distinct. Clypeus 0.29 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, brown with microsetae. Eyes: AER recurved, PME procurved. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.06, PLE 0.06, AME–AME 0.02, PME–PME 0.07, AME–ALE, 0.04, PME–PLE 0.05, AME–PME 0.10, ALE–ALE 0.28, PLE–PLE 0.30, ALE–PLE contiguous. Length of legs: I 2.17 (0.66, 0.72, 0.42, 0.37), II 2.12 (0.65, 0.73, 0.38, 0.36), III 1.76 (0.53, 0.57, 0.36, 0.30), IV 2.16 (0.58, 0.79, 0.46, 0.33). Tibial spine formula: 2-2-1-1. TmI 0.32 and TmIV absent. Opisthosoma 1.18 long, 0.84 wide, oval, grey, densely covered with fine spines.

Palp (Figs 212A–D, 213A–E): Femur unmodified, almost longer than patella and tibia. Patella as long as tibia, ventrally grooved. Tibia with one reterolateral and one dorsal trichobothria, dorsal tibial apophysis (DTA) thumb-shaped with blunt end in dorsal view; cymbium unmodified; paracymbium (PC) sclerotized, with long hook-shaped ventral projection with pointed end, almost reaches to the proximal end of the tibia in retrolateral view; tegulum (T) ventrally with finger like projection;

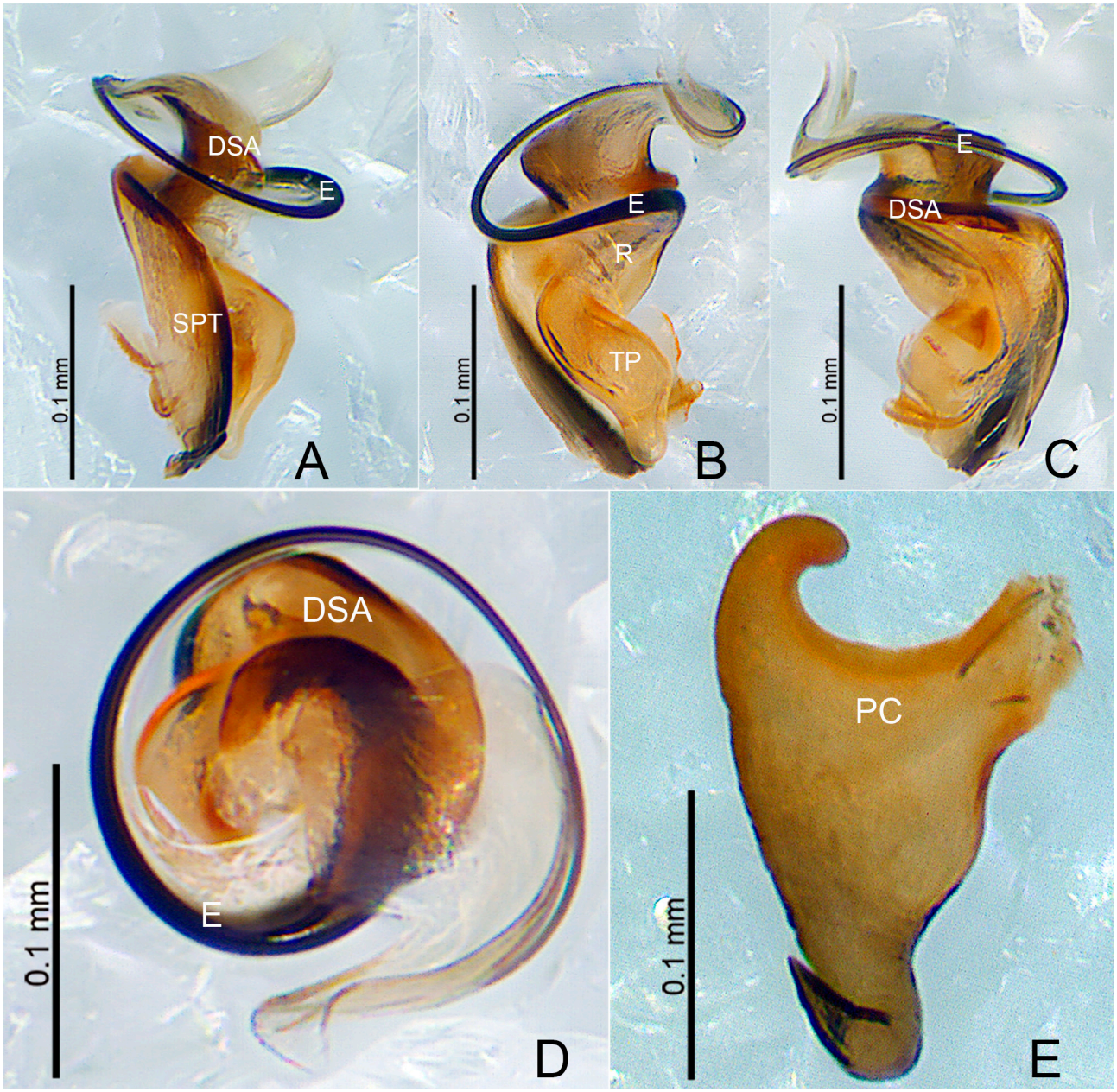


FIGURE 213. *Scotinotylus longiprojectus* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, ventral view; **C** Embolic division, retrolateral view; **D** Embolic division, posterior view; **E** Paracymbium, retrolateral view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; PC—paracymbium; R—radix; SPT—suprategulum; TP—tailpiece.

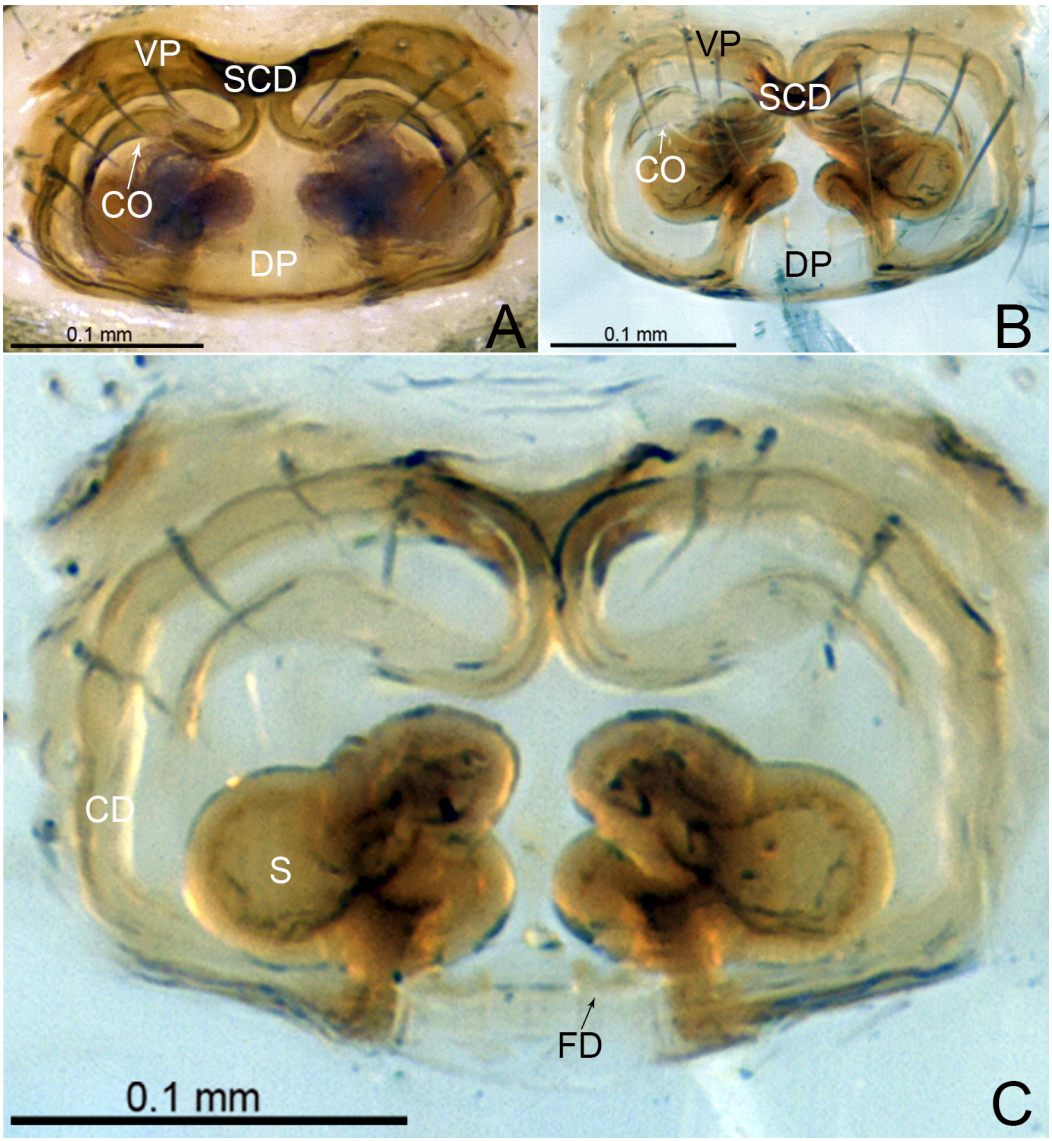


FIGURE 214. *Scotinotylus longiprojectus* **sp. n.**, female paratype. **A**, **B** Epigyne, lateral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; SCD—scapoid; VP—ventral plate.

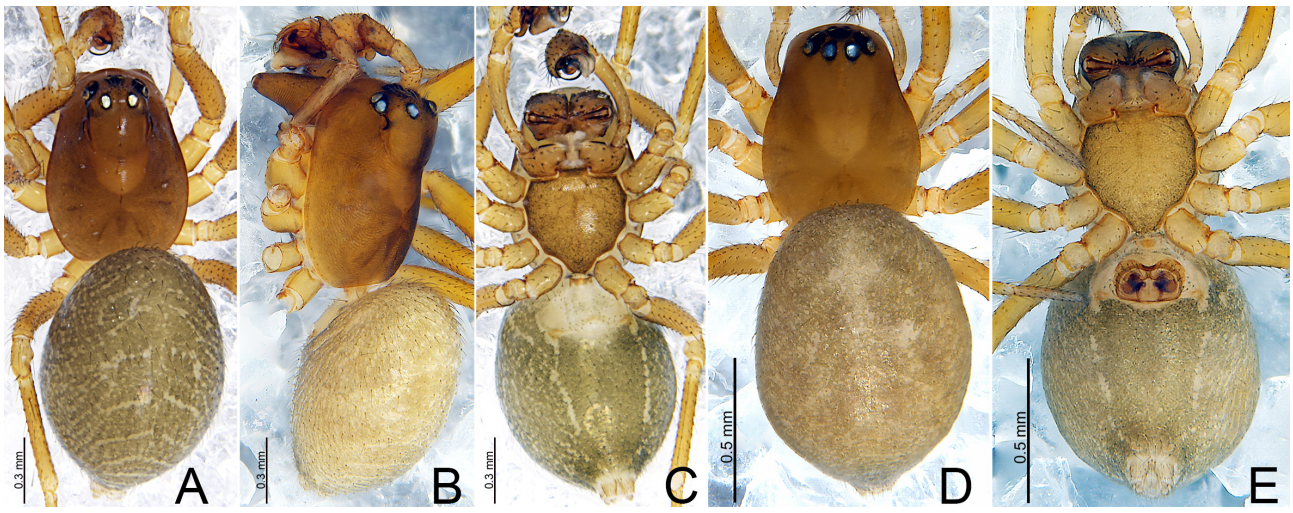


FIGURE 215. *Scotinotylus longiprojectus* **sp. n.**, male holotype (A–C) and female paratype (C, D). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

protegulum (PT) broad, membranous, with blunt tip protruding upward; distal suprategular apophysis (DSA) slightly curved, distal end membranous. Tailpiece (TP) of embolic division sclerotized, curved with blunt tip; embolic membrane (EM) running parallel with embolus. Embolus (E) long, sclerotized, coiled, almost forming a complete transverse circle.

Female (paratype, Figs 215D, E): Total length: 2.02. Carapace 0.84 long, 0.63 wide, brown, cephalic region slightly elevated, cervical and radial grooves distinct. Clypeus 0.15 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PME procurved. Eye sizes and interdistances: AME 0.03, ALE 0.06, PME 0.06, PLE 0.05, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.04, ALE–ALE 0.24, PLE–PLE 0.27, ALE–PLE contiguous. Length of legs: I 2.14 (0.65, 0.75, 0.40, 0.34), II 1.9 (0.56, 0.66, 0.38, 0.30), III 1.64 (0.51, 0.52, 0.34, 0.27), IV 2.11 (0.62, 0.75, 0.41, 0.33). Tibial spine formula: 2-2-1-1. TmI 0.32 and TmIV absent. Opisthosoma 1.44 long, 1.04 wide, oval, grey, densely covered with fine spines.

Epigyne (Figs 214A–C): Ventral plate (VP) wider than long, with a common small cusp-shaped scapoid (SCD) on anterior margin; copulatory opening (CO) present antero-laterally in shallow cavity; copulatory ducts (CD) long, running parallel with the lateral wall of ventral plate. Dorsal plate (DP) completely visible in ventral view. Spermathecae (S) present near the posterior margin of dorsal plate. Fertilization ducts (FD) short extending mesally.

Distribution. Known from type localities (Guizhou, Hubei and Hunan Provinces, Figs 310, 314, 315).

Genus *Shaanxinus* Tanasevitch, 2006 (陕蛛属)

Type species. *Shaanxinus rufus* Tanasevitch, 2006.

Remark. *Shaanxinus* comprises 17 species (including two species known from males) distributed in China (Chongqing, Hebei, Shaanxi and Taiwan) and Vietnam (WSC 2024).

Shaanxinus griseolineatus (Schenkel, 1936) comb. n. (灰线陕蛛)

Gonatium griseolineatum Schenkel, 1936b: 58, fig. 13 (♀).

Oinia griseolineata Tanasevitch 1989: 170, fig. 222 (transferred ♀ from *Gonatium*).

Gongylidioides griseolineatus Eskov 1992: 159 ((transferred ♀ from *Oinia=Eskovina*)*;* Song *et al.* 1999: 170, figs 97I (f); Tu & Li 2006: 59, figs 4A–-F (♀); Zuo *et al.* 2020: 27, figs 1A–G (described ♂, ♀).

Distribution. Russia (Far East), China (Hebei, Henan and Shandong Provinces).

Remarks. The genital organs of *Gongylidioides griseolineatus* (Schenkel, 1936) resemble those of genus *Shaanxinus* Tanasevitch, 2006 because the embolic division is similar to that in *S. rufus*, nd the epigyne resembles that of *S. insectus* **sp. n.**. On the basis of structural affiliation, it is proposed here as *S. griseolineatus* (Schenkel, 1936) **comb. n.**.

Shaanxinus insectus Irfan, Zhang & Peng, sp. n. (缺刻陕蛛)

Figures 216, 217, 315

Types. Holotype ♀ (HNU–HN–IV–1820), **CHINA, Hunan Prov.:** Zhangjiajie City, Sangzhi Co., Wudaoshui Town, Nanmuping Vill., Badagong MNNR, 29.77403°N, 110.08311°E, 1337 m, 20.VII.2018, D. Li *et al.* leg. **Paratypes:** 3♀, with same data as for holotype female (HNU–HN–IV–1820); 3♀, Zhangjiajie City, Sangzhi Co., Wudaoshui Town, Nanmuping Vill., Badagong MNNR, 29.77486°N, 110.08446°E, 1321 m, 19.VII.2018, D. Li *et al.* leg. (HNU–HN–IV–1818).

Etymology. The species name is combination of the Latin adjective "*insectus*", meaning "notched" and referring to the posterior margin of dorsal plate notched at center in ventral view in epigyne.

Diagnosis. *Shaanxinus insectus* **sp. n.** resembles *S. longiembolus* **sp. n.** and *S. ovatus* **sp. n.** in having the similar copulatory ducts present mid dorsally (Figs 216A–D; Figs 220A–C; Figs 224A–C), but can be distinguished by the posterior margin of dorsal plate notched at center in ventral view in *S. insectus* **sp. n.** (Figs 216A–D; vs. not notched both in *S. longiembolus* **sp. n.** and *S. ovatus* **sp. n.**); copulatory openings present ventro-laterally at the junction of dorsal and ventral plates in epigyne in *S. insectus* **sp. n.** (Figs 216A–D; vs. present mid ventrally in *S. longiembolus* **sp. n.** and *S. ovatus* **sp. n.**).

Description. Female (holotype, Figs 217A, B): Total length: 2.96. Carapace 1.42 long, 1.02 wide, yellowish brown, cephalic region slightly elevated; fovea, cervical and radial grooves distinct. Clypeus 0.35 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum longer than wide, brownish grey with microsetae. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.06, ALE 0.06, PME 0.06, PLE 0.07, AME–AME 0.03, PME–PME 0.06, AME–ALE, 0.03, PME–PLE 0.03, AME–PME 0.07, ALE–ALE 0.29, PLE–PLE 0.34, ALE–PLE contiguous. Length of legs: I 4.94 (1.51, 1.68, 1.24, 0.51), II 4.76 (1.41, 1.66, 1.15, 0.54), III 3.63 (1.11, 1.15, 0.92, 0.45), IV 4.29 (1.22, 1.37, 1.18, 0.52). Tibial spine formula: 2-2-2-2. TmI 0.86 and TmIV present. Opisthosoma 1.88 long, 1.12 wide, grey, dorsally with distinct black pattern, ventral side with braod greenish patch, posteriorly with one pair of round brown markings.

Epigyne (Figs 216A–D): Ventral plate (VP) wider than long, covered with thick spines; posterior margin of dorsal plate (DP) notched at center in ventral view. Copulatory openings (CO) present ventro-laterally at the junction of dorsal and ventral plates; copulatory ducts (CD) with broad semicircular loop mid ventrally. Spermathecae (S) globular, present dorso-laterally, spaced by one and half diameters; fertilization ducts (FD) large, extending mesally.

Male. Unknown.

Distribution. Known only from the type localities (Hunan Province, Fig. 315).

Shaanxinus longiembolus Irfan, Zhang & Peng, sp. n. (长栓陕蛛)

Figures 218–221, 314, 315

Types. Holotype ♂, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg.; **Paratypes:** 1♂12♀, with same data as for holotype male; **Hunan Prov.:** 3♀, Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Wenfeng Vill., 29.352935°N, 110.608325°E, 582 m, 23.IV.2016, W. Liu *et al.* leg.

Etymology. The species name is combination of the Latin adjective "*longus*", meaning "long" and the noun "*embolus*" and referring to the long embolus.

Diagnosis. *Shaanxinus longiembolus* **sp. n.** resembles *S. rufus* and *S. ovatus* **sp. n.** in having the similar embolic division and the ocular region protruding forward (Figs 218A–D; Figs 219A–D; Tanasevitch 2006, figs 51–58), but can be distinguished by the anterior radical scaly part longer than wide, protruding above both of the anterior radical process and cymbium in *S. longiembolus* **sp. n.** (Figs 218A–C; vs. wider than long, retained below both of the anterior radical process and cymbium both in *S. ovatus* **sp. n.** and *S. rufus*); protegulum distinct with broad round tip and slightly overlapping the distal part of embolic division in ventral view in *S. longiembolus* **sp. n.** (Figs 218A–C; vs. protegulum indistinct both in *S. ovatus* **sp. n.** and *S. rufus*); paracymbium C-shaped in *S. longiembolus* **sp. n.** (Fig. 218B; vs. U-shaped both in *S. ovatus* **sp. n.** and *S. rufus*). The epigyne can be distinguished from the *S. ovatus* **sp. n.** by the shape of spermathecae and the positions of the copulatory openings in *S. longiembolus* **sp. n.** (Figs 220A–C; Figs 224A–C).

Description. Male (holotype, Figs 221A–C): Total length: 3.60. Carapace 1.61 long, 1.26 wide, yellow, cephalic region strongly elevated 0.46 high; ocular region protruding forward with thick setae; fovea, cervical and radial grooves distinct. Clypeus 0.53 high. Chelicerae with three promarginal and five retromarginal teeth. Sternum longer than wide, brownish grey with microsetae. Eyes: AER straight, PER straight. Eye sizes and interdistances: AME 0.06, ALE 0.08, PME 0.07, PLE 0.08, AME–AME 0.11, PME–PME 0.11, AME–ALE, 0.06, PME–PLE 0.07, AME–PME 0.12, ALE–ALE 0.41, PLE–PLE 0.45, ALE–PLE contiguous. Length of legs: I 5.79 (1.58, 1.96, 1.47, 0.78), II 5.46 (1.55, 1.88, 1.34, 0.69), III 4.21 (1.23, 1.33, 1.08, 0.57), IV 5.15 (1.49, 1.61, 1.41, 0.64). Tibial spine formula: 2-2-2-2. TmI 0.82 and TmIV present. Opisthosoma 1.99 long, 1.20 wide, oval, dusky grey, dorsally with distinct black pattern.

Palp (Figs 218A–D, 219A–C): Femur unmodified, almost longer than patella and tibia. Patella shorter than tibia, ventrally grooved. Tibia with two reterolateral and onedorsal trichobothria, ventrally with long thick spines, prolateral tibial apophysis (PTA) somewhat triangular, slightly curved with blunt end; cymbium unmodified, retrolateral margin membranous, with a shallow depression at the base, broad at distal end; paracymbium (PC) distal arm tip bifurcated, lower margin wave-like in ventral view; tegulum (T) possess distinct transparent protegulum (PT), with round tip slightly overlapping the embolic division; distal suprategular apophysis (DSA) sclerotized, slightly curved at apex. Embolic division: Radix (R) somewhat triangular; anterior radical process (ARP) sclerotized with pointed end; anterior radical scaly (ARS) part longer than wide, protruding above both of the anterior radical process and cymbium; lateral extension

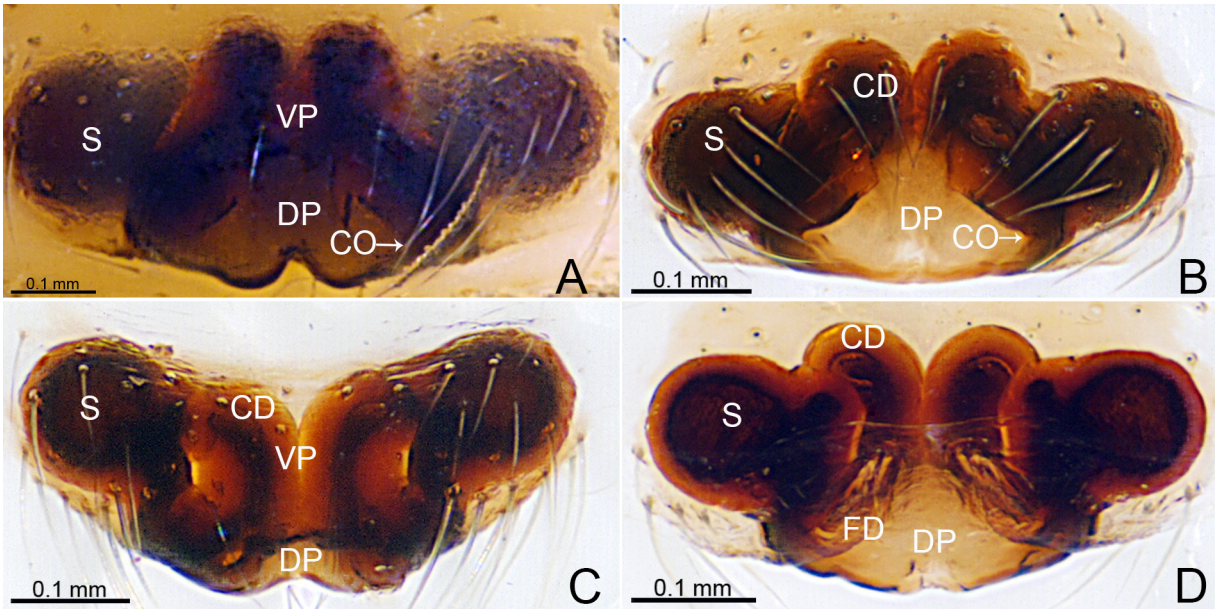


FIGURE 216. *Shaanxinus insectus* **sp. n.**, female holotype. **A–C** Epigyne, ventral view; **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

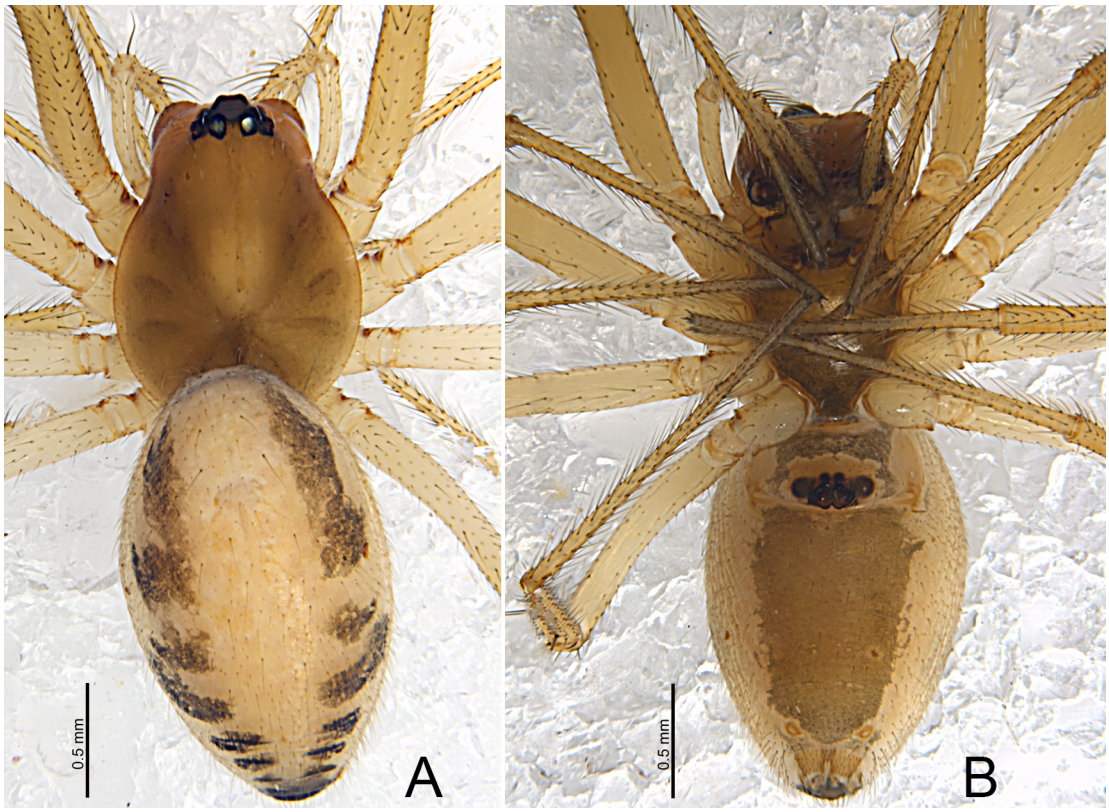


FIGURE 217. *Shaanxinus insectus* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

of radix (LER) thumb-shaped, slightly curved, covering terminal part of embolus; tailpiece (TP) relatively sharp with pointed tip; embolic membrane (EM) absent; embolus (E) sclerotized, arch-shaped, terminal part ends in anterior radical process.

Female (one of the paratypes, Figs 221D–F): Total length: 3.66. Carapace 1.40 long, 1.12 wide, yellow, cephalic region slightly elevated; fovea, cervical and radial grooves distinct. Clypeus 0.29 high. Chelicerae with three promarginal and five retromarginal teeth. Sternum longer than wide, brownish grey with microsetae. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.06, ALE 0.07, PME 0.07, PLE 0.08, AME–AME 0.06, PME–PME 0.08, AME–ALE, 0.04, PME–PLE 0.05, AME–PME 0.08, ALE–ALE 0.31, PLE–PLE 0.34, ALE–PLE 0.02. Length of legs: I 5.38 (1.54, 1.86, 1.34, 0.64), II 5.28 (1.49, 1.84, 1.32, 0.63), III 4 (1.21, 1.26, 102, 0.51), IV 4.96 (1.46, 1.61, 1.26, 0.63). Tibial spine formula: 2-2-2-2. TmI 0.84 and TmIV present. Opisthosoma 2.26 long, 1.33 wide, all the other morphological characters similar to the male.

Epigyne (Figs 219A–C): Ventral plate (VP) wider than long, covered with thick spines; dorsal plate (DP) somewhat oval, partly visible in ventral view. Copulatory openings (CO) present mid-ventrally at the junction of the dorsal and ventral plates; copulatory ducts (CD) with broad oval loop mid ventrally, posteriorly extending above the dorsal plate. Spermathecae (S) globular, present dorso-laterally, spaced by one and half times distance of their diameter; fertilization ducts (FD) large, extending mesally.

Distribution. Known only from the type locality (Hubei and Hunan Provinces, Figs 314, 315).

Shaanxinus ovatus Irfan, Zhang & Peng, sp. n. (椭圆陕蛛)

Figures 222–225, 315

Types. Holotype ♂, **CHINA, Hunan:** Mangshan NNR, 24.9517333°N, 112.9500167°E, 1294 m, 13.VIII.2014, H.Q. Yin *et al.* leg. **Paratypes:** 2♂11♀, with same data as for holotype.

Etymology. The specific epithet is derived from the Latin adjective "*ovatus*" meaning "oval" and referring to the oval form of dorsal plate in epigyne.

Diagnosis. The male of *Shaanxinus ovatus* **sp. n.** resembles that of *S. rufus* in having the similar paracymbium (Figs 222A–D, 223A–C; Lin *et al.* 2019, figs 7A–C, Tanasevitch 2006, figs 51–58), but can be distinguished by the distal suprategular apophysis distal somewhat triangular with blunt end in *S. ovatus* **sp. n.** (Figs 222A–C; vs. flat, membranous apically); anteriao radial process somewhat quadrate in *S. ovatus* **sp. n.** (Figs 222A–C; vs. triangular). The female resembles those of *S. ovatus* **sp. n.** in having the similar copulatory ducts (Figs 224A–C, 220A–C), but can be distinguished by the copulatory ducts not extending on dorsal plate in *S. ovatus* **sp. n.** (Figs 224A–C; vs. posteriorly extending above the dorsal plate in *S. longiembolus* **sp. n.**).

Description. Male (holotype, Figs 225A–C): Total length: 2.28. Carapace 0.99 long, 0.77 wide, brown,

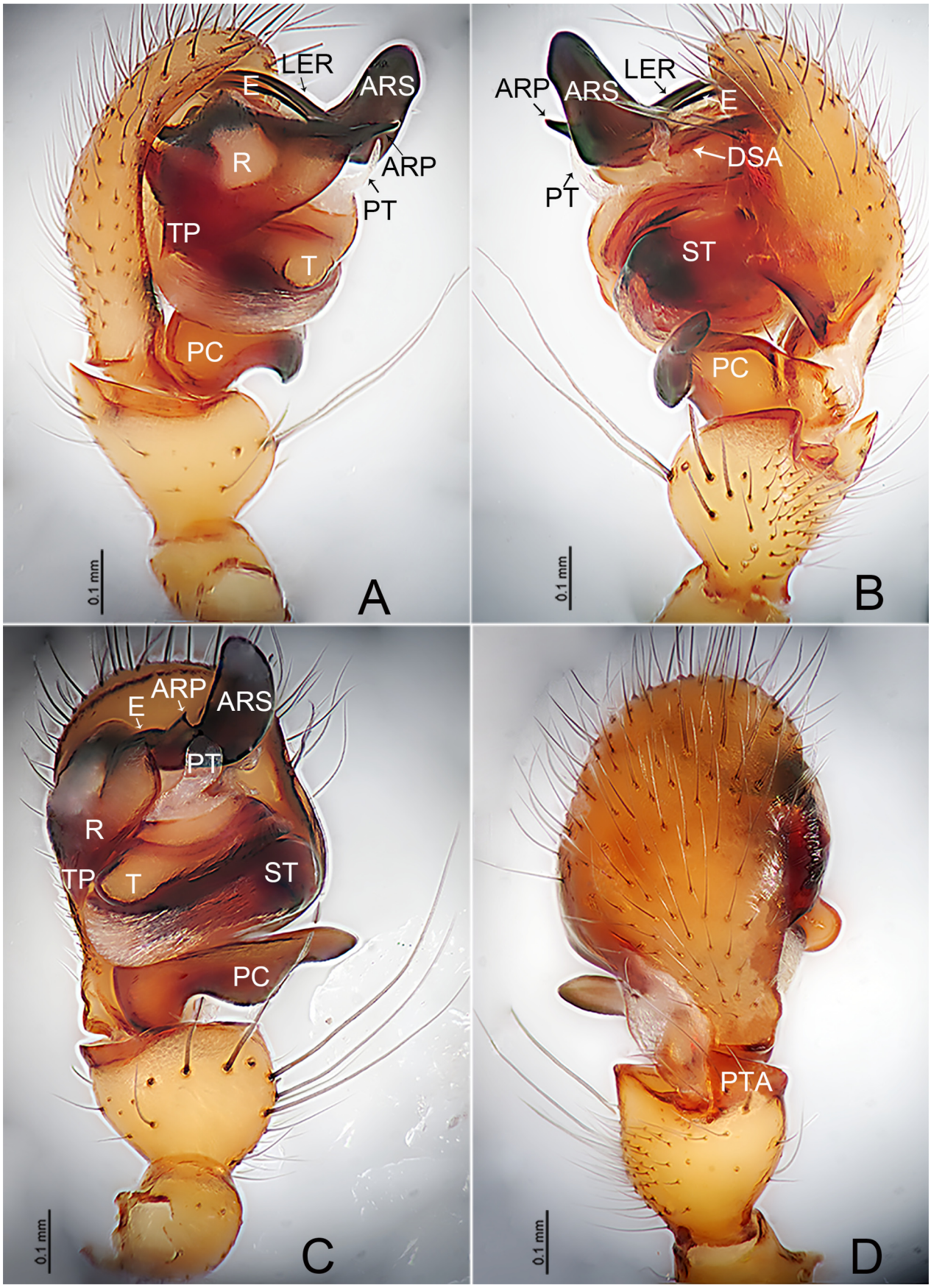


FIGURE 218. *Shaanxinus longiembolus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: ARP—anterior radical process; ARS—anterior radical scaly part; DSA—distal suprategular apophysis; E—embolus; LER—lateral extension of radix; PC—paracymbium; PT—protegulum; R—radix; ST—subtegulum; T—tegulum; TP—tailpiece.

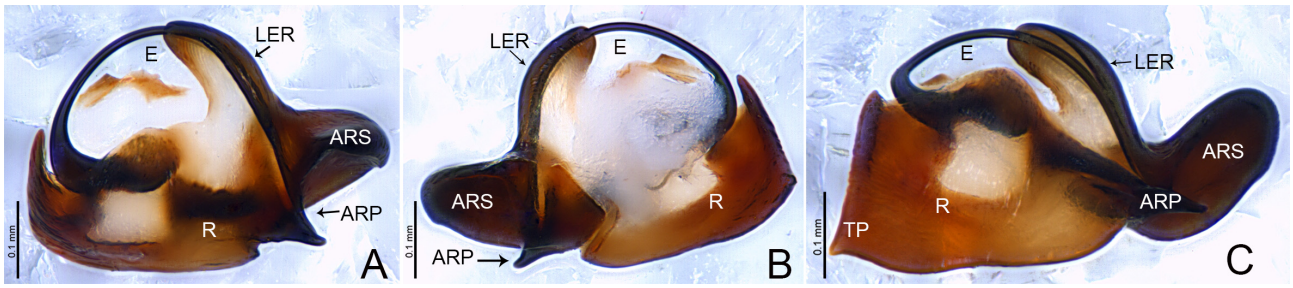


FIGURE 219. *Shaanxinus longiembolus* **sp. n.**, male paratype palp. **A**, **C** Embolic division, ventral view; **B** Embolic division, dorsal view. Abbreviations: ARP—anterior radical process; ARS—anterior radical scaly part; E—embolus; LER—lateral extension of radix; R—radix; TP—tailpiece.

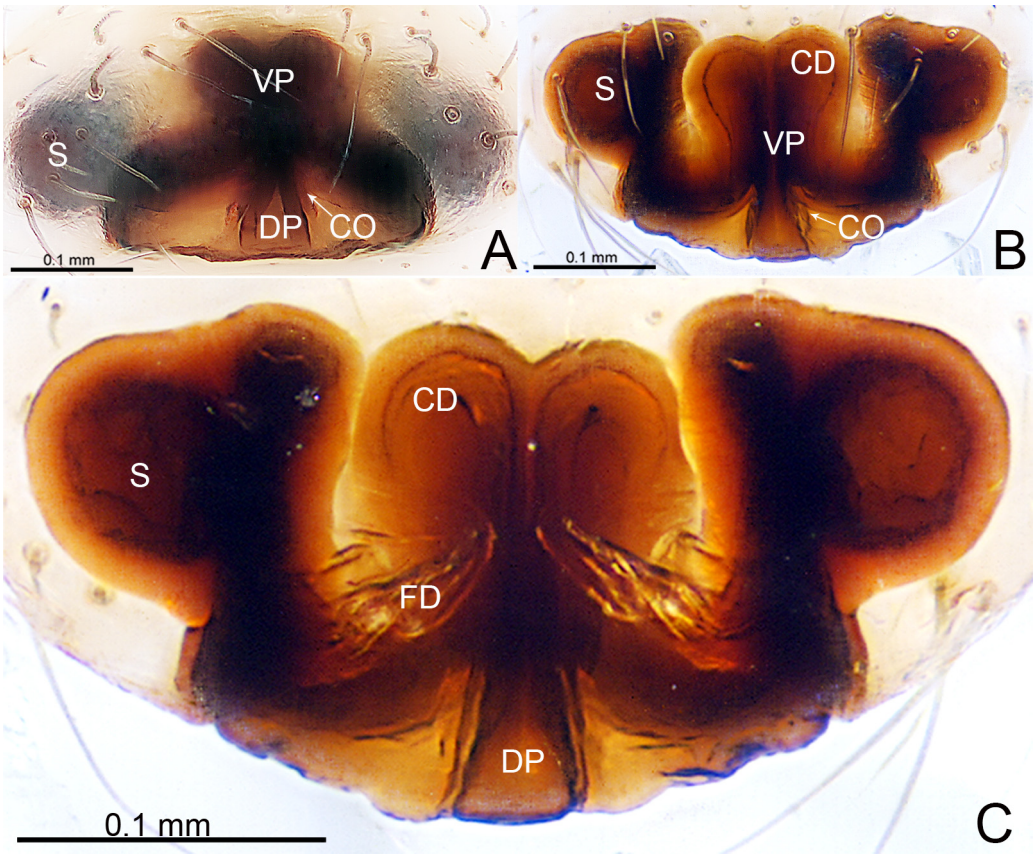


FIGURE 220. *Shaanxinus longiembolus* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

cephalic region strongly elevated 0.39 high; ocular region protruding forward with thick setae; fovea, cervical and radial grooves distinct. Clypeus 0.41 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum longer than wide, brownish grey with microsetae. Eyes: AER straight, PER procurved. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.06, PME–PME 0.05, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.08, ALE–ALE 0.25, PLE–PLE 0.27, ALE–PLE contiguous. Length of legs: I 4.02 (1.12, 1.29, 1.03, 0.58), II 3.95 (1.11, 1.29, 1.01, 0.54), III 2.99 (0.93, 0.88, 0.80, 0.38), IV 3.54 (1, 1.13, 0.89, 0.52). Tibial spine formula: 2-2-2-2. TmI 0.83 and TmIV present. Opisthosoma 1.29 long, 0.75 wide, oval, blackish grey with irregular light grey patches.

Palp (Figs 222A–D, 223A–C): Femur unmodified, almost longer than patella and tibia. Patella shorter than tibia, mesally slightly curved. Tibia with two reterolateral and one dorsal trichobothria and posterior margin with long thick spines, prolateral tibial apophysis (PTA) slightly curved with blunt end; cymbium unmodified, retrolateral margin membranous, with a shallow depression at the base, broad at distal end; paracymbium (PC) U-shaped, lower margin of distal arm wave-like in ventral view; tegulum (T) possess small protegulum (PT); distal suprategular apophysis (DSA) sclerotized, with pointed end. Embolic division: Radix (R) somewhat triangular;

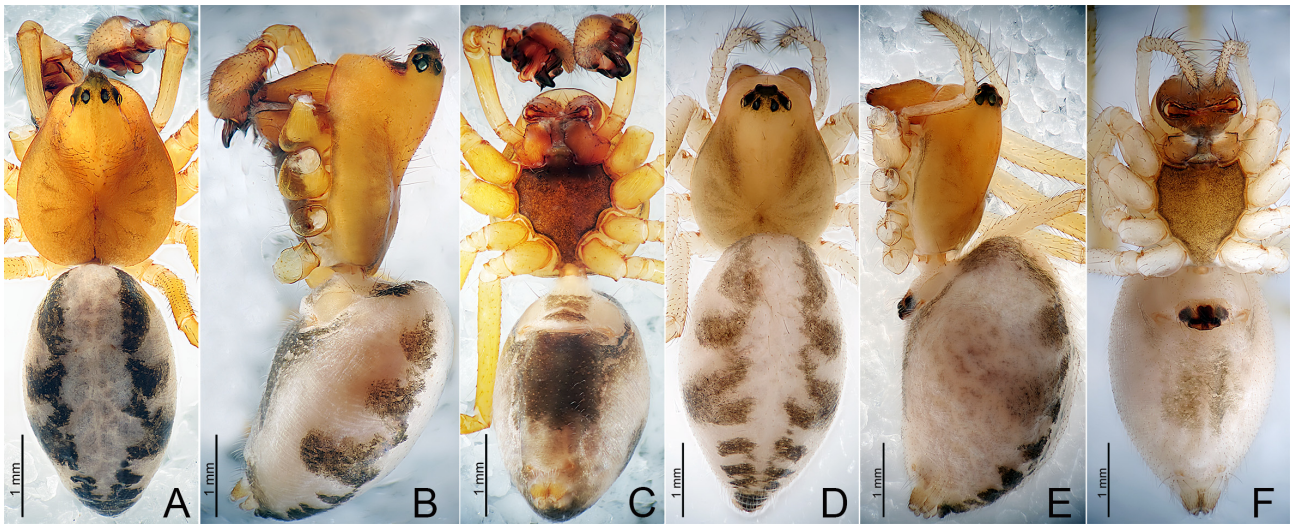


FIGURE 221. *Shaanxinus longiembolus* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

anterior radical process (ARP) sclerotized with pointed end protruding upward; anterior radical scaly (ARS) part wider than long, retained below both of the anterior radical process and cymbium; lateral extension of radix (LER) thumb-shaped, slightly curved, covering terminal part of embolus; tailpiece (TP) relatively sharp with pointed tip; embolic membrane absent; embolus (E) sclerotized, arch-shaped, terminal part ends in anterior radical process.

Female (one of the paratypes, Figs 225D–F): Total length: 2.48. Carapace 1.22 long, 0.90 wide, brown, cephalic region slightly elevated; fovea, cervical and radial grooves distinct. Clypeus 0.27 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum longer than wide, dark brownish grey with microsetae. Eyes: AER recurved, PER straight, slightly wider. Eye sizes and interdistances: AME 0.06, ALE 0.07, PME 0.06, PLE 0.07, AME–AME 0.03, PME–PME 0.08, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.05, ALE–ALE 0.31, PLE–PLE 0.35, ALE–PLE contiguous. Length of legs: I 4.55 (1.31, 1.50, 1.13, 0.61), II 4.43 (1.28, 1.48, 1.14, 0.53), III 3.16 (0.94, 0.97, 0.81, 0.44), IV 4.09 (1.19, 1.24, 1.12, 0.54). Tibial spine formula: 2-2-2-2. TmI 0.83 and TmIV present. Opisthosoma 1.43 long, 0.86 wide, pale, with longitudinal green bands followed by three chevrons, broad black patch at the base of spinnerets; ventral side with broad green patches.

Epigyne (Figs 224A–C): Ventral plate (VP) wider than long, covered with thick spines; dorsal plate (DP) oval, completely visible in ventral view. Copulatory openings (CO) present mid–ventrally at the junction of the dorsal and ventral plates; copulatory ducts (CD) with broad oval loop mid ventrally. Spermathecae (S) globular, present dorso-laterally, spaced by two and half diameters; fertilization ducts (FD) large, extending mesally.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Sinogone Irfan, Wang & Zhang, 2023 (华微蛛属)

Type species. *Sinogone caesum* Irfan, Wang & Zhang, 2023; gender feminine.

Remark. *Sinogone* is a monotypic genus distributed in China (WSC 2024).

Sinogone puteus Irfan, Zhang & Peng, sp. n. (凹陷华微蛛)

Figures 226, 227, 314

Types. Holotype ♂, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg. **Paratypes:** 1♂, with same data as for holotype.

Etymology. The specific epithet is derived from the Latin noun "*puteus*" meaning "pit" and referring to cephalic region with lateral pits behind the posterior eye in male.

Diagnosis. *Sinogone puteus* **sp. n.** resembles *S. caesum* in having the similar morphology of male palp (Figs 226A–D; Irfan *et al.* 2023, figs 21A–D), and can be differentiated by the anterior radical process somewhat rectangular in *S. puteus* **sp. n.** (Fig. 226A; vs. comma-shaped).

Description. Male (holotype, Figs 227A–C): Total length: 2.44. Carapace 1.19 long, 0.99 wide, cephalic region strongly elevated with pits present behind the PLEs, yellow, fovea, cervical and radial grooves distinct. Clypeus 0.35 high. Chelicerae with three promarginal and four retromarginal teeth. Sternum shield-like, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.06, ALE 0.07, PME 0.04, PLE 0.06, AME–AME 0.02, PME–PME 0.07, AME–ALE, 0.06, PME–PLE 0.09, AME–PME 0.07, ALE–ALE 0.35, PLE–PLE 0.38, ALE–PLE 0.01. Length of legs: I 4.41 (1.27, 1.57, 1.11, 0.46), II 4.19

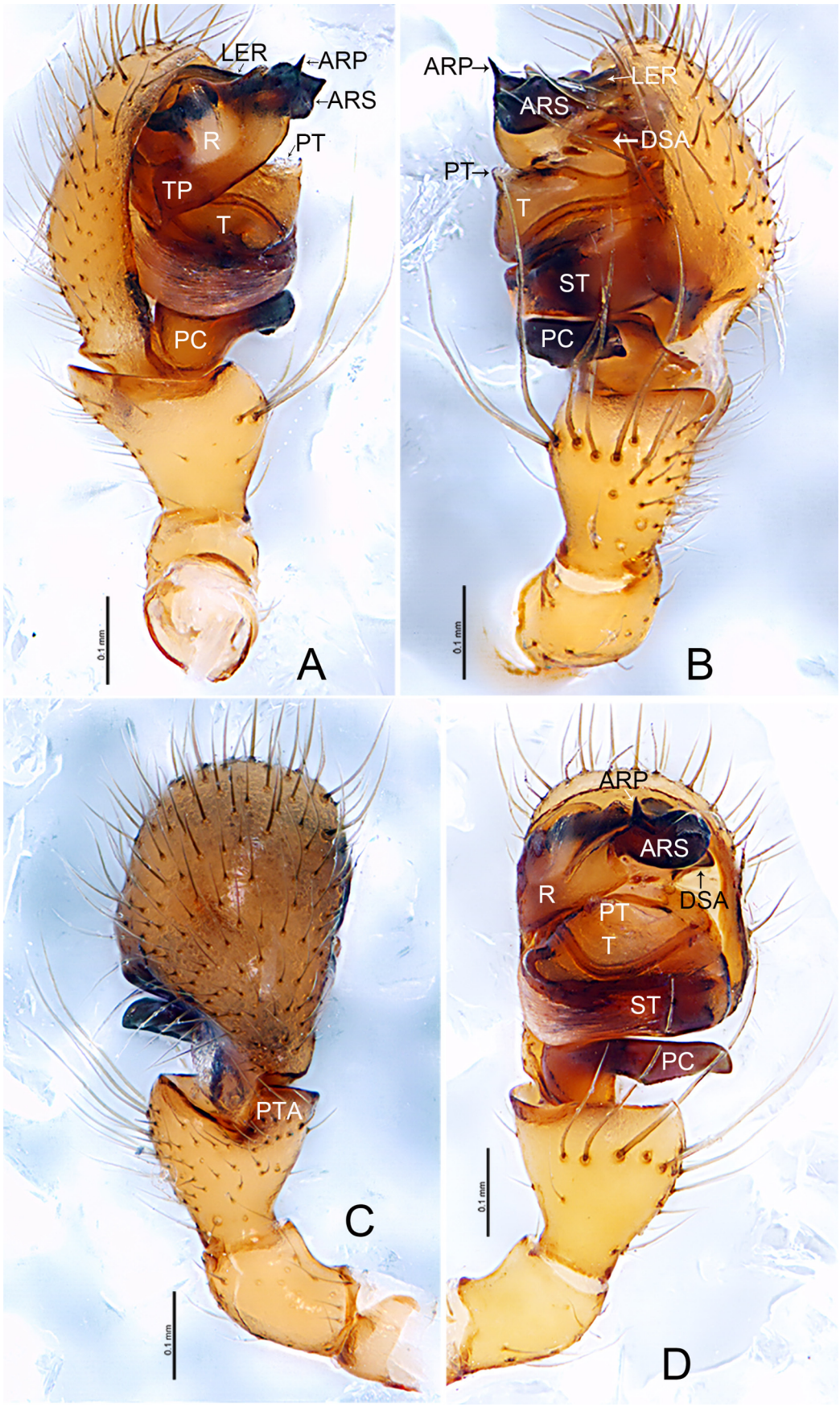


FIGURE 222. *Shaanxinus ovatus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: ARP—anterior radical process; ARS—anterior radical scaly part; DSA—distal suprategular apophysis; E—embolus; LER—lateral extension of radix; PC—paracymbium; PT—protegulum; R—radix; ST—subtegulum; T—tegulum; TP—tailpiece.

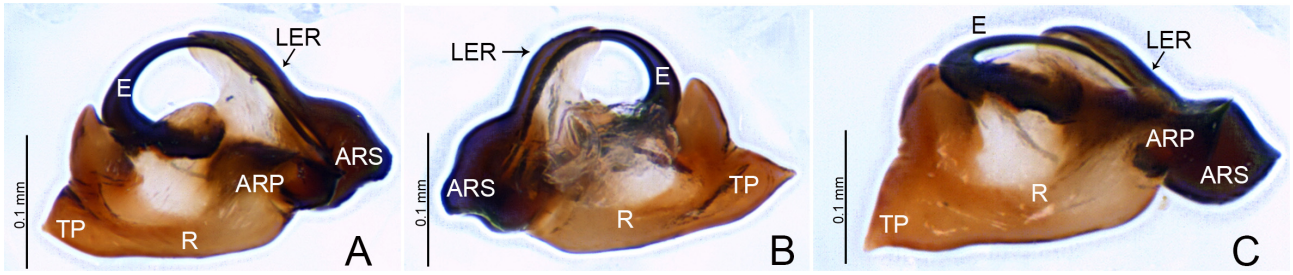


FIGURE 223. *Shaanxinus ovatus* **sp. n.**, male paratype palp. **A**, **C** Embolic division, ventral view; **B** Embolic division, dorsal view. Abbreviations: ARP—anterior radical process; ARS—anterior radical scaly part; E—embolus; LER—lateral extension of radix; R—radix; TP—tailpiece.

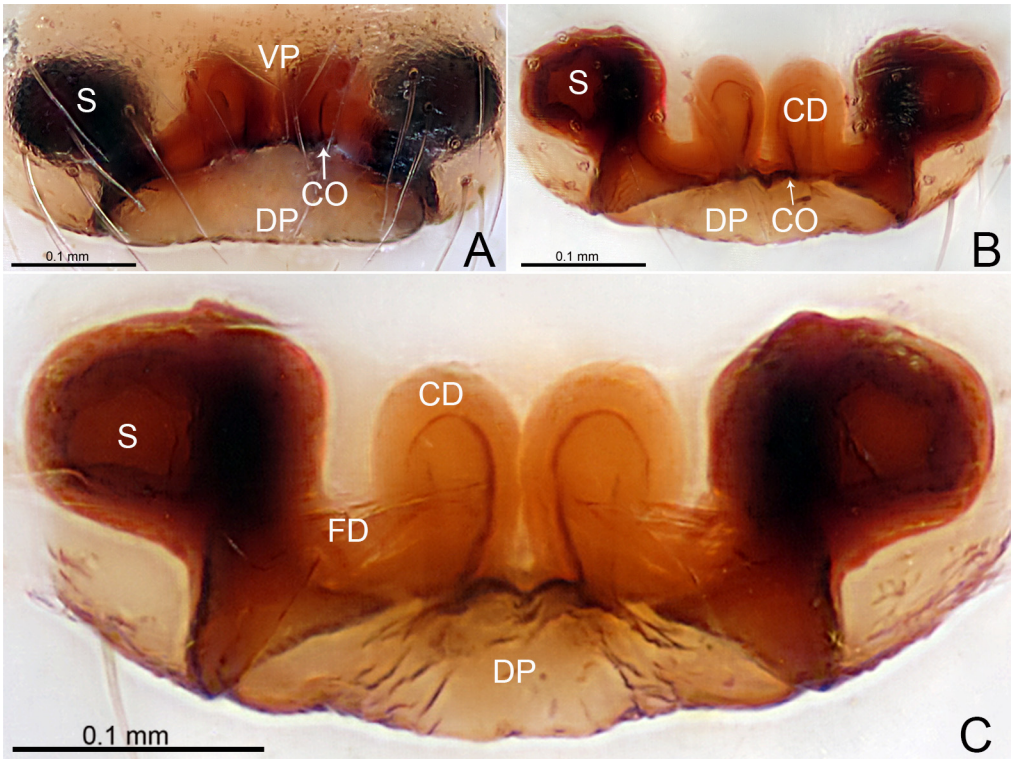


FIGURE 224. *Shaanxinus ovatus* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

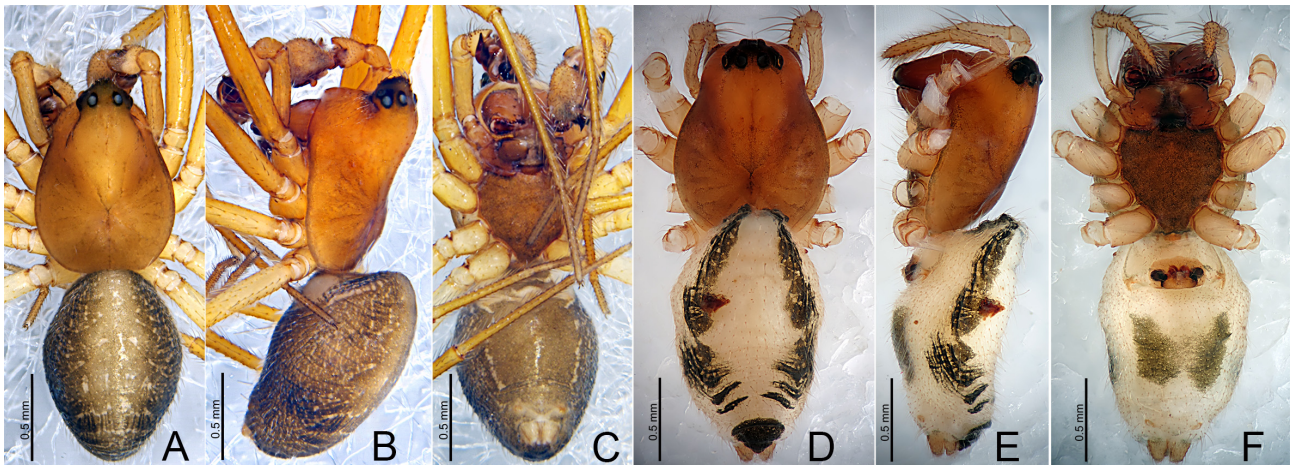


FIGURE 225. *Shaanxinus ovatus* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

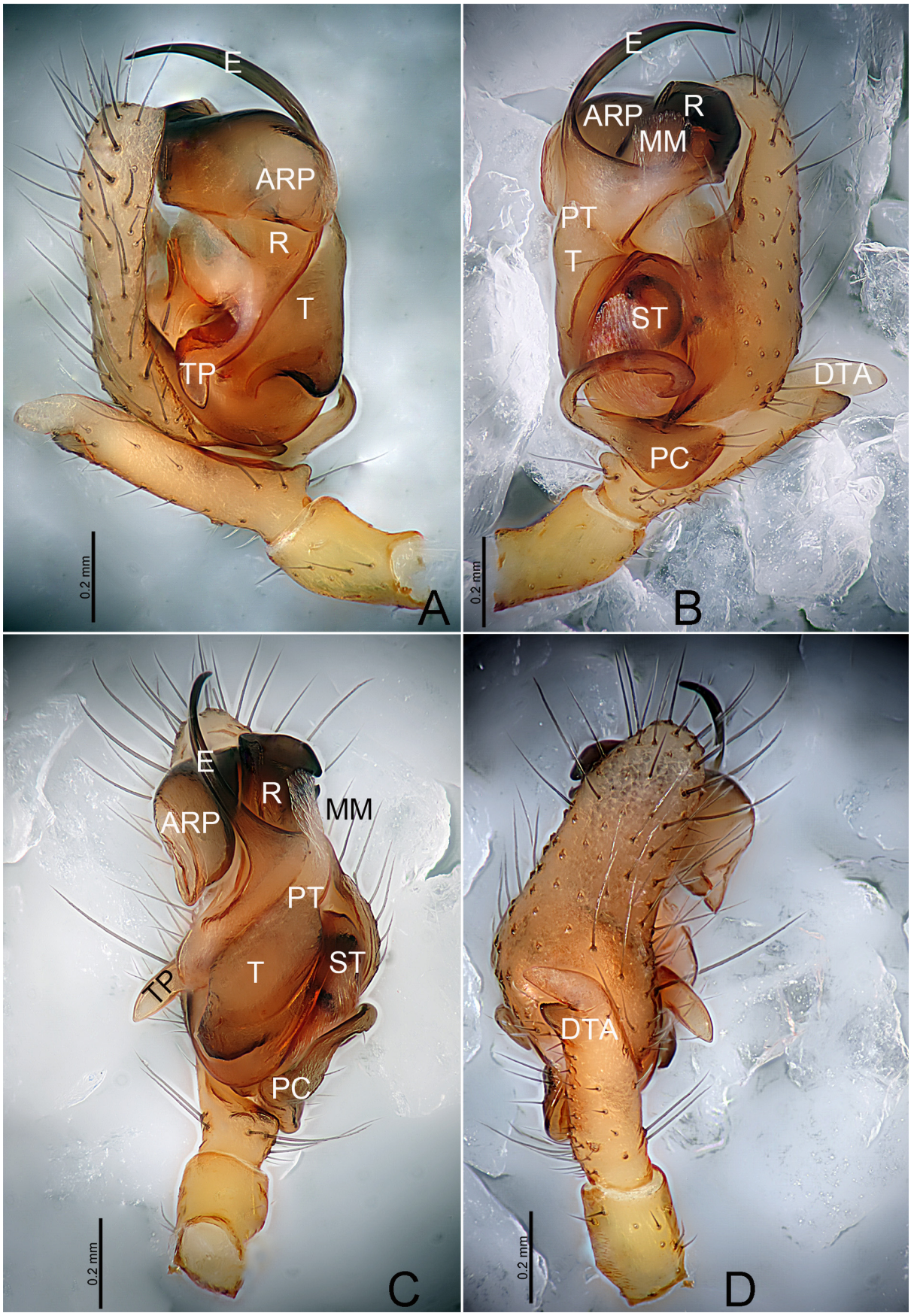


FIGURE 226. *Sinogone puteus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: ARP—anterior radical process; E—embolus; MM—median membrane; PC—paracymbium; PT—protegulum; R—radix; ST—subtegulum; T—tegulum; TP—tailpiece.

(1.24, 1.46, 1.05, 0.44), III 3.31 (1.01, 1.04, 0.86, 0.40), IV 4.16 (1.21, 1.36, 1.15, 0.44). Tibial spine formula: 2-2-1-1. TmI 0.36 and TmIV present. Opisthosoma 1.46 long, 1.03 wide, oval, brown, mid dorsally with two pairs sigillae, ventral side brown.

Palp (Figs 226A–D): Femur unmodified, almost longer than patella and tibia. Patella three times longer than basal part of tibia. Tibia two and half times the length of cymbium, with one reterolateral and one dorsal trichobothria, dorsal tibial apophysis (DTA) distal end bifurcated tip; cymbium elongate, unmodified; paracymbium (PC) sclerotized, U-shaped, distal arm long, slightly overlapping the cymbium; tegulum (T) with small transparent protegulum (PT). Radix (R) robust, sclerotized give rise to long curved embolus; radix wider than long; median membrane (MM) with broad frayed end; anterior radical apophysis (ARP) almost rectangular in prolateral view; embolus (E) long, sclerotized, arc-shaped, overlapping the apex of cymbium.

Female. Unknown.

Distribution. Known only from the type locality (Hubei Province, Fig. 314).

Genus *Sinolinyphia* Wunderlich & Li, 1995 (华皿蛛属)

Type species. *Sinolinyphia cyclosoides* Wunderlich & Li, 1995; gender feminine.

Remark. *Sinolinyphia* is a monotypic genus distributed in China and Russia (Far East) (WSC 2024).

Sinolinyphia henanensis (Hu, Wang & Wang, 1991) (河南华皿蛛)

Figures 228–230, 315

Hypsosinga henanensis Hu, Wang & Wang, 1991: 39, figs 5–7 (desbribed ♀).

Sinolinyphia henanensis Zhu *et al.* 2005: 502, figs A–E (transferred ♀ from *Araneus*, Sm); Marusik & Omelko 2021: 567, figs. 1A–D, 2A–G, 3A–E, 4A–D, 5A–F (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined: 2♀, **CHINA, Hunan Prov.:** Xiangxi, Baojing Co., Maogou Town, Bake Vill., Baiyun MNNR, 28.663953°N, 109.38880°E, 670 m, 28.V.2017, G.C. Zhou *et al.* leg.; **Chongqing:** 1♂1♀, Youyang Co., Taohuayuan Scenic Spot, 28.852636°N, 108.754442°E, 954 m, 26.V.2017, G.C. Zhou *et al.* leg.

Distribution. China (Henan, Hunan, Shaanxi and Liaoning Provinces, Fig. 315).

Spelaeus Irfan, Zhang & Peng, gen. n. (洞皿蛛属)

Type species: *Spelaeus cicatrix* **sp. n.**

Etymology. The specific epithet is derived from the Latin noun "*Spelaeum*" meaning "cave" referring to the type specimens collected from Niujiao Cave. Gender masculine

Diagnosis. *Spelaeus* **gen. n.** can be distinguished from all the other Erigoninae genera by the radix longer than wide, tailpiece absent, anterior radical process strongly sclerotized with serrated margin (Figs 231A–D, 232A–C). Female can be distinguished by the epigynal plate broad, anteriorly with a septum containing copulatory opening underneath (Figs 233A–C).

Description. Same as for type species.

Remarks. *Spelaeus* **gen. n.** closely resembles the genus *Scotinotylus* and *Spirembolus* in having the similar long spiral embolus and tibial with long dorsal tibial apophysis in male palp (Figs 231A–D, 232A–C; Figs 208, 209, 212, 213; Tanasevitch 2013, figs 111–117; Millidge, 1980, figs 1–3) and transverse chitinous epigynal plate with long sinuous copulatory ducts in epigyne (Figs 210A–C, 214A–C; Millidge, 1981, figs 22, 23; Millidge, 1980, figs 11, 17), and can be distinguished by the radix longer than wide and tailpiece absent in *Spelaeus* **gen. n.** (Figs 231A–C, 232A–C; vs. radix with tailpiece present both in *Scotinotylus* and *Spirembolus*); embolic division with a strongly sclerotized anterior radicalapophysis in *Spelaeus* **gen. n.** (Figs 231A–C, 232A–C; vs. absent both in *Scotinotylus* and *Spirembolus*); epigynal plate widest at middle and posteriorly narrow with a shallow depression in *Spelaeus* **gen. n.** (Figs 233A–C; vs. epigynal plate as long as wide and widest posteriorly both in *Scotinotylus* and *Spirembolus*); scapoid absent both in *Spelaeus* **gen. n.** (Figs 233A–C) and *Spirembolus*; vs. present in *Scotinotylus*).

Composition. *Spelaeus* **gen. n.** belongs to the subfamily Erigoninae and here erected monotypic genus to accommodate *S. cicatrix* **sp. n.**.

Distribution. Known only from the type locality (Fig. 310).

Spelaeus cicatrix Irfan, Zhang & Peng, sp. n. (疤痕洞皿蛛)

Figures 231–234, 310

Types. Holotype ♂ (HNU-GZ-IV-1712), **CHINA, Guizhou Prov.:** Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Niujiao Cave, Fanjingshan NNR, 27.989794°N, 108.775969°E, 1009 m, 05.XI.2017, G.C. Zhou leg. **Paratypes:** 1♂3♀, with same data as for holotype (HNU-GZ-IV-1712).

Etymology. The specific epithet is derived from the Latin noun "*cicatrix*" meaning "scar" referring to enigmatic scars at the anterior half of the female epigyne.

Diagnosis. See genus diagnosis.

Description. Male (holotype, Figs 234A–C): Total length: 1.59. Carapace 0.79 long, 0.60 wide, brown, ocular region abruptly elevated, transformed into cephalic lobe; cephalic pits present at the base of cephalic lobe; cervical and radial grooves distinct. Clypeus 0.27 high. Chelicerae with six promarginal and six retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes reduced



FIGURE 227. *Sinogone puteus* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, lateral view; **C** Habitus, ventral view.

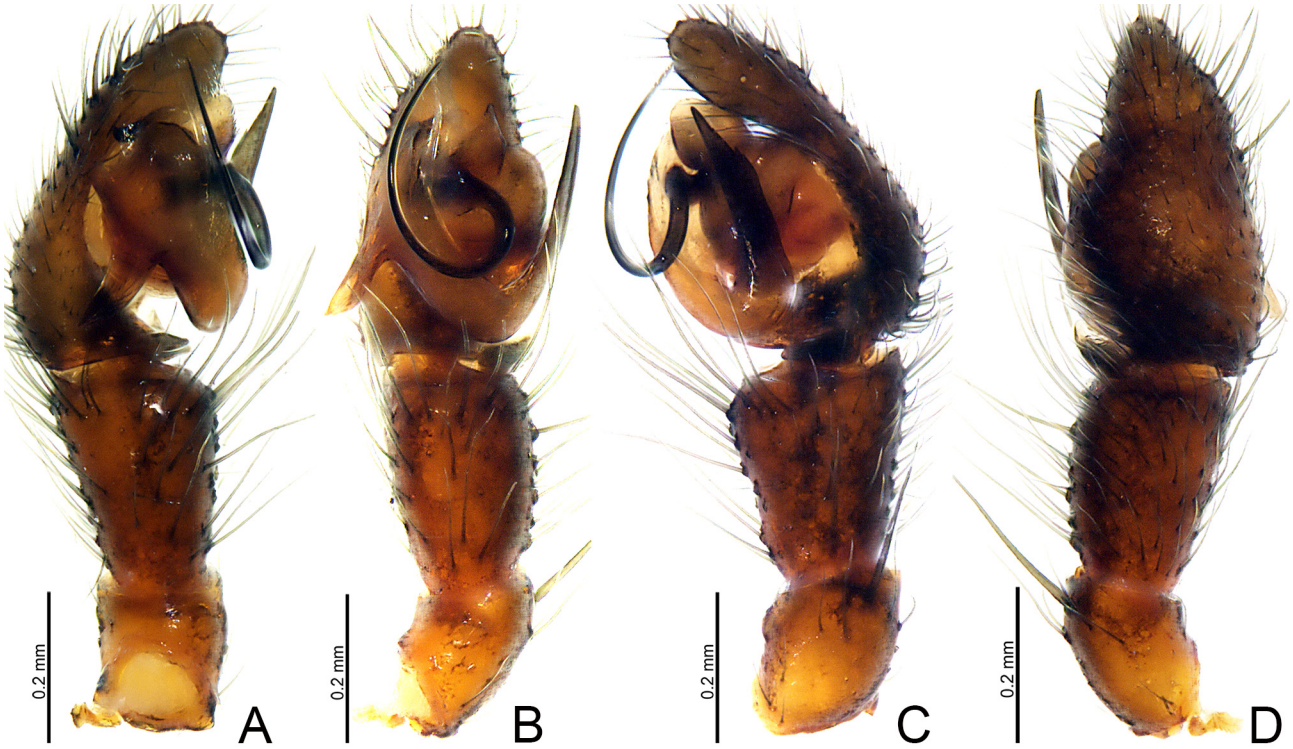


FIGURE 228. *Sinolinyphia henanensis* (Hu, Wang & Wang, 1991). **A** Palp, prolateral view; **B** Palp, ventral view; **C** Palp, retrolateral view; **D** Palp, dorsal view.

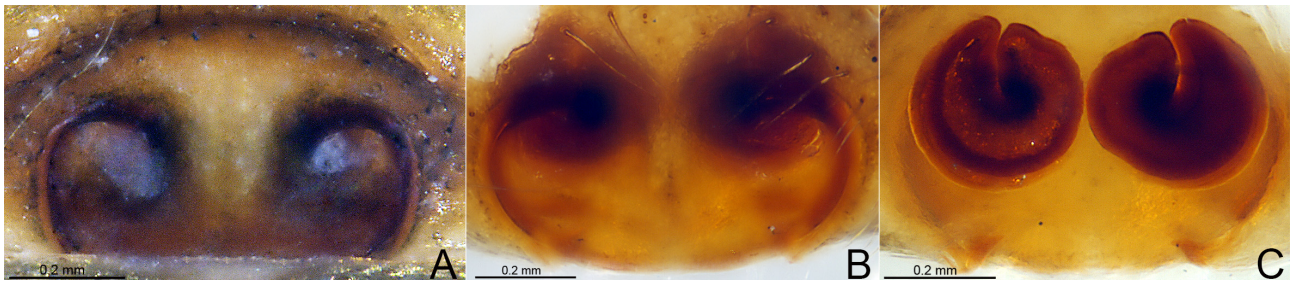


FIGURE 229. *Sinolinyphia henanensis* (Hu, Wang & Wang, 1991), female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

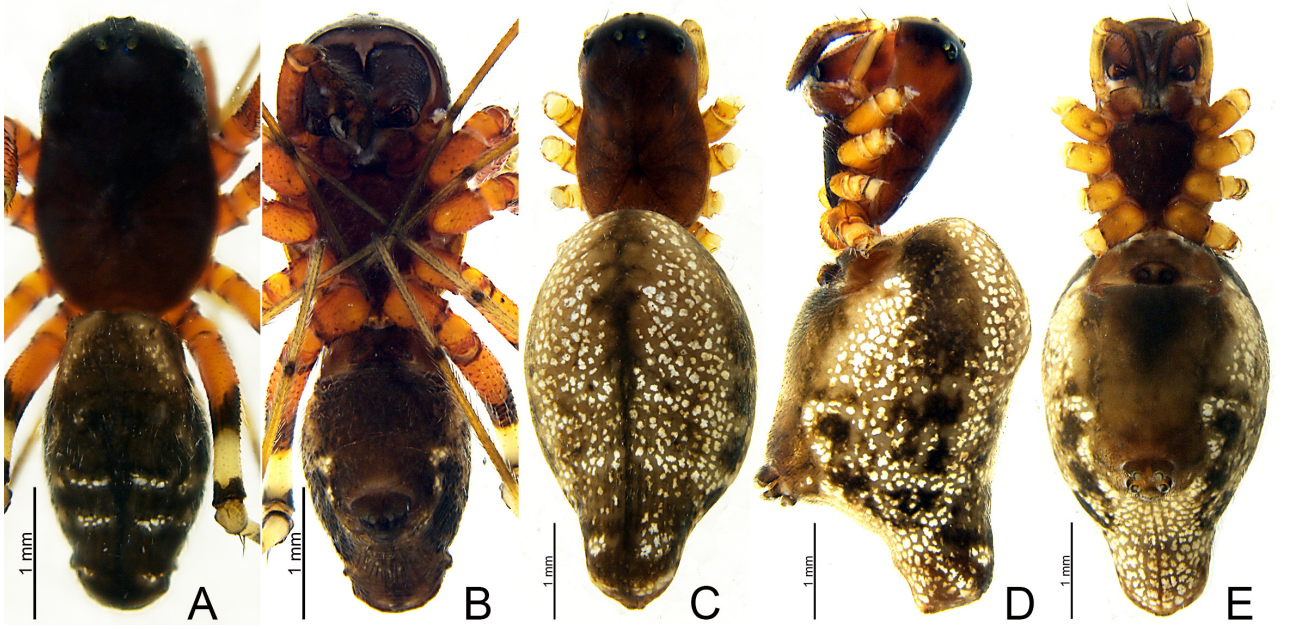


FIGURE 230. *Sinolinyphia henanensis* (Hu, Wang & Wang, 1991), male (A, B) and female (C–E). **A**, **C** Habitus, dorsal view; **D** Habitus, lateral view; **B**, **E** Habitus, ventral view.

with a prominent troglobitic feature; AER recurved, PER strongly procurved, PMEs present on the cephalic lobe. Eye sizes and interdistances: AME 0.03, ALE 0.03, PME 0.03, PLE 0.03, AME–AME 0.01, PME–PME 0.13, AME–ALE, 0.07, PME–PLE 0.03, AME–PME 0.08, ALE–ALE 0.23, PLE–PLE 0.24, ALE–PLE contiguous. Length of legs: I 2.31 (0.67, 0.81, 0.45, 0.38), II 1.79 (0.53, 0.57, 0.37, 0.32), III 1.71 (0.63, 0.70, 0.40, 0.34), IV 2.21 (0.65, 0.76, 0.43, 0.37). Tibial spine formula: 1-1-1-1. TmI 0.32, and TmIV present. Opisthosoma 0.98 long, 0.60 wide, oval, dusky grey, densely covered with fine spines.

Palp (Figs 231A–D, 232A–C): Femur unmodified, almost longer than patella and tibia. Patella two times longer than tibia basal part of tibia, ventrally grooved. Tibia with one reterolateral and one prolateral trichobothria, dorsal tibial apophysis (DTA) wider than long, ventrally grooved with bifurcated tip; cymbium unmodified, relatively broad at distal end; paracymbium (PC) C-shaped, distal arm tip with blunt end, touches the retrolateral margin of cymbium; tegulum (T) sclerotized, with transparent protegulum (PT) covering the anterior radical process; distal suprategular apophysis (DSA) sclerotized proximally, distal end round, transparent with serrated margin. Embolic division: Simple, with the basal part of radix (R) give rise long filiform embolus; anterior redical process (ARP) longer than wide, strongly sclerotized with sharp serrated margin; embolic membrane (EM) attached to the inner margin of embolus, running along the embolus, even extending forward from the embolus tip.

Female (one of paratype, Figs 234D–F): Total length: 1.64. Carapace 0.86 long, 0.62 wide, brown, ocular region narrow, cervical and radial grooves distinct. Clypeus 0.26 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes reduced with a prominent troglobitic feature; AER recurved, PER procurved. Eye sizes and interdistances: AME 0.02, ALE 0.03, PME 0.04, PLE 0.04, AME–AME 0.03, PME–PME 0.06, AME–ALE, 0.05, PME–PLE 0.03, AME–PME 0.06, ALE–ALE 0.22, PLE–PLE 0.24, ALE–PLE contiguous. Length of legs: I 2.02 (0.57, 0.71, 0.39, 0.35), II 1.87 (0.56, 0.63, 0.36, 0.32), III 1.60 (0.50, 0.51, 0.31, 0.28), IV 1.98 (0.59, 0.69, 0.40, 0.30). Tibial spine formula: 1-1-1-1. TmI 0.29, and TmIV present. Opisthosoma 0.97 long, 0.68 wide, all other characteristics same as in male except darker in color.

Epigyne (Figs 233A–C): With transverse chitinous ventral plate (VP), broad with a round lobe on each side,

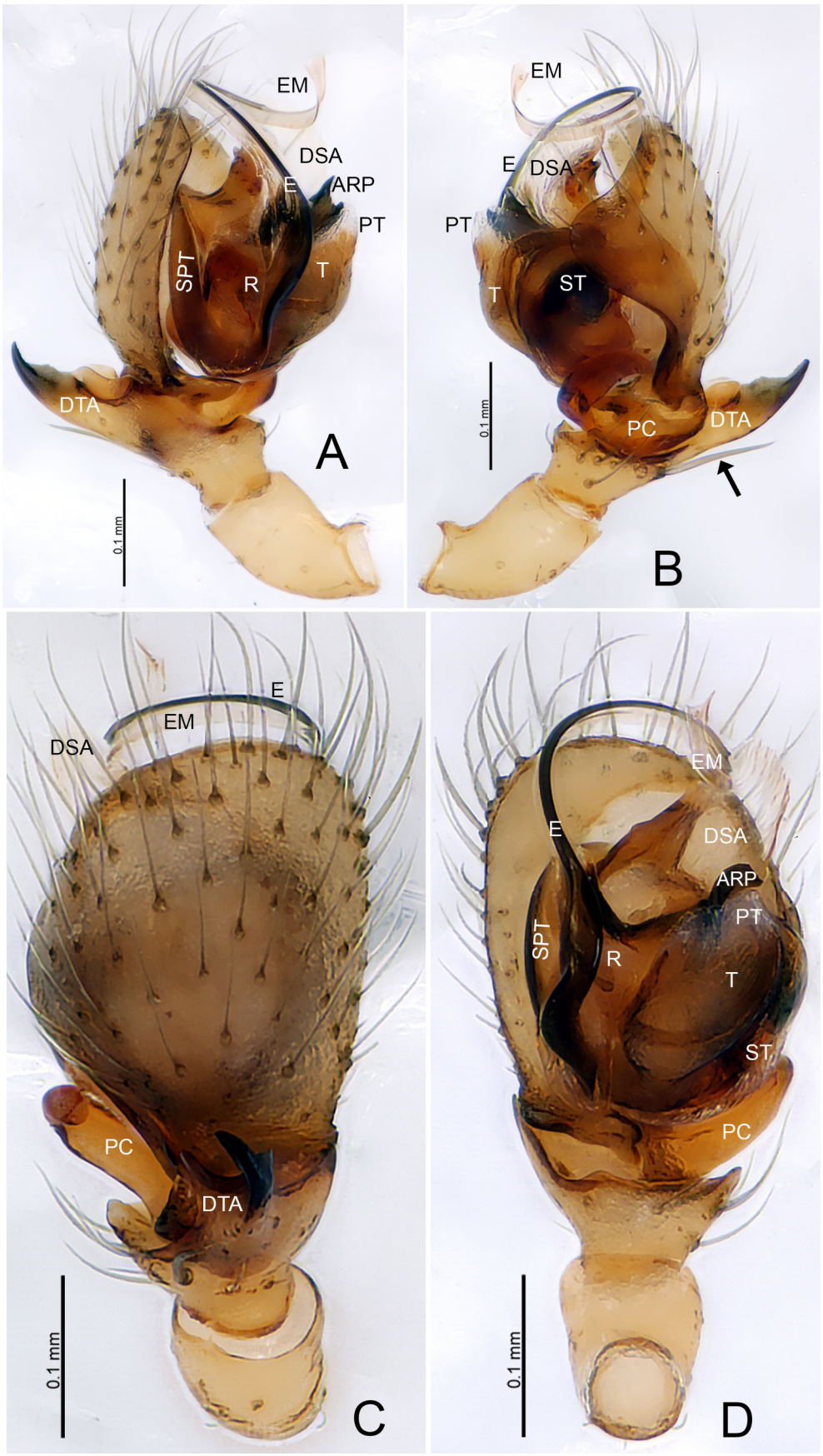


FIGURE 231. *Spelaeus cicatrix* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. **B** Arrow indicating thick spine at the base of dorsal tibial apophysis in retrolateral view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; PC—paracymbium; PT—protegulum; R—radix; ST—subtegulum; SPT—suprategulum; T—tegulum.

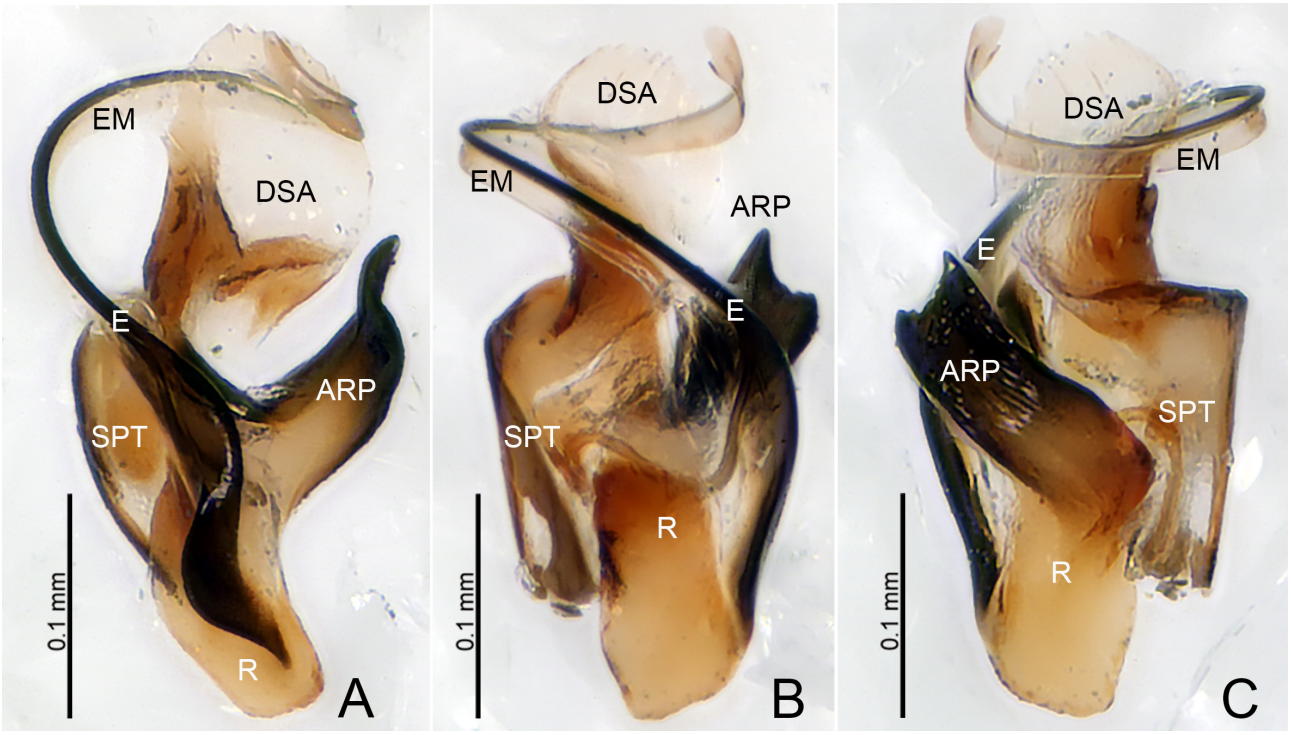


FIGURE 232. *Spelaeus cicatrix* **sp. n.**, male paratype palp. **A** Embolic division, ventral view; **B** Embolic division, prolateral view; **C** Embolic division, retrolateral view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; E—embolus; Em—embolic membrane; PC—paracymbium; R—radix; SPT—suprategulum.

posteriory narrow with a shallow depression; epigynal plate anteriorly with a septum containing copulatory opening (CO) underneath; copulatory ducts (CD) long, sinuous, running along the peripheral margin of epigynal plate towards the posterior margin to enter in spermathecae. Spermathecae (S) round, seems enclosed by copulatory ducts in ventral view; fertilization ducts (FD) long, extending mesally.

Notes. The majority of females examined showed scars on the anterior surface of the epigyne that might be caused during mating by the strong and sharp anterior radical process. In most females with scars present they are most distinct in the anterior half (black arrows showing the scars, Figs 233A–C).

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

Genus *Syedra* Simon, 1884 (蟋蛛属)

Type species. *Microneta gracilis* Menge, 1869; gender feminine.

Remark. *Syedra* comprises seven species (including one species known from males and one from females) distributed in Europe, China, Congo, Japan, Korea, Russia (WSC 2024).

Syedra yuelushanensis Irfan, Zhang & Peng, sp. n. (岳麓山蟋蛛)

Figures 235–237, 307, 314, 315

Types. Holotype ♂, **CHINA, Hunan Prov.:** Changsha City, Yuelu District, Yuelu Mountain, 28.19012°N, 112.94269°E, 141 m, 06.XI.2016, M. Irfan & G.C. Zhou leg. **Paratypes:** 2♂2♀, with same data as for holotype male; 7♀, Changde City, Taoyuan Co., Shaping Town, Saiyang Vill., Wuyunjie NNR, 28.60443°N, 110.15544°E, 209 m, 06.VIII.2017, X.J. Peng *et al.* leg. (HNU–HN–IV–1734); 1♂, Changde City, Taoyuan Co., Shaping Town, Saiyang Vill., Wuyunjie NNR, 28.61471°N, 110.40767°E, 208 m, 06.VIII.2017, X.J. Peng *et al.* leg. (HNU–HN–IV–1736); 3♀, Ningxiang Co., Huaminglou Town, Tanzi Vill., 28.032005°N, 112.640872°E, 72 m, 09.V.2017, G.C. Zhou *et al.* leg. (HNU–HN–IV–1718); 2♀, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.1002°N, 112.5277°E, 187 m, 24.X.2017, G.C. Zhou leg. (HNU–HN–IV–1755); 1♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.10020°N, 112.65881°E, 189 m, 10.V.2017, G.C. Zhou *et al.* leg. (HNU–HN–IV–1707); **Chongqing:** 2♂10♀, Youyang Co., Taohuayuan Scenic Spot, 28.85096°N, 108.75037°E, 995 m, 23.VII.2017, M. Irfan & G.C. Zhou leg. (HNU–CQ–IV–1718); 4♀, Youyang Co., Xiaoba Town, Xinqiao Vill., 28.83778°N, 108.72372°E, 924 m, 23.V.2017, G.C. Zhou *et al.* leg. (HNU–CQ–IV–1714); 4♀, Youyang Co., Xiaoba Town, Xinqiao Vill., 28.83698°N, 108.72222°E, 933 m, 22.VII.2017, M. Irfan & G.C. Zhou leg. (HNU–CQ–IV–1716); **Hubei Prov.:** 1♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95240°N, 109.01717°E, 785 m, 25.VIII.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1727).

Etymology. This specific species name derived from the type locality; adjective.

Diagnosis. *Sydera yuelushanensis* **sp. n.** resembles *S.*

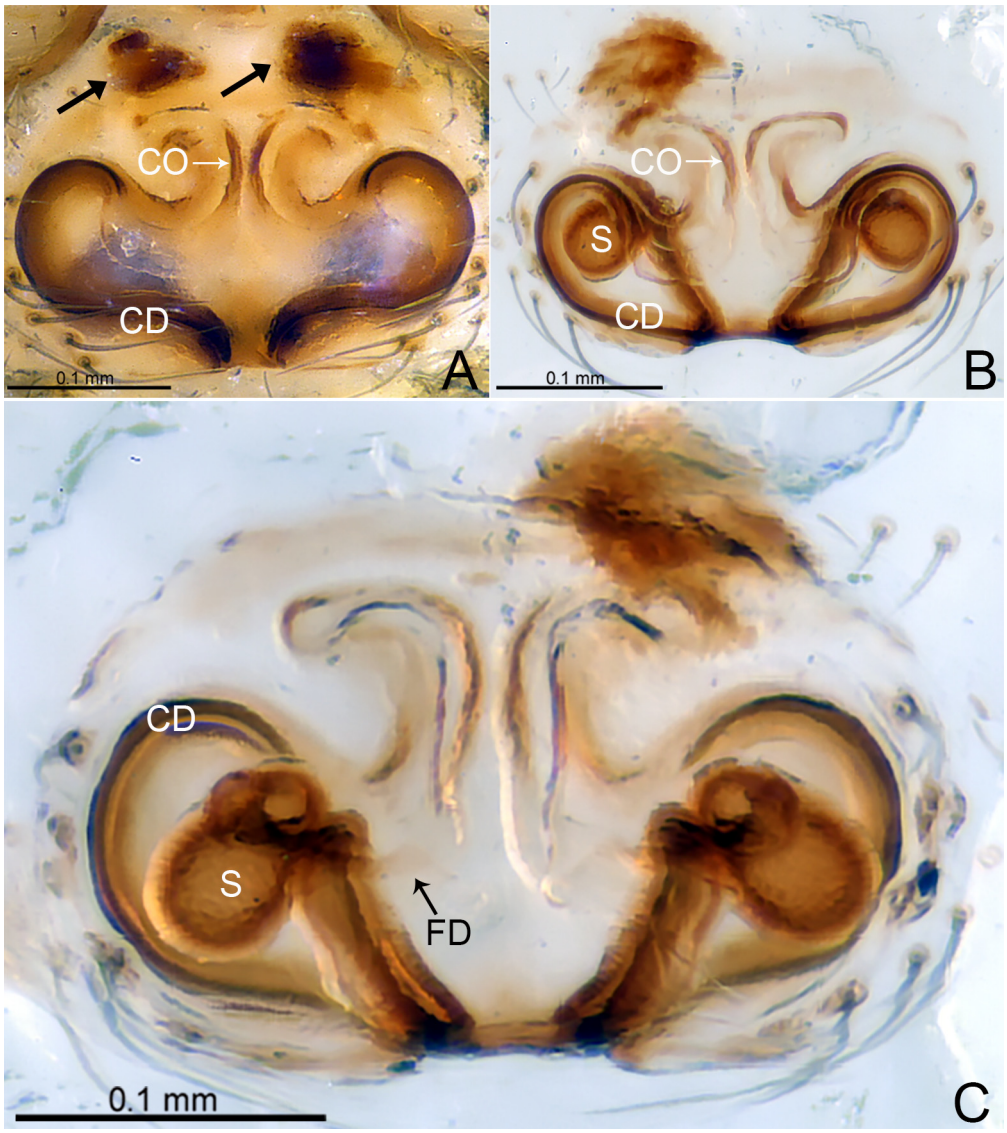


FIGURE 233. *Spelaeus cicatrix* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Arrows indicating scars at the anterior epigyne. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

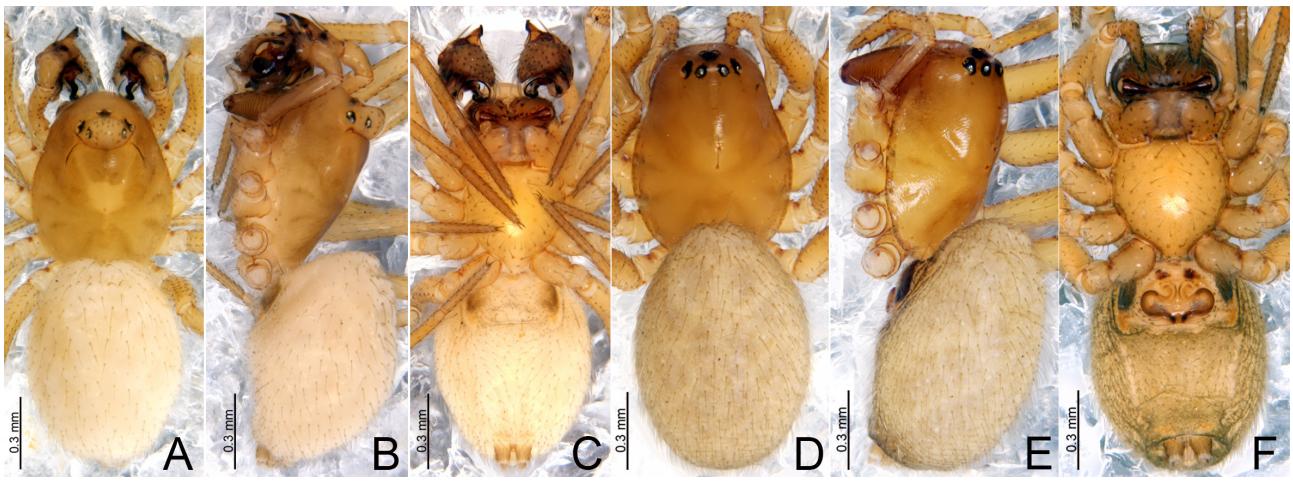


FIGURE 234. *Spelaeus cicatrix* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

oii (Figs 235A–D, 236A–C; Yin *et al.*, 2012, figs 267a–d), but can be distinguished by the tip of lamella characteristica notched in *S. yuelushanensis* **sp. n.** (Figs 235A–C; vs. hook-shaped); ventral part of pit hook relatively broad and dorsal tip with blunt end in *S. yuelushanensis* **sp. n.** (Figs 235A–C; vs. ventral part narrow and dorsal tip with pointed end). Spermathecae 9-shaped in *S. yuelushanensis* **sp. n.** (Figs 236A–C; vs. apical part not curved).

Description. Male (holotype, Figs 237A–C): Total length: 1.65. Carapace: 0.71 long, 0.58 wide, orange to yellowish, cephalic region slightly elevated, outline concave, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with three promarginal and three retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. PMEs head–light shaped, relatively large. Eye sizes and interdistances: AME 0.03, ALE 0.06, PME 0.07, PLE 0.06, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.01, AME–PME 0.05, ALE–ALE 0.22, PLE–PLE 0.23, ALE–PLE contiguous. Length of legs: I 2.85 (0.75, 0.92, 0.65, 0.53), II 2.55 (0.68, 0.81, 0.58, 0.48), III 2 (0.53, 0.64, 0.47, 0.36), IV 2.82 (0.76, 0.91, 0.68, 0.47). Tibial spine formula: 2-2-2-2. TmI 0.53 and TmIV 0.52. Opisthosoma 0.94 long, 0.56 wide, oval, dusky grey, mid dorsally with black pattern extending to lateral sides; ventral side grey.

Palp (Figs 235A–C): Femur unmodified, almost longer than patella and tibia. Patella shorter than tibia, dorsally with long thick spine. Tibia with two retrolateral and one dorsal trichobothria; cymbium with a shallow depression at proximal end; paracymbium (PC) U-shaped, distal arm tip notched and with setae on proximal part. Pit hook (PH) relatively large, ventral part broad and dorsal tip sclerotized, with blunt end. Radix (R) longer than wide, with Fickert's gland (fg); lamella characteristica (LC) longer than wide with bifurcated tip; terminal apophysis (TA) tip sharp with pointed end. Embolus (E) slightly curved with pointed end attached with round thumb (TH).

Female (one of paratype, Figs 237C–F): Total length: 2.06. Carapace: 0.72 long, 0.59 wide, yellow, cephalic region slightly elevated, cervical and radial grooves distinct. Clypeus 0.17 high. Chelicerae with three promarginal and three retromarginal teeth. Sternum longer than wide, yellowish green with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. PMEs head–light shaped, relatively large. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.07, PLE 0.06, AME–AME 0.03, PME–PME 0.03, AME–ALE, 0.02, PME–PLE 0.01, AME–PME 0.04, ALE–ALE 0.23, PLE–PLE 0.25, ALE–PLE contiguous. Length of legs: I 3.19 (0.91, 1.01, 0.76, 0.51), II 2.75 (0.75, 0.89, 0.62, 0.49), III 2.38 (0.67, 0.75, 0.49, 0.47), IV 2.99 (0.88, 0.94, 0.66, 0.51). Tibial spine formula: 2-2-2-2. TmI 0.63 and TmIV 0.54. Opisthosoma 1.34 long, 0.92 wide, oval, pale, posteriorly with black band around spinnerets, densely covered with fine setae.

Epigyne (Figs 236A–C): Ventral plate (VP) wider than long, copulatory openings (CO) present antero–ventrally; dorsal plate (DP) rectangular; copulatory ducts (CD) form long loop; spermathecae (S) 9-shaped, spaced by two times more width of spermathecae. Fertilization ducts (FD) long, extending mesally.

Distribution. Known only from the type localities (Chongqing, Hubei and Hunan Provinces, Figs 307, 314, 315).

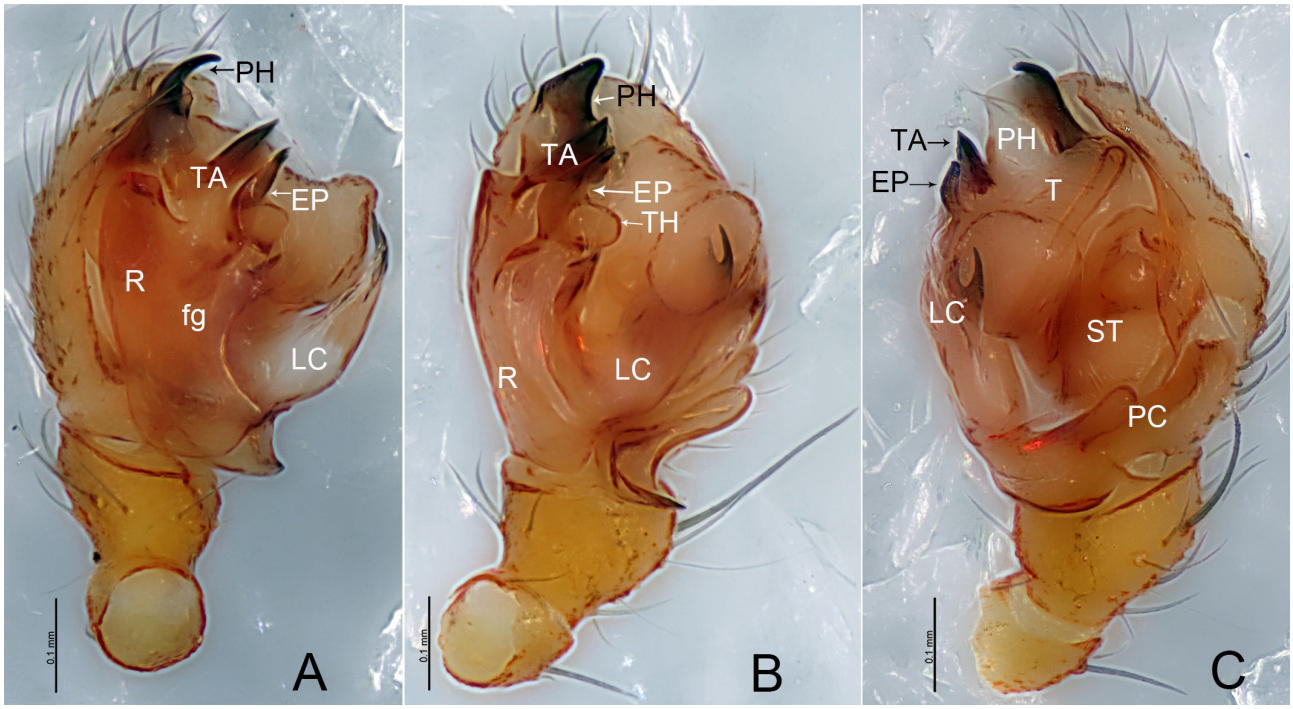


FIGURE 235. *Syedra yuelushanensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, ventral view; **C** Palp, retrolateral view. Abbreviations: EP—embolus proper; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis.

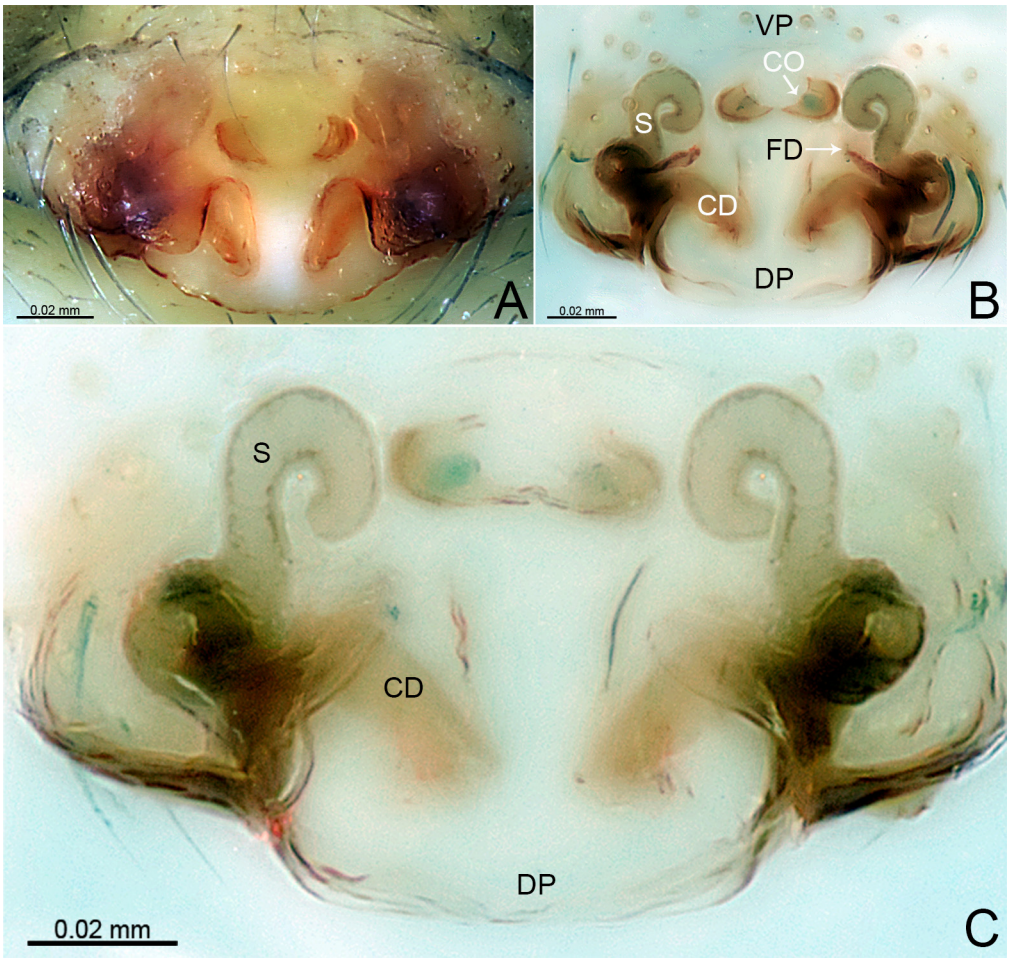


FIGURE 236. *Syedra yuelushanensis* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

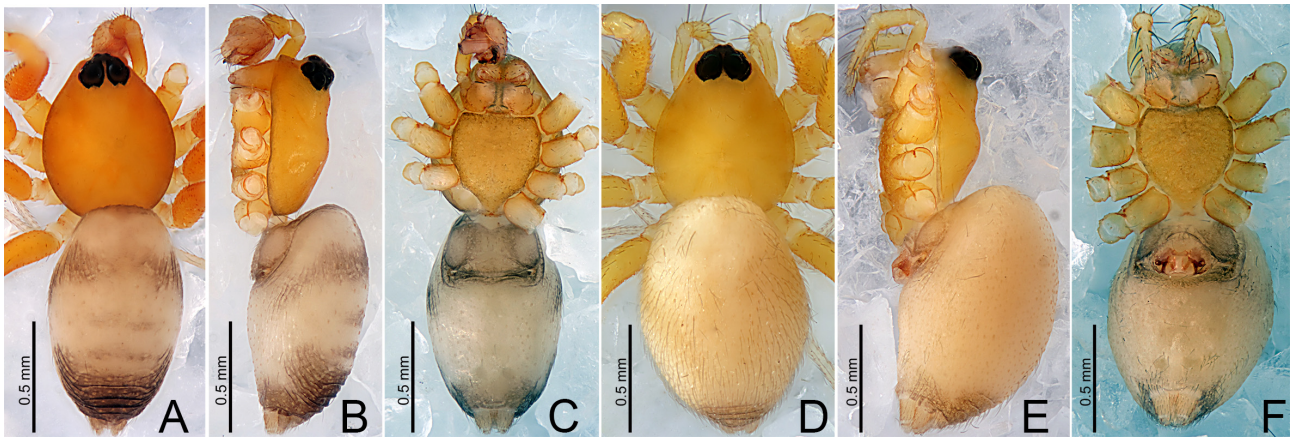


FIGURE 237. *Syedra yuelushanensis* **sp. n.**, male holotype (A–C) and female paratype (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

Genus *Taibaishanus* Tanasevitch, 2006 (太白山蛛属)

Type species. *Taibaishanus elegans* Tanasevitch, 2006; gender masculine.

Remark. *Taibaishanus* comprises two species (including one species known from males) distributed in China (WSC 2024).

Taibaishanus badongensis Irfan, Zhang & Peng, sp. n. (巴东太白山蛛)

Figures 238, 239, 314

Types. Holotype ♂, **CHINA, Hubei Prov.:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg.

Etymology. The specific epithet is derived from the type locality; adjective.

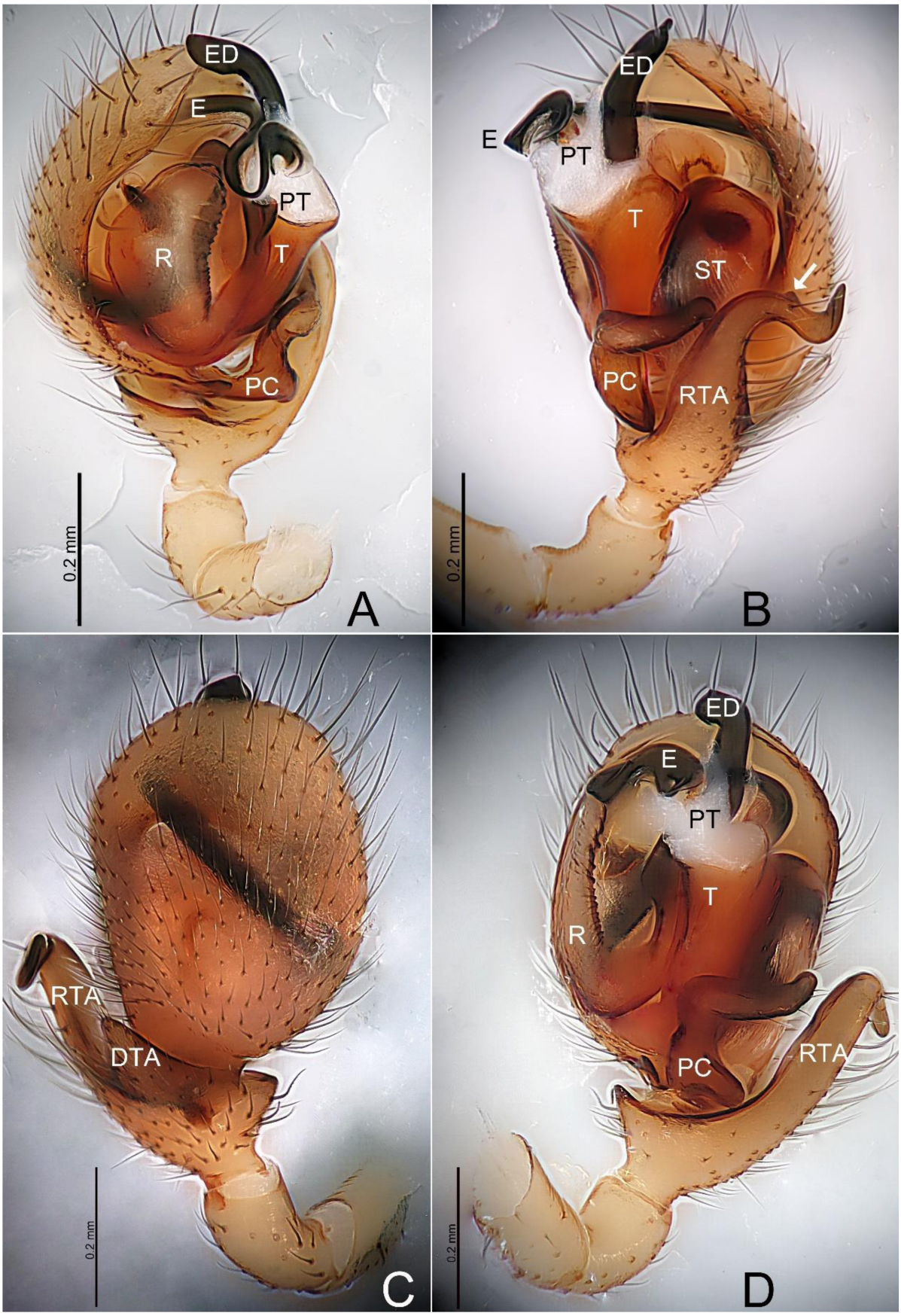


FIGURE 238. *Taibaishanus badongensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; ED—embolic division; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; ST—subtegulum; T—tegulum.

Diagnosis. *Taibaishanus badongensis* **sp. n.** resembles *T. elegans* (Figs 238A–D; Tanasevitch 2006, figs 68–73), but can be distinguished by the protegulum bifurcated in *T. badongensis* **sp. n.** (Figs 238A, B, D; vs. not bifurcated); retrolateral tibial apophysis S-shaped with a small projection at the distal end in *T. badongensis* **sp. n.** (showed with white arrow, Fig. 238B; vs. absent); distal arm tip of paracymbium hook-shaped pointing towards the tibia in *T. badongensis* **sp. n.** (Fig. 238B; vs. hook-shaped pointing towards the subtegulum); retrolateral part of radix as wide as long at the center in *T. badongensis* **sp. n.** (Fig. 238A; vs. longer than wide).

Description. Male (holotype, Figs 239A, B): Total length: 2.35. Carapace: 1.11 long, 0.86 wide, yellow, cephalic region elevated, densely covered with macrosetae, cephalic pits absent, fovea, cervical and radial grooves distinct. Clypeus 0.20 high. Chelicerae with six promarginal and five retromarginal teeth. Sternum longer than wide, yellowish brown with dark lateral margin and microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.07, PLE 0.06, AME–AME 0.03, PME–PME 0.07, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.06, ALE–ALE 0.32, PLE–PLE 0.34, ALE–PLE contiguous. Length of legs: I 3.46 (0.97, 1.14, 0.78, 0.57), II 3.10 (0.88, 1.03, 0.69, 0.50), III 2.62 (0.76, 0.85, 0.60, 0.41), IV 3.41 (0.95, 1.11, 0.84, 0.51). Tibial spine formula: 2-2-1-1. TmI 0.64 and TmIV 0.69. Opisthosoma 1.24 long, 0.78 wide, oval, dusky grey, with transverse black bands extending posteriorly; ventral side greyish black.

Palp (Figs 238A–D): Femur unmodified, almost longer than both patella and tibia. Patella shorter than tibia, ventrally grooved. Tibia with one retrolateral and one dorsal trichobothria, with two apophyses, retrolateral tibial apophysis (RTA) S-shaped, distal end ventrally with a small projection, prolateral margin with several thick spines; dorsal tibial apophysis (DTA) longer than wide with blunt end; cymbium unmodified; paracymbium (PC) U-shaped, distal arm tip hook-shaped; protegulum (PT) membranous, distal end bifurcated. Radix (R) V-shaped, retrolateral part as long as wide, with prolateral margin serrated. Embolic division (ED) hypertrophied, complex. Embolus (E) very long, sinuous, apical part S-shaped.

Female. Unknown.

Distribution. Known only from the type locality (Hubei Province, Fig. 314)

Genus *Tapinocyba* Simon, 1884 (盾大蛛属)

Type species. *Walckenaera praecox* O. Pickard-Cambridge, 1873; gender feminine.

Remark. *Tapinocyba* Simon, 1884, is a small genus consisting of 41 species, primarily distributed across America and the Palearctic region (WSC 2024). In Chinese fauna, three species have been recorded, specifically in the provinces of Jilin, Sichuan, and Taiwan (Sha *et al*. 1994; Tanasevitch 2011, 2018).

Tapinocyba cornuta Irfan, Zhang & Peng, sp. n. (角状盾大蛛)

Figures 240–242, 310

Types. Holotype ♂ (HNU–GZ–IV–1402), **CHINA, Guizhou Prov.:** Yanhe Co., Mayanghe NNR, 28.65838°N, 108.26033°E, 268m. 07.VII.2014, C. Wang *et al.* leg. **Paratypes:** 1♀, with same data as for holotype (HNU–GZ–IV–1402).

Etymology. The specific epithet is derived from the Latin adjective "*cornutus, -a, -um*" meaning "horned" referring to distal suprategular apophysis with horn-shaped projection in male palp.

Diagnosis. The male of *Tapinocyba cornuta* **sp. n.** resembles that of *T. praecox* (O. Pickard-Cambridge, 1873) in having the similar cephalic lobe and embolic division (Figs 240A–D, 2A–C; Hormiga 2000, figs 27A–E, pl. 62A–F) and can be distinguished by the ocular region modified in *T. cornuta* **sp. n.** (Fig. 240B; vs. not modified); tibia with three apophyses (DTA, PTA and RTA) in *T. cornuta* **sp. n.** (Fig. 240A, B, D; vs. tibia with one apophysis); anterior radical apophysis present in *T. cornuta* **sp. n.** (Figs 240A, C; vs. absent); embolus as long as dorsal tibial apophysis in *T. cornuta* **sp. n.** (Figs 240D; vs. longer than dorsal tibial apophysis). The female of *T. cornuta* **sp. n.** resembles that of *G. praecox* in having the similar spermatheca (Figs 241A–C; 247A–C), and can be distinguished by the copulatory opening nostrils-shaped in ventral view in *T. cornuta* **sp. n.** (Figs 241A–C; vs. ventral plate unmodified posteriorly).

Description. Male (holotype, Figs 242A–C): Total length: 1.6. Carapace 0.76 long, 0.52 wide, brown, cephalic region strongly elevated, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, yellowish brown with microsetae. Ocular region strongly curved, extending above clypeus, eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.03, PME–PME 0.06, AME–ALE, 0.01, PME–PLE 0.02, AME–PME 0.02, ALE–ALE 0.18, PLE–PLE 0.19, ALE–PLE contiguous. Length of legs: I 1.75 (0.54, 0.57, 0.34, 0.3), II 1.6 (0.49, 0.54, 0.3, 0.27), III 1.35 (0.41, 0.43, 0.27, 0.24), IV 1.79 (0.53, 0.59, 0.37, 0.27). TmI 0.62 and TmIV 0.63. Tibial spine formula: 2-2-1-1. Opisthosoma 0.92 long, 0.62 wide, oval, greenish.

Palp (Figs 240A–D): Femur unmodified, almost as long as both patella and tibia. Patella shorter than tibia. Tibia widest at distal end, with one retrolateral and one dorsal trichobothria, with three apophyses; dorsal tibial apophysis (DTA) sclerotized, slightly curved, sword-shaped in prolateral view, prolateral tibial apophysis (PTA) small, semicircular shaped in prolateral view, retrolateral tibial apophysis (RTA) wider than long, with wave-like margin; cymbium unmodified; paracymbium (PC) J-shaped, basally with setae, distal arm tip hook-shaped; tegulum (T) almost round, proximally bulging above the subtegulum, protegulum (PT) distinct, membranous; distal suprategular apophysis (DSA) sclerotized, distal part globular, relatively transparent, with horn-shaped

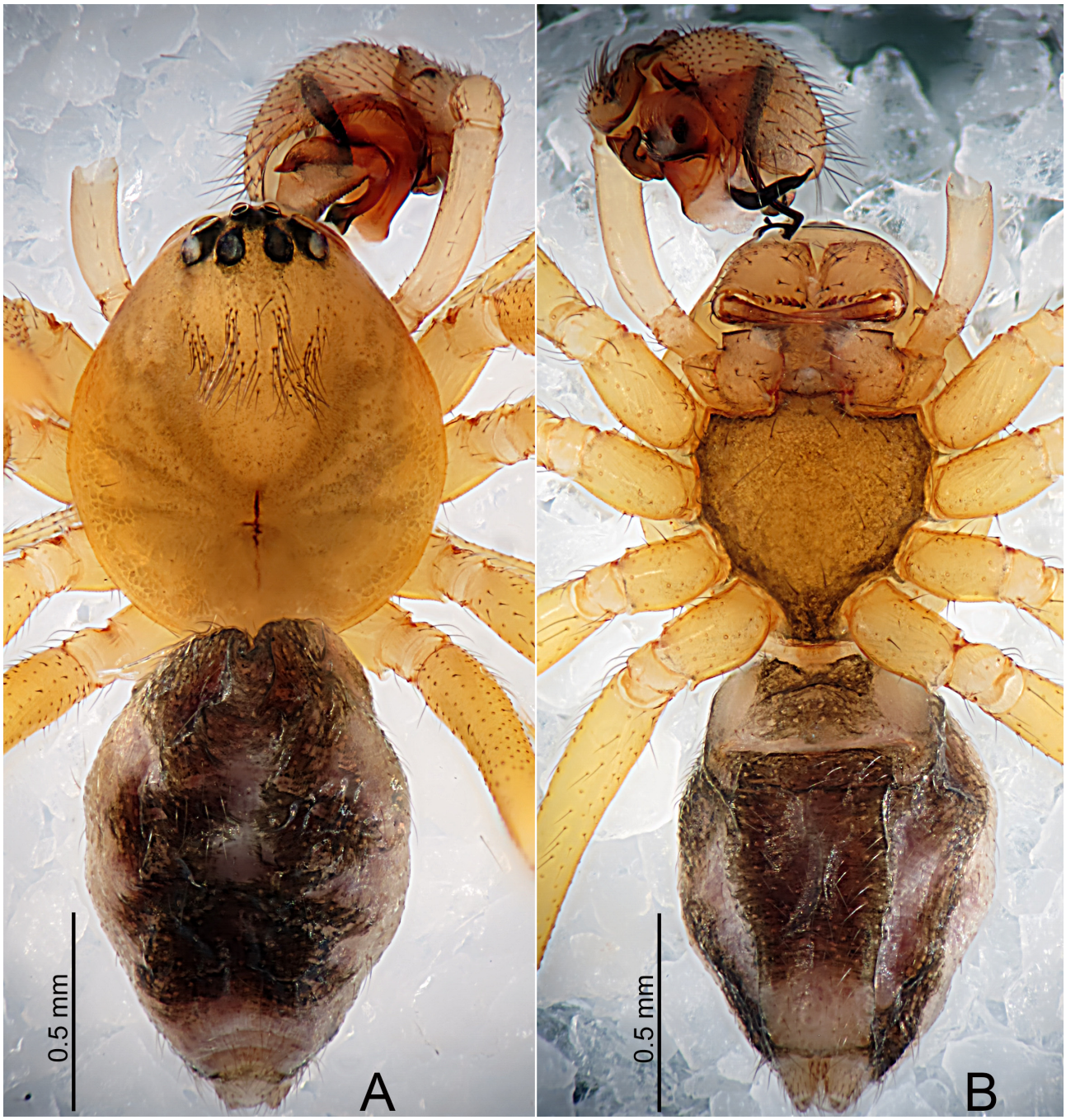


FIGURE 239. *Taibaishanus badongensis* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

projection at proximal end. Radix (R) sclerotized, longer than wide, proximally, strongly curved, slightly overlapping the suprategulum (SPT), posterior end stout. Embolic membrane (EM) barely visible on unexpended palp. Tailpiece slightly curved, tapering towards tip. Embolus (E) almost as long as dorsal tibial apophysis.

Female (one of paratype, Figs 242C, D): Total length: 1.57. Carapace 0.64 long, 0.48 wide, cephalic region slightly elevated, brown, fovea, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum shield-shaped, as wide as long, dark brown with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.05, PME 0.04, PLE 0.05, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.01, PME–PLE 0.02, AME–PME 0.03, ALE–ALE 0.18, PLE–PLE 0.20, ALE–PLE contiguous. Length of legs: I 1.53 (0.47, 0.53, 0.27, 0.26), II 1.36 (0.43, 0.44, 0.24, 0.25), III 1.23 (0.38, 0.39, 0.22, 0.24), IV 1.58 (0.51, 0.55, 0.28, 0.24). TmI 0.69 and TmIV 0.61. Tibial spine formula: 2-2-1-1. Opisthosoma 0.93 long, 0.64 wide, oval, brown, ventral side greyish brown.

Epigyne (Figs 241A–D): Epigynal plate two times wider than long; ventral plate (VP) a large rectangular outgrowth and a pair of small holes on its frontal face; dorsal plate (DP) almost rectangular, partly visible in ventral view; copulatory opening (CO) located mid-ventrally at the junction of dorsal and ventral plates;

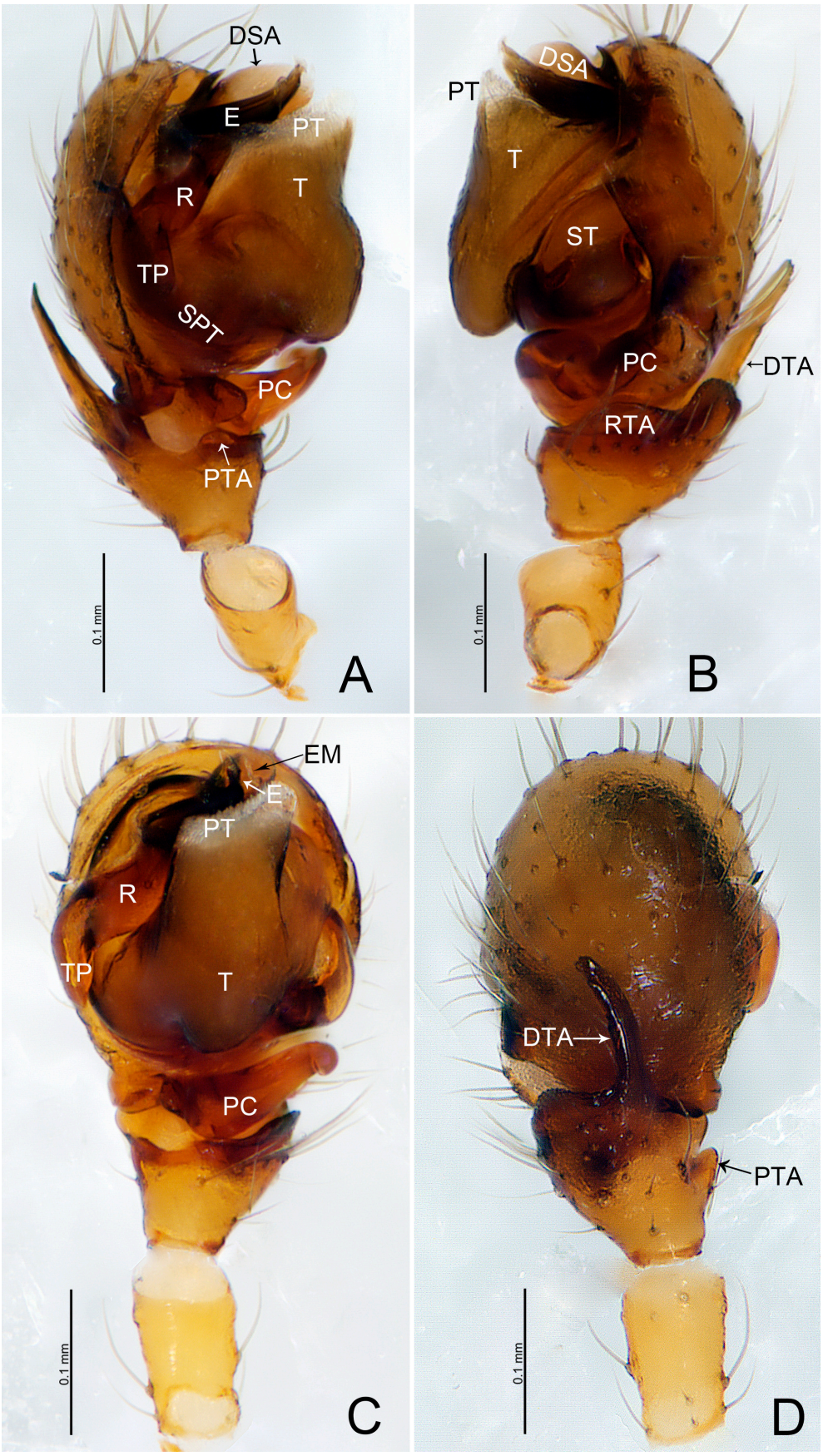


FIGURE 240. *Tapinocyba cornuta* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; PC—paracymbium; PT—protegulum; PTA—prolateral tibial apophysis; R—radix; RTA—retrolateral tibial apophysis; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

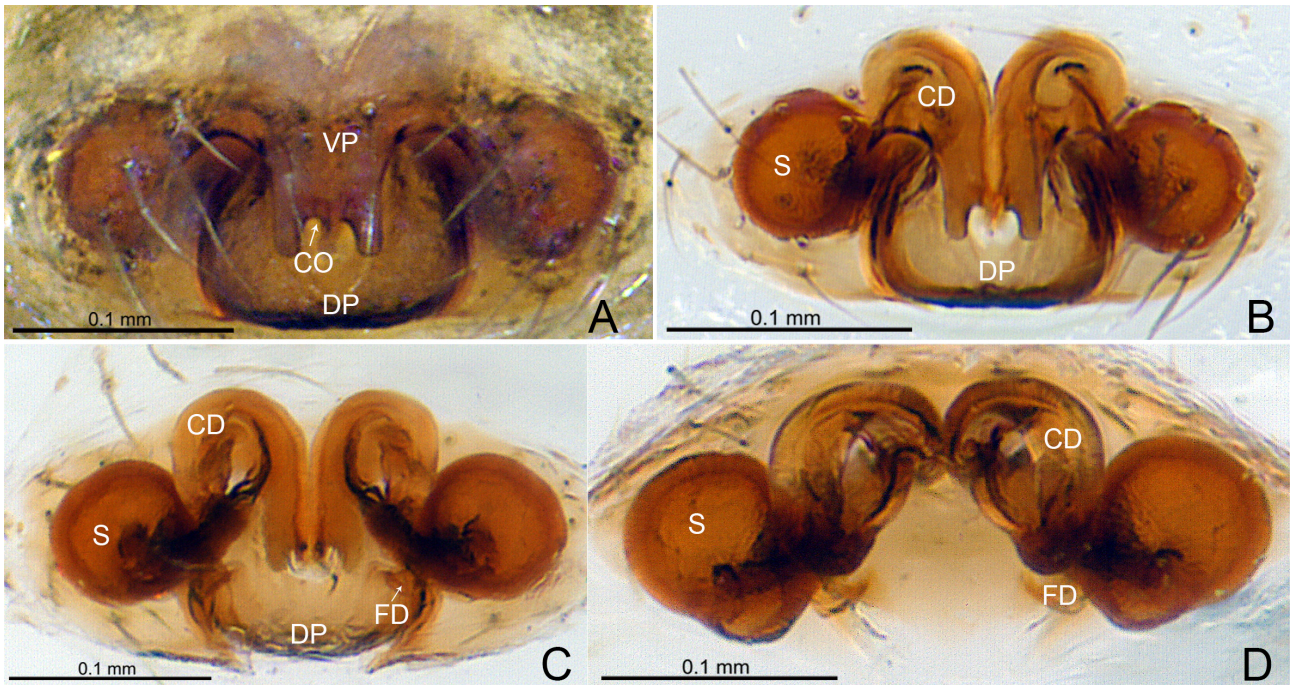


FIGURE 241. *Tapinocyba cornuta* **sp. n.**, female (one of paratypes). **A, B** Epigyne, ventral view; **C** Vulva, dorsal view; **D** Vulva, anterior view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

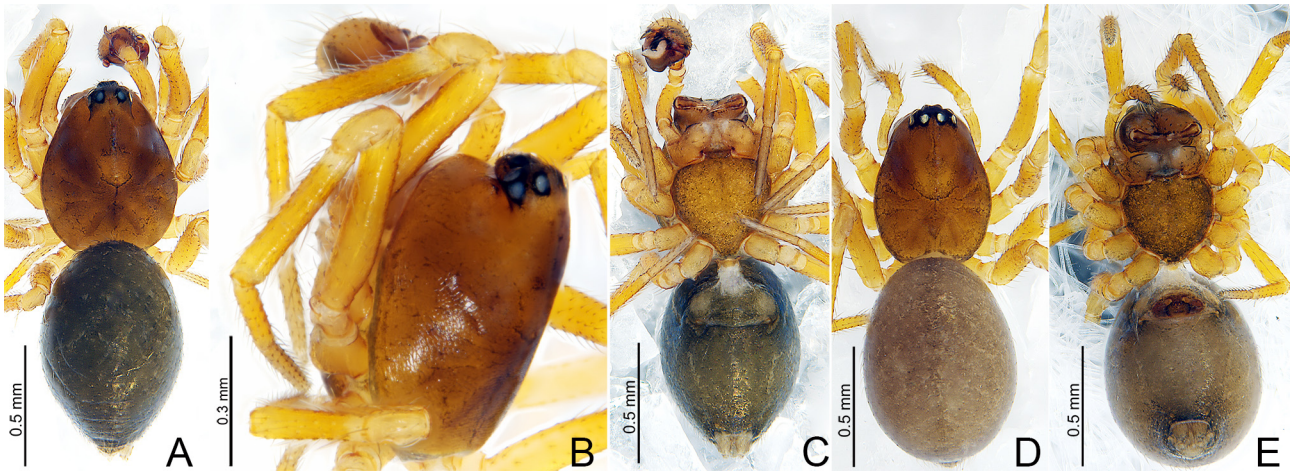


FIGURE 242. *Tapinocyba cornuta* **sp. n.**, male holotype (A–C) and female paratype (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C, E** Habitus, ventral view.

copulatory ducts (CD) long, forming U-shaped loop; spermathecae (S) globular, located dorsolaterally, spaced by two diameters; fertilization ducts (FD) short, extending mesally.

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

Tapinocyba pingshanensis Irfan, Zhang & Peng, sp. n. (坪山盾大蛛)

Figures 243, 244, 310

Types. Holotype ♀ (HNU–GZ–IV–1706), **CHINA, Guizhou Prov.:** Tongren City, Shiqian Co., Pingshan Town, Fodingshan Vill., Fodingshan NNR, 27.34899°N, 108.16272°E, 666 m, 01.XI.2017, G.C. Zhou leg. **Paratype:** 1♀, With same data as for holotype female (HNU–GZ–IV–1706).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Tapinocyba pingshanensis* **sp. n.** can be distinguished from all other congeners by the copulatory ducts comma-shaped, forming long loop (Fig. 243C).

Description. Female (holotype, Figs 244A, B): Total length: 1.99. Carapace 0.88 long, 0.70 wide, brown, cephalic region slightly elevated, fovea, cervical and radial grooves distinct. Clypeus 0.29 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, dark brown with microsetae. Eyes: AER recurved, PER procurved, slightly wider than

AER. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.05, PLE 0.05, AME–AME 0.01, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.05, ALE–ALE 0.27, PLE–PLE 0.29, ALE–PLE contiguous. Length of legs: I 2.41 (0.72, 0.88, 0.44, 0.37), II 1.90 (0.56, 0.72, 0.34, 0.28), III 1.59 (0.54, 0.48, 0.30, 0.27), IV 2.10 (0.59, 0.76, 0.43, 0.32). TmI 0.63 and TmIV 0.67. Tibial spine formula: 1-1-1-1. Opisthosoma 1.11 long, 0.65 wide, oval, black.

Epigyne (Figs 243A–C): Ventral plate (VP) sclerotized, funnel-shaped; dorsal plate (DP) rectangular, wider than long; copulatory opening (CO) present posteriorly at the junction of dorsal and ventral plate; copulatory ducts (CD) large, forming long loop before entering spermatheca; spermatheca (S) globular, almost touches the posterior margin of epigyne; fertilization ducts (FD) short, extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Guizhou Province, Fig. 310).

Tapinocyba sulcata Irfan, Zhang & Peng, sp. n. (末槽盾大蛛)

Figures 245–248, 312

Types. Holotype ♂ (HNU–HN–IV–1759), **CHINA, Hunan Prov.:** Shaoyang City, Suining Co., Zhaishi Town, Tieshanlin Vill., Huangshan NNR, 26.37646 °N, 110.10573°E, 1129 m, 26.X.2017, G.C. Zhou leg. **Paratypes:** 1♂11♀, with same data as for holotype (HNU–HN–IV–1759).

Etymology. The specific epithet is derived from the Latin adjective "*sulcatus, -a, um*" meaning "grooved" and referring to the distal suprategular apophysis distal end grooved in male palp.

Diagnosis. The male of *Tapinocyba sulcata* **sp. n.** resembles those of *T. praecox* (O. Pickard-Cambridge, 1873) in having the similar embolic division (Figs 245A–D; Hormiga 2000, figs 27A–E, pl. 62A–E) and can be distinguished by the tibia with three apophyses (DTA, PTA and RTA) in *T. sulcata* **sp. n.** (Fig. 240A, B, D; vs. tibia with one apophysis); anterior radical apophysis present in *T. sulcata* **sp. n.** (Figs 245A, C; vs. absent); embolus half the length of dorsal tibial apophysis in *T. sulcata* **sp. n.** (Figs 245D; vs. longer than dorsal tibial apophysis). The female of *T. sulcata* **sp. n.** resembles those of *T. pingshanensis* **sp. n.** in having the similar ventral and dorsal plate (Figs 247A–D; Figs 243A–C), and can be distinguished by the copulatory duct V-shaped in *T. sulcata* **sp. n.** (Fig. 247D), vs. comma-shaped in *T.*

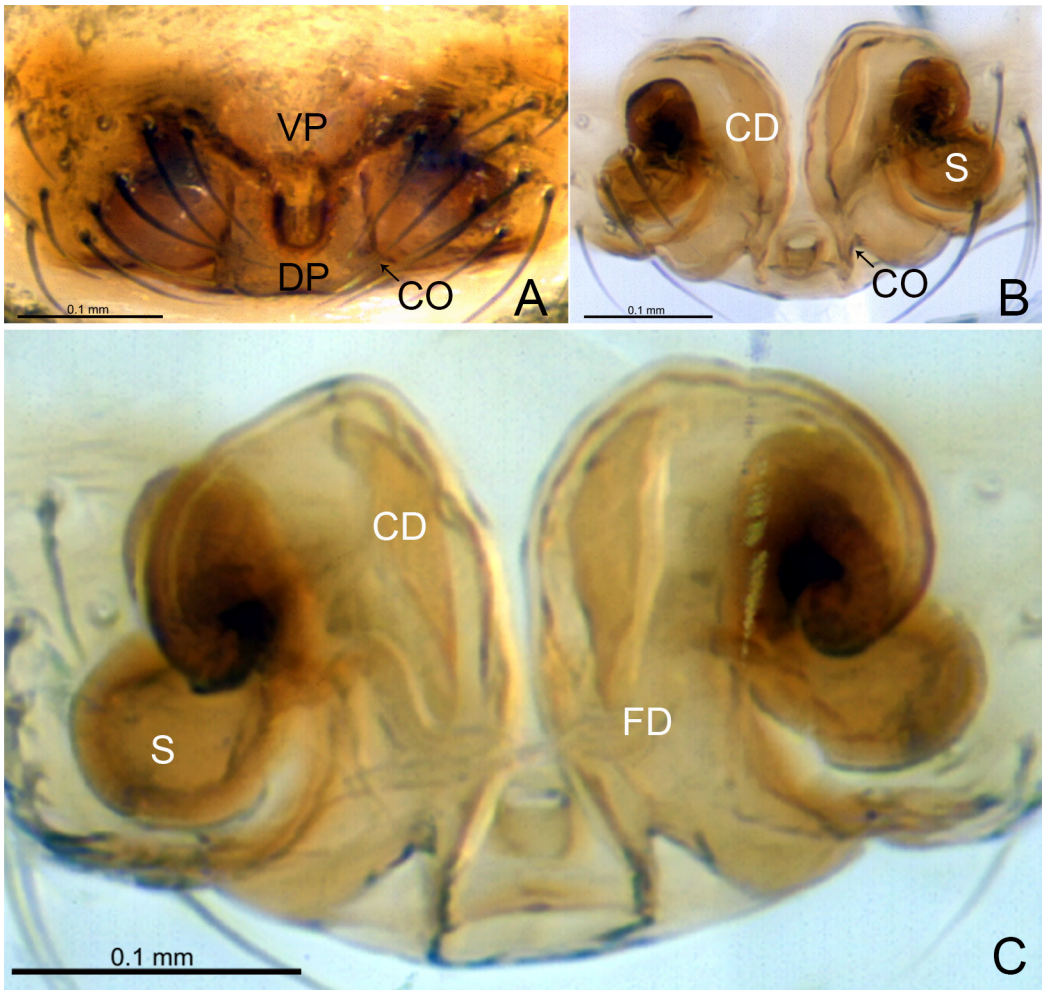


FIGURE 243. *Tapinocyba pingshanensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.



FIGURE 244. *Tapinocyba pingshanensis* **sp. n.**, female holotype. A Habitus, dorsal view; B Habitus, ventral view.

pingshanensis **sp. n.** (Fig. 243C); spermathecae present dorsoventrally in *T. sulcata* **sp. n.** (Fig. 247D), vs. present posterolaterally in *T. pingshanensis* **sp. n.** (Fig. 243C).

Description. Male (holotype, Figs 248A, B): Total length: 1.73. Carapace 0.77 long, 0.63 wide, brown, cephalic region strongly elevated, with cephalic pits, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum longer than wide, dark brown with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.06, PME 0.05, PLE 0.06, AME–AME 0.01, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.06, ALE–ALE 0.24, PLE–PLE 0.25, ALE–PLE contiguous. Length of legs: I 2.34 (0.69, 0.78, 0.48, 0.39), II 2.17 (0.67, 0.69, 0.45, 0.36), III 1.84 (0.57, 0.59, 0.39, 0.29), IV 2.4 (0.72, 0.79, 0.52, 0.37). TmI 0.64 and TmIV 0.69. Tibial spine formula: 2-2-1-1. All the tibia dorsally with 2 to 3 trichobothria. Opisthosoma 0.96 long, 0.61 wide, oval, dorsal side grey, ventral side black.

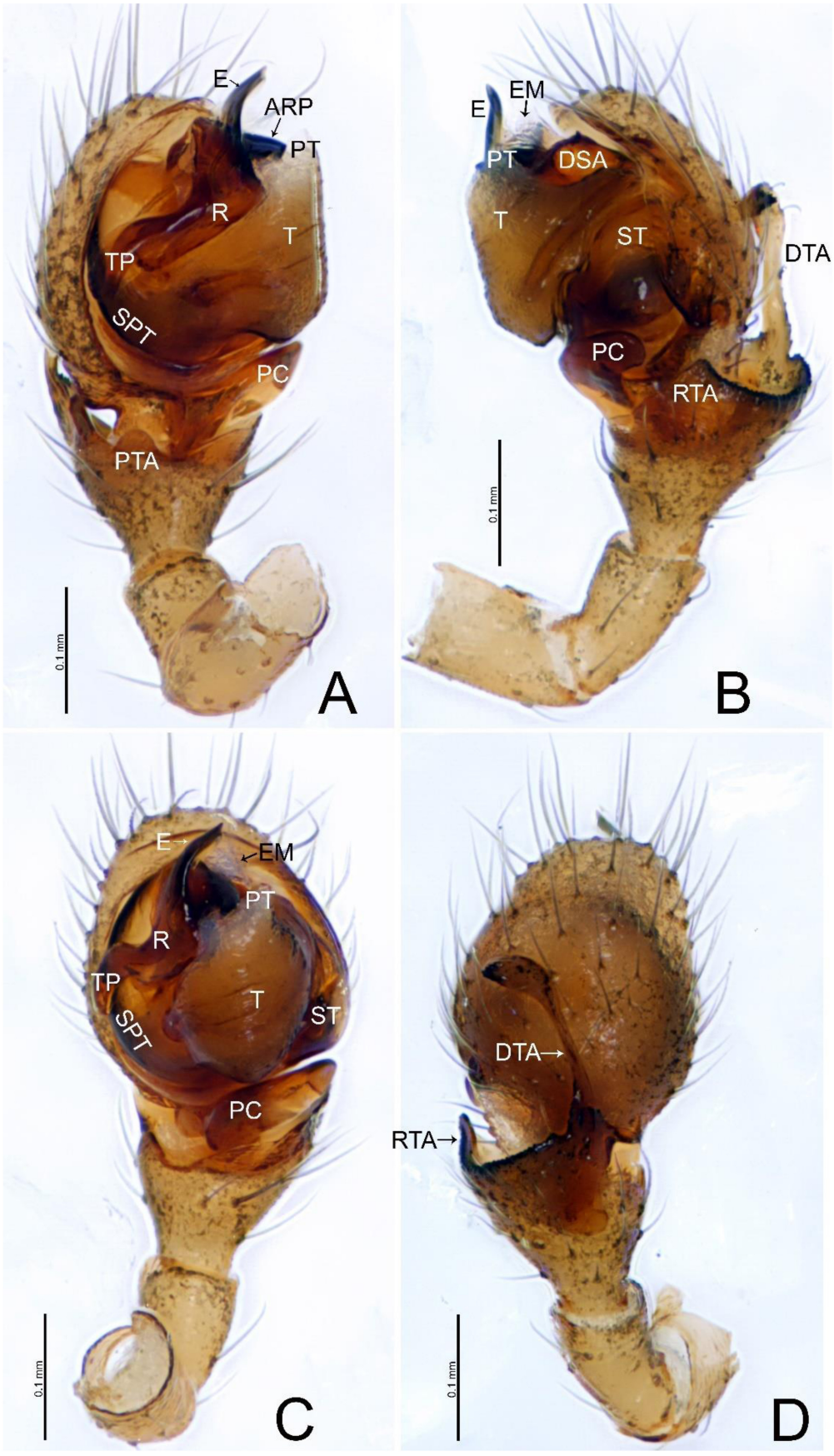


FIGURE 245. *Tapinocyba sulcata* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; L—lamella; PC—paracymbium; PT—protegulum; PTA—prolateral tibial apophysis; R—radix; RTA—retrolateral tibial apophysis; SPT—suprategulum; ST—subtegulum; T—tegulum; TP—tailpiece.

Palp (Figs 245A–D, 246A–C): Femur unmodified, almost longer than both patella and tibia. Patella 2/3 length of tibia, ventrally grooved at proximal end. Tibia conic, with 1 retrolateral and 1 dorsal trichobothria, retrolateral tibial apophysis (RTA) somewhat triangular with blunt end, dorsal tibial apophysis (DTA) C-shaped, as long as tibia, distal end of retrodorsal margin of tibia sclerotized, with serrated margin and prolateral tibial apophysis (PTA) semicircular with blunt end; cymbium unmodified, oval in dorsal view; paracymbium (PC) J-shaped, distal arm hook-shaped; tegulum (T) almost round, protegulum (PT) distinctly developed, membranous; distal suprategular apophysis (DSA) longer than wide distally. Radix (R) longer than wide, anterior part sclerotized, moderately long, overlapping the suprategulum, posterior end strongly curved. Embolic membrane (EM) small, with serrated end. Embolus (E) sclerotized, stout, almost half the length of dorsal tibial apophysis, extending above the apex of cymbium.

Female (paratype, Figs 248C, D): Total length: 1.84. Carapace 0.78 long, 0.56 wide, brown, cephalic region slightly elevated, fovea, cervical and radial grooves distinct. Clypeus 0.22 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, dark brown with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.04, ALE–ALE 0.22, PLE–PLE 0.25, ALE–PLE contiguous. Length of legs: I 2.12 (0.63, 0.71, 0.42, 0.36), II 2.02 (0.62, 0.65, 0.40, 0.35), III 1.73 (0.51, 0.54, 0.37, 0.31), IV 2.26 (0.68, 0.77, 0.45, 0.36). TmI 0.62 and TmIV 0.64. Tibial spine formula: 2-2-1-1. Opisthosoma 1 long, 0.74 wide, oval, brownish black, ventral side brownish black.

Epigyne (Figs 247A–D): Ventral plate (VP) sclerotized, narrow posteriorly; dorsal plate (DP) rectangular, wider than long; copulatory opening (CO) present mid ventrally at the junction of dorsal and ventral plate; copulatory ducts (CD) simple, fused at the beginning, forming long loop before entering the spermathecae; spermathecae (S) small, round; fertilization ducts (FD) short, extending mesally.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Genus *Tenuiphantes* Saaristo & Tanasevitch, 1996 (细蛛属)

Type species. *Linyphia tenuis* Blackwall, 1852; gender masculine.

Remark. *Tenuiphantes* comprises 45 species (including two species known from males and one from females) distributed worldwide (WSC 2024).

Tenuiphantes aduncus (Zhu, Li & Sha, 1986) (钩舟细蛛)

Figures 249–251, 318

Lepthyphantes aduncus Zhu, Li & Sha, 1986: 264, figs 1A–F (♂♀).

Tenuiphantes aduncus Tu *et al.* 2006: 405, figs 1–10 (transferred ♂♀ from *Lepthyphantes*); Zhu & Zhang 2011: 150, figs 100A–E (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined: 1♂1♀, **CHINA, Gansu Prov.:** Yuzhong, 35.82004°N, 104.326172°E, 16.VIII.1988.

Distribution. China (Gansu, Hubei and Qinghai Provinces, Fig. 318).

Tenuiphantes cauda Irfan, Zhang & Peng, sp. n. (尾状细蛛)

Figures 266–268, 318

Types. Holotype ♂, **CHINA, Anhui Prov.:** 31.377343°N, 117.047005°E, 28.X.1974.

Etymology. The specific epithet is derived from the Latin noun "*cauda*" meaning "tail" referring to the proximal cymbial apophysis tail-like in male palp.

Diagnosis. *Tenuiphantes cauda* **sp. n.** resembles *T. taipingensis* **sp. n.** in having the similar paracymbium (Figs 252A–D; Figs 255A–D), but can be distinguished by the proximal cymbial apophysis tail-like in *T. cauda* **sp. n.** (Fig. 252C), vs. with a small projection proximally with pointed end in *T. taipingensis* **sp. n.** (Fig. 255D); teeth absent at the base of embolus in *T. cauda* **sp. n.** (Fig. 252A), vs. with several teeth at the base embolus in *T. taipingensis* **sp. n.** (Fig. 255A).

Description. Male (Figs 254A, B): Total length: 2.19. Carapace 1.04 long, 0.81 wide, brown, fovea, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with four promarginal and three retromarginal teeth. Sternum shield-like, brownish black with microsetae. Eyes: AER recurved, PER straight, wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.08, PLE 0.07, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.06, PME–PLE 0.05, AME–PME 0.06, ALE–ALE 0.34, PLE–PLE 0.36, ALE–PLE contiguous. Length of legs: I 4.46 (1.17, 1.45, 1.07, 0.77), II 4.02 (1.11, 1.29, 0.97, 0.65), III 3.17 (0.89, 0.98, 0.79, 0.51), IV 4.2 (1.15, 1.35, 1.06, 0.64). Tibial spine formula: 2-2-2-2. TmI 0.62 and TmIV 0.61. Opisthosoma 1.15 long, 0.77 wide, oval, dusky grey to brown; ventral side brownish black.

Palp (Figs 252A–D, 253A, B): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, ventrally grooved, with a long dorsal spine. Tibia conical, unmodified, with two retrolateral and one dorsal trichobothria; cymbium unmodified, retrolateral margin with a shallow depression at the base, proximal cymbial apophysis (PCA) tail-like with blunt tip; paracymbium (PC) U-shaped, distal arm with rectangular projection with blunt tip protruding upward. Pit hook (PH) tip pointed. Radix (R) longer than wide, bean-shaped with Fickert's glang (fg); lamella characteristica (LC) with about three projections radiating and protruding upward; terminal apophysis (TA) grooved with small projection

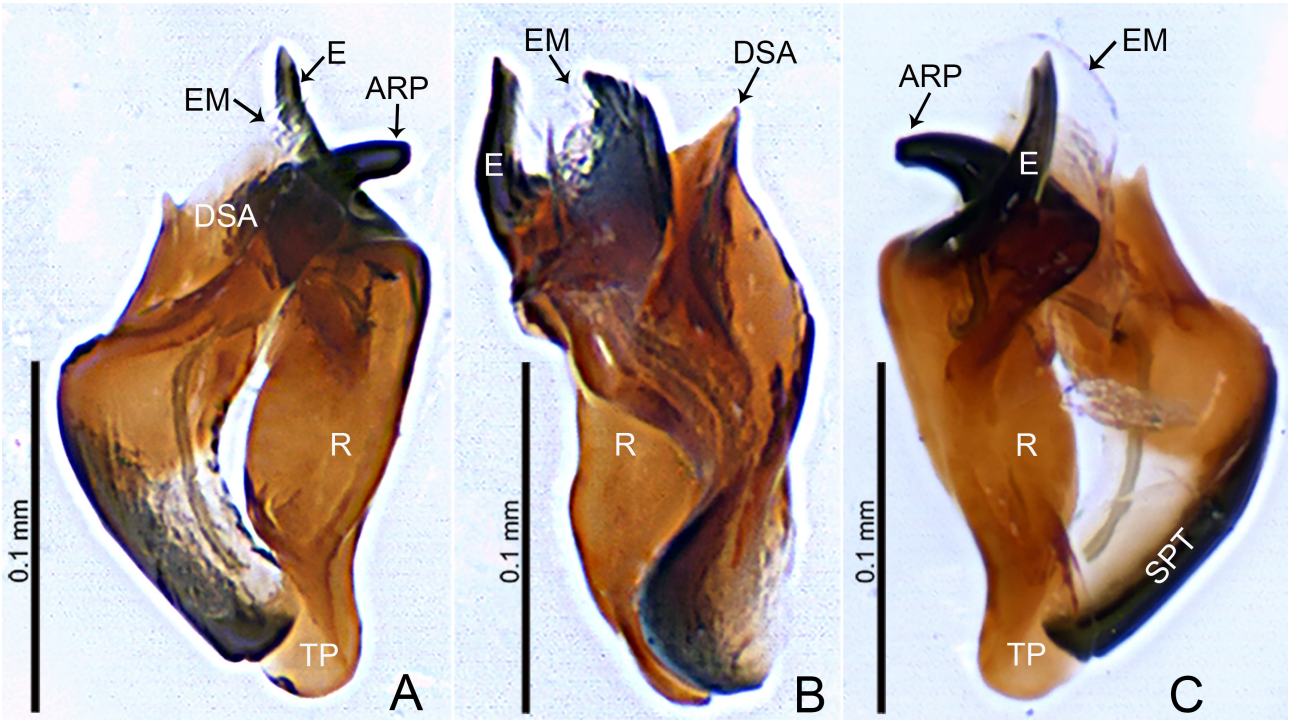


FIGURE 246. *Tapinocyba sulcata* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, dorsal view; **C** Embolic division, retrolateral view. Abbreviations: ARP—anterior radical process; DSA—distal suprategular apophysis; E—embolus; Em—embolic membrane; R—radix; SPT—suprategulum; TP—tailpiece.

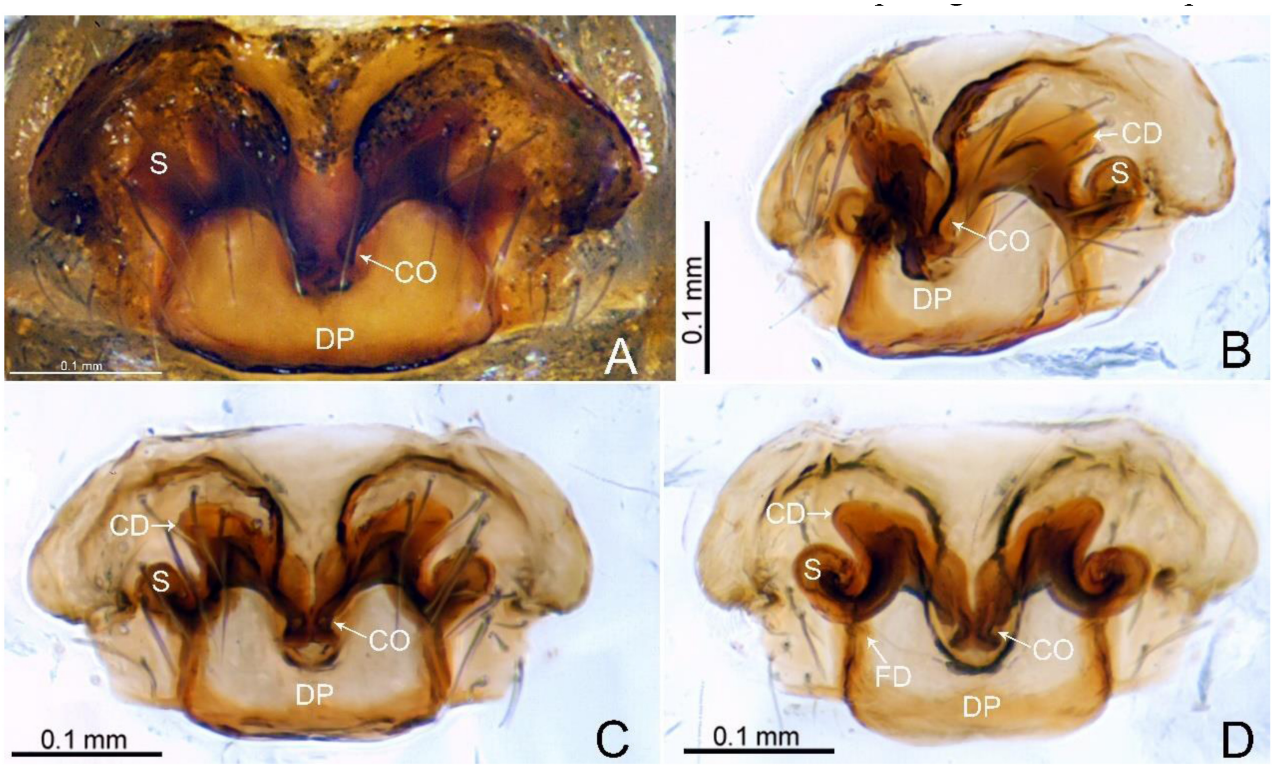


FIGURE 247. *Tapinocyba sulcata* **sp. n.**, female (one of paratypes). **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

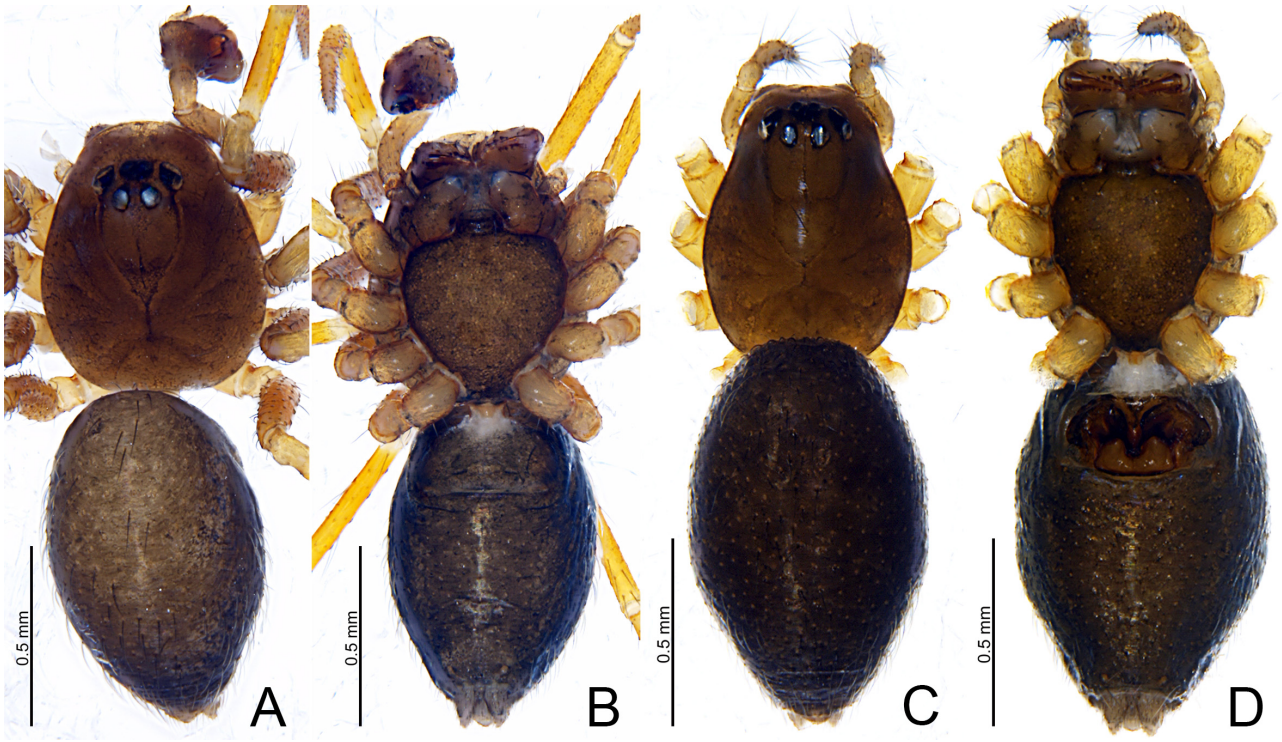


FIGURE 248. *Tapinocyba sulcata* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

extending forward with pointed end; embolus (E) longer than wide, thumb (TH) oval.

Female. Unknown.

Distribution. Known only from the type locality (Anhui Province, Fig. 318).

Tenuiphantes taipingensis Irfan, Zhang & Peng, sp. n. (太平细蛛)

Figures 255–257, 315

Types. Holotype ♂ (HNU–HN–IV–1776), **CHINA, Hunan Prov.:** Shaoyang City, Chengbu Co., Dajiang Town, Taiping Vill., 26.34007°N, 110.24947°E, 553 m, 09.XI.2017, G.C. Zhou leg. **Paratypes:** 1♀, with same data as for holotype male (HNU–HN–IV–1776).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Tenuiphantes taipingensis* **sp. n.** resembles *T. aduncus* (Figs 255A–D, 256A–D; Tu *et al.* 2006, figs 1–10), but can be distinguished by the proximal cymbial apophysis tail-shaped in *T. taipingensis* **sp. n.** (Figs 255A–D; vs. finger-shaped); distal arm of paracymbium with sclerotized rectangular projection in *T. taipingensis* **sp. n.** (Figs 255A–D; vs. with small tooth); lamella characteristica with about ten projections radiating from distal end in *T. taipingensis* **sp. n.** (Figs 255A–D; vs. with three projections); embolus longer than wide, proximal end with 3 tooth-like protrusions in *T. taipingensis* **sp. n.** (Figs 255A–D; vs. embolus distal narrow at middle, apical end broad covered with small dentils and with numerous strong tooth-like protrusions on basal part). Spermathecae U-shaped in *T. taipingensis* **sp. n.** (Figs 256C, D; vs. bean-shaped).

Description. Male (holotype, Figs 257A, B): Total length: 2.43. Carapace 1.06 long, 0.85 wide, yellowish brown, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with four promarginal and three retromarginal teeth. Sternum shield-like, brownish black with microsetae. Eyes: AER recurved, PER slightly recurved, wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.09, PME 0.08, PLE 0.08, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.05, PME–PLE 0.03, AME–PME 0.08, ALE–ALE 0.32, PLE–PLE 0.35, ALE–PLE contiguous. Length of legs: I 4.36 (1.21, 1.33, 1.08, 0.74), II 3.93 (1.11, 1.14, 1.01, 0.67), III 3.22 (0.87, 1, 0.81, 0.54), IV 4.24 (1.11, 1.37, 1.14, 0.62). Tibial spine formula: 2-2-2-2. TmI 0.65 and TmIV 0.63. Opisthosoma 1.37 long, 0.74 wide, oval, grey, with six black chevrons; ventral side black, densely covered with fine spines.

Palp (Figs 255A–D): Femur unmodified, almost longer than both patella and tibia. Patella as long as tibia, with a long dorsal spine. Tibia unmodified, with two retrolateral and one dorsal trichobothria; cymbium unmodified, retrolateral margin with a shallow depression at the base, proximal cymbial apophysis (PCA) tail-shaped with small outgrowth; paracymbium (PC) U-shaped, distal arm with rectangular projection with blunt tip protruding upward. Pit hook (PH) tip pointed and notched. Radix (R) longer than wide, bean-shaped with Fickert's glang (fg); lamella characteristica (LC) with about ten projections radiating and protruding upward; terminal apophysis (TA) longer than wide, apical end

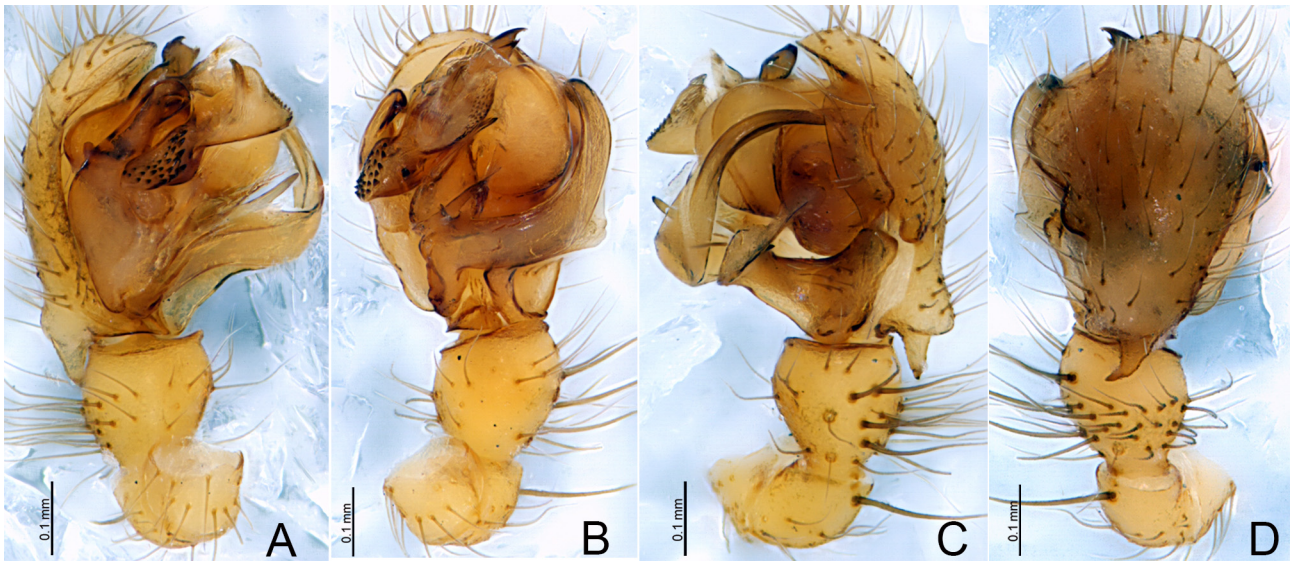


FIGURE 249. *Tenuiphantes aduncus* (Zhu, Li & Sha, 1986). **A** Palp, prolateral view; **B** Palp, ventral view; **C** Palp, retrolateral view; **D** Palp, dorsal view.

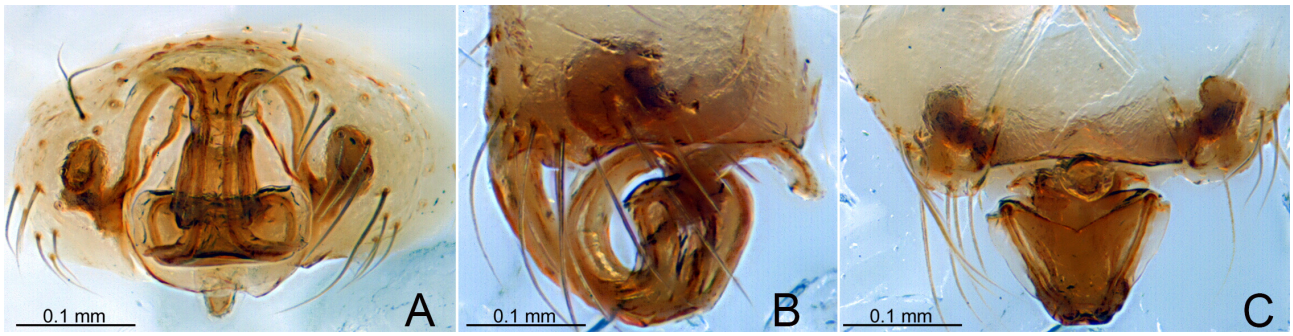


FIGURE 250. *Tenuiphantes aduncus* (Zhu, Li & Sha, 1986), female. **A** Epigyne, ventral view; **B** Epigyne, lateral view; **C** Epigyne, dorsal view.

with 3 long projections extending forward with pointed end; embolus (E) longer than wide, proximal end with 3 tooth-like protrusions; thumb (TH) globular.

Female (one of the paratypes, Figs 257C, D): Total length: 2.30. Carapace 0.91 long, 0.74 wide, brown, fovea, cervical and radial grooves distinct. Clypeus 0.19 high. Chelicerae with five promarginal and three retromarginal teeth. Sternum longer than wide, brownish black with microsetae. Eyes: AER recurved, PER slightly recurved, wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.07, PME 0.08, PLE 0.07, AME–AME 0.03, PME–PME 0.04, AME–ALE, 0.06, PME–PLE 0.04, AME–PME 0.05, ALE–ALE 0.32, PLE–PLE 0.34, ALE–PLE contiguous. Length of legs: I 3.88 (1.12, 1.18, 0.91, 0.67), II 3.34 (0.97, 1.03, 0.83, 0.51), III 2.91 (0.86, 0.87, 0.73, 0.45), IV 3.86 (1.05, 1.13, 0.89, 0.79). Tibial spine formula: 2-2-2-2. TmI 0.67 and TmIV 0.63. Opisthosoma 1.39 long, 0.71 wide, oval, grey, with six black chevrons, ventral side black, densely covered with fine setae.

Epigyne (Figs 256A–D): Protruding; proximal part of scape (PPS) longer than wide, almost parallel sided with distal portion dilated and rolling up; median part of scape (MPS) form long and narrow wing-like extension in ventral view; distal part of scape relatively less sclerotized and translucent with well-developed stretcher (ST); entrance groove inside lateral pockets; Lateral pockets (LP) ear lobe shaped expanding laterally; posterior median plate (PMP) broad, somewhat triangular; spermathecae (S) long U-shaped, curved, situates dorso-laterally.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Genus *Trematocephalus* Dahl, 1886 (头孔蛛属)

Type species. *Erigone perforata* Thorell, 1871; gender masculine.

Remark. *Trematocephalus* comprises four species (including one species known from males and one from females) distributed in Caucasus, China, Europe, Iran, Russia (Europe to Far East), Sri Lanka and Turkey (WSC 2024).

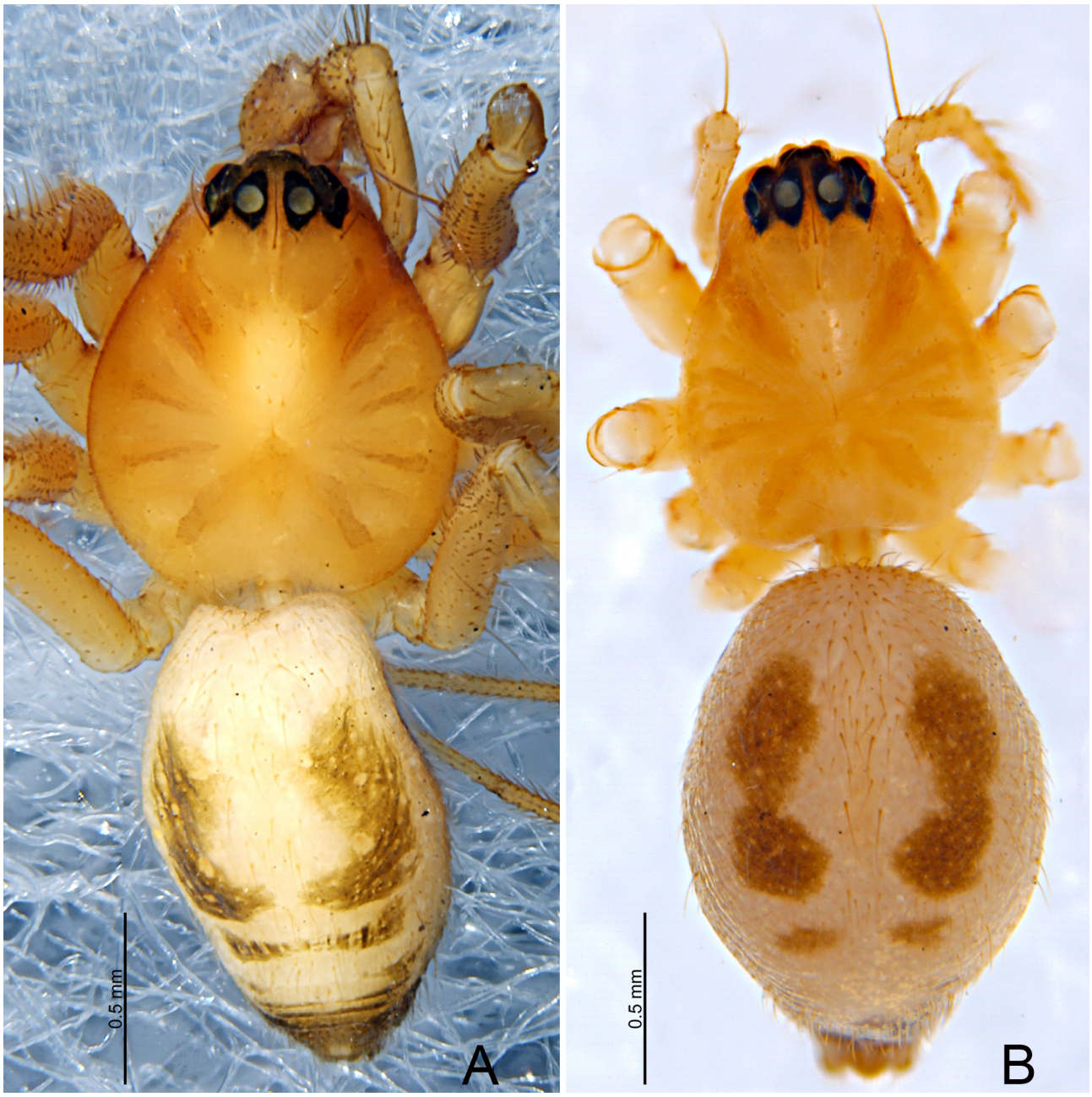


FIGURE 251. *Tenuiphantes aduncus* (Zhu, Li & Sha, 1986), male (A) and female (B). **A**, **B** Habitus, dorsal view.

***Trematocephalus cristatus* (Wider, 1834)**
(冠毛头孔蛛)
Figures 258–261, 310

Theridion cristatum Wider, 1834: 224, pl. 15, fig. 9 (♂♀).
Trematocephalus cristatus Chyzer & Kulczyński 1894: 95, pl. 4, fig. 5 (♂♀); Lecigne 2018: 71, fig. 9B (♂). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 2♂2♀, **CHINA, Guizhou Prov.:** Tongren City, Wenbi Feng, 27.719467°N, 109.16795°E, 476 m, 26.VII.2014, C. Wang *et al.* leg.

Description. Male (Figs 261A–C). Total 1.84 long; carapace 0.89 long, 0.69 wide, orange. Cephalic region with cephalic lobe extending forward, almost covering the PMEs. Carapace yellow; cephalic region slightly elevated; fovea, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with four promarginal and four retromarginal teeth. Legs long, yellow, covered with fine setae. Sternum longer than wide, brownish grey with microsetae. Eye sizes and interdistances: AME 0.05, ALE 0.06, PME 0.05, PLE 0.06, AME–AME 0.03, PME–PME 0.09, AME–ALE, 0.02, PME–PLE 0.03, ALE–ALE 0.21, PLE–PLE 0.24, ALE–PLE contiguous, AME–PME 0.08. Length of legs: I 2.58 (0.76, 0.85, 0.58, 0.39), II 2.46 (0.74, 0.81, 0.54, 0.37), III 2.05 (0.63, 0.60, 0.50, 0.32), IV 2.70 (0.77, 0.86, 0.66, 0.41). Tibial spine formula: 2-2-1-1. TmI 0.62 and TmIV absent. Opisthosoma 1.07 long, 0.69 wide, oval, blackish brown, densely covered with fine setae, ventral side brown.

Palp (Figs 258A–D, 259A–D): Femur unmodified,

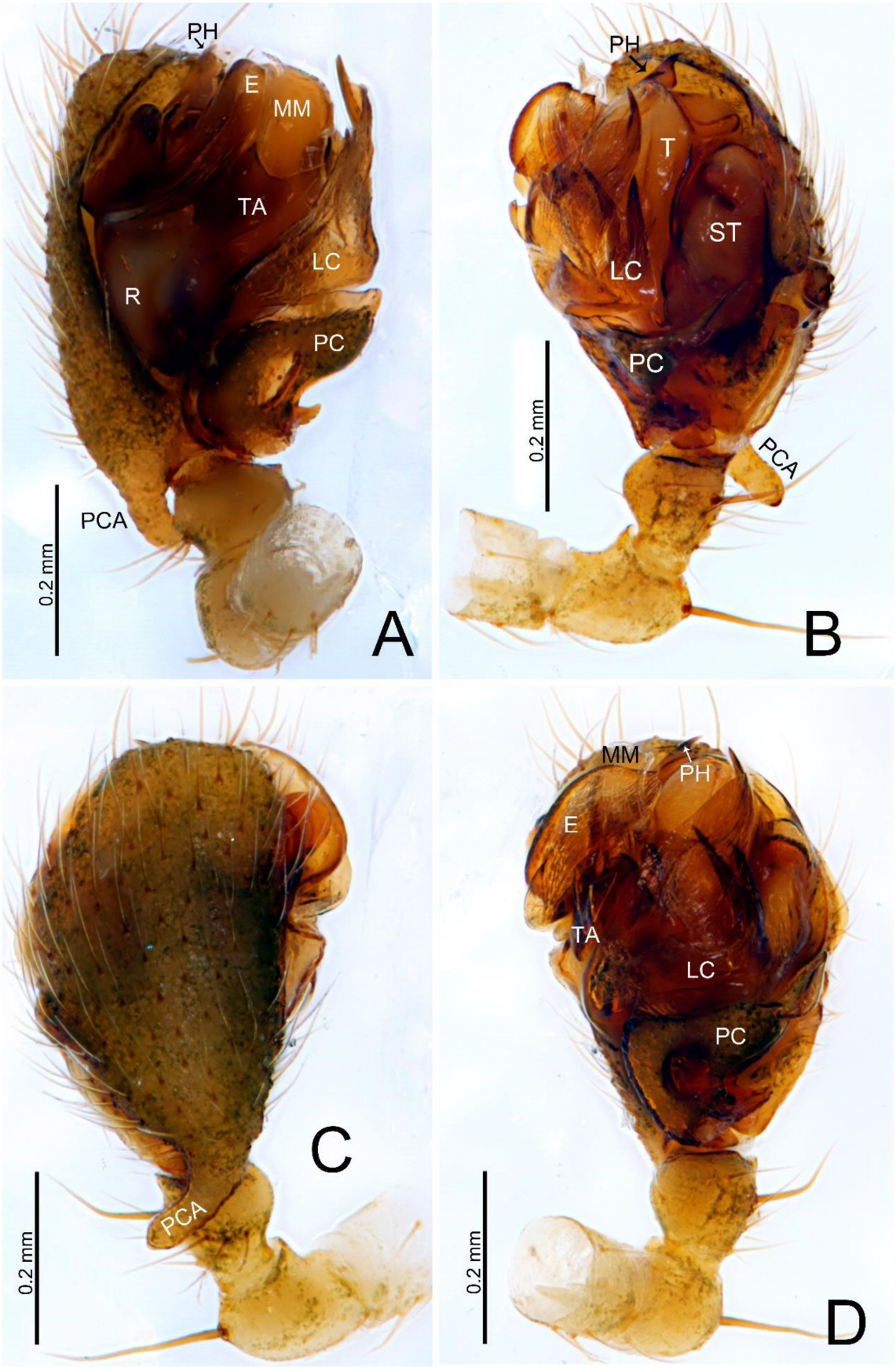


FIGURE 252. *Tenuiphantes cauda* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: E—embolus; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PCA—proximal cymbial apophysis; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis; TH—thumb.

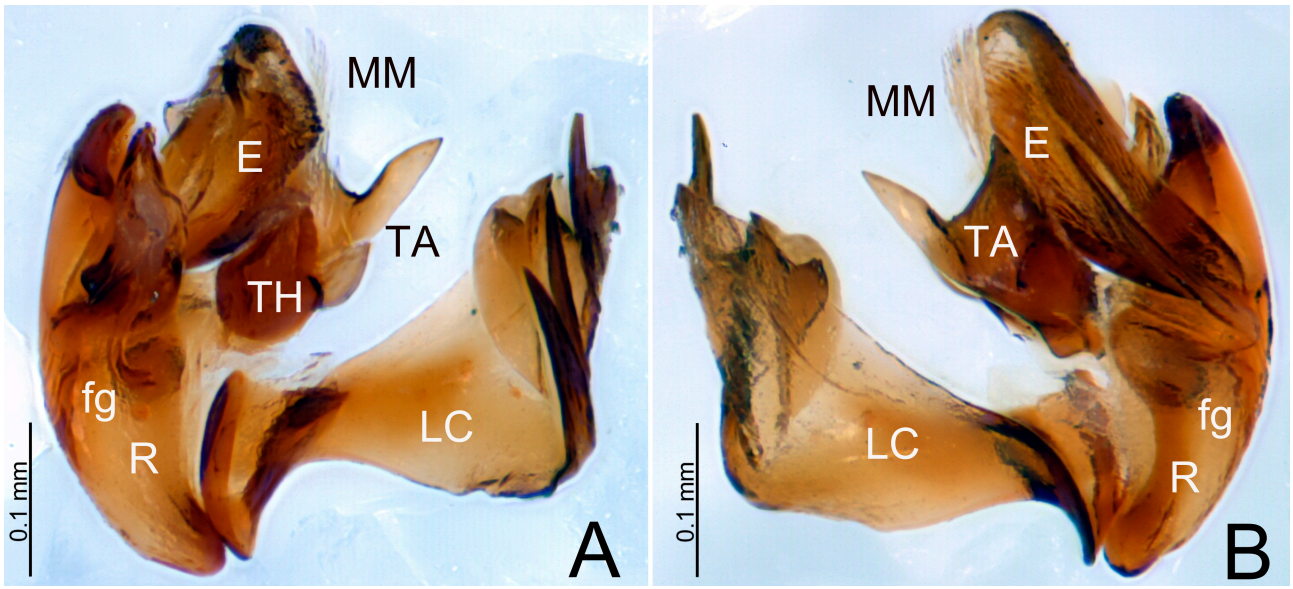


FIGURE 253. *Tenuiphantes cauda* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, retrolateral view. Abbreviations: E—embolus; fg—Fickert's gland; LC—lamella characteristica; MM—median membrane; R—radix; TH—thumb.

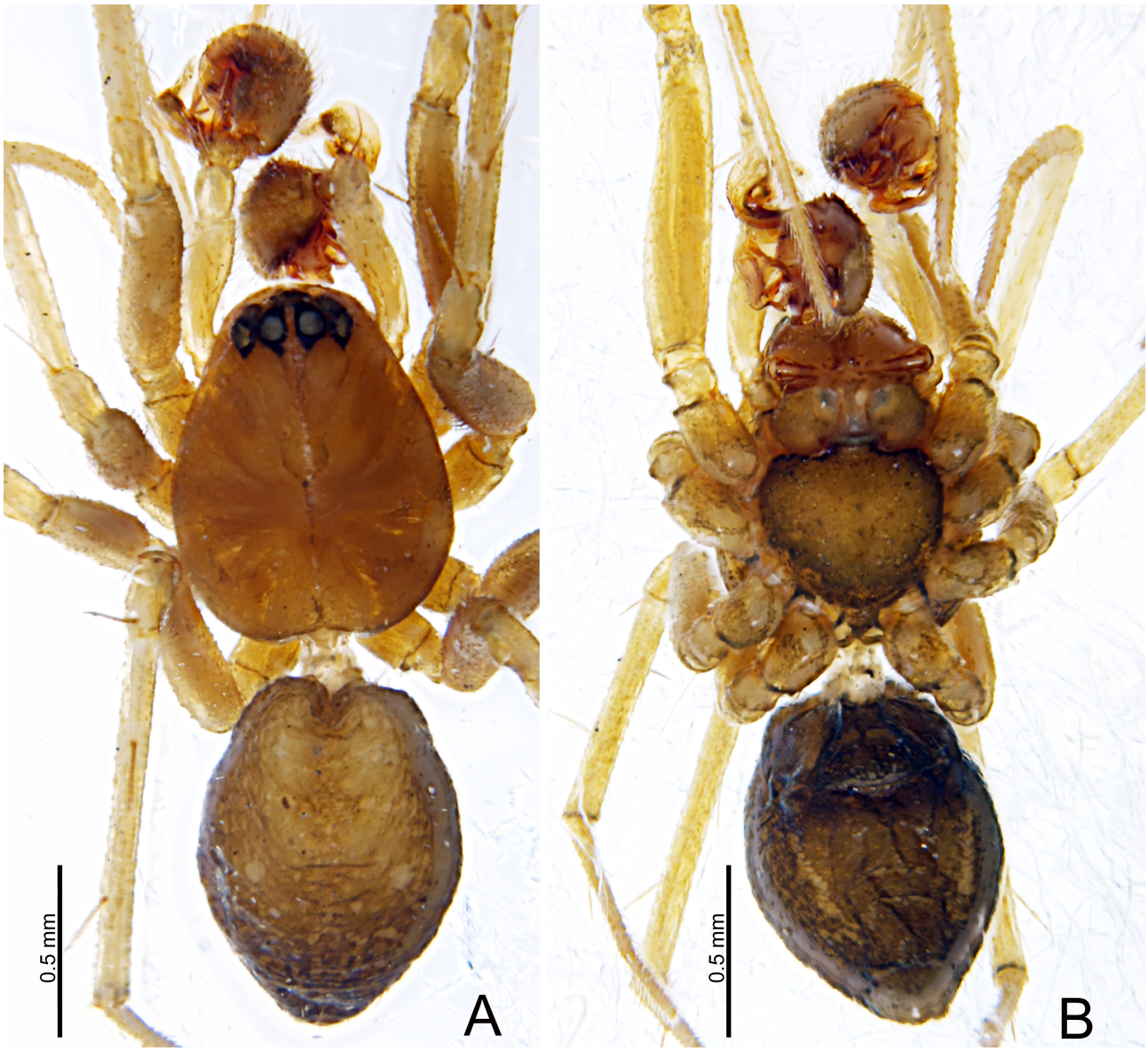


FIGURE 254. *Tenuiphantes cauda* **sp. n.**, male holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

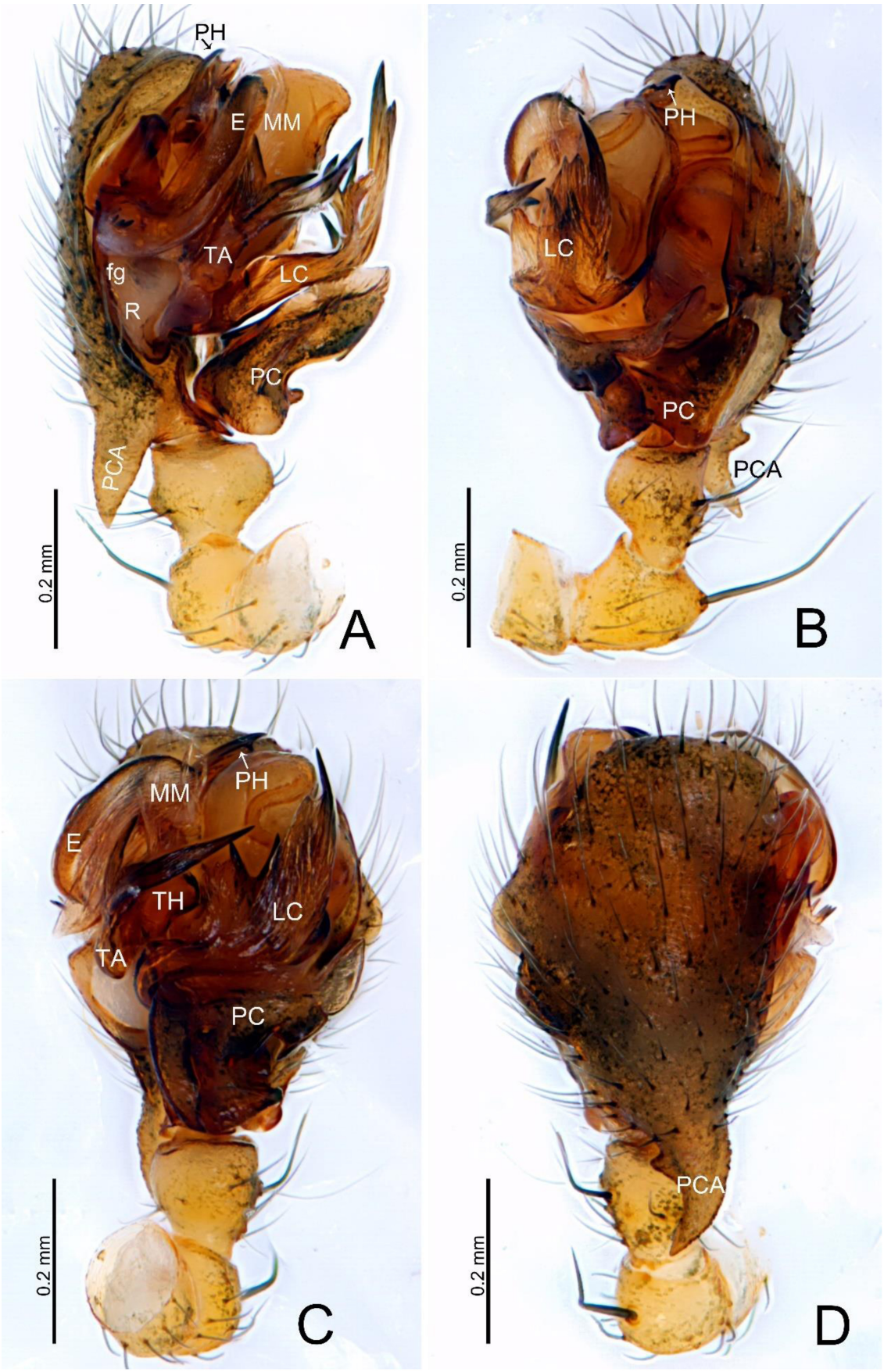


FIGURE 255. *Tenuiphantes taipingensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: E—embolus; LC—lamella characteristica; MM—median membrane; PC—paracymbium; PCA—proximal cymbial apophysis; PH—pit hook; R—radix; ST—subtegulum; T—tegulum; TA—terminal apophysis.

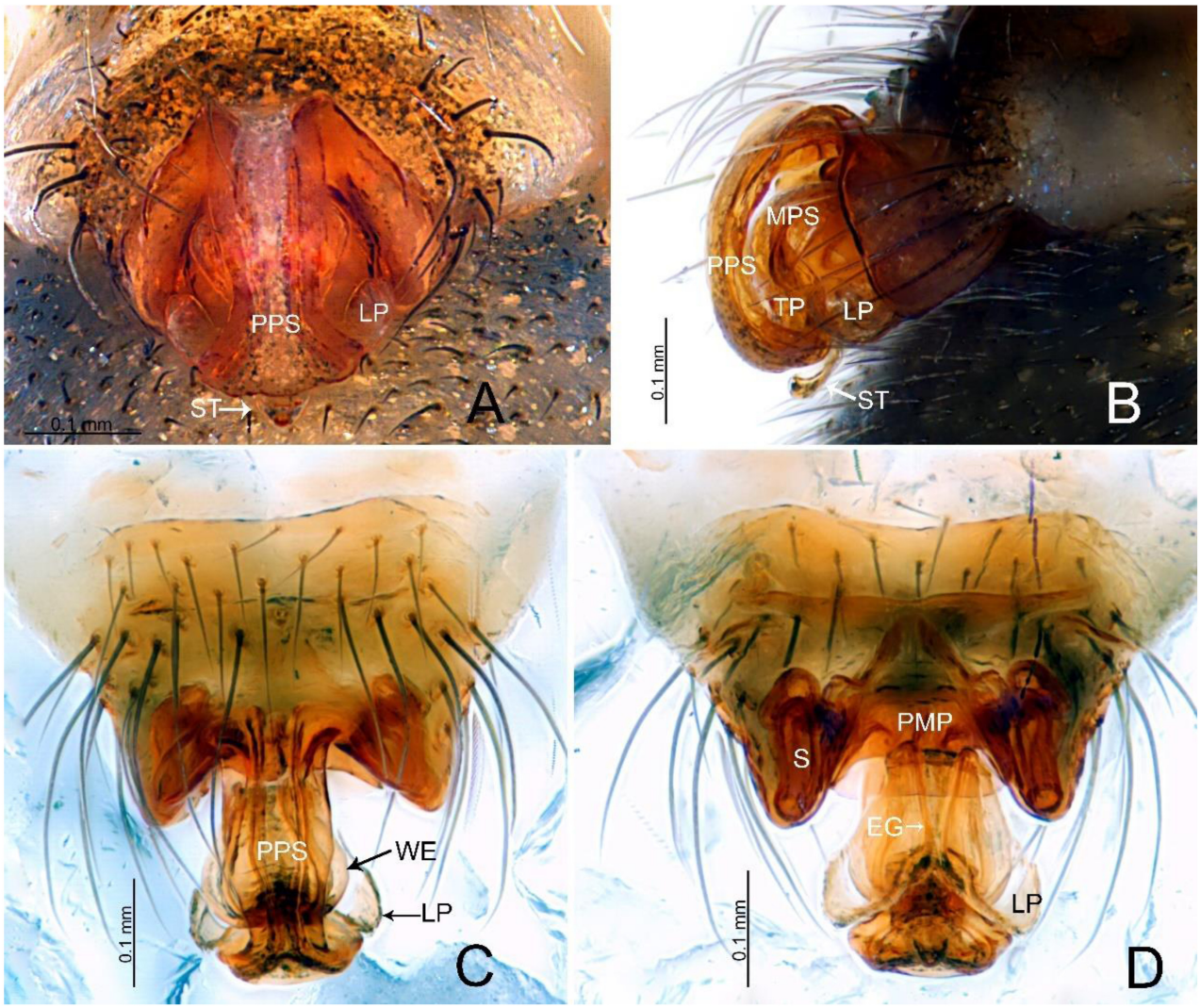


FIGURE 256. *Tenuiphantes taipingensis* **sp. n.**, female paratype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: EG—entrance groove; LP—lateral pocket; MPS—median part of scape; PMP—posterior median plate; PPS—proximal part of scape; S—spermatheca; ST—stretcher; WE—wing-like extension of median part of scape.

almost as long as patella, tibia and cymbium. Patella as long as tibia, ventrally grooved. Tibia conical, distal end broad, with two retrolateral and one dorsal trichobothria, dorsal tibial apophysis (DSA) unmodified; cymbium unmodified; proximal part of paracymbium (PC) with thick setae, distal arm wing-shaped, retrolateral margin of distal arm with well-developed broad projection, almost touches the tailpiece of embolic division; protegulum (PT) long, bifurcated at the base, extending above the cymbium; distal suprategular apophysis (DSA) broad, unmodified, most of it covered by the embolic division. Embolic division relatively simple, with radix (R) giving rise tailpiece (TP) and embolus, embolic membrane (EM) attached to embolus; embolus (E) long, filiform.

Female (Figs 261D, E): Total 2.02 long; carapace 0.91 long, 0.67 wide; opisthosoma 1.17 long, 0.77 wide. Eye sizes and interdistances: AME 0.04, ALE 0.03, PME 0.06, PLE 0.03, AME–AME 0.04, PME–PME 0.06, AME–ALE, 0.03, PME–PLE 0.03, ALE–ALE 0.23, PLE–PLE 0.27, ALE–PLE 0.01, AME–PME 0.04. Clypeus 0.17 high. Chelicerae with 5 promarginal and 5 retromarginal teeth. Legs long, yellow, covered with fine setae. Length of legs: I 2.65 (0.79, 0.87, 0.58, 0.41), II 2.62 (0.76, 0.86, 0.61, 0.39), III 2.37 (0.66, 0.71, 0.57, 0.37), IV 2.90 (0.85, 0.91, 0.75, 0.39). Tibial spine formula: 2-2-1-1. TmI 0.63 and TmIV absent. All other characters same as in male, except black in color.

Epigyne (Figs 260A–C): Ventral plate (VP) wider than long, posteriorly attached with dorsal plate (DP). Copulatory opening (CO) present at the junction of dorsal and ventral plates posteriorly; copulatory ducts (CD) form three coils mid dorsally before entering the spermathecae; spermathecae (S) elongated extending anteriorly; fertilization ducts (FD) extending mesally.

Distribution. Europe, Turkey, Caucasus, Russia (Europe to Far East), Iran, China (Guizhou and Hubei Provinces, Fig. 310).

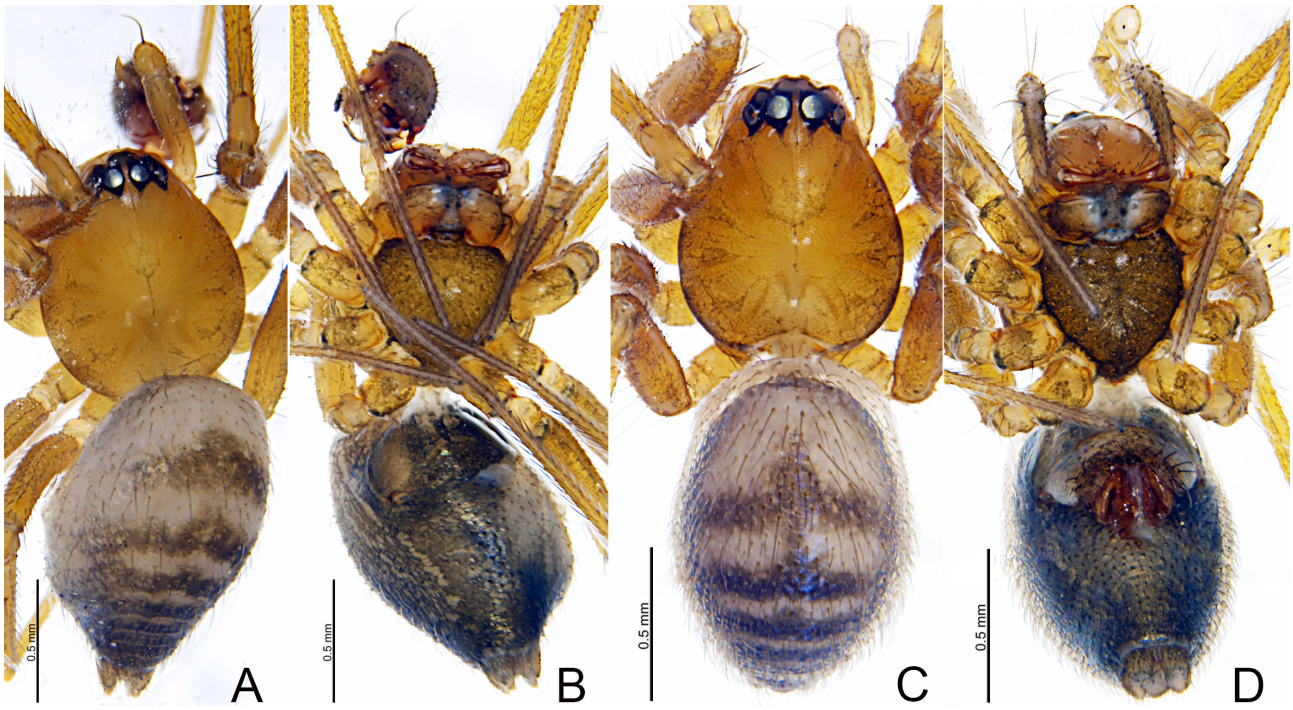


FIGURE 257. *Tenuiphantes taipingensis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

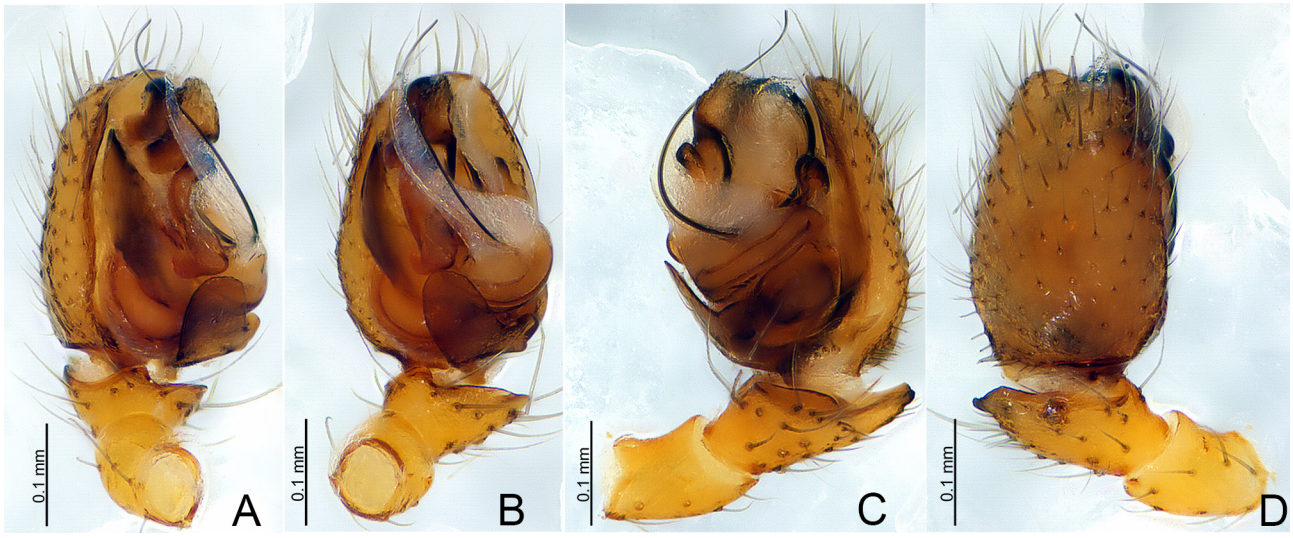


FIGURE 258. *Trematocephalus cristatus* (Wider, 1834). **A** Palp, prolateral view; **B** Palp, ventral view; **C** Palp, retrolateral view; **D** Palp, dorsal view.

Genus *Ummeliata* Strand, 1942 (沟瘤蛛属)

Type species. *Hummelia incisa* Schenkel, 1936; gender feminine.

Remark. *Ummeliata* Strand, 1942 comprises ten species (including one species known from males and one from females) distributed in China, India, Indonesia (Sumatra), Japan, Korea, Laos, Russia (Europe to Far East), Sri Lanka, Turkey and Vietnam (WSC 2024).

Ummeliata feminea (Bösenberg & Strand, 1906) (阴沟瘤蛛)

Figures 262–264, 307, 314, 315

Oedothorax femineus Bösenberg & Strand, 1906: 163, pl. 12, fig. 255 (♀).

Ummeliata feminea Saito 1993: 105 (transferred ♀ from *Oedothorax*, Sm); Irfan *et al.* 2022: 275, figs 214A–D, 315A–C, 316A–E (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 3♂11♀, **CHINA, Chongqing:** Nanchuan Co., Dayou Town, 28.99736°N, 107.33591°E,

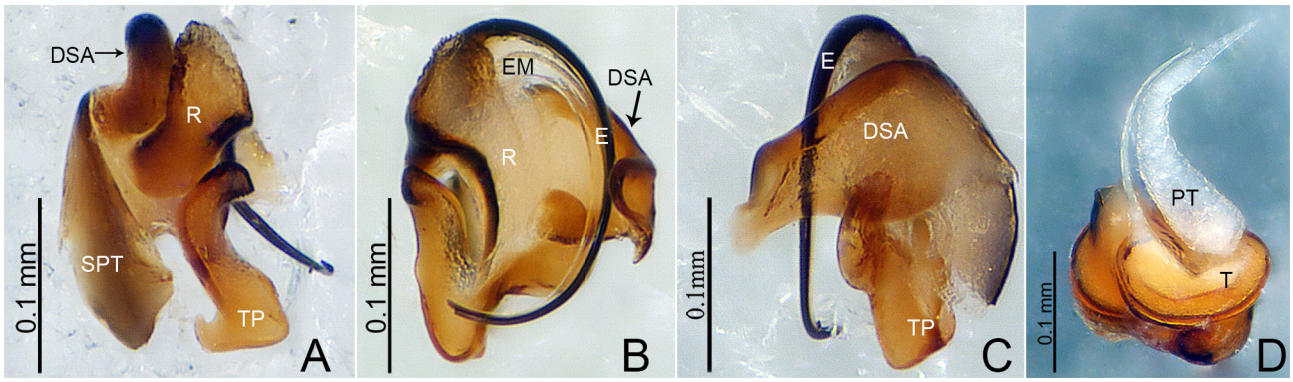


FIGURE 259. *Trematocephalus cristatus* (Wider, 1834), male palp. **A** Embolic division, prolateral view; **B** Embolic division, ventral view; **C** Distal suprategular apophysis, retrolateral view; **D** Protegulum, ventral view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; PC—paracymbium; PT—protegulum; R—radix; SPT—suprategulum; T—tegulum; TP—tailpiece of radix.

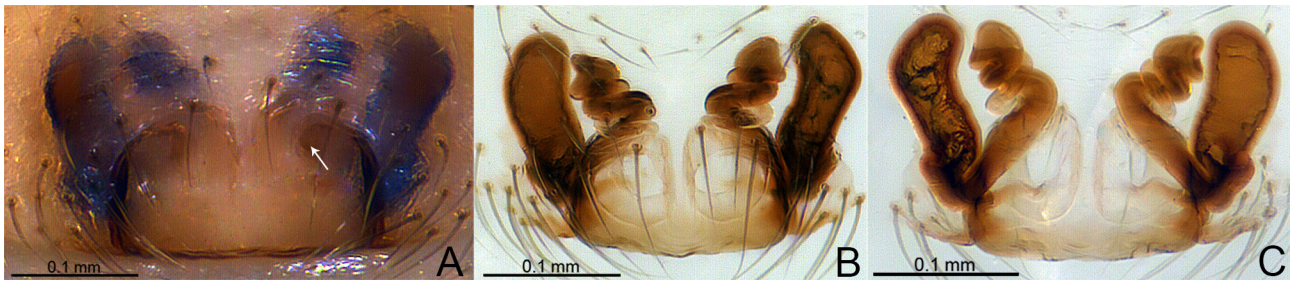


FIGURE 260. *Trematocephalus cristatus* (Wider, 1834), female epigyne. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

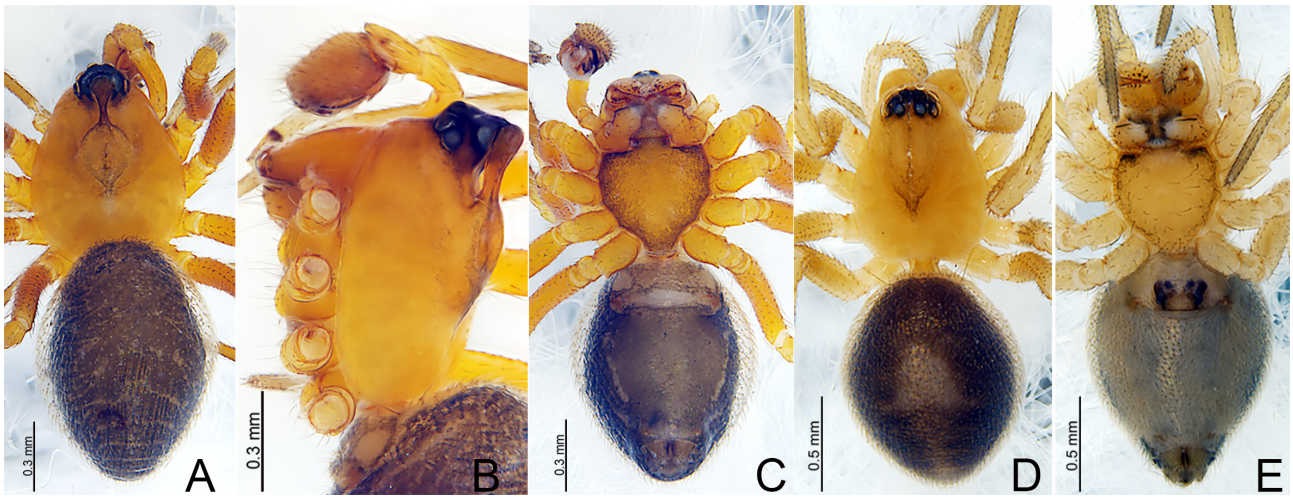


FIGURE 261. *Trematocephalus cristatus* (Wider, 1834), male (A–C), female (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

1021 m, 13.VIII.2015, X.J. Peng *et al.* leg.; **Hubei Prov.:** 1♀, Enshi Co., Xuaneng, Changtanghe Town, Dawolong Vill., 30.08361°N, 109.73212°E, 732 m, 15.V.2017, G.C. Zhou *et al.* leg.; 1♀, Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg.; 6♂9♀, Badong Co., Yanduhe Town, Songziyuan Vill., 31.33400°N, 110.42625°E, 1340 m, 28.IV.2016, W. Liu *et al.* leg.; 1♂, Yanhe Co., Mayang River NNR (Daheba Township), 28.65490°N, 108.76737°E, 502 m, 29.VII.2014, X.J. Peng *et al.* leg.; **Hunan Prov.:** 1♂1♀, Ningxiang Co., Huaminglou Town, Tanzi Vill., 28.032005°N, 112.640872°E, 72 m, 09.V.2017, G.C. Zhou *et al.* leg.; 2♀, Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.10271°N, 112.65350°E, 172 m, 10.V.2017, G.C. Zhou *et al.* leg.; 1♀, Zhangjiajie City, Wulingyuan district, Suoxiyu town, Lijia Vill., 29.33220°N, 110.57562°E, 346 m, 11.V.2017, G.C. Zhou *et al.* leg.

Distribution. Russia (Far East), China (Beijing, Chongqing, Fujian, Gansu, Guizhou, Hebei, Henan, Hubei, Hunan, Jilin, Qinghai, Shaanxi, Shandong, Shanxi and Yunnan Provinces, Figs 307, 314, 315), Korea, Japan.

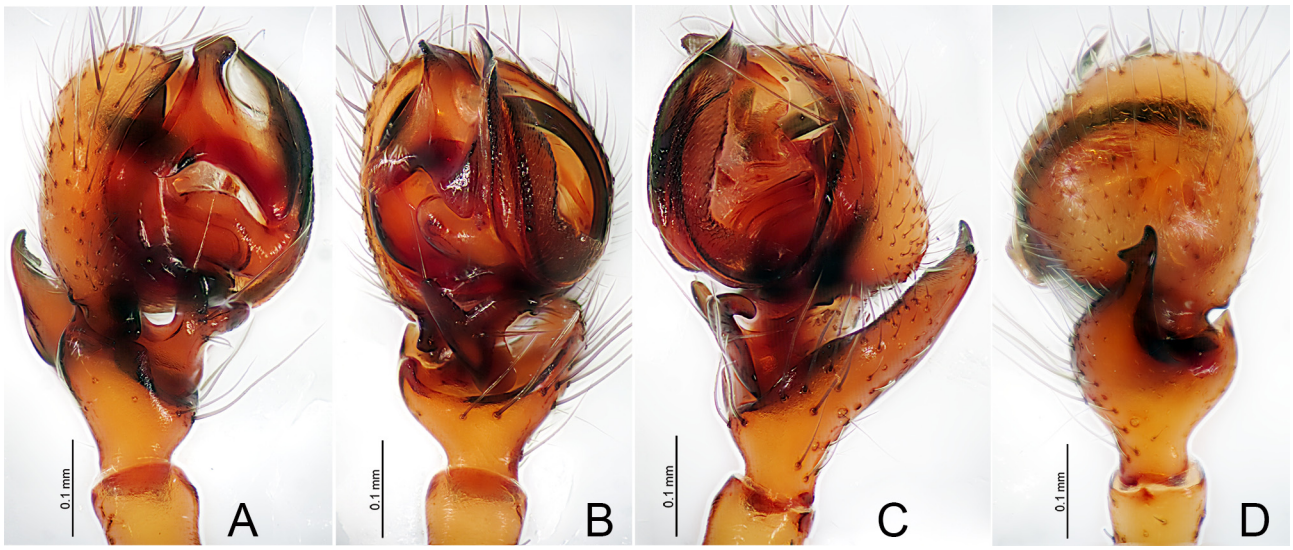


FIGURE 262. *Ummeliata feminea* (Bösenberg & Strand, 1906). **A** Palp, prolateral view; **B** Palp, ventral view; **C** Palp, retrolateral view; **D** Palp, dorsal view.

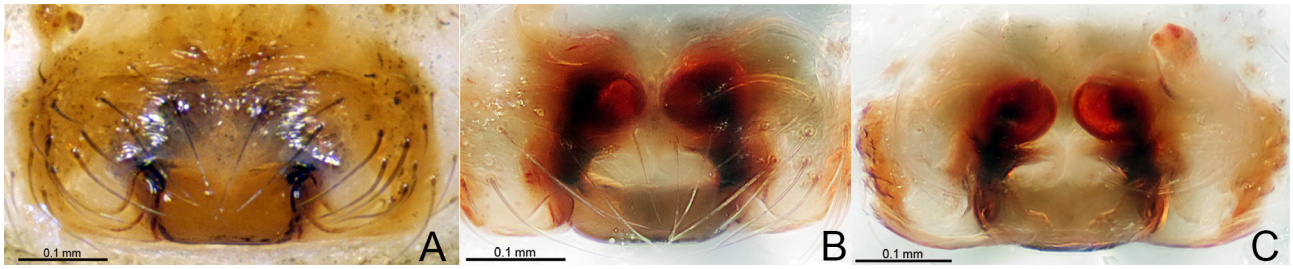


FIGURE 263. *Ummeliata feminea* (Bösenberg & Strand, 1906), female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

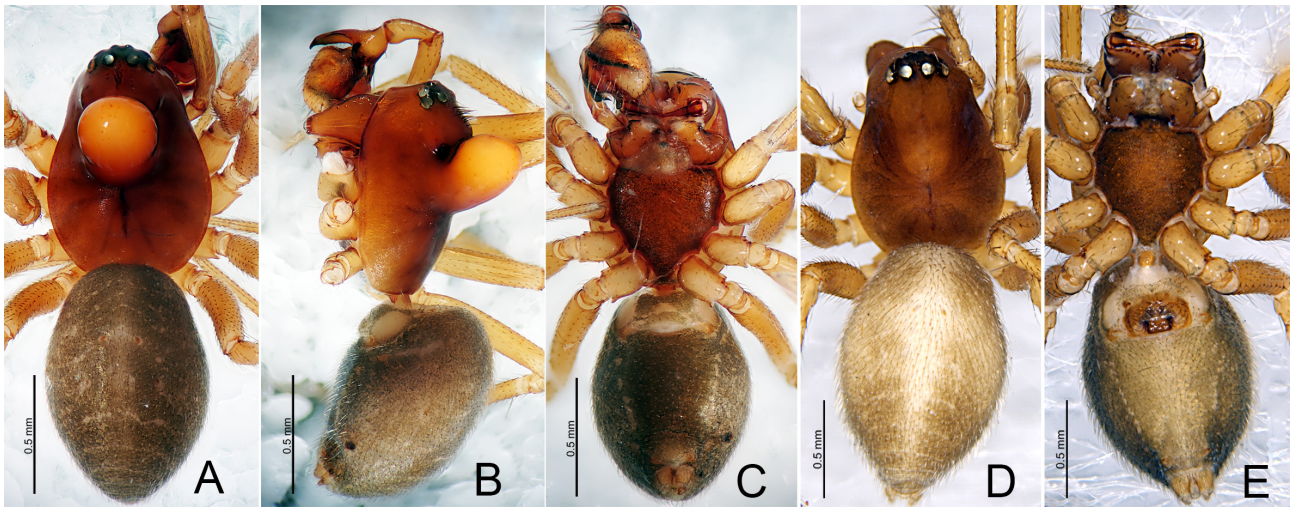


FIGURE 264. *Ummeliata feminea* (Bösenberg & Strand, 1906), male (A–C) and female (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

Ummeliata insecticeps (Bösenberg & Strand, 1906) (食虫沟瘤蛛)

Figures 265–267, 307, 309, 314, 315

Trematocephalus acanthochirus Simon, 1909: 99, figs 3–4 (♂).
Ummeliata insecticeps Chikuni 1989b: 57, fig. 53 (♂♀); Irfan *et al.* 2022: 275, figs 317A–D, 318A–C, 319A–D (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♀, **CHINA, Chongqing:** Nanchuan Co., Sanquan Town, 29.05947°N, 107.20563°E, 978 m, 11.VIII.2015, X.J. Peng *et al.* leg.; **Hubei Prov.:** 4♂4♀, Enshi Co., Xingdou MNNR, 30.03748°N, 109.14548°E,

1078 m, 19.V.2017, G.C. Zhou *et al.* leg.; 1♂, Shimen Co., Huping Mountain, Jinban Mountain Vill., 30.00013°N, 110.05099°E, 440 m, 14.VI.2014, C. Wang *et al.* leg.; **Hunan Prov.:** 1♀, Hengyang City, Nanyue District, Hengshan NNR, Guanjing Villa, 27.290263°N, 112.70072°E, 1186 m, 19.I.2018, G.C. Zhou *et al.* leg.; 1♀1♂, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.1002°N, 112.5277°E, 187 m, 24.X.2017, G.C. Zhou leg.; 1♀, Ningxiang Co., Huaminglou Town, Jinyuan Vill., 28.10046°N, 112.66057°E, 209 m, 12.XI.2017, G.C. Zhou leg.; 1♀, Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Wenfeng Vill., 29.331437°N, 110.599815°E, 457 m, 22.IV.2016, W. Liu *et al.* leg.; **Guangdong Prov.:** 4♂16♀, Zhongshan, 24.526021°N, 111.303121°E, 14.IX.1979.

Distribution. Russia (South Siberia, Far East), Korea, Japan, China (Anhui, Chongqing, Fujian, Guangxi, Henan, Hubei, Hunan, Jiangxi, Jilin, Shaanxi, Taiwan, Yunnan and Zhejiang Provinces, Figs 307, 309, 314, 315), India, Laos, Vietnam.

Genus *Walckenaeria* Blackwall, 1833 (瓦蛛属)

Type species. *Walckenaeria acuminata* Blackwall, 1833; gender feminine.

Remark. *Walckenaeria* comprises 198 species (including 31 species known from females and 27 from males) distributed worldwide (WSC 2024).

Walckenaeria asymmetrica Song & Li, 2011 (不对称瓦蛛)

Figures 268–270, 310

Walckenaeria asymmetrica Song & Li, 2011: 176, figs 1A–G, 2A–G (♂♀).

Material examined. 1♂1♀, **CHINA, Guizhou Prov.:** Taiping Town, Machahe River, Fanjingshan NNR, 27.88313°N, 108.78521°E, 597 m, 01.VIII.2014, X.J. Peng *et al.* leg.; 1♂, Maoxi, Wuluo Town, Fanjingshan NNR, 28.02256°N, 108.77995°E, 1277 m, 31.VII.2014, X.J. Peng *et al.* leg.

Distribution. China (Chongqing, Guizhou and Henan Provinces, Fig. 310).

Walckenaeria enshiensis Irfan, Zhang & Peng, sp. n. (恩施瓦蛛)

Figures 271–273, 314

Types. Holotype ♂ (HNU–HB2016–04–30), **CHINA, Hubei Prov.:** Xuanen Co., Shadaogou Town, Qizimei Mountain, 29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu *et al.* leg. **Paratypes:** 3♂10♀, with same data as for holotype (HNU–HB2016–04–30); 1♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1710); 1♀, Enshi Co., Xingdou MNNR, 30.04611°N, 109.13038°E, 1205 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1712); 4♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 29.99510°N, 109.74007°E, 1041 m, 14.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1702); 1♀, Enshi Co., Xingdou MNNR, 30.03748°N, 109.14548°E, 1078 m, 19.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1714).

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Walckenaeria enshiensis* **sp. n.** can be distinguished from all other congeners by the dorsal tibial apophysis a large tooth ventrally and tip with several small teeth in retrolateral view; retrolateral tibial apophysis rectangular with lateral margin knobbed; distal suprategular apophysis tip somewhat triangular with blunt end (Figs 271A–D). Femal can be distinguished by the copulatory openings present vetro-mesally at the junction of the ventral and dorsal plates of the epigyne; the dorsal plate completely visible in ventral view; spermathecae oval, present at the apex of dorsal plate anteriorly; copulatory ducts almost parallel to each other posteriorly (Figs 272A–D).

Description. Male (holotype, Figs 273A, B): Total length: 1.68. Carapace 0.78 long, 0.67 wide, brown, cephalic region elevated and cephalic pits present, fovea, cervical and radial grooves distinct. Clypeus 0.25 high. Chelicerae with three promarginal and four retromarginal teeth. Sternum longer than wide, brownish grey with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.04, PME 0.04, PLE 0.05, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.05, PME–PLE 0.05, AME–PME 0.07, ALE–ALE 0.27, PLE–PLE 0.29, ALE–PLE contiguous. Length of legs: I 2.59 (0.77, 0.97, 0.63, 0.32), II 2.48 (0.73, 0.87, 0.59, 0.29), III 1.85 (0.52, 0.63, 0.45, 0.25), IV 2.43 (0.71, 0.79, 0.61, 0.32). Tibial spine formula: 2-2-1-1. TmI and TmIV present. Opisthosoma 1.13 long, 0.73 wide, oval, grey.

Palp (Figs 271A–D): Femur unmodified, slightly shorter than both patella and tibia. Patella one-third the length of tibia. Tibia with two retrolateral and one dorsal trichobothria; ventral tibial apophysis (VTA) almost round with blunt end; retrolateral tibial apophysis (RTA) rectangular, lateral margin knobbed and dorsal tibial apophysis (DTA) longer than wide, ventrally with a sclerotized tooth, slightly curved in dorsal view, tip with several teeth; cymbium unmodified, distal end broad; paracymbium (PC) J-shaped, distal arm tip hook-shaped. Tegulum (T) with distinct protegulum (PT); distal suprategular apophysis (DSA) somewhat tomb-shaped with blunt end. Tailpiece (TP) of embolic division sclerotized, strongly curved with blunt tip pointing towards the lateral margin of the cymbium; embolic membrane (EM) running parallel with embolus; embolus (E) sclerotized, forming a complete transverse circle.

Female (one of paratype, Figs 273C, D): Total length: 1.72. Carapace 0.72 long, 0.52 wide, brown, fovea, cervical and radial grooves distinct. Clypeus 0.12 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, brownish grey with

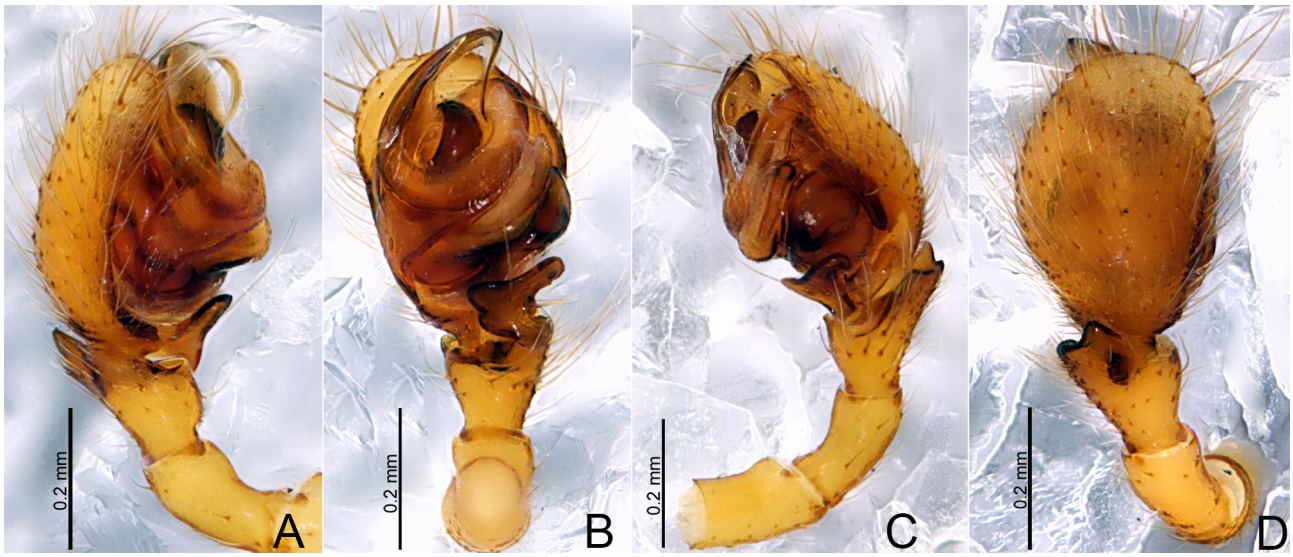


FIGURE 265. *Ummeliata insecticeps* (Bösenberg & Strand, 1906). **A** Palp, prolateral view; **B** Palp, ventral view; **C** Palp, retrolateral view; **D** Palp, dorsal view.

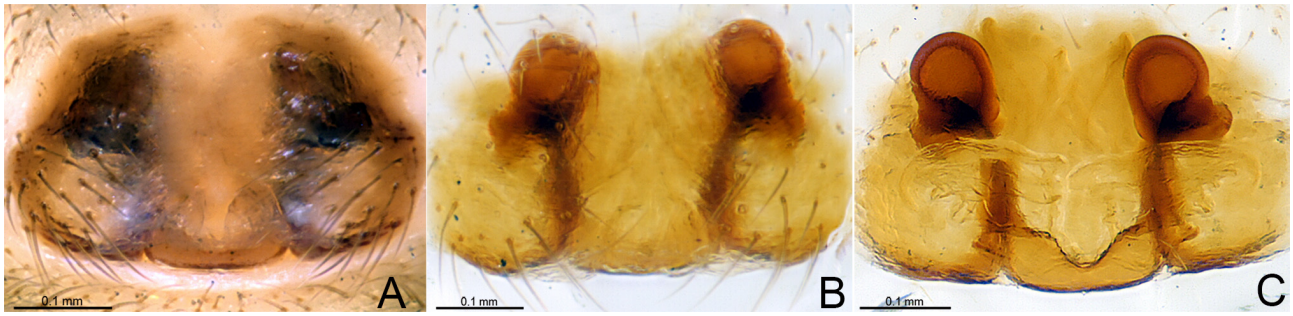


FIGURE 266. *Ummeliata insecticeps* (Bösenberg & Strand, 1906), female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

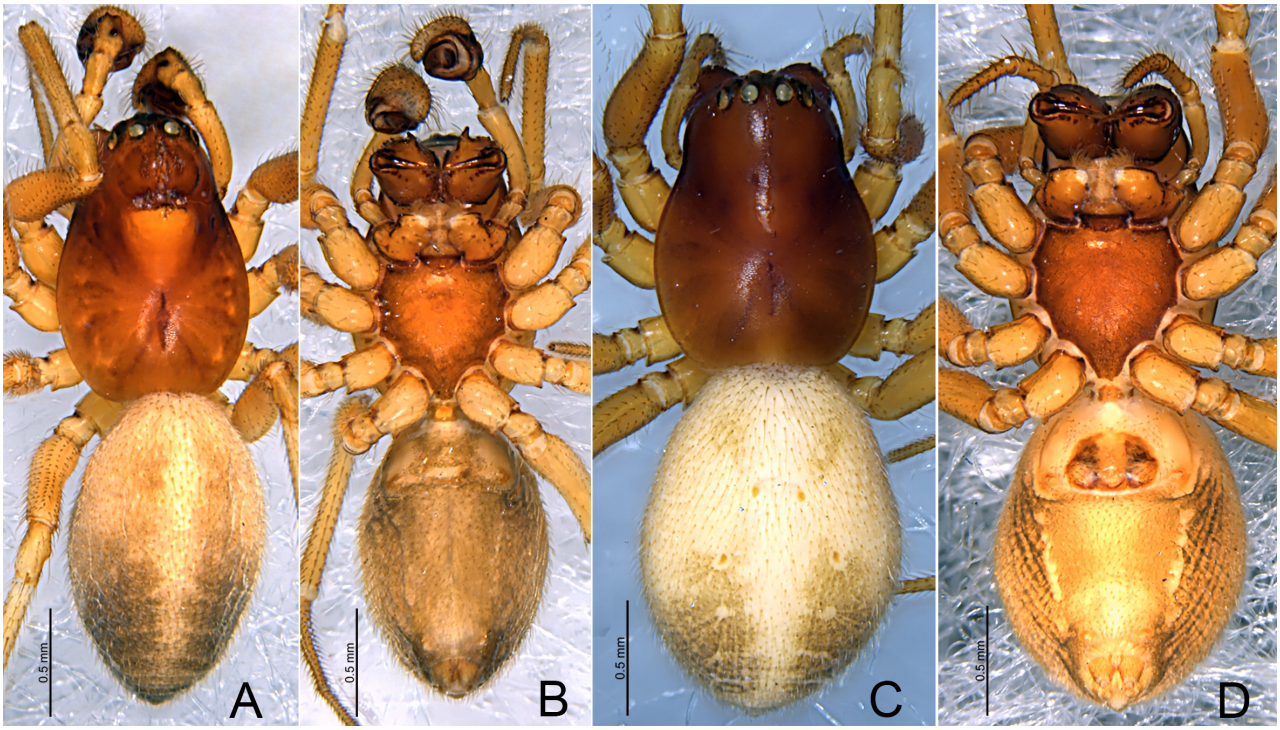


FIGURE 267. *Ummeliata insecticeps* (Bösenberg & Strand, 1906), male (A, B) and female (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

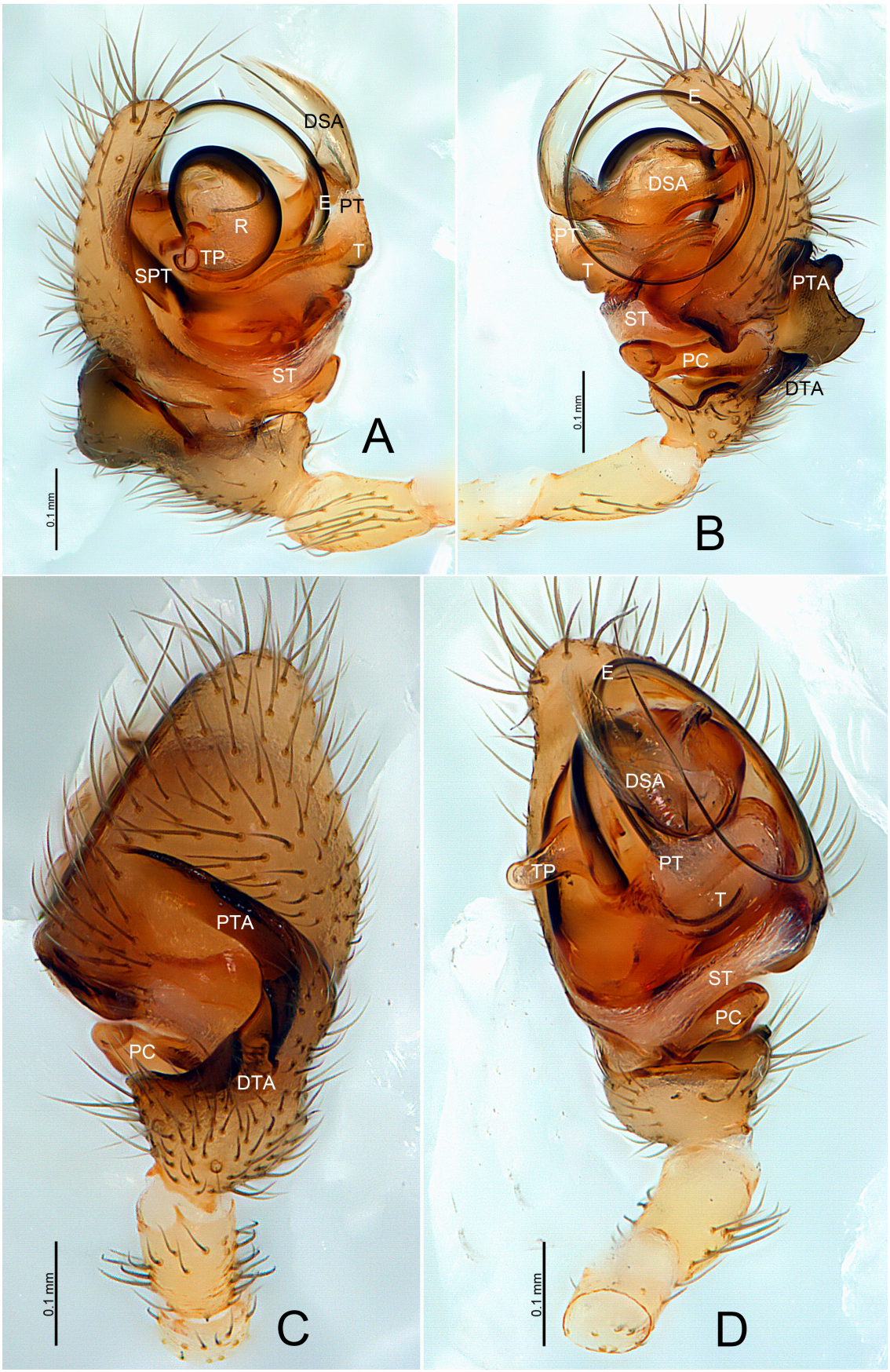


FIGURE 268. *Walckenaeria asymmetrica* Song & Li, 2011. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; PC—paracymbium; PT—protegulum; PTA—prolateral tibial apophysis; R—radix; ST—subtegulum; SPT—suprategulum; T—tegulum; TP—tailpiece of radix.

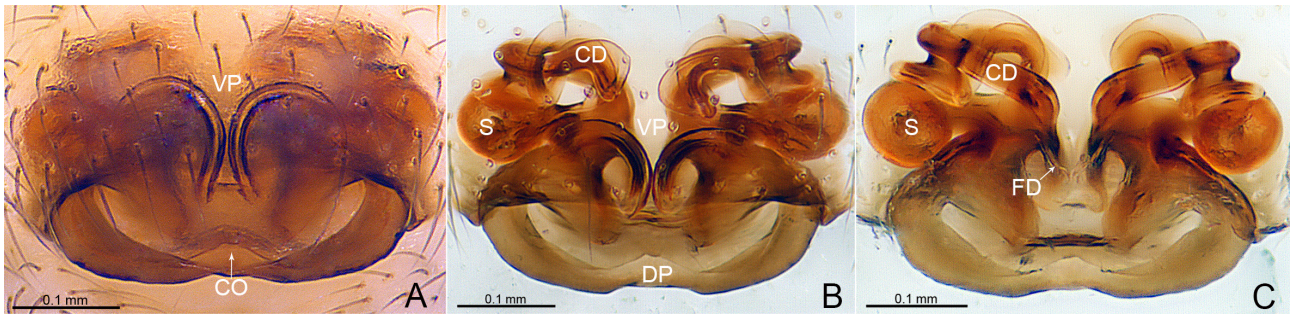


FIGURE 269. *Walckenaeria asymmetrica* Song & Li, 2011, female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

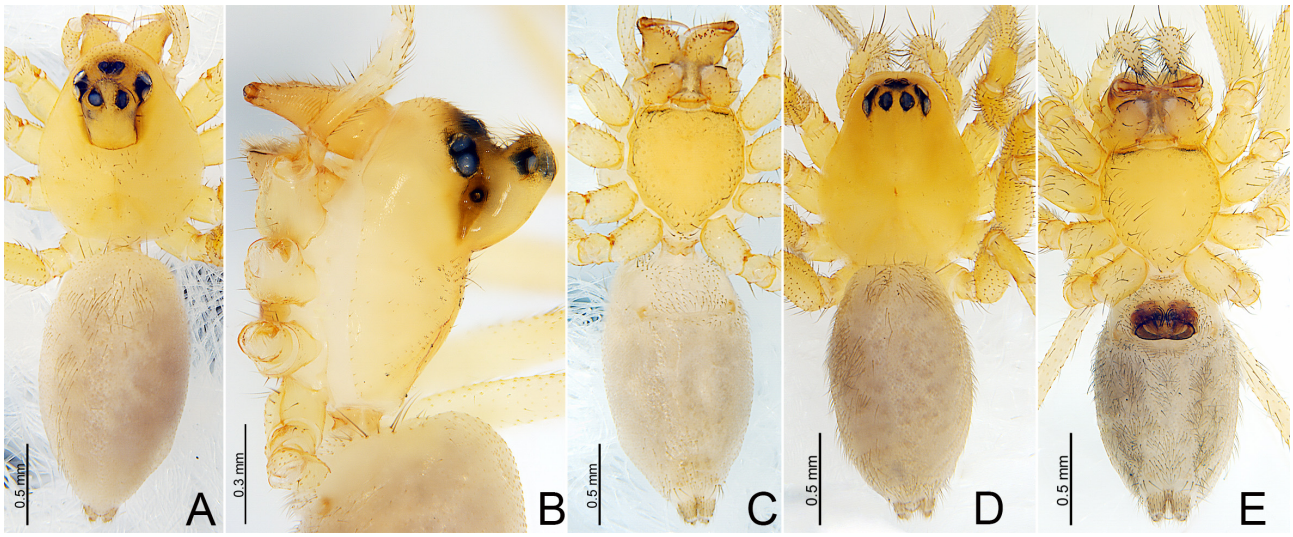


FIGURE 270. *Walckenaeria asymmetrica* Song & Li, 2011, male (A–C) and female (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.05, PME 0.04, PLE 0.05, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.05, ALE–ALE 0.23, PLE–PLE 0.25, ALE–PLE contiguous. Length of legs: I 2.01 (0.61, 0.67, 0.43, 0.30), II 1.88 (0.57, 0.65, 0.42, 0.24), III 1.64 (0.50, 0.54, 0.37, 0.23), IV 2.02 (0.62, 0.68, 0.47, 0.25). Tibial spine formula: 2-2-1-1. TmI and TmIV present. Opisthosoma 1.08 long, 0.82 wide, oval, grey.

Epigyne (Figs 272A–D): Ventral plate (VP) wider than long; dorsal plate (DP) somewhat rectangular, partly covered by the ventral plate anteriorly; copulatory opening (CO) present posteriorly; copulatory ducts (CD) parallel to each other; spermathecae (S) oval, present at the apex anteriorly; fertilization ducts (FD) small, extending mesally.

Distribution. Known only from the type localities (Hubei Province, Fig. 314).

Walckenaeria extenuata **Irfan, Zhang & Peng, sp. n. (细栓瓦蛛)**

Figures 274–277, 314, 315

Types. Holotype ♂ (HNU–HNDWS–18–05), **CHINA, Hunan Prov.:** Liuyang City, Mudu Vill., Daweishan NFP, 28.43388°N, 114.03376°E, 379 m, 14.I.2018, G.C. Zhou *et al.* leg. **Paratypes:** 1♂15♀, with same data as for holotype male (HNU–HNDWS–18–05); 1♀, Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Tujia Township, Wenfeng Vill., 29.35692°N, 110.54491°E, 476 m, 18.IV.2018, D. Li *et al.* leg. (HNU–HN–IV–1804); 6♀, **Hubei Prov.:** Xuanen Co., Shadaogou Town, Qizimei Mountain, 29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu *et al.* leg. (HNU–HB2016–04–30).

Etymology. The specific epithet is derived from the Latin adjective "*extenuatus*" meaning "fine" and referring to the very fine and thin end of embolus in male palp.

Diagnosis. *Walckenaeria extenuata* **sp. n.** can be distinguished from all congeners by the tibia with three apophyses, dorsal tibial apophysis tip with several small teeth and ventrally with larg tooth; prolateral and ventral tibial apophyses thumb-shaped; distal suprategular apophysis tip ear lobe-shaped protruding upward in male palp (Figs 274A–D, 275A–C). Female can be distinguished by the dorsal plate with one pair of protrusions posteriorly with copulatory openings in epigyne; spermathecae oval,

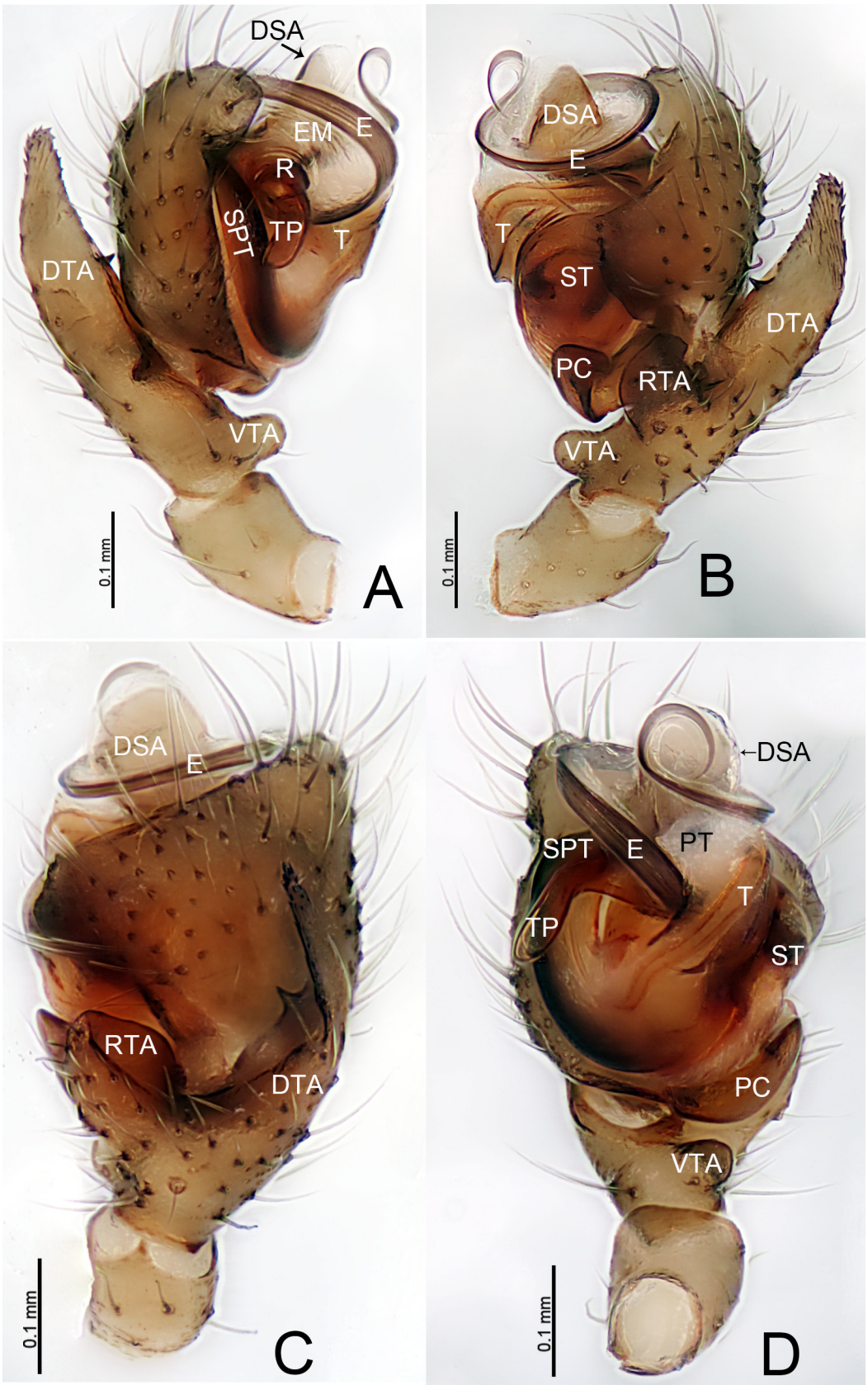


FIGURE 271. *Walckenaeria enshiensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; ST—subtegulum; SPT—suprategulum; T—tegulum; TP—tailpiece of radix; VTA—ventral tibial apophysis.

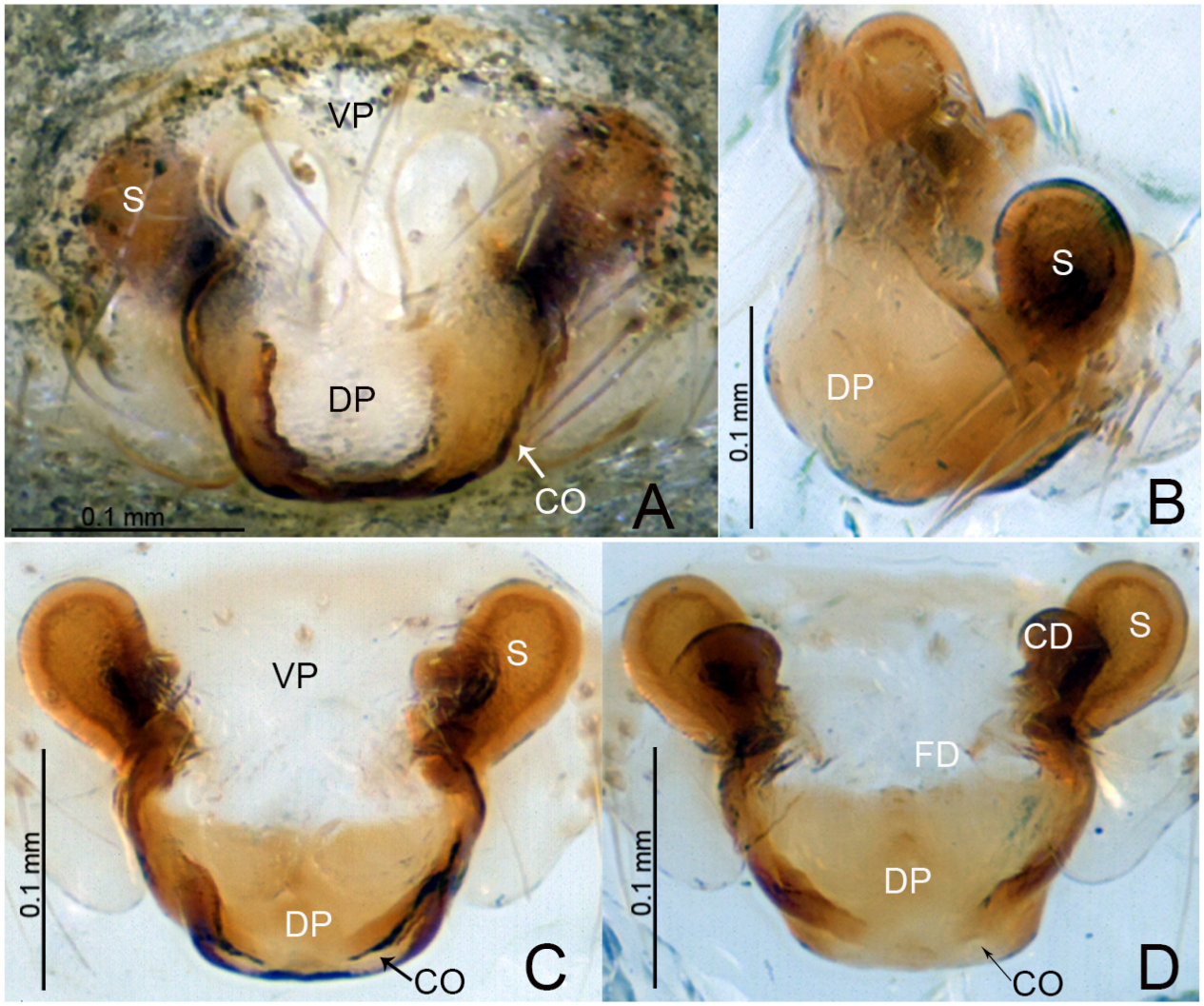


FIGURE 272. *Walckenaeria enshiensis* **sp. n.**, female paratype. **A**, **C** Epigyne, ventral view; **B** Epigyne, lateral view; **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

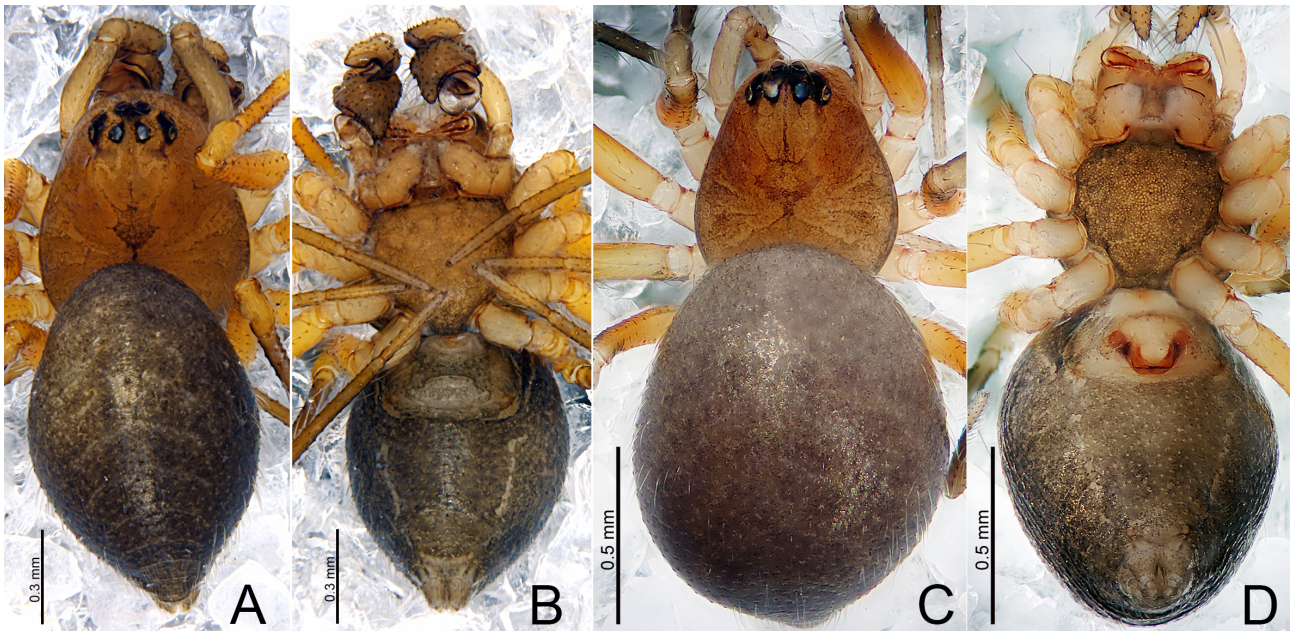


FIGURE 273. *Walckenaeria enshiensis* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

encircled by the broad loops of copulatory ducts (Figs 276A–D).

Description. Male (holotype, Figs 277A–C): Total length: 1.55. Carapace 0.71 long, 0.57 wide, brown, with two small, round cephalic lobes behind the PMEs and at the base of PLEs with cephalic pits on each side; fovea, cervical and radial grooves distinct. Clypeus 0.27 high. Chelicerae with three promarginal and five retromarginal teeth. Sternum shield-like, brownish grey with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.04, PME–PLE 0.05, AME–PME 0.04, ALE–ALE 0.25, PLE–PLE 0.27, ALE–PLE contiguous. Length of legs: I 2.26 (0.65, 0.79, 0.54, 0.28), II 2.14 (0.62, 0.71, 0.49, 0.32), III 1.69 (0.47, 0.54, 0.43, 0.25), IV 2.17 (0.63, 0.68, 0.55, 0.31). Tibial spine formula: 2-2-1-1. TmI and TmIV present. Opisthosoma 0.89 long, 0.60 wide, oval, grey, with two pairs of sigillae.

Palp (Figs 274A–D, 275A–C): Femur unmodified, almost longer than both patella and tibia. Patella shorter than tibia, ventrally grooved. Tibia with two retrolateral and one dorsal trichobothria and three apophyses; ventral tibial apophysis (VTA) and prolateral tibial apophysis (PTA) thumb-shaped with blunt end; dorsal tibial apophysis (DTA) rectangular longer than wide, curved, tip ventrally with large tooth and tip with several teeth; cymbium unmodified, broad at distal end; paracymbium (PC) C-shaped, distal arm tip knobbed; distal suprategular apophysis (DSA) tip ear lobe-shaped protruding upward. Embolic division: Radix (R) spirally coiled protruding upward; tailpiece (TP) sclerotized, strongly curved with blunt tip, pointing towards the tibia; embolic membrane (EM) running parallel with embolus and distal suprategular apophysis; embolus (E) sclerotized, forming a complete circle, distal part very fine and thin.

Female (one of paratype, Figs 277D, E): Total length: 1.77. Carapace 0.72 long, 0.56 wide, dark brown, fovea, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum shield-like, brownish grey with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.01, PME–PME 0.04, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.04, ALE–ALE 0.24, PLE–PLE 0.27, ALE–PLE 0.01. Length of legs: I 2.11 (0.62, 0.71, 0.51, 0.27), II 2.06 (0.63, 0.70, 0.48, 0.25), III 1.76 (0.57, 0.52, 0.39, 0.25), IV 2.16 (0.69, 0.67, 0.52, 0.28). Tibial spine formula: 2-2-1-1. TmI and TmIV present. Opisthosoma 1.17 long, 0.85 wide, oval, grey, with two pairs of sigillae.

Epigyne (Figs 276A–D): Ventral plate (VP) wider than long; dorsal plate (DP) somewhat round, with pair of tubercles posteriorly with copulatory openings (CO). Spermathecae (S) oval, encircled by the broad loops of copulatory ducts (CD); fertilization ducts (FD) small, extending mesally.

Distribution. Known only from the type localities (Hubei and Hunan Provinces, Figs. 314, 315).

Walckenaeria furcillata (Menge, 1869) (new to China) (叉瓦蛛)

Figures 278, 279, 317

Phalops furcillatus Menge, 1869: 220, pl. 43, figs 120 (♂♀).

Walckenaeria furcillata O. Pickard-Cambridge 1873c: 548, pl. 46, figs 18 (♂); Zamani *et al.* 2021b: 284, figs 3E–F (♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♀, **CHINA, Xizang:** Linzhi city, Bomi Co., Gongxiang Guangde Vill., 30.28173°N, 94.76779°E, 2238 m, 12.I.2017, Q. Cai leg.

Distribution. Europe, Turkey, Russia (Europe to West Siberia), Iran, Korea, Japan, China (Xizang, Fig. 317).

Walckenaeria sinuosa Irfan, Zhang & Peng, sp. n. (弯曲瓦蛛)

Figures 280–282, 307

Types. Holotype ♂ (HNU–CQ–IV–1721), **CHINA, Chongqing**, Pengshui Co., Mowei MSS, 29.18643°N, 108.041981°E, 1568 m, 25.VII.2017, M. Irfan & G.C. Zhou leg. **Paratypes:** 12♀, with same data as for holotype male (HNU–CQ–IV–1721); 2♀, Pengshui Co., Mowei MSS, 29.16079°N, 108.03732°E, 26.VII.2017, Irfan M. & G.C. Zhou leg. (HNU–CQ–IV–1723); 1♀, Pengshui Co., Mowei MSS, 29.16067°N, 108.03687°E, 1548 m, 23.V.2017, G.C. *Zhou e*t al. leg. (HNU–CQ–IV–1702).

Etymology. The specific epithet is derived from the Latin adjective "*sinuosus*" meaning "sinuous" and referring to the embolus sinuous in male palp.

Diagnosis. *Walckenaeria sinuosa* **sp. n.** can be distinguished from all other congeners by the dorsal tibial apophysis relatively wider at proximal end, narrowing towards tip, C-shaped, tip with long thick spines; embolus sinuous in male palp (Figs 280A–D). Female can be distinguished by the ventral plate of epigyne mid ventrally with rectangular roof followed by arch-shaped sclerotized margin posteriorly, giving rise to a shallow atrium inside; copuplatory openings present mid-ventrally; spermathecae hockey-shaped (Figs 281A–C).

Description. Male (holotype, Figs 282A, B): Total length: 1.73. Carapace 0.92 long, 0.72 wide, brown, cephalic region strongly elevated; cephalic pits present; fovea, cervical and radial grooves distinct. Clypeus 0.23 high. Chelicerae with four promarginal and four retromarginal teeth, anteriorly with large tooth. Sternum longer than wide, brownish grey with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.06, PLE 0.06, AME–AME 0.02, PME–PME 0.06, AME–ALE, 0.05, PME–PLE 0.04, AME–PME 0.05, ALE–ALE 0.31, PLE–PLE 0.34, ALE–PLE contiguous. Length of legs: I 2.3 (0.66, 0.79, 0.46, 0.39), II 2.09 (0.65, 0.66, 0.41, 0.37), III 1.74 (0.52, 0.53, 0.38, 0.31), IV 2.28 (0.69, 0.80, 0.42, 0.37). Tibial spine formula: 2-2-1-1. TmI and TmIV present. Opisthosoma 0.97 long, 0.72

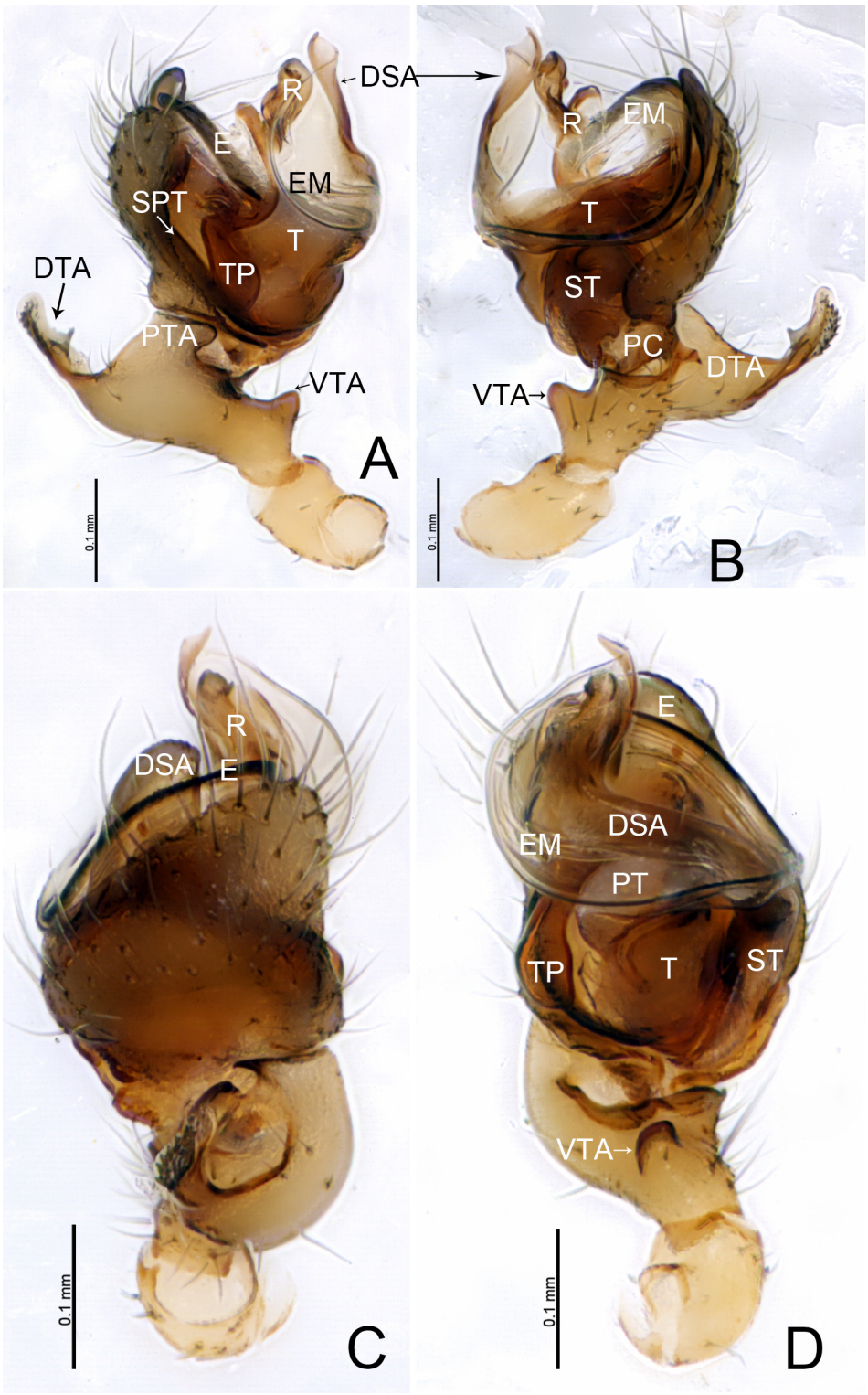


FIGURE 274. *Walckenaeria extenuata* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; Em—embolic membrane; PC—paracymbium; PT—protegulum; PTA—prolateral tibial apophysis; R—radix; ST—subtegulum; SPT—suprategulum; T—tegulum; TP—tailpiece of radix; VTA—ventral tibial apophysis.

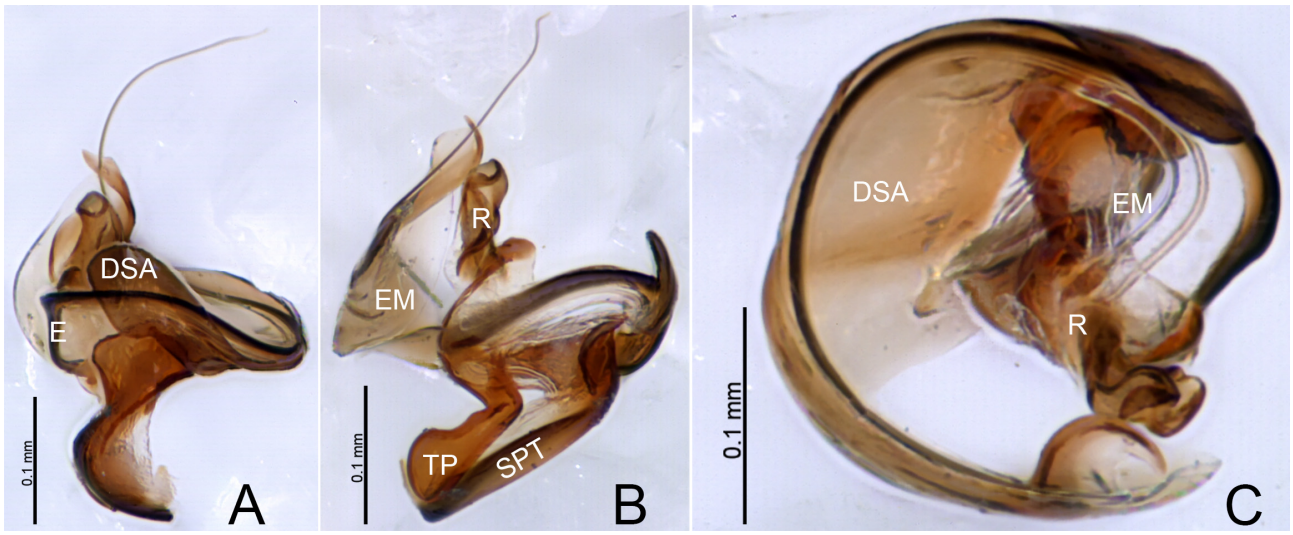


FIGURE 275. *Walckenaeria extenuata* **sp. n.**, male paratype. **A** Embolic division, ventral view; **B** Embolic division, prolateral view; **C** Embolic division, posterior view. Abbreviations: DSA—distal suprategular apophysis; E—embolus; Em—embolic membrane; R—radix; SPT—suprategulum; TP—tailpiece of radix.

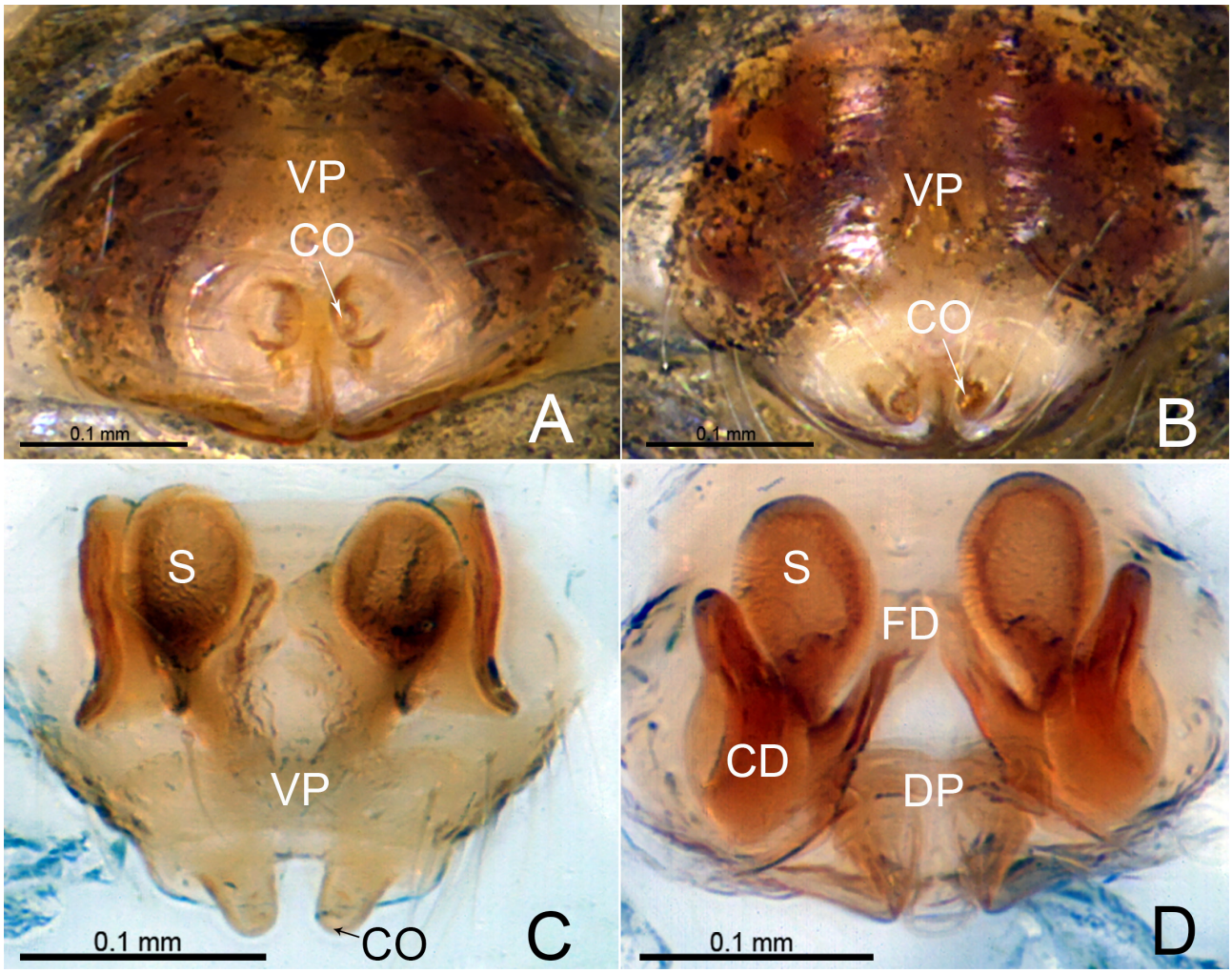


FIGURE 276. *Walckenaeria extenuata* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C**, **D** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

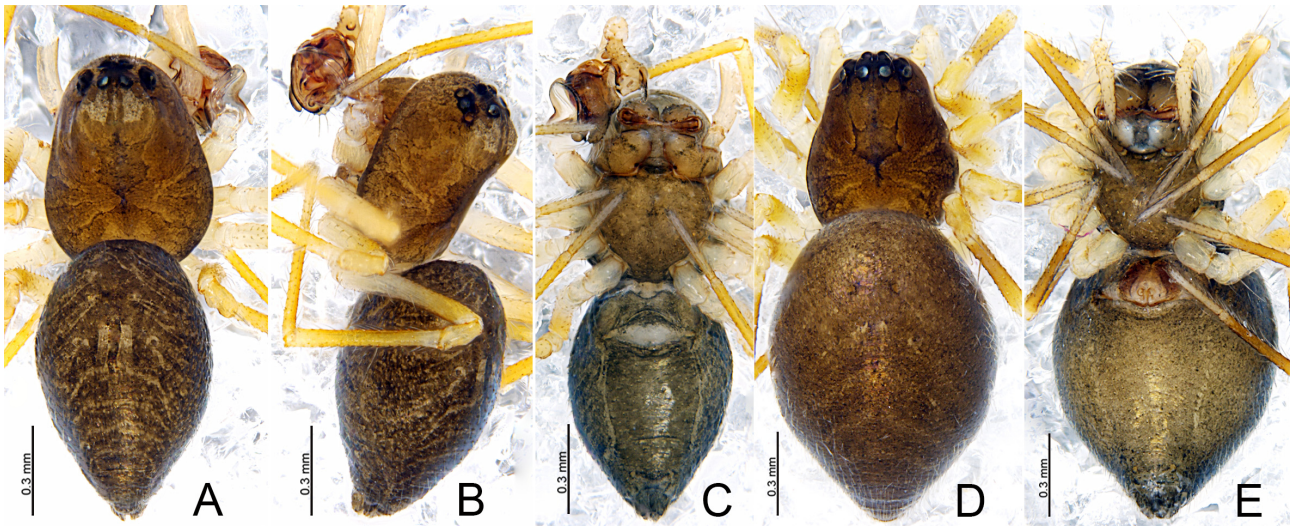


FIGURE 277. *Walckenaeria extenuata* **sp. n.**, male holotype (A–C) and female paratype (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

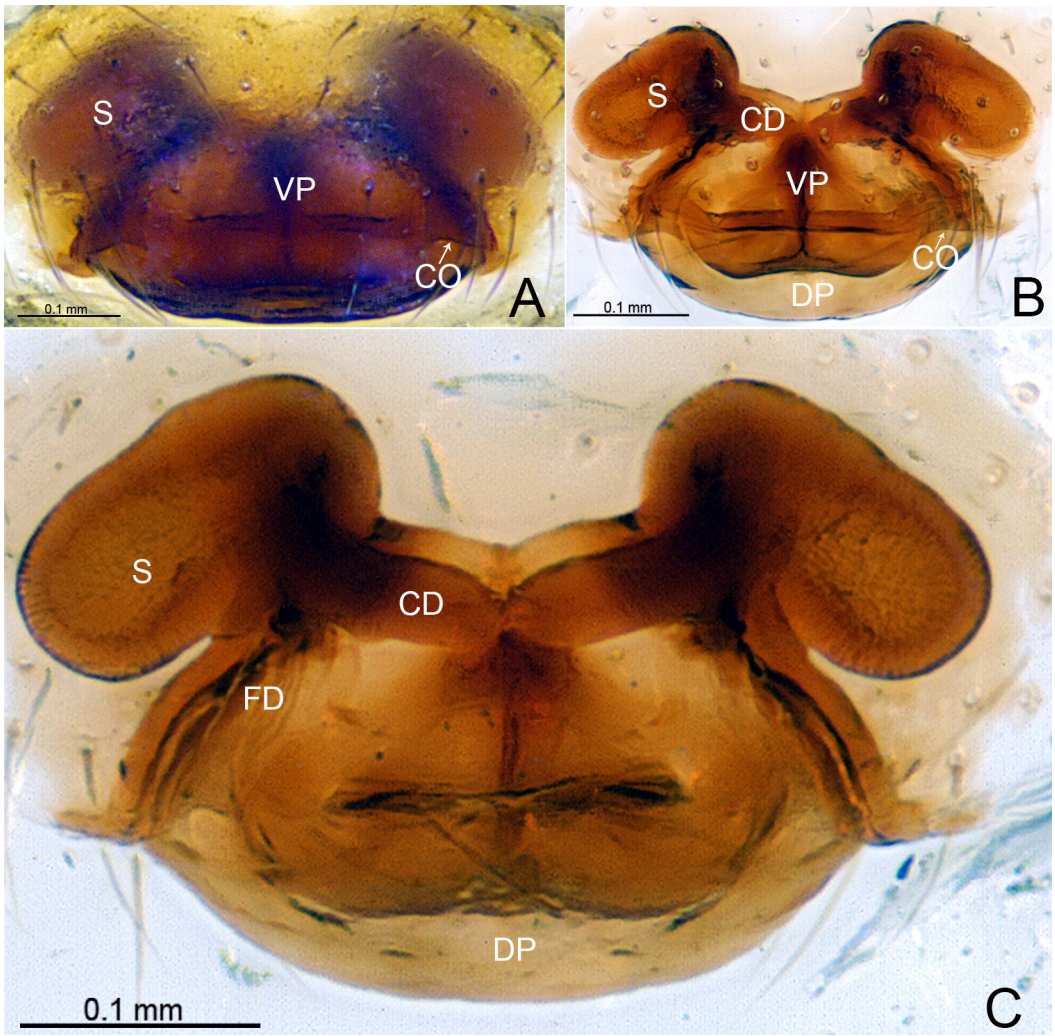


FIGURE 278. *Walckenaeria furcillata* (Menge, 1869), female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

wide, oval, grey, with two pairs of sigillae.

Palp (Figs 280A–D): Femur unmodified, almost longer than both patella and tibia. Patella as long as proximal part of tibia, mesally slightly curved. Tibia with one retrolateral trichobothria and two apophyses; retrolateral tibial apophysis (RTA) rectangular with round margin; dorsal tibial apophysis (DTA) relatively wider at proximal end, narrowing towards tip, strongly curved, C-shaped, tip with long thick spines; cymbium retrolateral margin with outgrowth extending towards subtegulum, distal end broad; paracymbium (PC) U-shaped; tegulum (T) with long, transparent protegulum (PT), protruding upwardly; distal suprategular apophysis longer than wide, slightly curved. Embolic division: Tailpiece (TP) sclerotized, tongue-shaped, with blunt end, pointing towards the lateral margin of cymbium; embolus (E) sclerotized, sinuous.

Female (one of paratype, Figs 282C, D): Total length: 1.56. Carapace 0.61 long, 0.54 wide, brown, cephalic region strongly elevated; cephalic pits present; fovea, cervical and radial grooves distinct. Clypeus 0.17 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish grey with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER Eye sizes and interdistances: AME 0.03, ALE 0.06, PME 0.05, PLE 0.05, AME–AME 0.02, PME–PME 0.05, AME–ALE, 0.02, PME–PLE 0.02, AME–PME 0.05, ALE–ALE 0.23, PLE–PLE 0.25, ALE–PLE contiguous. Length of legs: I 1.75 (0.50, 0.53, 0.39, 0.33), II 1.57 (0.48, 0.44, 0.36, 0.29), III 1.35 (0.44, 0.41, 0.26, 0.24), IV 1.78 (0.54, 0.63, 0.33, 0.28). Tibial spine formula: 2-2-1-1. TmI and TmIV present. Opisthosoma 1.04 long, 0.74 wide, oval, grey, with two pairs of sigillae.

Epigyne (Figs 281A–C): Ventral plate (VP) wider than long, sclerotized, mid ventrally with rectangular roof followed by arch-shaped sclerotized margin posteriorly, giving rise to a shallow atrium inside; copuplatory openings (CO) present mid-ventrally; dorsal plate (DP) partly visible; copulatory ducts (CD) spiral, with one and half coils; spermathecae (S) hockey-shaped, pointing

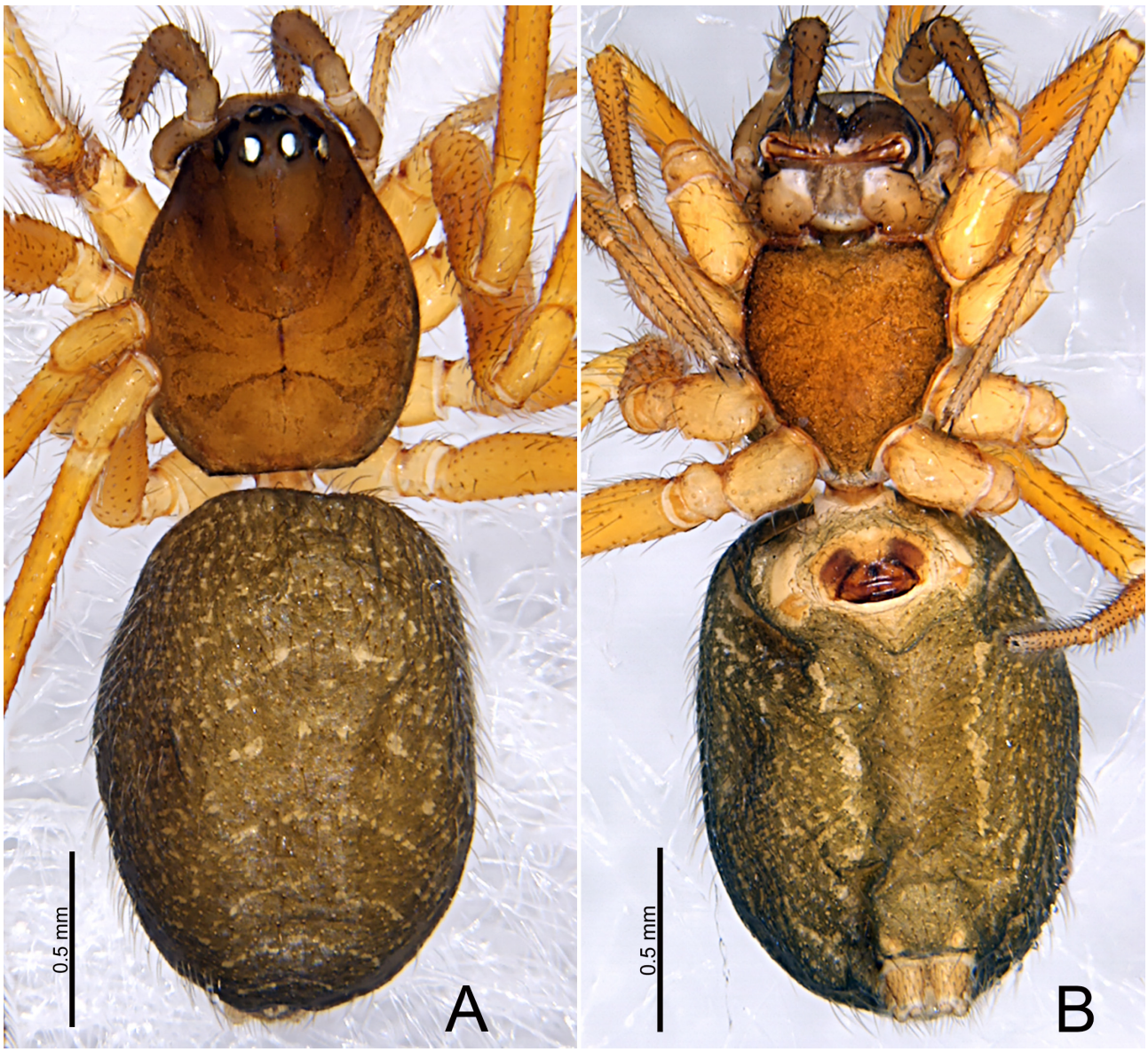


FIGURE 279. *Walckenaeria furcillata* (Menge, 1869), female. **A** Habitus, dorsal view; **B** Habitus, ventral view.

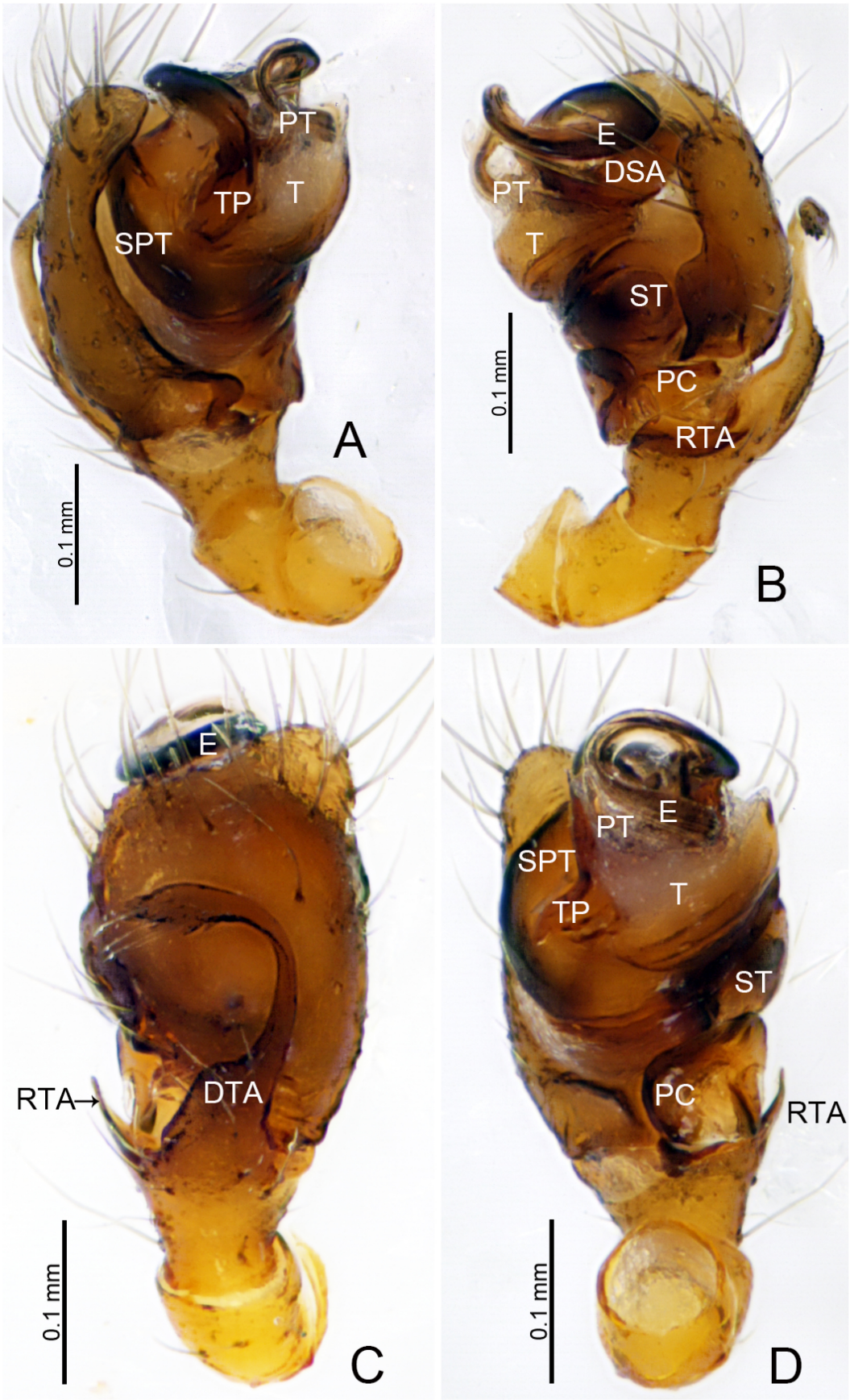


FIGURE 280. *Walckenaeria sinuosa* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; ST—subtegulum; SPT—suprategulum; T—tegulum; TP—tailpiece of radix.

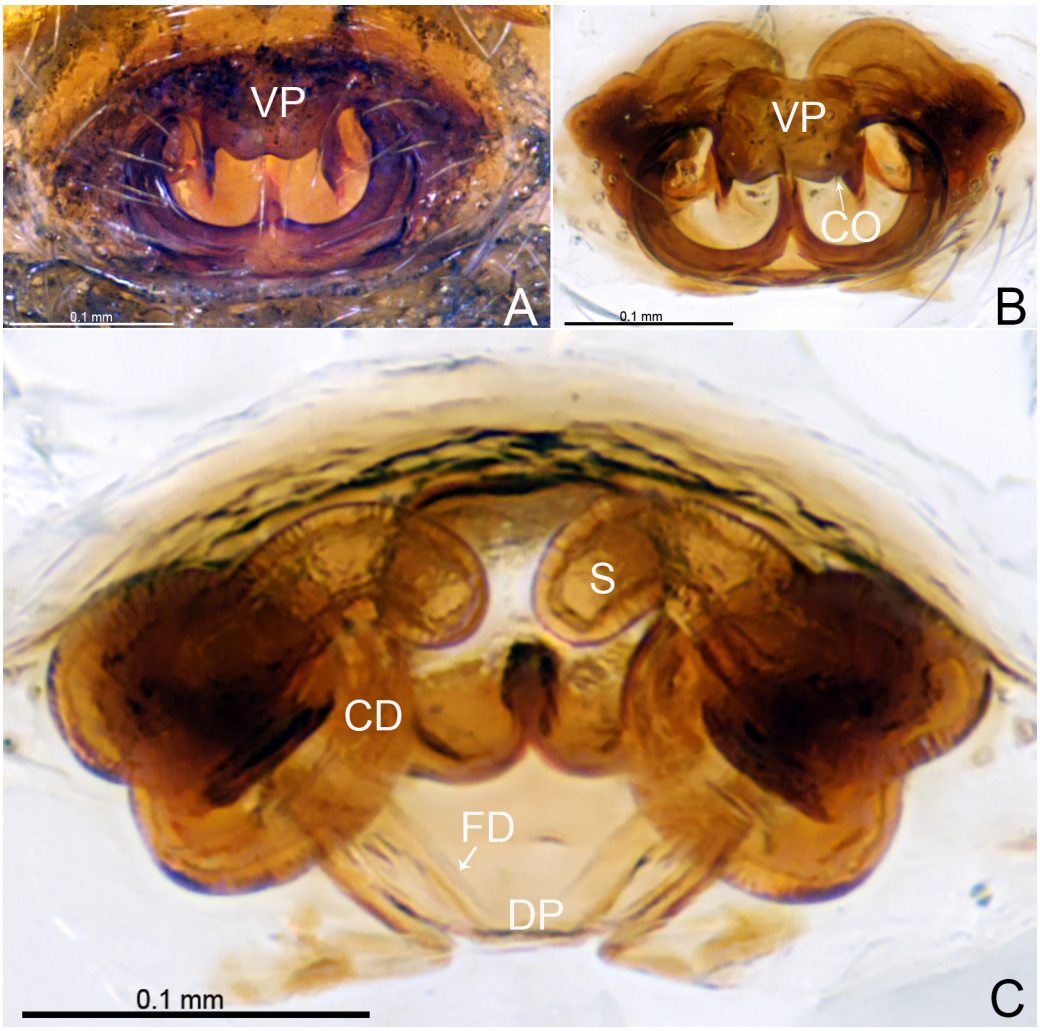


FIGURE 281. *Walckenaeria sinuosa* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

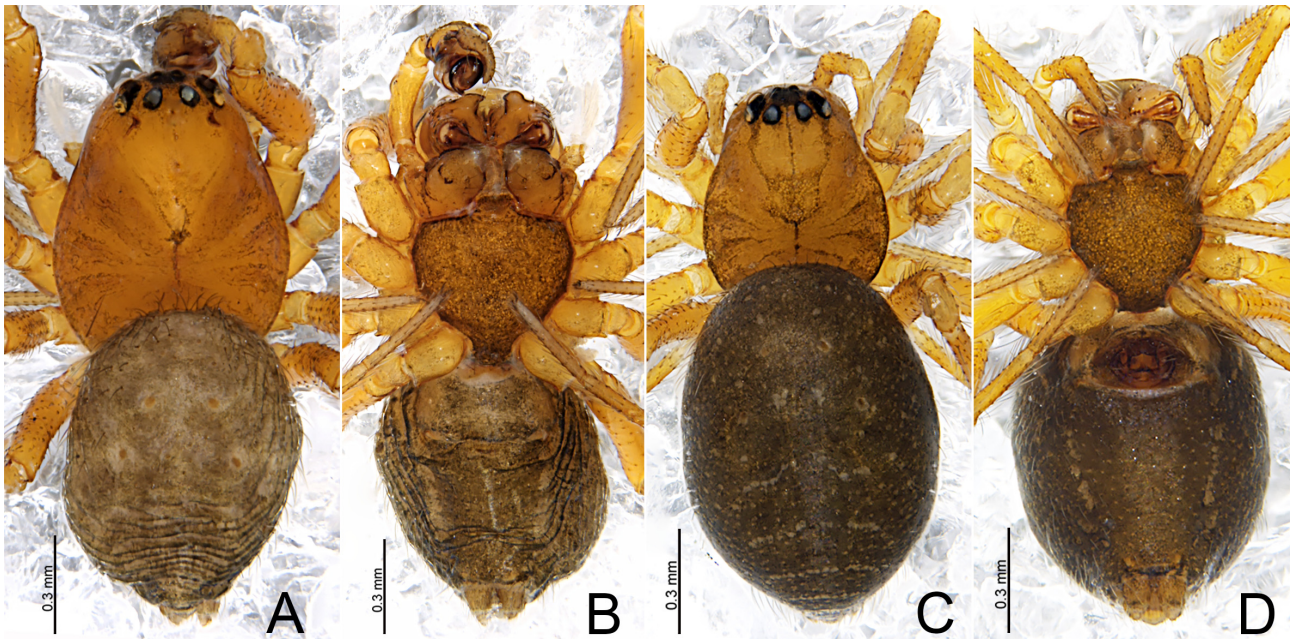


FIGURE 282. *Walckenaeria sinuosa* **sp. n.**, male holotype (A, B) and female paratype (C, D). **A**, **C** Habitus, dorsal view; **B**, **D** Habitus, ventral view.

towards each other; fertilization ducts (FD) small, extending mesally.

Distribution. Known only from the type localities (Chongqing, Fig. 307).

***Walckenaeria xingdouensis* Irfan, Zhang & Peng, sp. n. (星斗瓦蛛)**

Figures 283, 284, 310, 314, 315

Types. Holotype 1♀ (HNU–HB–IV–1712), **CHINA, Hubei Prov.:** Enshi Co., Xingdou MNNR, 30.04611°N, 109.13038°E, 1205 m, 18.V.2017, G.C. Zhou *et al.* leg. **Paratypes:** 2♀, with same data as for holotype female (HNU–HB IV–1712); 1♀, Enshi Co., Xingdou MNNR, 30.039022°N, 109.14274°E, 1114 m, 20.V.2017, G.C. Zhou *et al.* leg. (HNU–T20170520); 1♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1710); **Hunan Prov.:** 1♀, Liuyang City, Mudu Vill., Daweishan NFP, 28.43567°N, 114.03376°E, 286 m, 14.I.2018, G.C. Zhou *et al.* leg. (HNU–HNDWS–18–04); **Guizhou Prov.:** 2♀, Tongren City, Songtao Co., Wuluo Town, Taohuayuan Vill., Fanjingshan NNR, 28.00130°N, 108.80578°E, 1160 m, 06.XI.2017, G.C. Zhou leg. (HNU–GZ–IV–1715).

Etymology. This specific species name derived from the type locality; adjective.

Diagnosis. *Walckenaeria xingdouensis* **sp. n.** resembles *W. asymmetrica* in having the similar lip-shaped dorsal plate and the spermathecae in epigyne (Figs 283A–C; Figs 269A–C, Song & Li 2011, figs 2E–G), but can be distinguished by the copulatory ducts from ventral side extending posteriorly from below the spermathecae and then turn back towards the anterior side to form spiral loop in *W. xingdouensis* **sp. n.** (Figs 283A–C; vs. directly turn toward the anteriorly on ventral side).

Description. Female (holotype, Figs 284A, B): Total length: 2.46. Carapace 1 long, 0.78 wide, orange, cephalic region slightly elevated; fovea, cervical and radial grooves distinct. Clypeus 0.23 high. Chelicerae with two promarginal and four retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.09, PME 0.07, PLE 0.08, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.04, AME–PME 0.06, ALE–ALE 0.31, PLE–PLE 0.32, ALE–PLE contiguous. Length of legs: I 3.58 (1.04, 1.25, 0.79, 0.50), II 3.44 (1.04, 1.19, 0.75, 0.46), III 3.01 (0.90, 1, 0.72, 0.39), IV 3.69 (1.11, 1.26, 0.86, 0.46). Tibial spine formula: 2-2-1-1. TmI and TmIV present. Opisthosoma 1.56 long, 1.17 wide, oval, grey, with two pairs of sigillae.

Epigyne (Figs 283A–C): Ventral plate (VP) wider than long, sclerotized; copuplatory openings (CO) situates at the junction of ventral and dorsal plates. Posterior margin of dorsal plate (DP) lip-shaped and totally exposed in ventral view; copulatory ducts (CD) enclosed in a strongly sclerotized capsule, from ventral side extending posteriorly from below the spermathecae and then turn back towards the anterior side to form spiral loop. Spermathecae (S) globular, present dorso-laterally, spaced by three diameters; fertilization ducts (FD) small, extending mesally.

Male. Unknown.

Distribution. Known only from the type localities (Guizhou, Hubei and Hunan Provinces, Figs 310, 314, 315).

***Walckenaeria yanglinensis* Irfan, Zhang & Peng, sp. n. (杨林瓦蛛)**

Figures 285–287, 315

Types. Holotype ♂ (HNU–HN–IV–1707), **CHINA, Hunan Prov.:** Ningxiang Co., Huaminglou Town, Yanglin Vill., 28.087272°N, 112.67114°E, 125 m, 09.V.2017, G.C. Zhou *et al.* leg. **Paratypes:** 1♀, with same data as for holotype (HNU–HN–IV–1707); 1♀, Shaoyang City, Chengbu Co., Rulin Town, Daqiao Vill., 26.34077°N, 110.27790°E, 527 m, 08.XI.2017, G.C. Zhou leg. (HNU–HN–IV–1773).

Etymology. This specific species name derived from the type locality; adjective.

Diagnosis. *Walckenaeria yanglinensis* **sp. n.** resembles *W. ichifusaensis* in having the similar paracymbium and embolus in male palp and epigyne with similar round spermathecae (Figs 285A–D, 286A–C; Saito & Ono 2001, figs 48–52), but can be distinguished by the prolateral tibial apophysis tip bifurcated in *W. yanglinensis* **sp. n.** (Figs 285A–D; vs. not bifurcated); tailpiece with blunt tip in *W. yanglinensis* **sp. n.** (Fig. 285A; vs. with pointed end). Female can be distinguished by the ventral plate of epigyne posteriorly with a rectangular somewhat like atrium and dorsal plate partly visible in *W. yanglinensis* **sp. n.** (Fig. 285A; vs. dorsal plate with evenly broad lip-shaped extension totally exposed in ventral view); spermathecae present at apex on dorsal plate in *W. yanglinensis* **sp. n.** (Fig. 285A; vs. present dorso-laterally).

Description. Male (holotype, Figs 287A–C): Total length: 1.81. Carapace 0.82 long, 0.68 wide, yellow, cephalic region elevated 0.17 high and cephalic pits present, fovea, cervical and radial grooves distinct. Clypeus 0.17 high. Chelicerae with two promarginal and five retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eye region densely covered with setae, AER recurved, PER procurved slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.08, PME 0.08, PLE 0.07, AME–AME 0.02, PME–PME 0.08, AME–ALE, 0.04, PME–PLE 0.13, AME–PME 0.19, ALE–ALE 0.33, PLE–PLE 0.35, ALE–PLE contiguous. Length of legs: I 2.62 (0.79, 0.89, 0.56, 0.38), II 2.29 (0.71, 0.76, 0.49, 0.33), III 2.49 (0.63, 0.66, 0.48, 0.31), IV 2.77 (0.81, 0.92, 0.67, 0.37). TmI 0.26 and TmIV 0.18. Tibial spine formula: 1-1-1-1. Opisthosoma 0.94 long, 0.99 wide, round, grey, with irregular yellow patches.

Palp (Figs 285A–D): Femur unmodified, as long as patella and tibia. Patella three times longer than proximal part of tibia. Tibia with two retrolateral and one dorsal trichobothria, retrolateral tibial apophysis (RTA) stout,

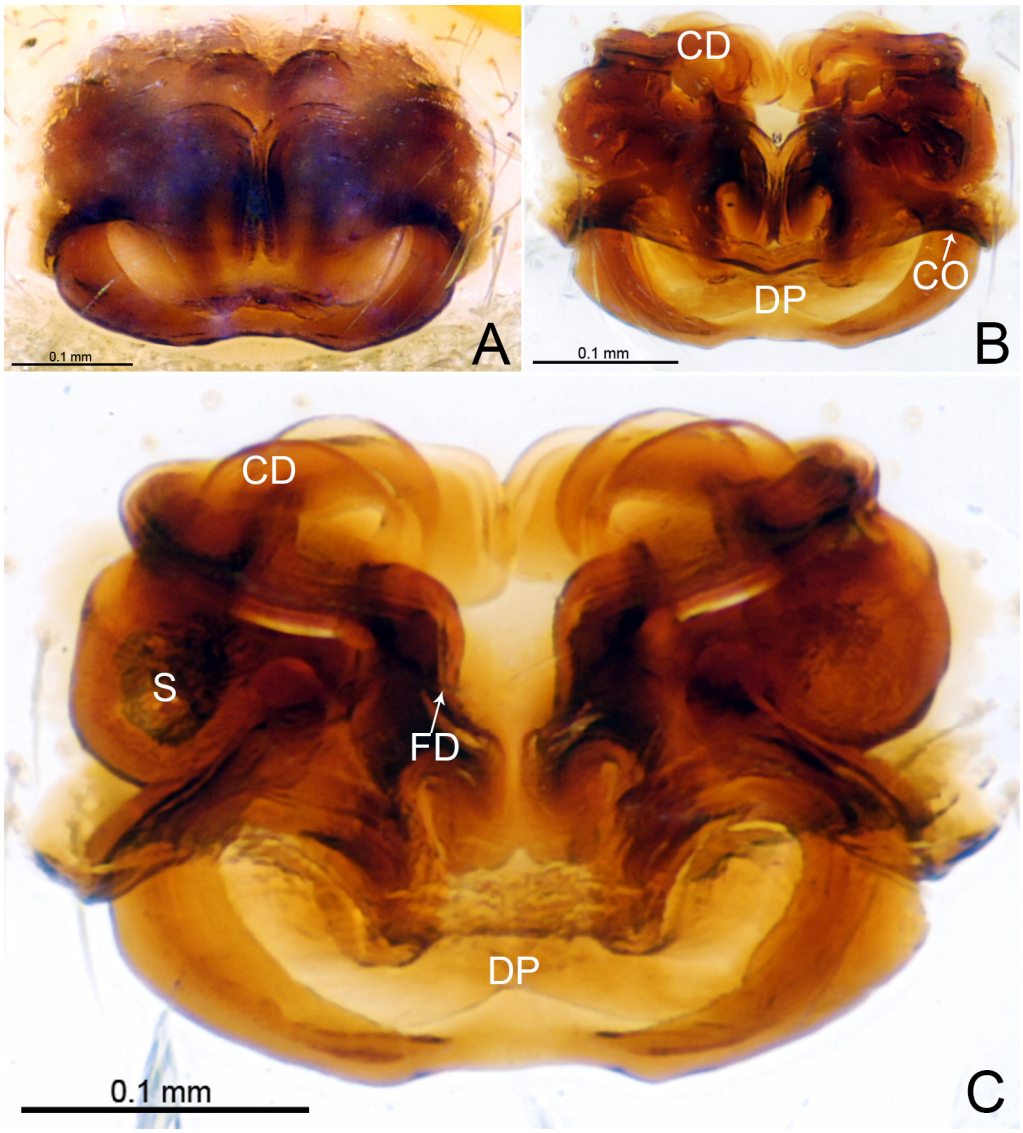


FIGURE 283. *Walckenaeria xingdouensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

tip of dorsal tibial apophysis (DTA) forked; cymbium unmodified; paracymbium (PC) C-shaped, distal arm tip hook-shaped; distal suprategular apophysis (DSA) distal part transparent, curved, protruding upward. Tailpiece (TP) of embolic division sclerotized, strongly curved with blunt tip pointing towards the lateral margin of the cymbium; embolus (E) sclerotized, originates from prolateral margin of the radix, long, curved, protruding upward.

Female (one of paratype, Figs 287D–E): Total length: 1.99. Carapace 0.92 long, 0.73 wide, yellow, fovea, cervical and radial grooves distinct. Clypeus 0.18 high. Chelicerae with two promarginal and five retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.09, PME 0.07, PLE 0.08, AME–AME 0.01, PME–PME 0.03, AME–ALE, 0.01, PME–PLE 0.03, AME–PME 0.06, ALE–ALE 0.29, PLE–PLE 0.32, ALE–PLE contiguous. Length of legs: I 2.76 (0.83, 0.97, 0.59, 0.37), II 2.66 (0.81, 0.94, 0.56, 0.35), III 2.34 (0.70, 0.80, 0.53, 0.31), IV 2.99 (0.85, 1.06, 0.71, 0.37). TmI 0.24 and TmIV 0.19. Tibial spine formula: 1-1-1-1. Opisthosoma 1.31 long, 0.75 wide, oval, grey, densely covered with fine hairs.

Epigyne (Figs 286A–C): Ventral plate (VP) wider than long, sclerotized; dorsal plate (DP) sclerotized, wider than long, partly visible in ventral view; copulatory opening (CO) present ventro-mesally; copulatory ducts (CD) sinuosus, present dorso-mesally; spermathecae (S) large, round, ball-shaped; fertilization ducts (FD) small, extending mesally.

Distribution. Known only from the type localities (Hunan Province, Fig. 315).

Wulinggone Irfan, Zhang & Peng, gen. n. (武陵微蛛属)

Type species: *Wulinggone qizimeiensis* **sp. n.**

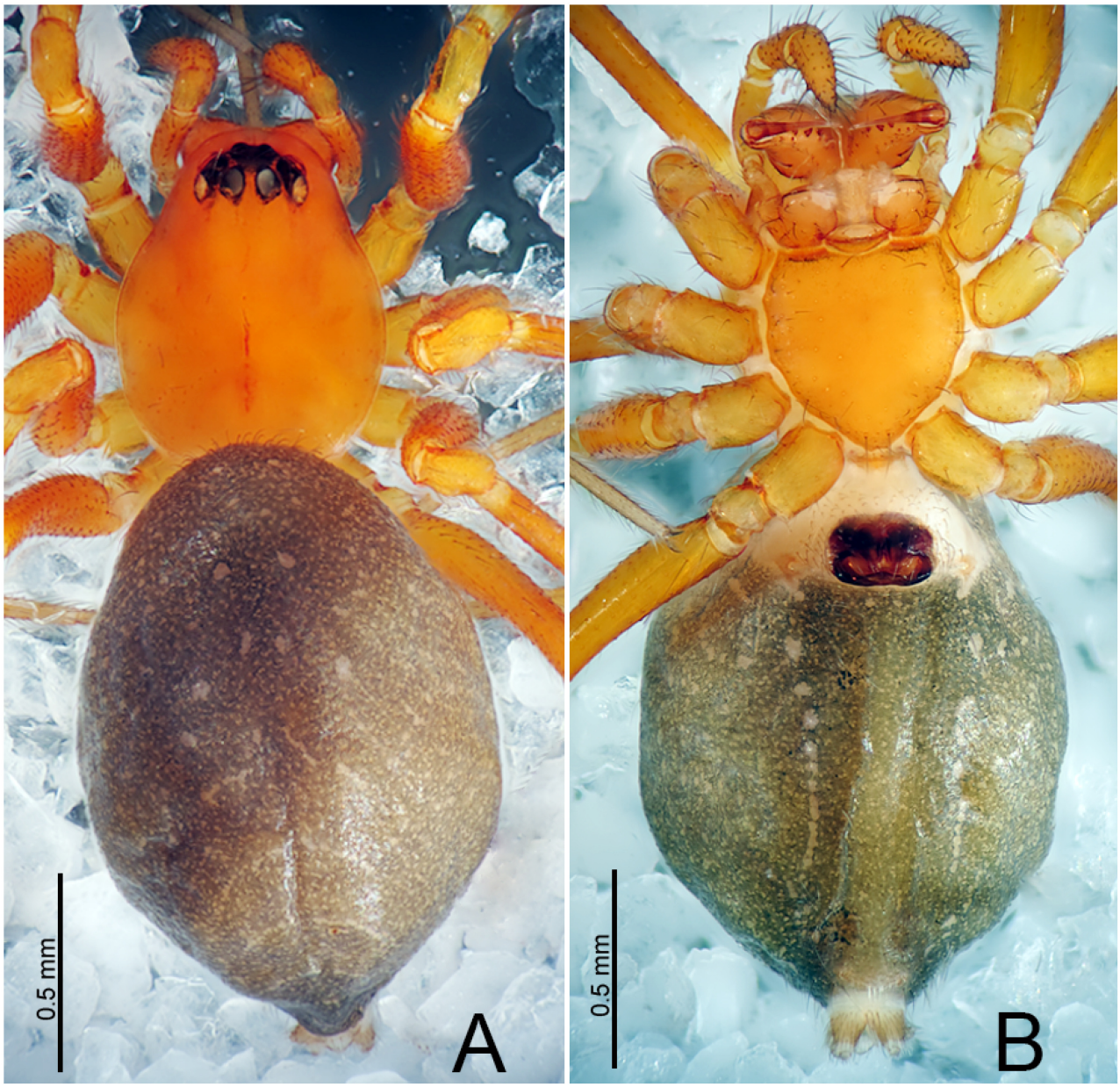


FIGURE 284. *Walckenaeria xingdouensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

Etymology. This genus name derives from the type localities present in "Wuling Mountains range" and the second part taken from genus “Erigone”. Gender is feminine.

Diagnosis. *Wulinggone* **gen. n.** can be diagnosed by the tibia with three apophyses (DTA, PTA and RTA); radix with well developed embolic division, semicircular embolus and sclerotized anterior radical process; embolic membrane absent (Figs 288A–D). Female can be distinguished by the dorsal completely exposed in ventral view (Figs 289A, B); copulatory opening present at the junction of dorsal and ventral plate posteriorly (Figs 289A, B); copulatory ducts form a coiled loop mid dorsally before entering the spermathecae (Figs 289B, C); spermathecae elongated, tip slightly curved extending anteriorly (Figs 289B, C).

Description. Same as for type species.

Remarks. The male of *Wulinggone* **gen. n.** resembles those of genera *Araeoncus*, *Diplocentria*, *Diplocephalus*, *Islandiana*, *Laminacauda*, *Lophomma*, *Savignia*, *Sciastes*, *Spelaeus* **gen. n.**, *Tmeticus*, *Typhochrestus*, in having the palp with similar anterior redical process (Hormiga 2000, figs 1, 2, 5, 6, 17, 18, 20, 24, 25, 29, 30; Figs 240, 241). It also resembles *Shaanxinus* in having the both anterior redical process and lateral extension of radix (Lin *et al.* 2019, figs 3a–d), but can be distinguished by the lateral extension of radix present in *Wulinggone* **gen. n.** (Fig. 288A; vs. absent in all of the *Araeoncus*, *Diplocentria*, *Diplocephalus*, *Islandiana*, *Laminacauda*, *Lophomma*, *Savignia*, *Sciastes*, *Spelaeus* **gen. n.**, *Tmeticus*, *Typhochrestus*); anterior radical scaly part absent in *Wulinggone* **gen. n.** (Fig. 288A; vs. all of the other genera *Araeoncus*, *Diplocentria*, *Diplocephalus*, *Islandiana*, *Laminacauda*, *Lophomma*, *Savignia*, *Sciastes*, *Spelaeus*

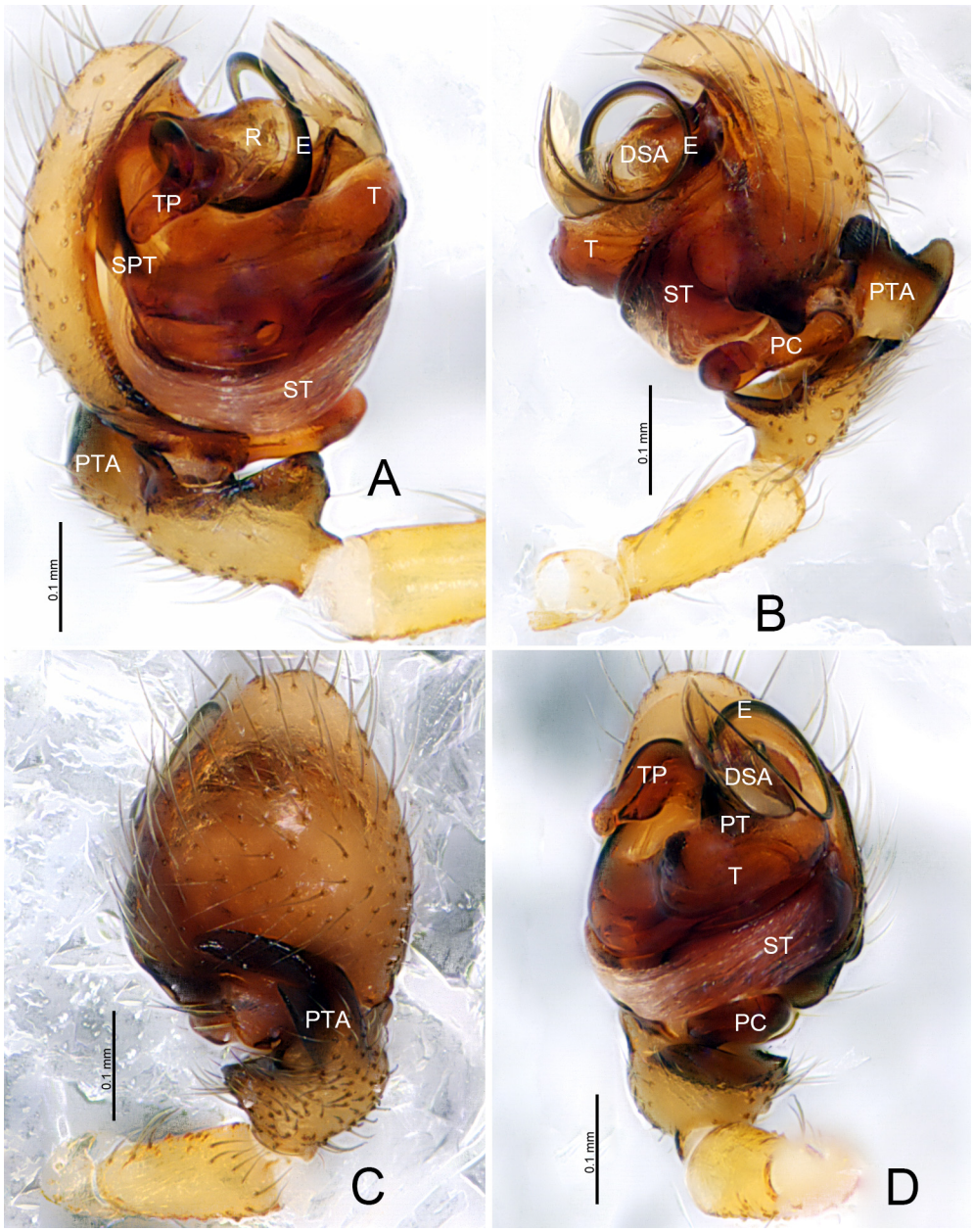


FIGURE 285. *Walckenaeria yanglinensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; PC—paracymbium; PT—protegulum; R—radix; ST—subtegulum; SPT—suprategulum; T—tegulum; TP—tailpiece of radix.

gen. n., *Tmeticus*, *Typhochrestus*; present in *Shaanxinus*). The female of *Wulinggone* **gen. n.** resembles that of genus *Typhochrestus* in having most of dorsal plate visible in ventral view (Figs 289A–C; Bosmans 2008, figs 7, 8, 24, 25, 30, 31, 42, 43), and can be distinguished by the copulatory ducts forming long loop coiled around spermathecae in *Wulinggone* **gen. n.** (Figs 289B, C; vs. extending anteriorly and not coiled around spermathecae in *Typhochrestus*).

Composition. *Wulinggone* **gen. n.** belongs to the subfamily Erigoninae and here erected monotypic genus to accommodate *W. qizimeiensis* **sp. n.**.

Distribution. Known only from the type localities (Chongqing and Hubei Province, Figs 307, 313).

***Wulinggone qizimeiensis* Irfan, Zhang & Peng, sp. n. (七姊妹武陵微蛛)**

Figures 288–290, 307, 313

Types. Holotype ♂ (HNU–HB20160430), **CHINA, Hubei Prov.:** Xuanen Co., Shadaogou Town, Qizimei Mountain,29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu *et al.* leg. **Paratypes** 1♂4♀: 1♂1♀, same data as female holotype (HNU–HB20160430); 1♀, Enshi Co., Xingdou MNNR 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1710); **Chongqing:** 2♀, Pengshui Co., Mowei MSS, 29.16079°N, 108.03732°E, 1564 m, 26.VII.2017, M. Irfan & G.C. Zhou leg. (HNU–CQ–IV–1723).

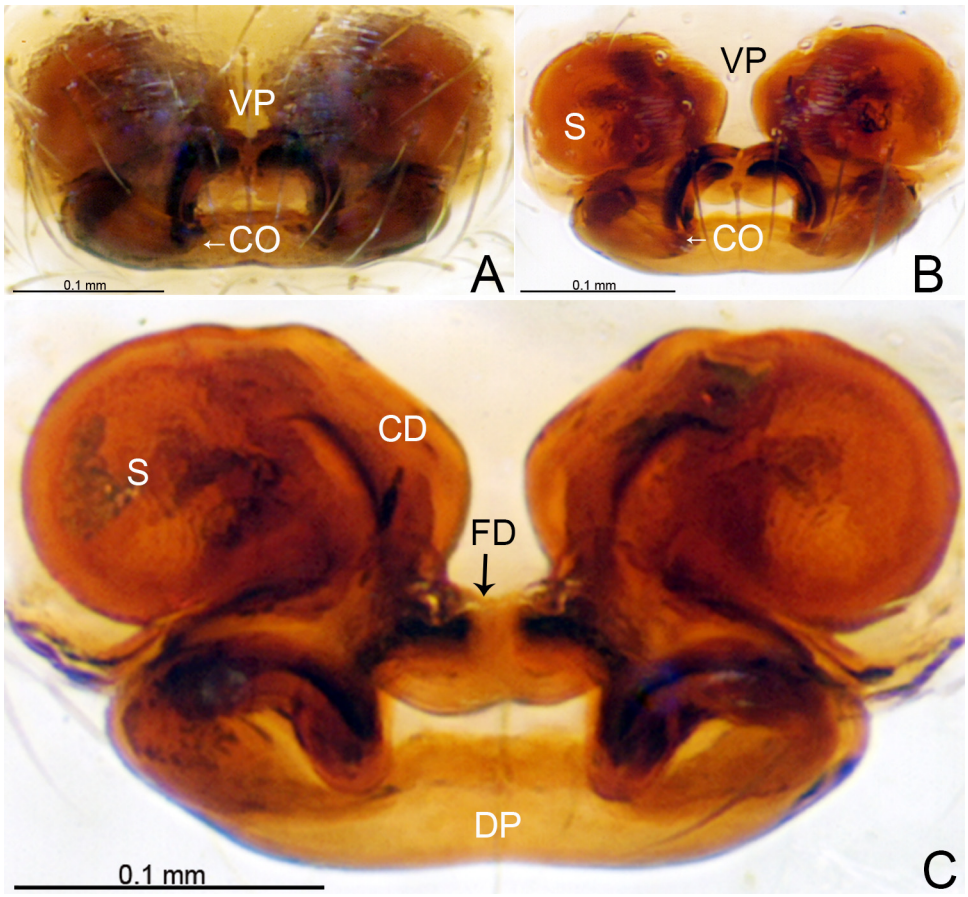


FIGURE 286. *Walckenaeria yanglinensis* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

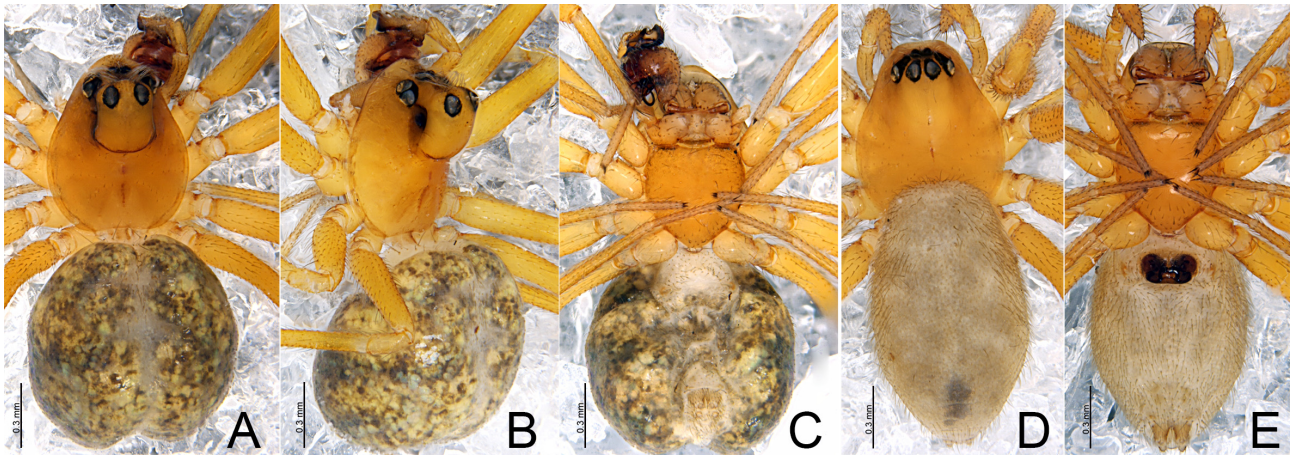


FIGURE 287. *Walckenaeria yanglinensis* **sp. n.**, male holotype (A–C) and female paratype (D, E–F). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. See genus diagnosis.

Description. Male (holotype, Figs 290A, B): Total length: 1.42. Carapace 0.66 long, 0.56 wide, cephalic region slightly elevated, cephalic pits present behind the PLEs, brown, fovea, cervical and radial grooves distinct. Clypeus 0.16 high. Chelicerae with four promarginal and four retromarginal teeth. Sternum longer than wide, yellowish grey with microsetae. Eyes: AER recurved, PER slightly procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.05, PME 0.05, PLE 0.05, AME–AME 0.02, PME–PME 0.03, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.07, ALE–ALE 0.24, PLE–PLE 0.25, ALE–PLE contiguous. Length of legs: I 1.83 (0.57, 0.63, 0.38, 0.25), II 1.72 (0.55, 0.57, 0.36, 0.24), III 1.43 (0.44, 0.45, 0.32, 0.22), IV 1.8 (0.55, 0.59, 0.41, 0.25). Tibial spine formula: 2-2-1-1. TmI 0.28

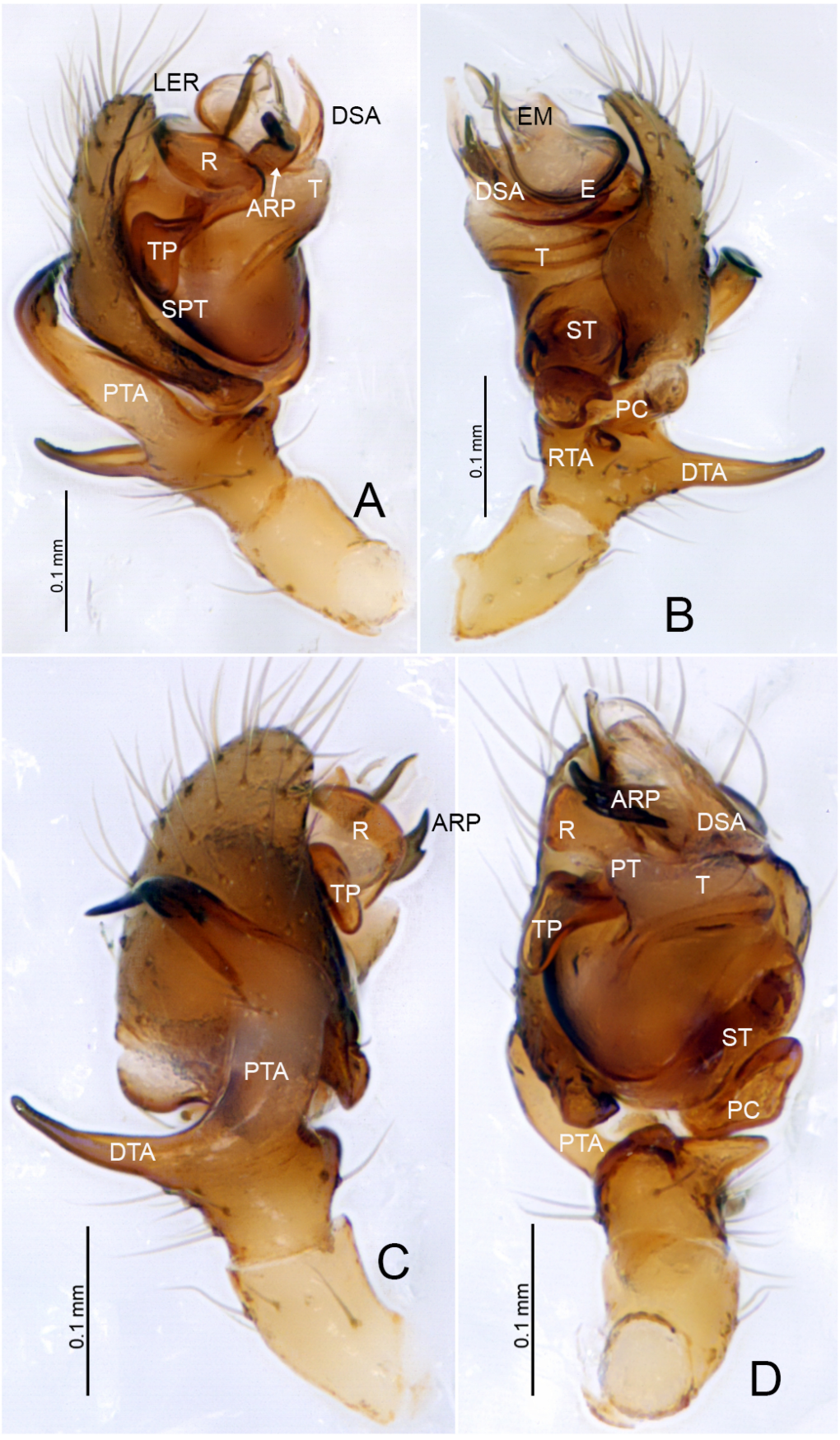


FIGURE 288. *Wulinggone qizimeiensis* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, dorsal view; **D** Palp, ventral view. Abbreviations: ARP—anterior redical process; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; LER—lateral extension of radix; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; ST—subtegulum; SPT—suprategulum; T—tegulum; TP—tailpiece of radix.

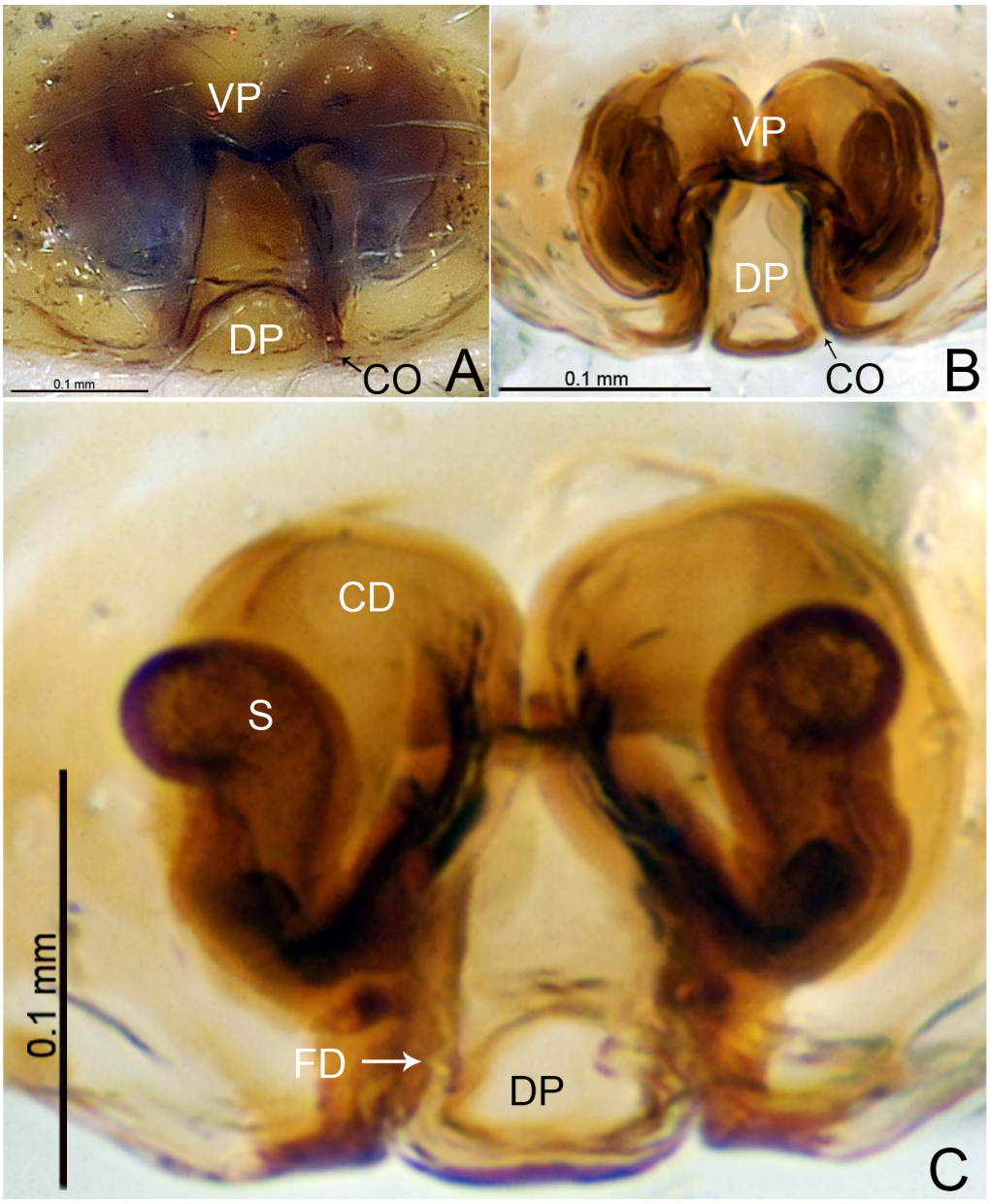


FIGURE 289. *Wulinggone qizimeiensis* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view, **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

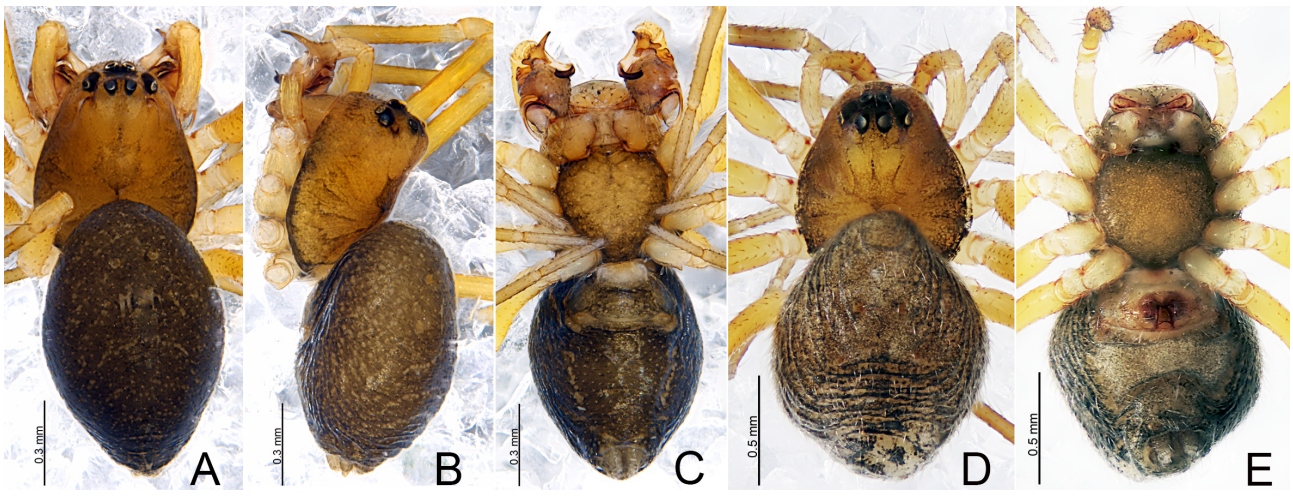


FIGURE 290. *Wulinggone qizimeiensis* **sp. n.**, male holotype (A–C) and female paratype (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

and TmIV 0.27. Opisthosoma 0.81 long, 0.59 wide, oval, grey, mid-dorsally with one pair of sigellae.

Palp (Figs 288A–D): Femur unmodified, almost longer than both patella and tibia. Patella as longer than tibia, ventrally grooved. Tibia wider than long, with two retrolateral trichobothria, dorsal tibial apophysis (DTA) sclerotized, C-shaped, tapering towards the tip; retrolateral tibial apophysis (RTA) longer than wide, with blunt end; cymbium retrolateral margin extending towards subtegulum; paracymbium (PC) small, J-shaped, distal part hook-shaped; distal suprategular apophysis (DSA) long, distal end membranous, slightly grooved, extending forward. Radix (R) proximally with foot shaped tailpiece (TP); lateral extension of radix (LER) curved with distal end membranous; anterior radical apophysis (ARP) strongly sclerotized, tip furcated; embolus (E) J-shaped.

Female (one of paratype, Figs 290D, E): Total length: 1.49. Carapace 0.86 long, 0.52 wide, cephalic region slightly elevated, brown, cervical, fovea and radial grooves distinct. Clypeus 0.11 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, yellowish grey with microsetae. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.04, PME 0.04, PLE 0.03, AME–AME 0.02, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.03, AME–PME 0.04 ALE–ALE 0.21, PLE–PLE 0.23, ALE–PLE contiguous. Length of legs: I 1.54 (0.48, 0.45, 0.31, 0.21), II 1.44 (0.47, 0.48, 0.28, 0.21), III 1.36 (0.43, 0.45, 0.27, 0.21), IV 1.74 (0.56, 0.57, 0.37, 0.24). Tibial spine formula: 2-2-1-1. TmI 0.23, TmIV 0.24. Opisthosoma 0.96 long, 0.77 wide, oval, grey, mid-dorsally with one pair of sigellae.

Epigyne (Figs 289A–C): Ventral plate (VP) sclerotized, longer than wide, not completly covering the dorsal plate. Copulatory openings (CO) present posteriorly at the junction of ventral and dorsal plate. Dorsal plate (DP) longer than wide; copulatory ducts (CD) form spiral loop before joining the spermathecae; spermathecae (S) elliptical, present dorso-laterally on the dorsal plate and pointing away from each other; fertilization ducts (FD) present on lateral sides.

Distribution. Known only from the type localities (Chongqing and Hubei Province, Figs 307, 313).

Wulingnus Irfan, Zhang & Peng, gen. n. (武陵蛛属)

Type species: *Wulingnus furcatus* **sp. n.**

Etymology. This genus name derives from the type locality that is located in the Wuling Mountain range. Gender masculine.

Diagnosis. *Wulingnus* **gen. n.** can be distinguished from all the other Erigoninae genera by the long, elliptical, transparent convector kidney-shaped, extending forward to form projection apically; embolus filiform, running along the retrolateral margin of the convector (Figs 202A–D, 203A, B, 204A, B). Copulatory ducts long, thick, with inverted coiled loop before joining the spermathecae, present mesally on the dorsal plate (Figs 205A–C).

Description. Same as for type species.

Remarks. *Wulingnus* **gen. n.** seems closely related to the genus *Houshenzinus* in having the convector in male palp and copulatory duct mid dorsally forming several loops before entering the spermathecae in epigyne (Figs 291A–D, 292A, B, 293A, B, 294A–C; Zhao & Li 2014, figs 44A–D, 45A, B, 46A–C), but can be distinguished by the convector kidney-shaped in male palp in *Wulingnus* **gen. n.** (Figs 291A–D, 292A, B, 293A, B; vs. comma-shaped); copulatory ducts with inverted coiled loops in *Wulingnus* **gen. n.** (Figs 294A–C; vs. coiled loop in vertical position).

Composition. *Wulingnus* **gen. n.** belongs to the subfamily Erigoninae and here erected to accommodate *W. furcatus* **sp. n.** and *W. inversus* **sp. n.**.

Distribution. Known only from the type localities (Hubei Province, Fig. 313).

Wulingnus furcatus Irfan, Zhang & Peng, sp. n. (分叉武陵蛛)

Figures 291–295, 313

Types. Holotype ♂, **CHINA, Hubei:** Badong Co., Yanduhe Town, Songziyuan Vill., 31.33400°N, 110.42625°E, 1340 m, 28.IV.2016, W. Liu *et al.* leg. **Paratypes:** 3♂9♀, with same data as for holotype; 1♂6♀, Xuanen Co., Shadaogou Town, Qizimei Mountain, 29.706342°N, 109.75642°E, 1155 m, 30.IV.2016, W. Liu *et al.* leg.; 1♀, Badong Co., Yanduhe Town, Songziyuan Vill., 31.35278°N, 110.39937°E, 1836 m, 27.IV.2016, W. Liu *et al.* leg. (HNU–HB2016–04–30); 1♂, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg. (HNU–HB–IV–1710).

Etymology. The specific epithet is derived from the Latin adjective "*furcatus*" meaning "forked" and referring to the bifurcate tip of embolus in male palp.

Diagnosis. See genus diagnosis.

Description. Male (holotype, Figs 295A–C): Total length: 2.11. Carapace 0.86 long, 0.72 wide, cephalic region slightly elevated, yellow, fovea, cervical and radial grooves distinct. Clypeus 0.26 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, yellow with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.06, PME 0.07, PLE 0.05 AME–AME 0.02, PME–PME 0.10, AME–ALE, 0.02, PME–PLE 0.01, AME–PME 0.04, ALE–ALE 0.22, PLE–PLE 0.25, ALE–PLE contiguous. Length of legs: I 3.14 (0.84, 1.02, 0.76, 0.52), II 3 (0.81, 0.98, 0.76, 0.45), III 2.22 (0.64, 0.66, 0.53, 0.39), IV 2.98 (0.78, 0.91, 0.75, 0.48). Tibial spine formula: 2-2-1-1. TmI 0.57 and TmIV 0.53. Opisthosoma 1.25 long, 0.76 wide, oval, pale, mid dorsally with pale broad band followed by three transverse cheveron posteriorly, ventral side pale.

Palp (Figs 291A–D, 292A, B, 293A, B): Femur unmodified, almost longer than both patella and tibia. Patella shorter than tibia, ventrally grooved. Tibia one

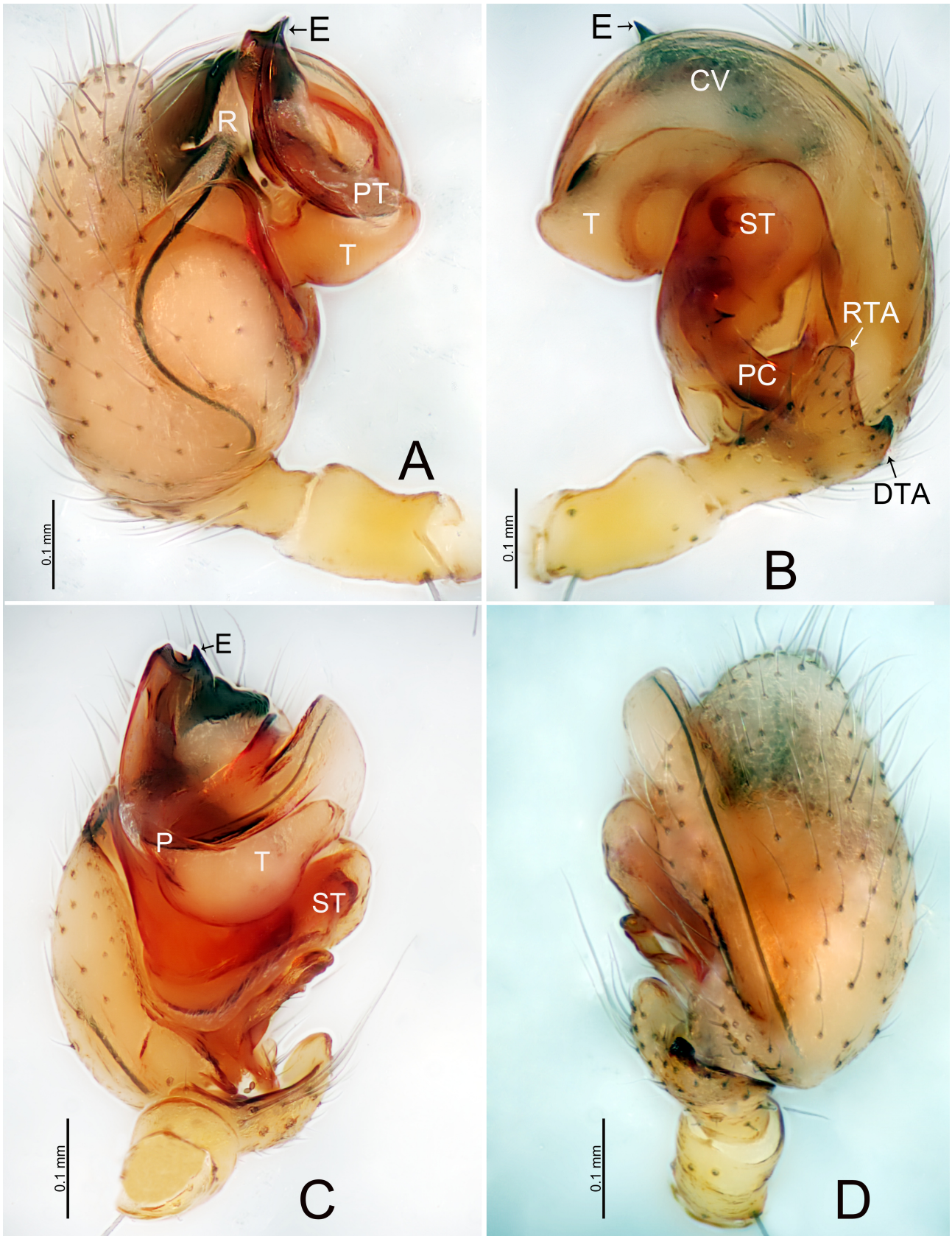


FIGURE 291. *Wulingnus furcatus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view; **C** Palp, ventral view; **D** Palp, dorsal view. Abbreviations: CV—convector; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; PC—paracymbium; PT—protegulum; R—radix; RTA—retrolateral tibial apophysis; ST—subtegulum; T—tegulum.

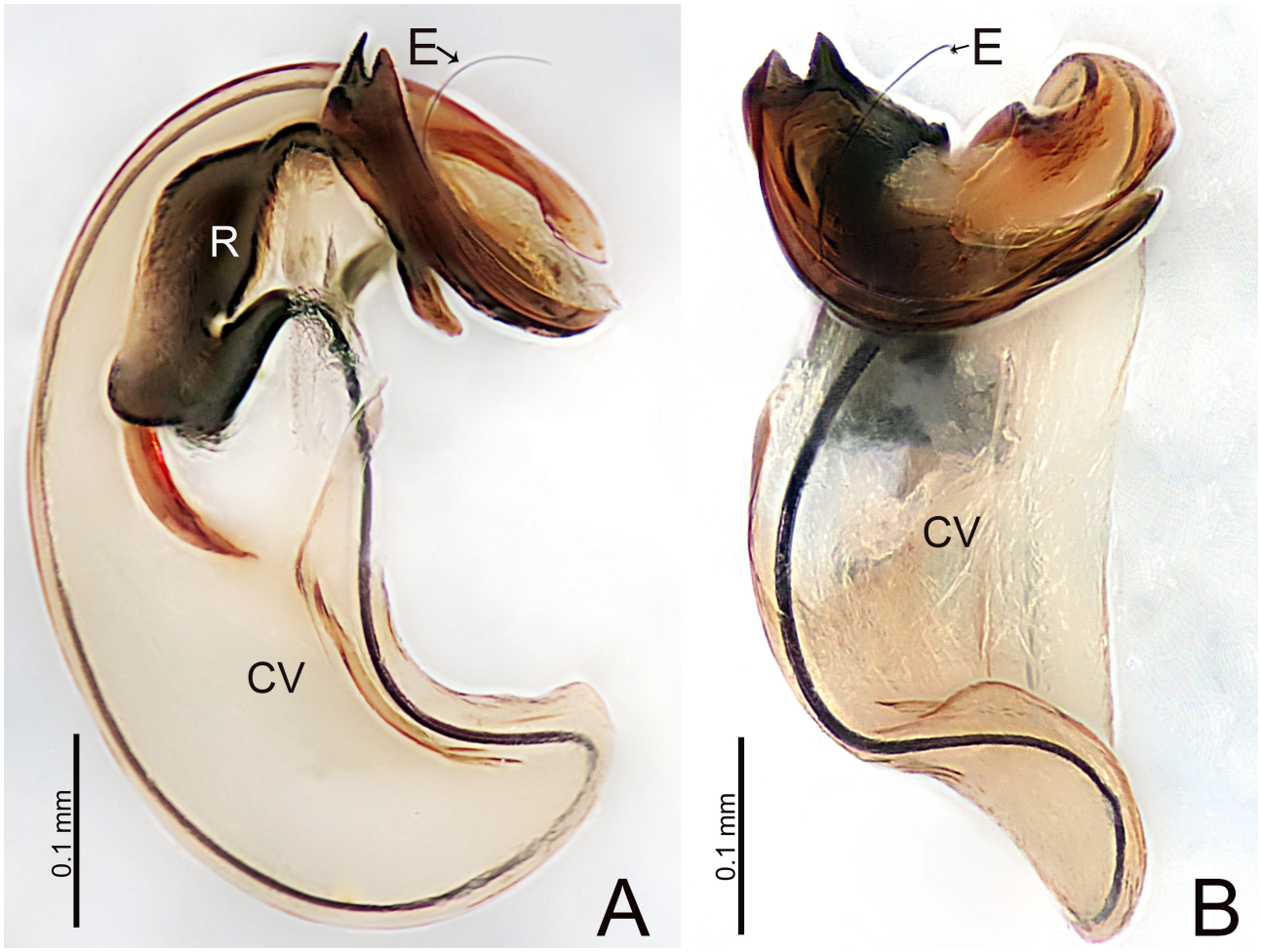


FIGURE 292. *Wulingnus furcatus* **sp. n.**, male paratype palp. **A** Embolic division, prolateral view; **B** Embolic division, ventral view. Abbreviations: CV—convector; E—embolus; R—radix.

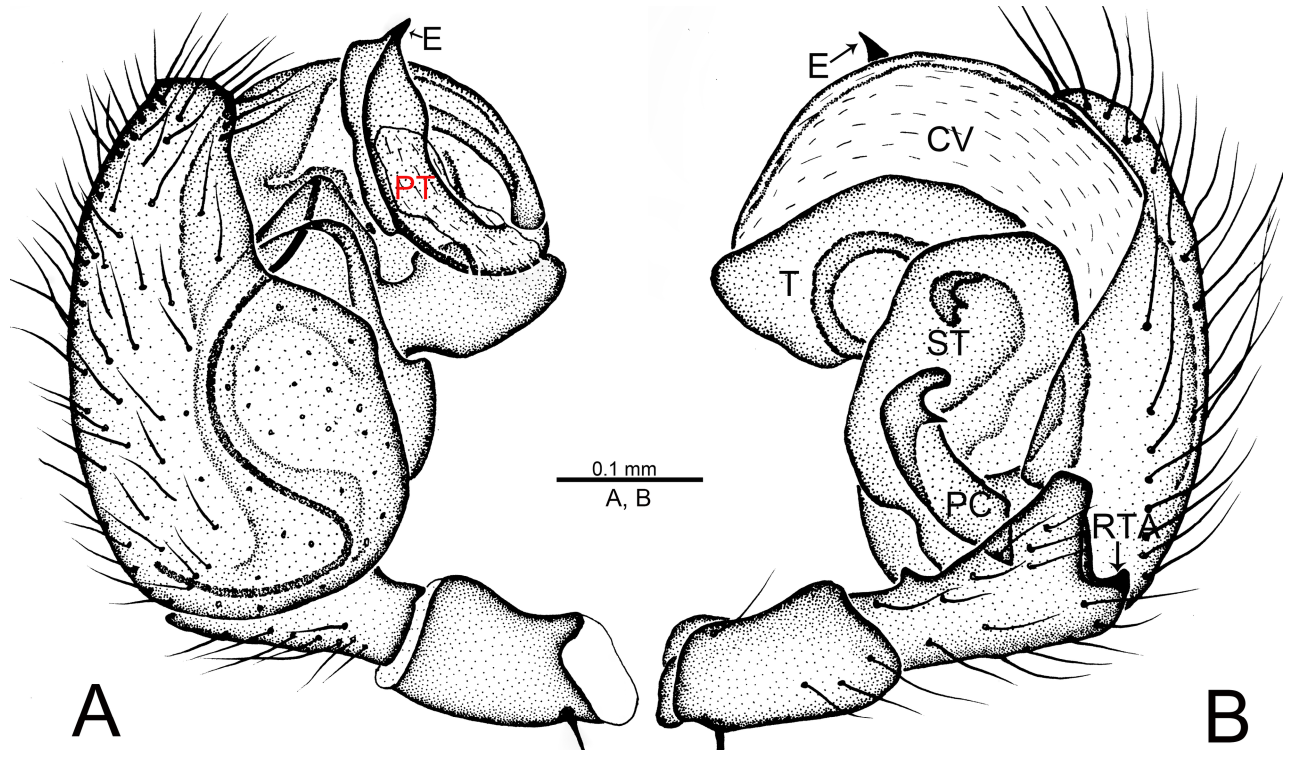


FIGURE 293. *Wulingnus furcatus* **sp. n.**, male holotype. **A** Palp, prolateral view; **B** Palp, retrolateral view. Abbreviations: CV—convector; DSA—distal suprategular apophysis; DTA—dorsal tibial apophysis; E—embolus; PC—paracymbium; PT—protegulum; RTA—retrolateral tibial apophysis; ST—subtegulum; T—tegulum.

and half the length of cymbium, with one reterolateral and one dorsal trichobothria, reterolateral tibial apophysis (RTA) somewhat triangular with blunt tip, dorsal tibial apophysis (DTA), small, horn shaped with blunt tip; cymbium unmodified; paracymbium (PC) sclerotized, distal tip C-shaped; tegulum (T) sclerotized, with long transparent protegulum (PT) covering the embolus. Convector (CV) elliptical, transparent extending forward to form projection; embolus (E) filiform, running along the retrolateral margin of the convector, distal end curved, bifurcated, protruding above the apex of cymbium.

Female (one of paratype, Figs 295D, E): Total length: 2.42. Carapace 1.05 long, 0.74 wide, cephalic region slightly elevated, yellow, fovea, cervical and radial grooves distinct. Clypeus 0.26 high. Chelicerae with three promarginal and five retromarginal teeth. Sternum longer than wide, yellowish green with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.05, PLE 0.05 AME–AME 0.04, PME–PME 0.05, AME–ALE, 0.03, PME–PLE 0.05, AME–PME 0.06, ALE–ALE 0.30, PLE–PLE 0.34, ALE–PLE 0.01. Length of legs: I 3.25 (0.89, 1.09, 0.74, 0.53), II 2.97 (0.77, 0.97, 0.71, 0.52), III 2.48 (0.73, 0.71, 0.63, 0.41), IV 3.3 (0.98, 1.02, 0.79, 0.51). Tibial spine formula: 2-2-1-1. TmI 0.63 and TmIV 0.65. Opisthosoma 1.37 long, 0.85 wide, oval, pale, mid dorsally with pale broad band followed by three transverse cheveron posteriorly, ventral side pale.

Epigyne (Figs 294A–C): Simple integument (Int.) covering the epigyne anteriorly; median plate (MP) broad, rectangular; copulatory opening (CO) present at the junction of integument and median plate; copulatory ducts (CD), thick, with inverted coiled loop before joining the spermathecae, present mesally; spermathecae (S) oval, present laterally on median plate, spaced by two-third of diameters; fertilization ducts (FD) long extending mesally.

Distribution. Known only from the type locality (Hubei Province, Fig. 313).

Wulingnus inversus Irfan, Zhang & Peng, sp. n. (反向武陵蛛)

Figures 296, 297, 313

Types. Holotype ♀, **CHINA, Hubei Prov.:** Badong

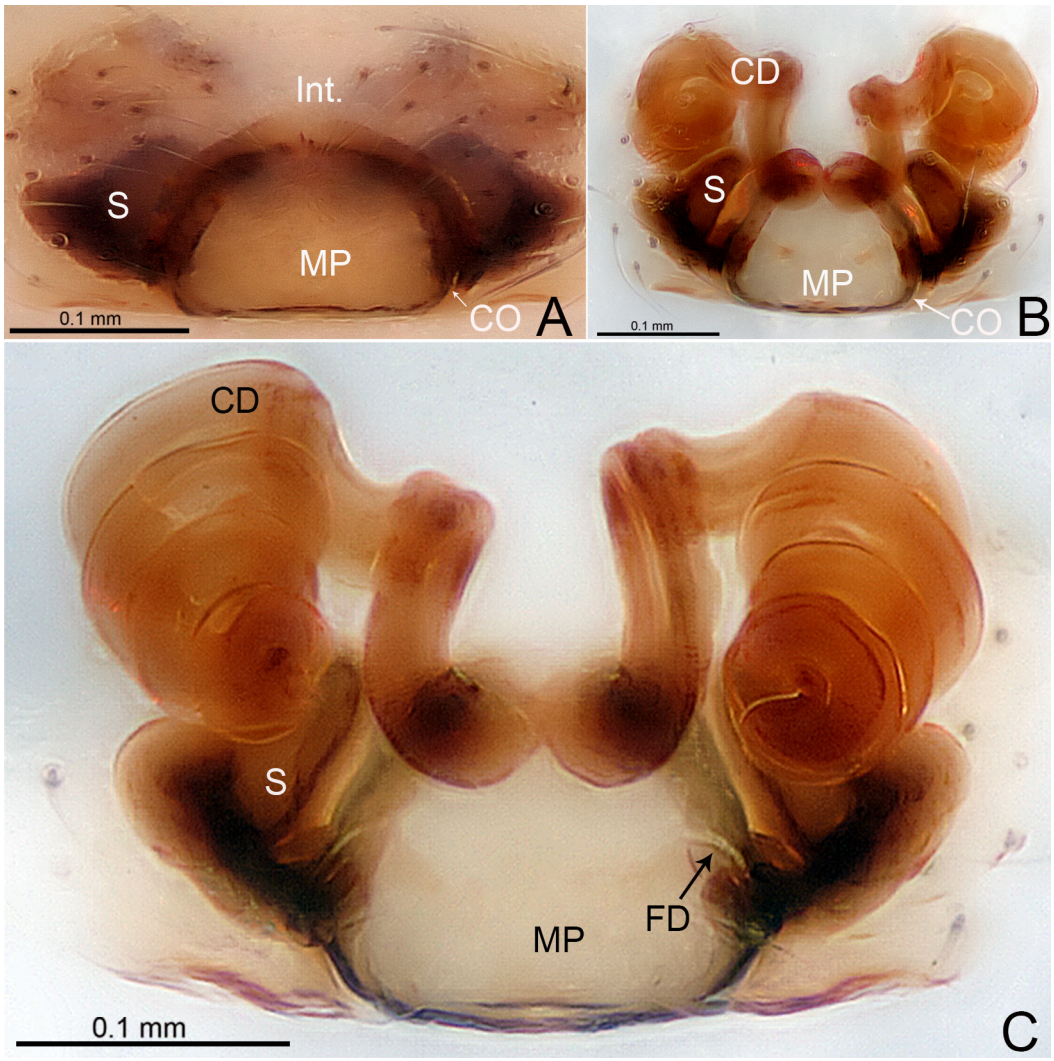


FIGURE 294. *Wulingnus furcatus* **sp. n.**, female paratype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; FD—fertilization duct; Int.—integument; MP—median plate; S—spermatheca.

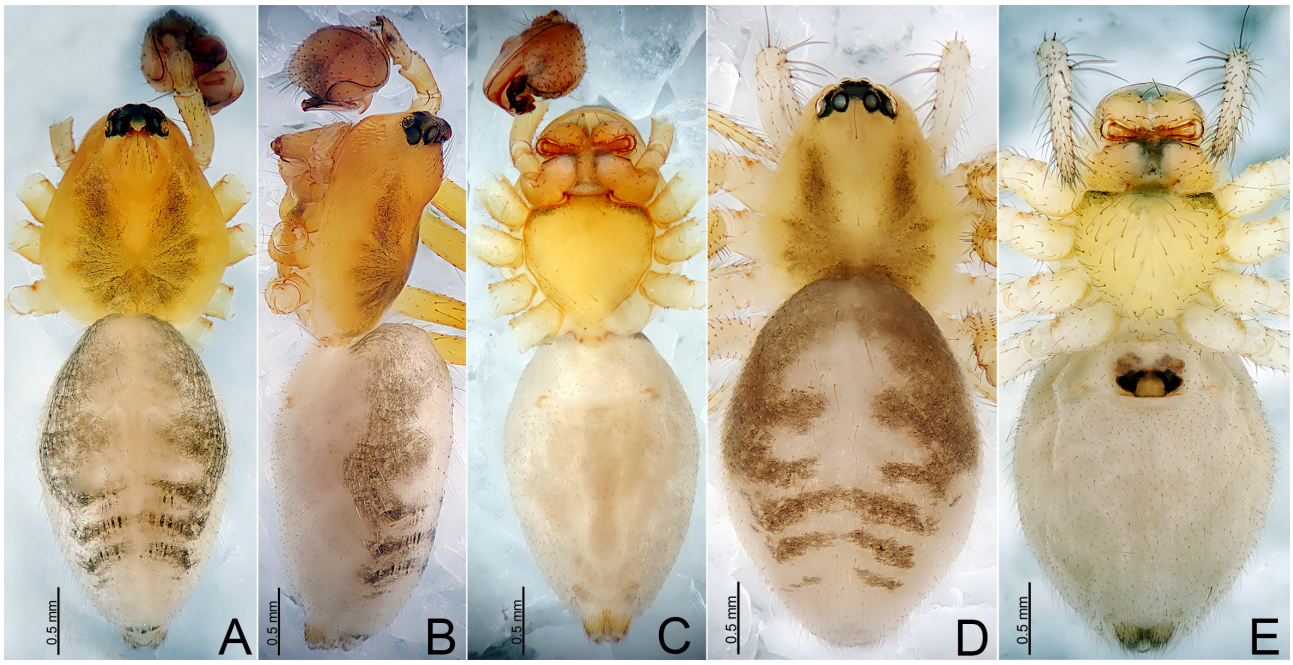


FIGURE 295. *Wulingnus furcatus* **sp. n.**, male holotype (A–C) and female paratype (D, E). **A**, **D** Habitus, dorsal view; **B** Habitus, lateral view; **C**, **E** Habitus, ventral view.

Co., Yanduhe Town, Songziyuan Vill., 31.33400°N, 110.42625°E, 1340 m, 28.IV.2016, W. Liu *et al.* leg.

Etymology. The specific epithet is derived from the Latin adjective "*inversus*" meaning "inverted" and referring to the inverted aspiral loop of copulatory ducts in epigyne.

Diagnosis. *Wulingnus furcata* **sp. n.** can be diagnosed by the shape of median plate, copulatory ducts, and spermathecae (Figs 295A–C).

Description. Female (Figs 296A, B): Total length: 2.79. Carapace 1.26 long, 0.98 wide, cephalic region slightly elevated, yellow–brown, fovea, cervical and radial grooves distinct. Clypeus 0.31 high. Chelicerae with four promarginal and five retromarginal teeth. Sternum longer than wide, brown with microsetae. Eyes: AER recurved, PER procurved, slightly wider than AER. Eye sizes and interdistances: AME 0.05, ALE 0.09, PME 0.06, PLE 0.06 AME–AME 0.03, PME–PME 0.08, AME–ALE, 0.03, PME–PLE 0.06, AME–PME 0.08, ALE–ALE 0.35, PLE–PLE 0.41, ALE–PLE 0.02. Length of legs: I 3.71 (1.05, 1.27, 0.86, 0.56), II 3.32 (1.01, 1.13, 0.71, 0.47), III 2.96 (0.89, 0.98, 0.64, 0.45), IV 4.1 (1.16, 1.25, 0.82, 0.87). Tibial spine formula: 2-2-1-1. TmI 0.64 and TmIV 0.67. Opisthosoma 1.53 long, 0.93 wide, oval, grey, mid dorsally with black broad band, ventral side pale with green band.

Epigyne (Figs 295A–C): Simple integument (Int.) covering the epigyne anteriorly; median plate (MP) broad, wider than long; copulatory opening (CO) present at the junction of integument and median plate; copulatory ducts (CD) thick, with inverted coiled loop before joining the spermathecae, present mesally; spermathecae (S) elliptical, present laterally on median plate, spaced by two-third of diameters; fertilization ducts (FD) small extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Hubei Province, Fig. 313).

Genus *Wuliphantes* Irfan, Zhang & Peng, 2023 (五里蛛属)

Type species. *Wuliphantes trigyrus* Irfan, Zhang & Peng, 2023; gender masculine.

Remark. *Wuliphantes* comprises three species distributed in China (WSC 2024).

Wuliphantes tongluensis (Chen & Song, 1988) (桐庐五里蛛)

Figures 298, 299, 300, 307, 314, 315

Bathyphantes tongluensis Chen & Song, 1988: 42, figs 1–4 (♂♀); Yin *et al.* 2012: 480, figs 219a–e (♂♀). For full list of publications and synonyms concerning this species see WSC (2024).

Material examined. 1♀, **CHINA, Hunan Prov.:** Zhangjiajie City, Wulingyuan district, Suoxiyu Town, 29.325725°N, 110.60704°E, 454 m, 12.V.2017, G.C. Zhou *et al.* leg.; 1♀, Huaihua City, Huitong Co., Suyu Park Lingcheng Town, 26.86448°N, 109.7179°E, 317 m, X.J. Peng *et al.* leg.; 1♀, Yongshun Co., Xiaoxi Town, Xiaoxi NNR Xiaoxi Vill., 28.80250°N, 110.26335°E, 467 m, 01.VIII.2017, X.J. Peng *et al.* leg.; **Hubei Prov.:** 2♂19♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg.; 1♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 29.99053°N, 109.73879°E, 965 m, 13.V.2017, G.C. Zhou *et al.* leg.; 1♀, Enshi Co., Xuaneng, Changtanghe

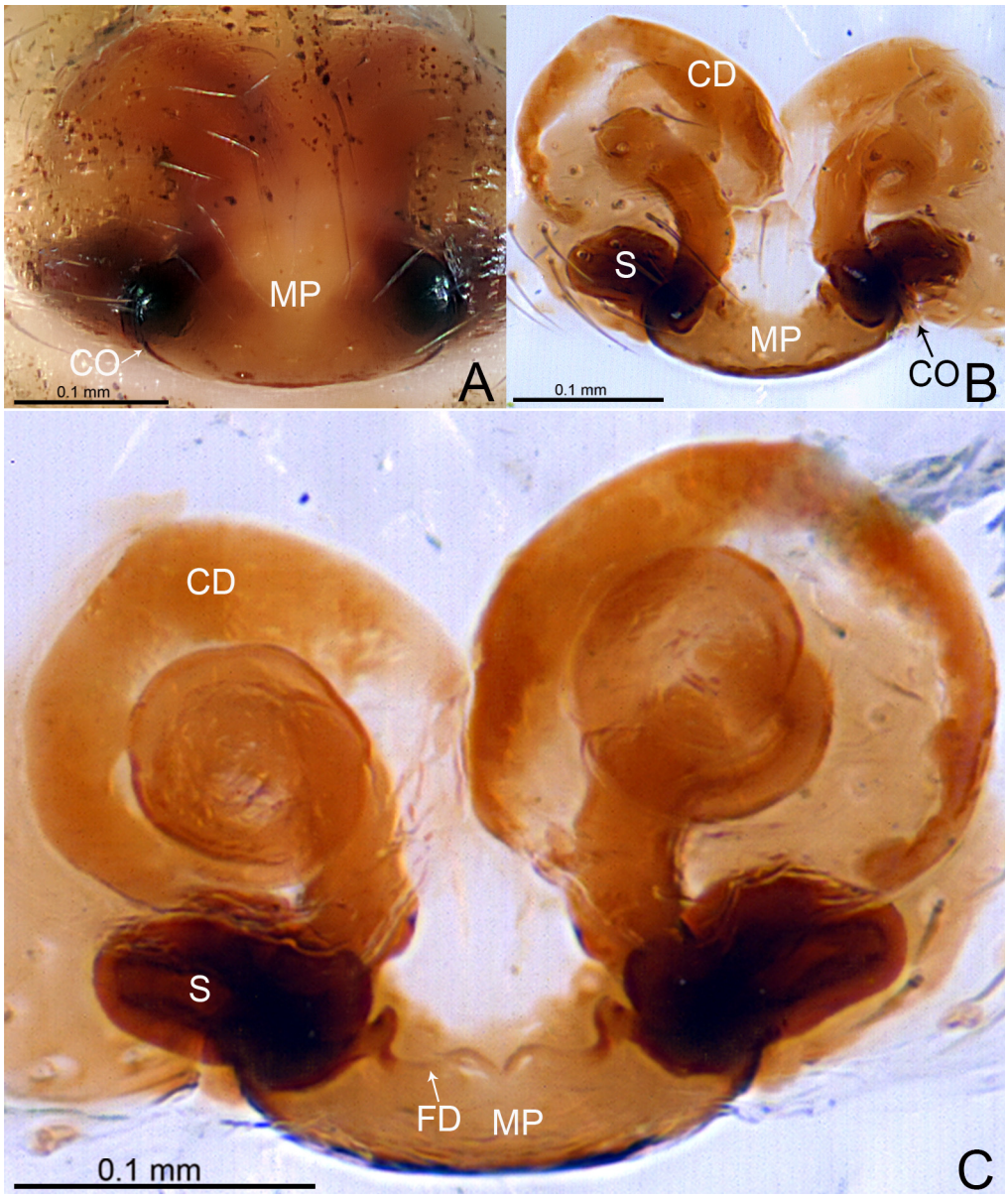


FIGURE 296. *Wulingnus inversus* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; FD—fertilization duct; Int.—integument; MP—median plate; S—spermatheca.

Town, Lianghekou Vill., 29.99510°N, 109.74007°E, 1041 m, 14.V.2017, G.C. Zhou *et al.* leg.; 1♀, Enshi Co., Xuaneng, Changtanghe Town, Lianghekou Vill., 30.00166°N, 109.74093°E, 1234 m, 14.V.2017, G.C. Zhou *et al.* leg.; 3♀, Enshi Co., Xingdou MNNR, 30.04166°N, 109.13377°E, 1253 m, 18.V.2017, G.C. Zhou *et al.* leg.; 1♀, Enshi Co., Huangjindong Town, Maliuxi Vill., 30.03902°N, 109.14274°E, 1114 m, 19.V.2017, M. Irfan & G.C. Zhou leg.; 1♂, Enshi Co., Huangjindong Town, Maliuxi Vill., 29.95006°N, 109.02566°E, 876 m, 20.V.2017, G.C. Zhou *et al.* leg.; **Chongqing:** 1♂1♀, Nanchuan Co., Dayou Town, 28.997361°N, 107.33591°E, 1021 m, 13.VIII.2015, X.J. Peng *et al.* leg.

Distribution. China (Anhui, Chongqing, Guizhou, Hunan, Hubei and Zhejiang Provinces, Figs 307, 314, 315).

Genus *Yuelushannus* Irfan, Zhou, Bashir, Mukhtar & Peng, 2020 (岳麓山蛛属)

Type species. *Yuelushannus barbatus* Irfan, Zhou, Bashir, Mukhtar & Peng, 2020; gender masculine.

Remark. *Yuelushannus* comprises two species distributed in China (WSC 2024).

Yuelushannus diaotangensis Irfan, Zhang & Peng, sp. n. (刁塘岳麓山蛛)

Figures 301, 302, 315

Types. Holotype ♀ (HNU–HN–IV–1770), **CHINA, Hunan Prov.:** Huaihua City, Huitong Co., Tuanhe Town, Diaotang Vill., Yingzuijie NNR, 26.89206°N, 109.93273°E, 168 m, 30.X.2017, G.C. Zhou leg.

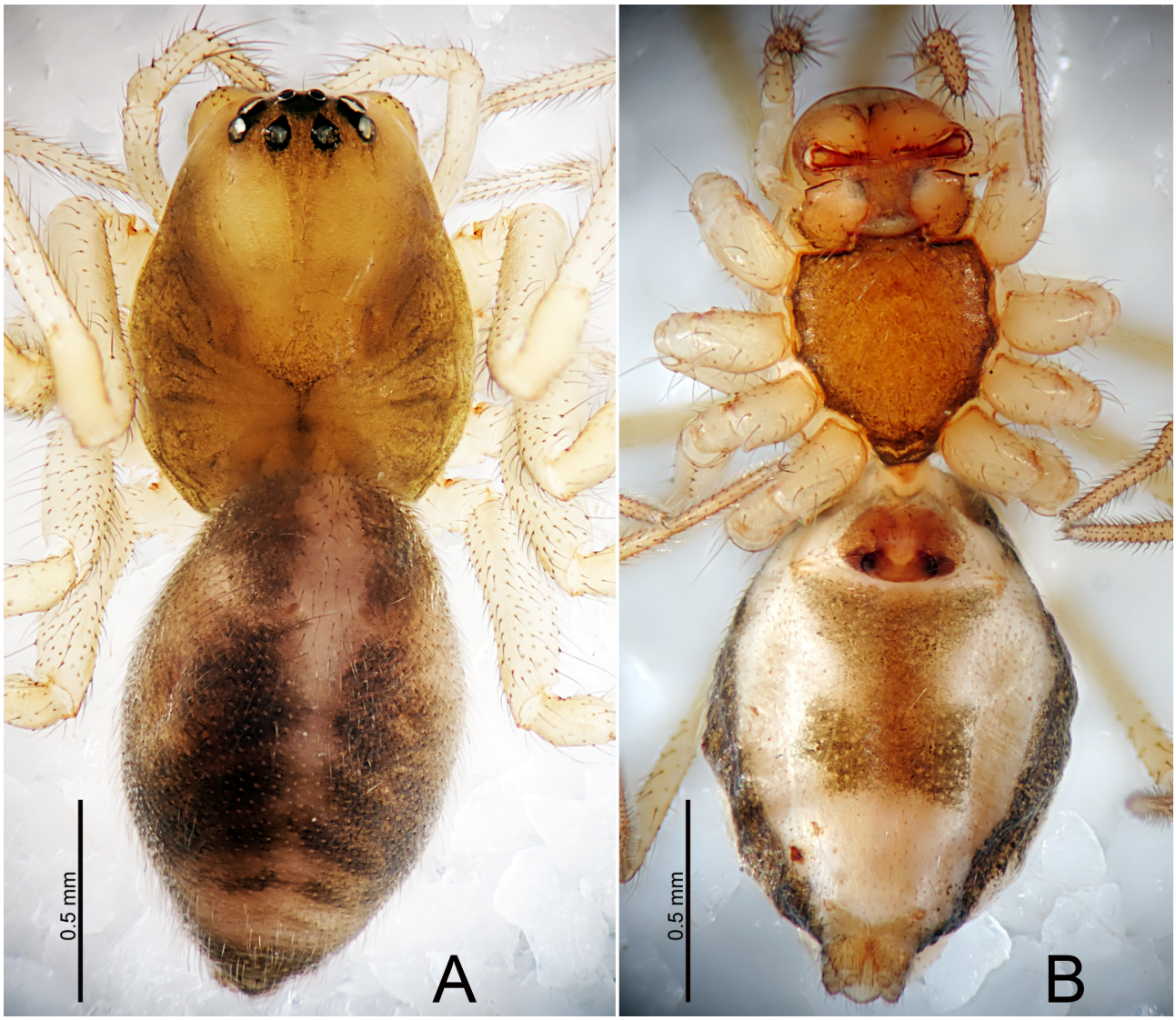


FIGURE 297. *Wulingnus inversus* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

Etymology. This specific species name derived from the type locality; adjective.

Diagnosis. *Yuelushannus diaotangensis* **sp. n.** can be distinguished from all other congeners by the spermathecae copulatory ducts arc-shaped; spermathecae present anteriorly (Figs 301B, C).

Description. Female (holotype, Figs 302A–C): Total length: 1.34. Carapace 0.59 long, 0.44 wide, pale, fovea, cervical and radial grooves distinct. Clypeus 0.23 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, yellowish green with microsetae. Eyes: AER recurved, PER straight, slightly wider than AER. Eye sizes and interdistances: AME 0.03, ALE 0.04, PME 0.04, PLE 0.04, AME–AME 0.01, PME–PME 0.02, AME–ALE, 0.01, PME–PLE 0.02, AME–PME 0.02, ALE–ALE 0.14, PLE–PLE 0.16, ALE–PLE contiguous. Length of legs: I 1.66 (0.46, 0.51, 0.41, 0.28), II 1.53 (0.42, 0.48, 0.39, 0.24), III 1.26 (0.37, 0.38, 0.32, 0.19), IV 1.46 (0.42, 0.43, 0.38, 0.23). Tibial spine formula: 1-1-1-1. TmI 0.19 and TmIV present. Opisthosoma 0.73 long, 0.49 wide, oval, pale, densely covered with fine setae.

Epigyne (Figs 301A–C): Ventral plate (VP) wider than long, sclerotized; dorsal plate (DP) relatively transparent, partly visible in ventral view; copulatory opening (CO) present ventro-mesally; copulatory ducts (CD) columnar, present ventro-mesally; spermathecae (PS) kideny-shaped, present dorso-laterally; fertilization ducts (FD) small, extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Yuelushannus jinyuanensis Irfan, Zhang & Peng, sp. n. (金元岳麓山蛛)

Figures 303, 304, 315

Types. Holotype ♀ (HNU–HN–IV–1755), **CHINA, Hunan Prov.:** Ningxiang Co., Huaminglou Town,

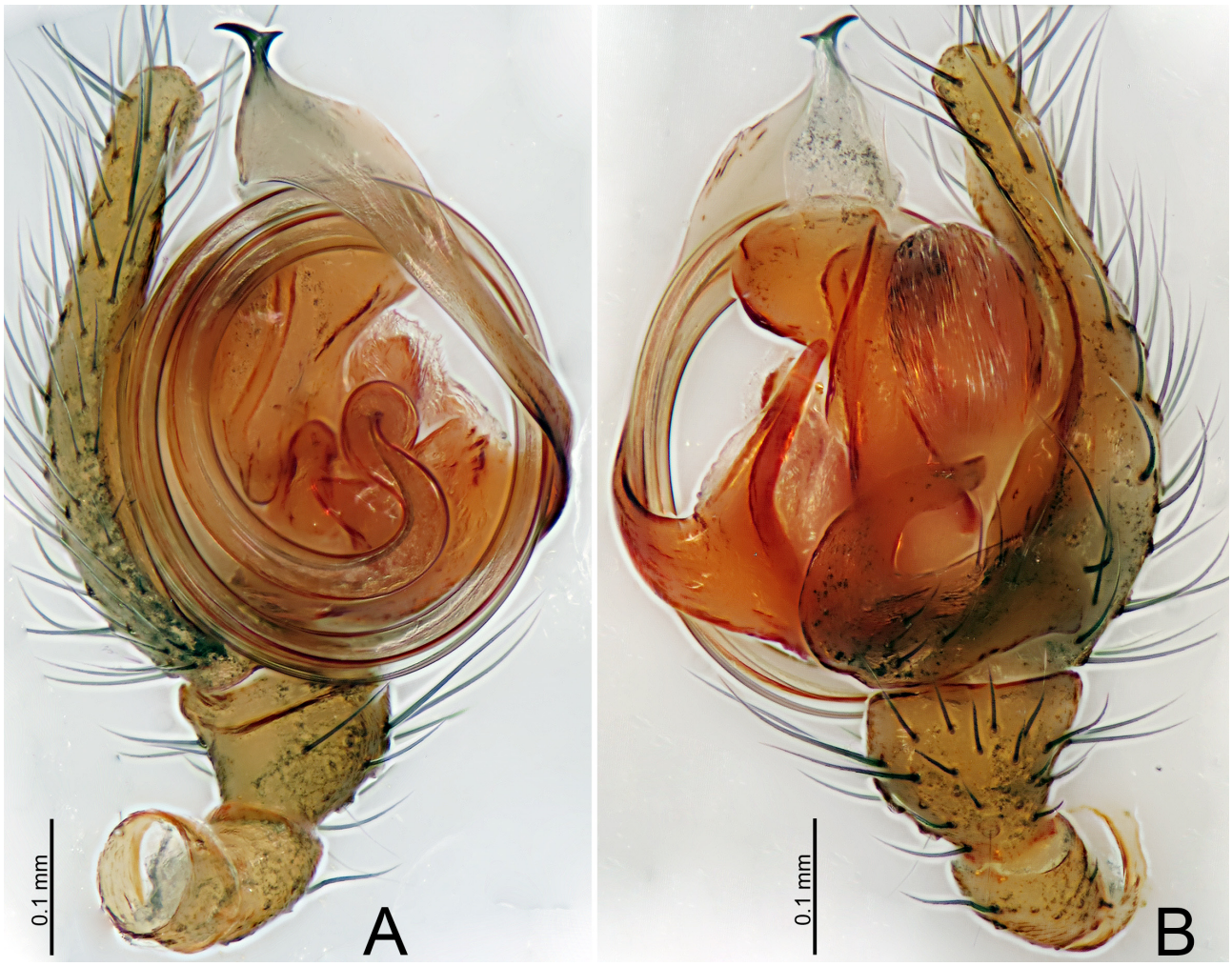


FIGURE 298. *Wuliphantes tongluensis* (Chen & Song, 1988). **A** Palp, prolateral view; **B** Palp, retrolateral view.

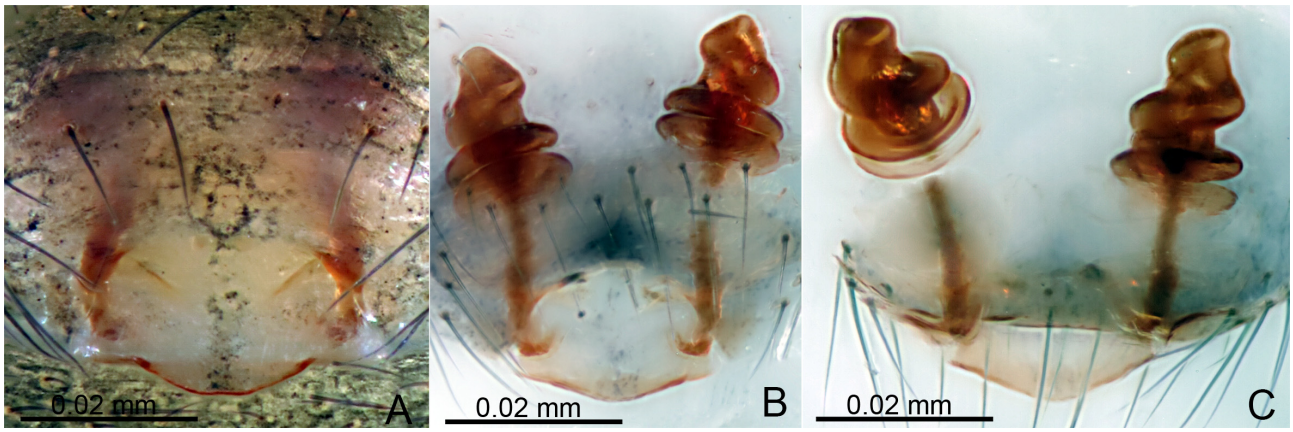


FIGURE 299. *Wuliphantes tongluensis* (Chen & Song, 1988), female. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view.

Jinyuan Vill., 28.1002°N, 112.5277°E, 187 m, 24.X.2017, G.C. Zhou leg.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Yuelushannus jinyuanensis* **sp. n.** resembles *Y. wenfengensis* **sp. n.** in having the similar spermathecae and copulatory ducts (Figs 303A–C, Figs 305A–C), but can be distinguished by the dorsal plate longer than wide posteriorly in *Y. jinyuanensis* **sp. n.** (Figs 303A–C), vs. wider than long in *Y. wenfengensis* **sp. n.** (Figs 305A–C); spermathecae not touches the posterior margin of the epigynal plate in *Y. jinyuanensis* **sp. n.** (Figs 303A–C), vs. touches the posterior margin of the epigynal plate in *Y. wenfengensis* **sp. n.** (Figs 305A–C).

Description. Female (Figs 304A, B). Total length: 1.98. Carapace 1 long, 0.84 wide, cephalic region slightly

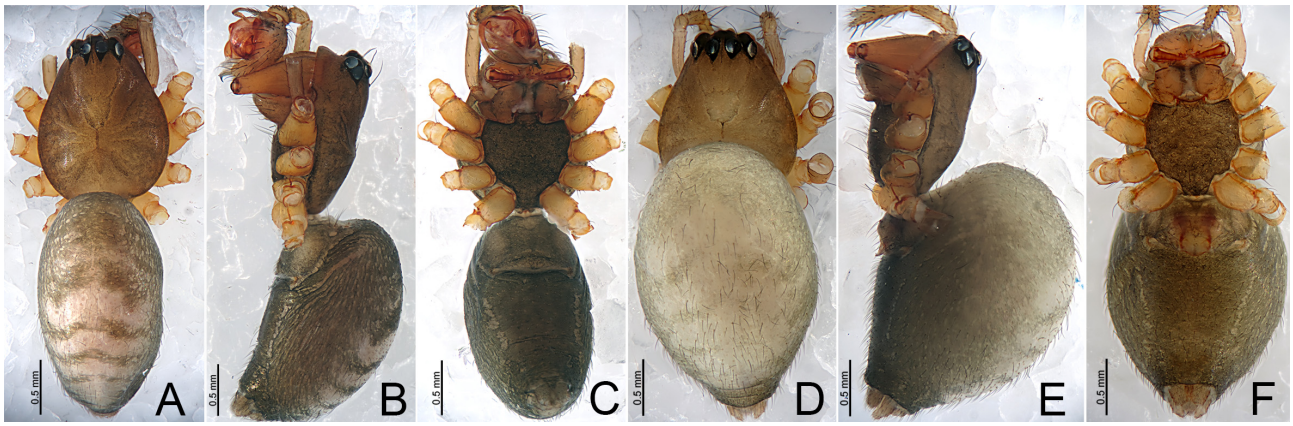


FIGURE 300. *Wuliphantes tongluensis* (Chen & Song, 1988), male (A–C) and female (D–F). **A**, **D** Habitus, dorsal view; **B**, **E** Habitus, lateral view; **C**, **F** Habitus, ventral view.

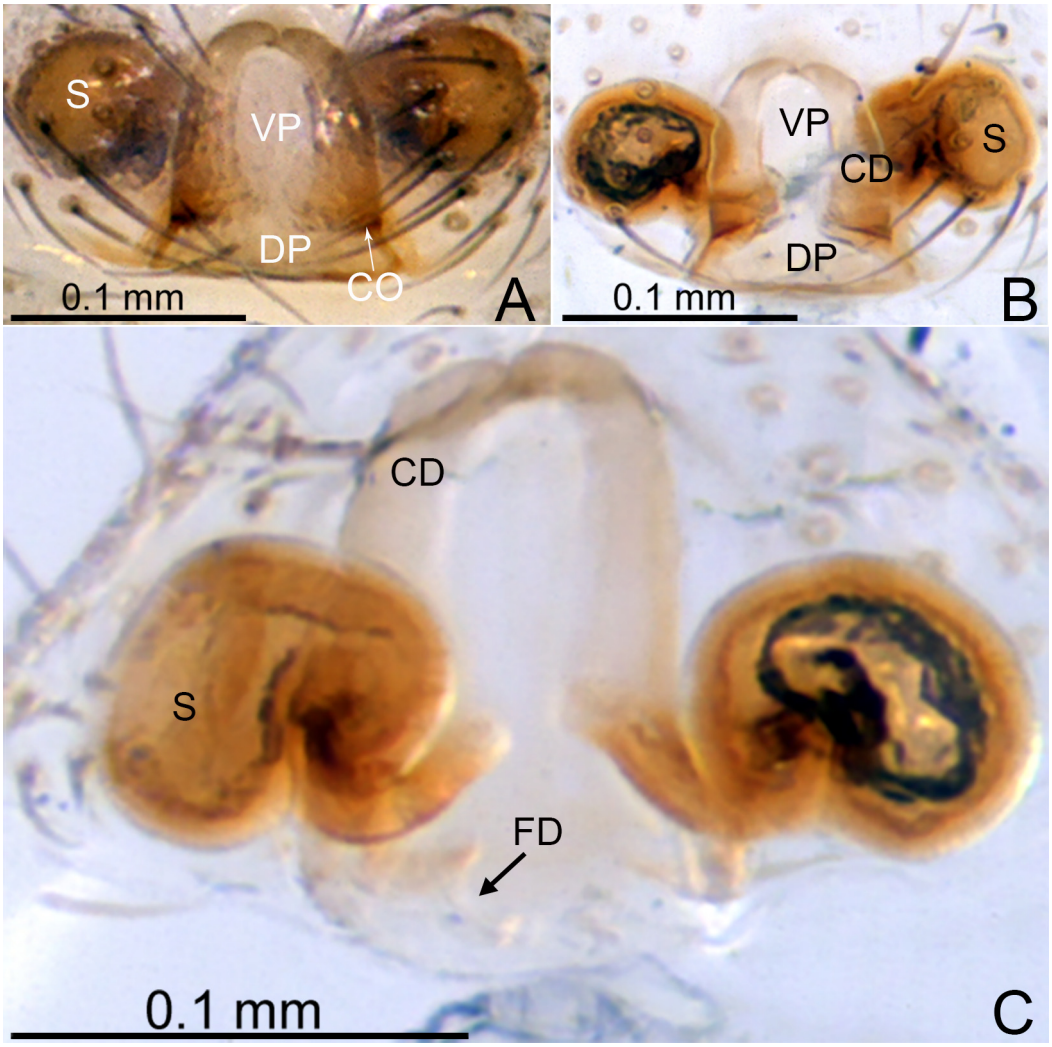


FIGURE 301. *Yuelushannus diaotangensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

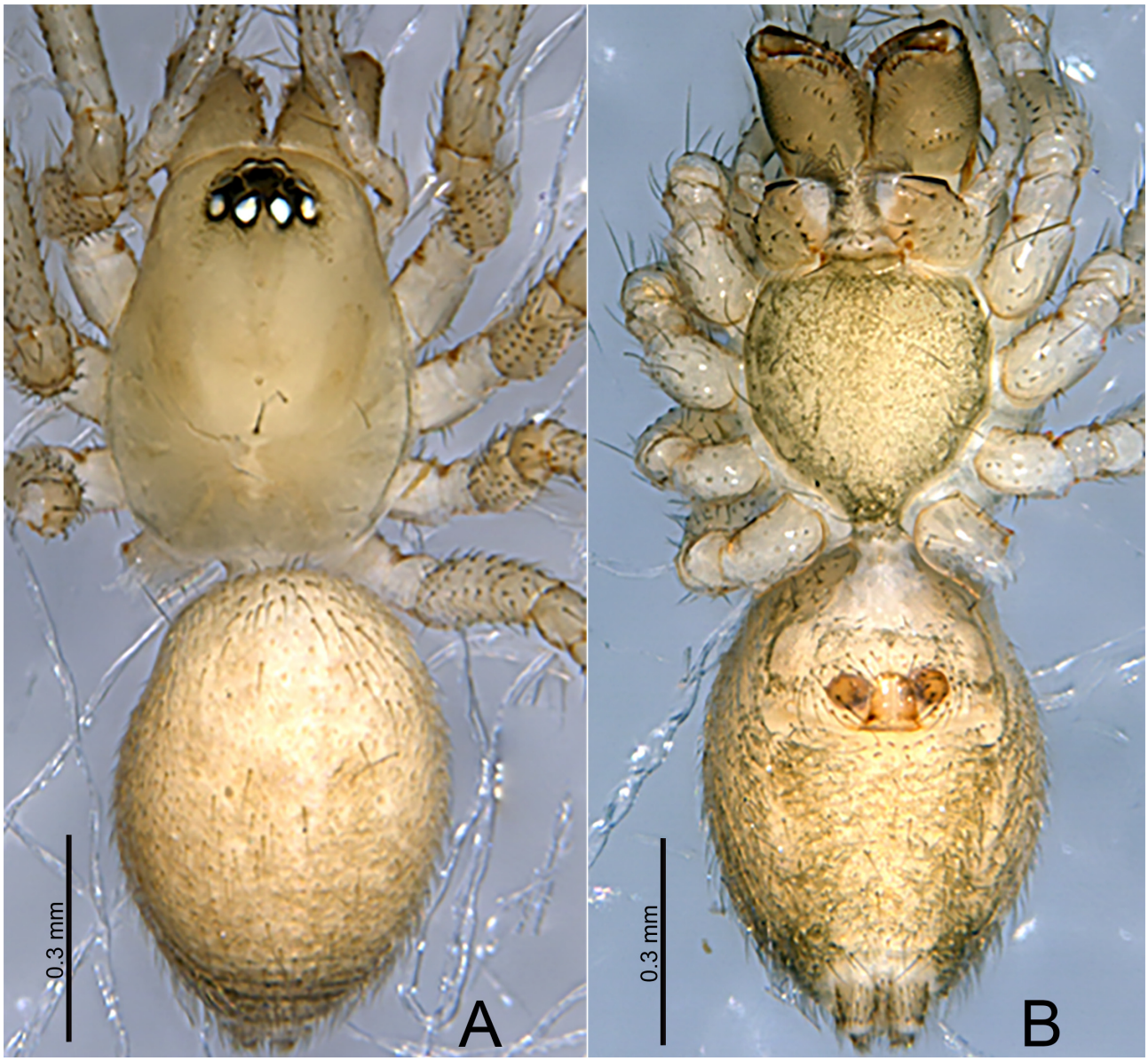


FIGURE 302. *Yuelushannus diaotangensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

elevated, yellowish brown, cervical, fovea and radial grooves distinct. Clypeus 0.18 high. Chelicerae with five promarginal and five retromarginal teeth. Sternum longer than wide, brownisg grey with microsetae. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.06, ALE 0.08, PME 0.07, PLE 0.07, AME–AME 0.03, PME–PME 0.07, AME–ALE, 0.03 PME–PLE 0.06, AME–PME 0.07, ALE–ALE 0.31, PLE–PLE 0.34, ALE–PLE contiguous. Length of legs: I 2.66 (0.81, 0.95, 0.53, 0.37), II 2.39 (0.71, 0.84, 0.51, 0.33), III 2.05 (0.56, 0.73, 0.45, 0.31), IV 2.75 (0.82, 1.02, 0.59, 0.32). TmI 0.24, TmIV present. Tibial spine formula: 2-2-1-1. Opisthosoma 1.21 long, 0.84 wide, oval, dark grey, anteriorly with two pairs of sigillae, with irregular patches; ventral side grey.

Epigyne (Figs 303A–C) ventral plate (VP) sclerotized, wider than long, completely covering the dorsal plate (DP). Copulatory openings (CO) present in the atrium between the ventral and dorsal plate. Dorsal plate (DP) longer than wide posteriorly; copulatory ducts (CD) form spiral loop before joining the spermathecae; spermathecae (S) round, present posterio-lateraly on the dorsal plate and not touches the posterior margin of the epigynal plate, pointing away from each other; fertilization ducts (FD) extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Yuelushannus wenfengensis Irfan, Zhang & Peng, sp. n. (文峰岳麓山蛛)

Figures 305, 306, 315

Types. Holotype ♀, **CHINA, Hunan Prov.:** Zhangjiajie City, Wulingyuan District, Suoxiyu Town, Wenfeng Vill., 29.352935°N, 110.608325°E, 582 m, 23.IV.2016, W. Liu *et al.* leg.

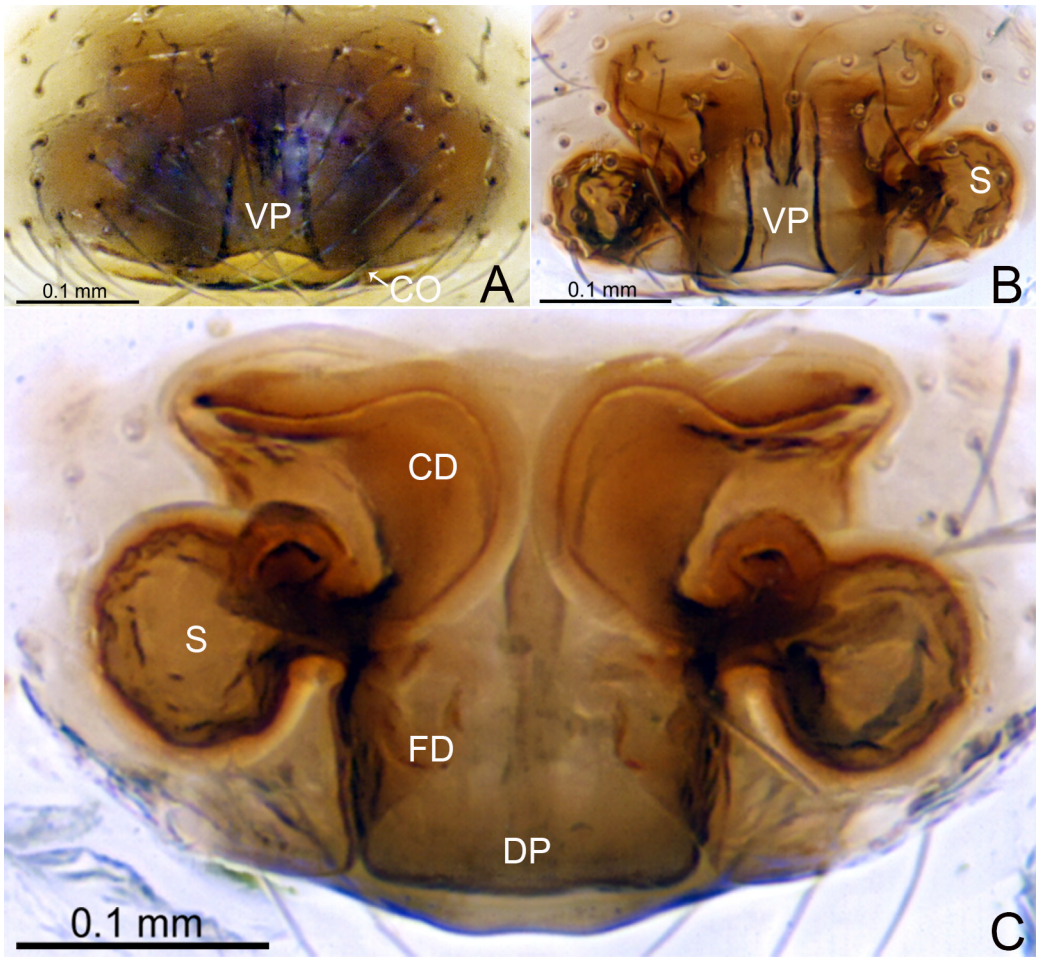


FIGURE 303. *Yuelushannus jinyuanensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

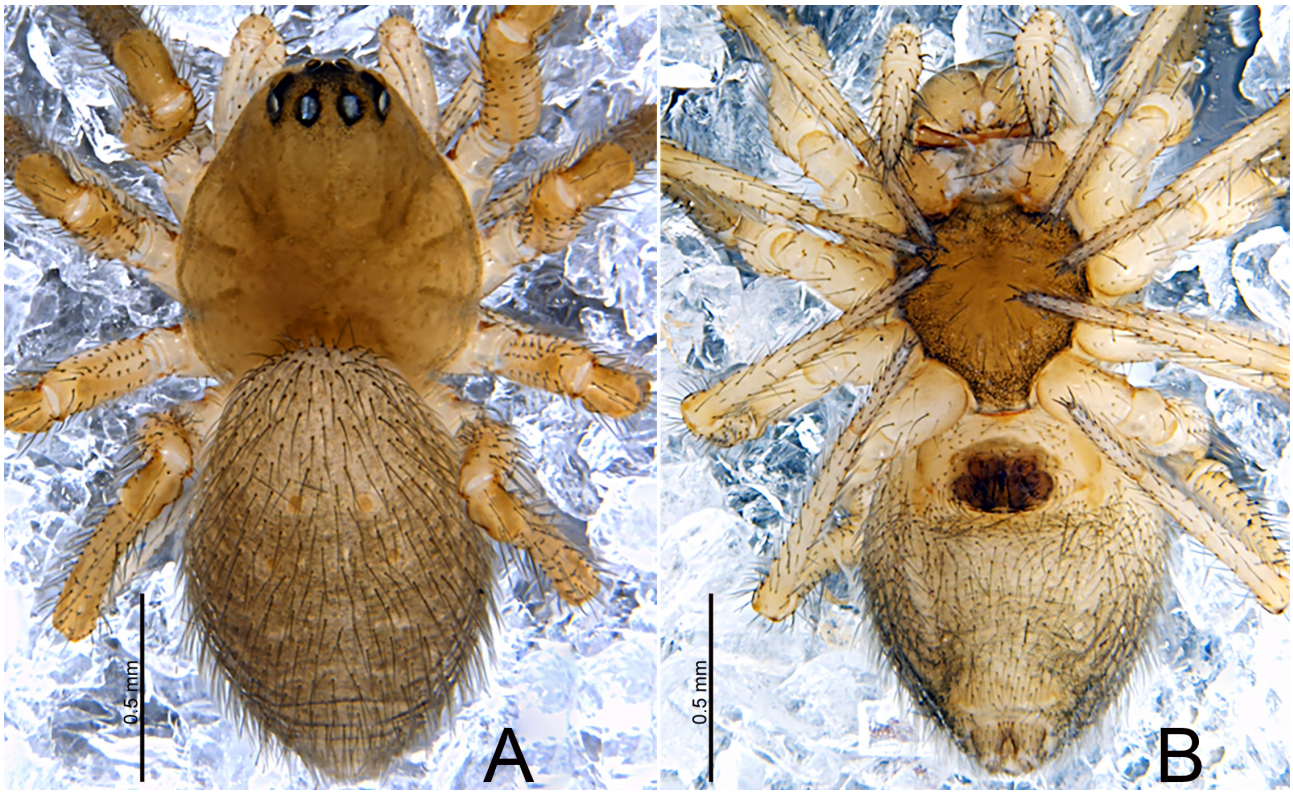


FIGURE 304. *Yuelushannus jinyuanensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

Etymology. The specific epithet is derived from the type locality; adjective.

Diagnosis. *Yuelushannus wenfengensis* **sp. n.** resembles *Y. jinyuanensis* **sp. n.** in having the similar spermathecae and copulatory ducts (Figs 305A–C; Figs 303A–C), but can be distinguished by the dorsal plate wider than long posteriorly in *Y. wenfengensis* **sp. n.** (Figs 305A–C), vs., longer than wide in *Y. jinyuanensis* **sp. n.** (Figs 303A–C); spermathecae touches the posterior margin of the epigynal plate in *Y. wenfengensis* **sp. n.** (Figs 305A–C), vs., not touches the posterior margin of the epigynal plate in *Y. jinyuanensis* **sp. n.** (Figs 303A–C).

Description. Female (Figs 306A, B). Total length: 2.14. Carapace 0.86 long, 0.72 wide, cephalic region slightly elevated, yellow, cervical, fovea and radial grooves distinct. Clypeus 0.22 high. Chelicerae with five promarginal and six retromarginal teeth. Sternum longer than wide, brownisg grey with microsetae. Eyes: AER recurved, PER procurved, slightly wider. Eye sizes and interdistances: AME 0.04, ALE 0.07, PME 0.07, PLE 0.07, AME–AME 0.03, PME–PME 0.04, AME–ALE, 0.02, PME–PLE 0.04, AME–PME 0.07, ALE–ALE 0.28, PLE–PLE 0.30, ALE–PLE contiguous. Length of legs: I 2.16 (0.67, 0.73, 0.45, 0.31), II 2.11 (0.63, 0.76, 0.43, 0.24), III 1.8 (0.54, 0.61, 0.41, 0.24), IV 2.51 (0.67, 0.91, 0.66, 0.27). TmI 0.23, TmIV present. Tibial spine formula: 2-2-1-1. Opisthosoma 1.56 long, 1.08 wide, oval, grey, anteriorly with two pairs of sigillae, with irregular patches, densely covered with fine setae; ventral side grey.

Epigyne (Figs 305A–C): Ventral plate (VP) sclerotized, wider than long, complete covering the dorsal plate (DP); copulatory openings (CO) present in the atrium between the ventral and dorsal plate. Dorsal plate (DP) wider than long posteriorly; copulatory ducts (CD) form spiral loop before joining the spermathecae; spermathecae (S) round, present posterio-lateraly on the dorsal plate and touches the posterior margin of the epigynal plate, pointing away from each other; fertilization ducts (FD) extending mesally.

Male. Unknown.

Distribution. Known only from the type locality (Hunan Province, Fig. 315).

Natural history

The specimens for this study were primarily collected from leaf litter and under stones across various forest types in China, including tropical rainforests, subtropical

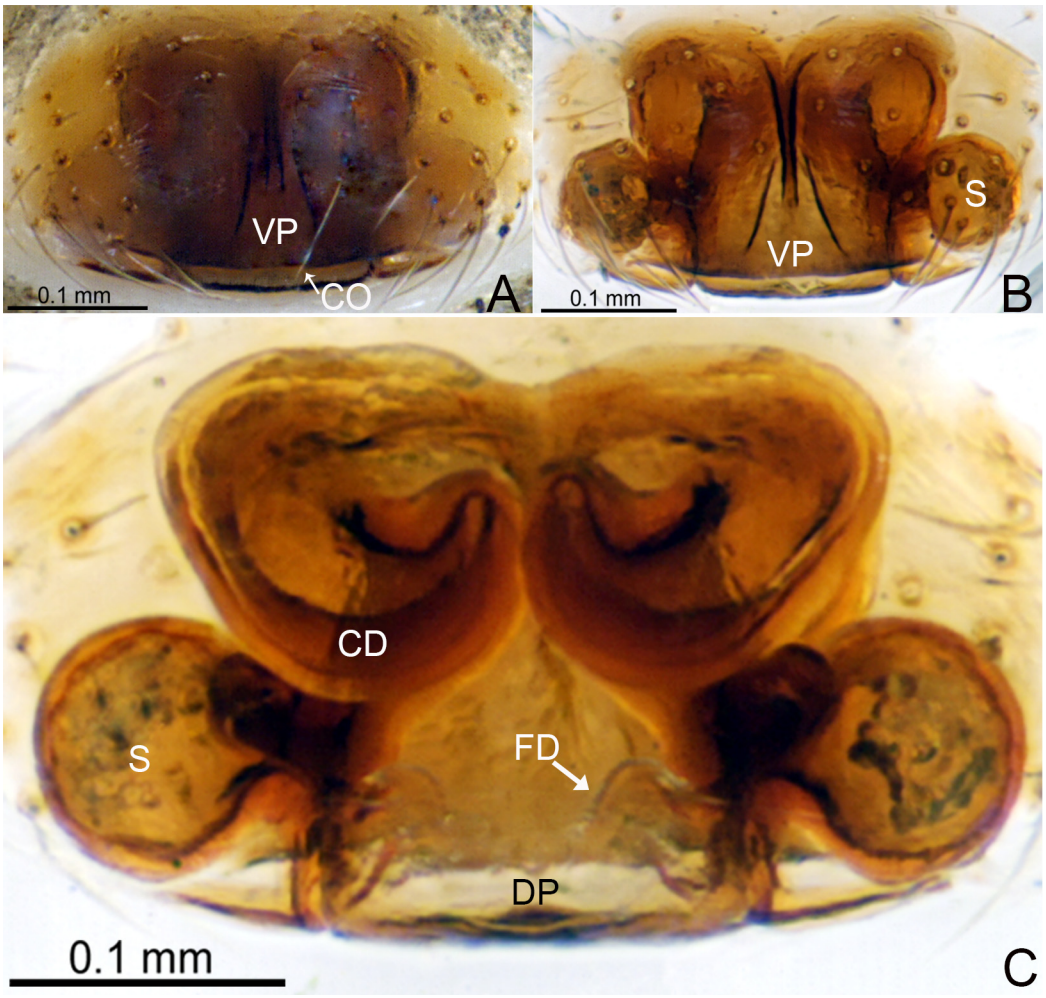


FIGURE 305. *Yuelushannus wenfengensis* **sp. n.**, female holotype. **A**, **B** Epigyne, ventral view; **C** Vulva, dorsal view. Abbreviations: CD—copulatory duct; CO—copulatory opening; DP—dorsal plate; FD—fertilization duct; S—spermatheca; VP—ventral plate.

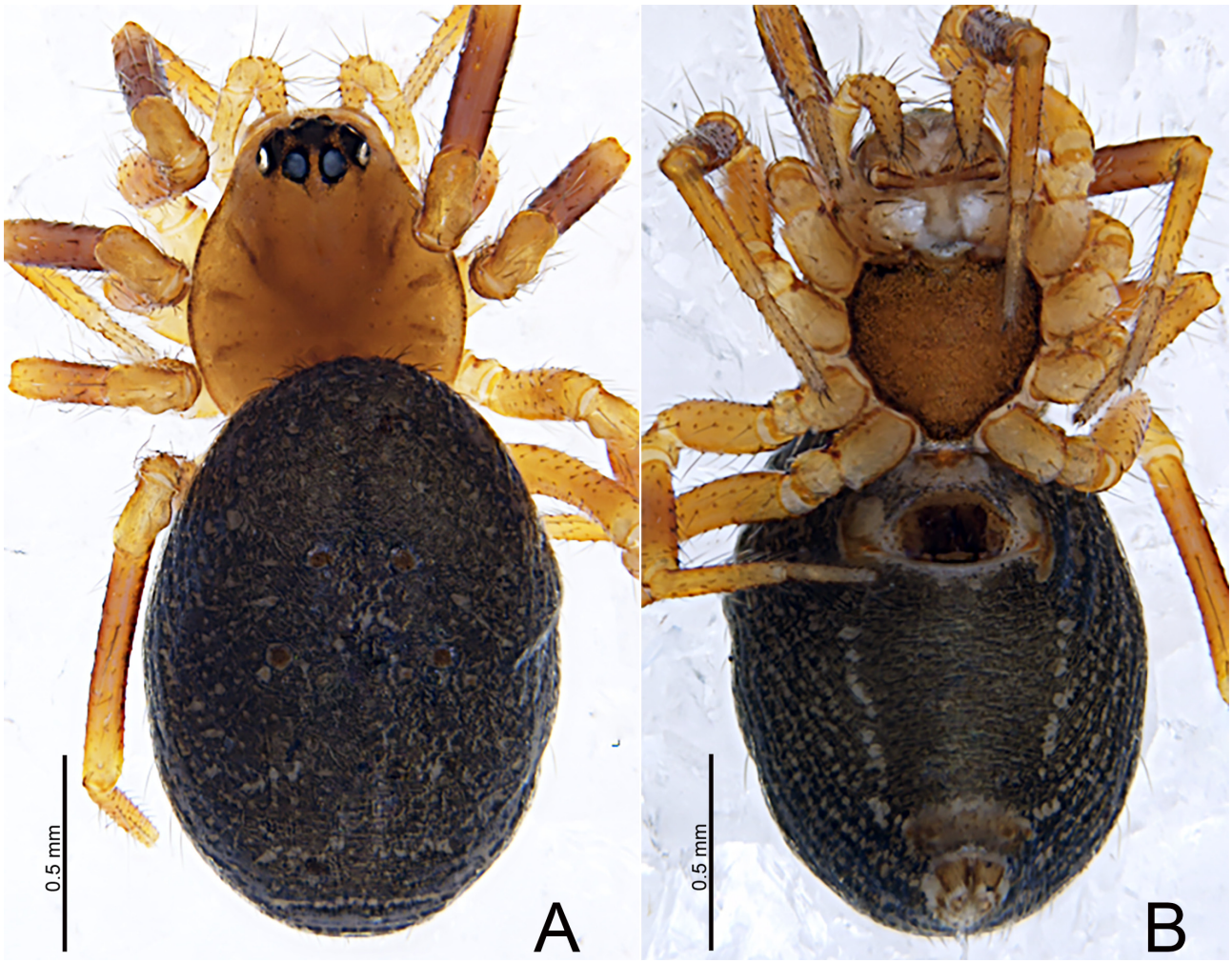


FIGURE 306. *Yuelushannus wenfengensis* **sp. n.**, female holotype. **A** Habitus, dorsal view; **B** Habitus, ventral view.

evergreen broad-leaved forests, and mixed coniferous and broad-leaved forests. These habitats, ranging from subtropical forests to montane regions, each contributed uniquely to the diversity and endemism observed in the Linyphiidae spider fauna. Subtropical forests in Hunan, Chongqing, and Guizhou, with their warm temperatures, high humidity, dense undergrowth, and rich leaf litter, provided ideal conditions for numerous species. In contrast, montane regions such as the Hengshan and Xingdou Mountain National Nature Reserves supported species adapted to cooler temperatures and higher altitudes, where variable climates influenced their life cycles. Additionally, caves and karst landscapes in Guizhou, characterized by stable microclimates and limestone geology, hosted unique species adapted to low-light, high-humidity environments. The montane regions, particularly in Hunan and Hubei, yielded the highest number of species, including many newly described ones, likely due to the elevation gradient and diverse microhabitats. Subtropical forests also supported significant diversity, especially in areas with well-preserved vegetation and minimal human disturbance, reflecting the complex structure and productivity of these ecosystems. In contrast, fewer species were documented in cave systems and karst landscapes, but these areas were notable for their unique species, some of which are potentially endemic or highly specialized.

Discussion

Our study represents 107 species in 61 genera of the spider family Linyphiidae from China (74 species and five genera are newly described). The study highlights the high level of endemism among the newly described genera and species, many of which are restricted to their type localities, especially in mountainous regions. This high degree of endemism underscores the importance of these areas as hotspots for biodiversity and evolutionary research. In this study, about 54 species were found to be endemic to their type localities, including 22 new species in Hunan, 13 in Hubei, 11 in Guizhou, three in Chongqing, two in Sichuan, and one each in Anhui, Guangxi, and Xizang. This indicates a restricted range and possible specialization to local environmental conditions. These findings emphasize the critical role of comprehensive, large-scale surveys in uncovering the hidden diversity of these regions.

The taxonomic status of 4 known species; *Agyneta orthogonia* Irfan, Wang & Zhang, 2023, *Chrosiothes*



FIGURE 307. Distribution of Linyphiidae species in Chongqing: **1.** *Bathyphantes paracymbialis* Tanasevitch, 2014; **2.** *Diplocephalus circularis* **sp. n.**; **3.** *Frontinella zhui* Li & Song, 1993; **4.** *Gnathonarium dentatum* (Wider, 1834); **5.** *Gongylidioides acuminatus* **sp. n.**; **6.** *Gongylidioides ensis* **sp. n.**; **7.** *Gongylidium uncatum* **sp. n.**; **8.** *Himalaphantes azumiensis* (Oi, 1979); **9.** *Hylyphantes graminicola* (Sundevall, 1830); **10.** *Indophantes wushanensis* Irfan, Wang & Zhang, 2023; **11.** *Lepthyphantes frondeus* **sp. n.**; **12.** *Wulinggone qizimeiensis* **sp. n.**; **13.** *Nematogmus ligulatus* **sp. n.**; **14.** *Nematogmus sanguinolentus* (Walckenaer, 1841); **15.** *Nippononeta alpina* (Li & Zhu, 1993); **16.** *Nippononeta coreana* (Paik, 1991); **17.** *Oia yinae* **sp. n.**; **18.** *Oilinyphia xinqiaoensis* **sp. n.**; **19.** *Oilinyphioides triangularis* **sp. n.**; **20.** *Prosoponoides sinensis* (Chen, 1991); **21.** *Scotinotylus guizhouensis* **sp. n.**; **22.** *Sinolinyphia henanensis* (Hu, Wang & Wang, 1991); **23.** *Syedra yuelushanensis* **sp. n.**; **24.** *Ummeliata feminea* (Bösenberg & Strand, 1906); **25.** *Ummeliata insecticeps* (Bösenberg & Strand, 1906); **26.** *Walckenaeria sinuosa* **sp. n.**; **27.** *Wuliphantes tongluensis* (Chen & Song, 1988).

pengqi Lin & Li, 2024, *Gongylidioides griseolineatus* (Schenkel, 1936), and *Lepthyphantes cultellifer* Schenkel, 1936 has been revised here as *Microneta orthogonia* (Irfan, Wang & Zhang, 2023) **comb. n.,** *Oilinyphia pengqi* (Lin & Li, 2024) **comb. n.**, *Shaanxinus griseolineatus* (Schenkel, 1936) **comb. n.**, and *Acanoides cultellifer* (Schenkel, 1936) **comb. n.**, respectively. The genera *Baryphyma* Simon, 1884, *Scotinotylus* Simon, 1884 and the species *Walckenaeria furcillata* (Menge, 1869) are recorded here for the first time in China. The number of Linyphiidae species previously known from China was 533 in 175 genera, but now reaches 607 species in 180 genera, with the description of seventy-four new species and five new genera. Among the 61 genera reported here, fourty belong to the subfamily Erigoninae, fourteen belong to Micronetinae, and seven are from Linyphiinae. In this study, approximately 1700 adult specimens have been examined. Despite the large number of specimens, about 37 new species have been described from single sex, a situation that makes the taxonomic knowledge of Linyphiidae still unsatisfactory. However, these data are still valuable for further taxonomic research because they provide distributional information in addition to the morphology data.

Most females of *Spelaeus cicatrix* **sp. n.** have scars at the anterior of their epigynes on both sides. These injuries may have been caused by the very sharp and pointed end of the ARP of the male palp during copulation (Figs 255, 256). These are the first ever this kind of scars reported in the family Linyphiidae, but have already been reported



FIGURE 308. Distribution of Linyphiidae species in Guangdong Prov.: **1.** *Himalaphantes azumiensis* (Oi, 1979); **2.** *Nippononeta coreana* (Paik, 1991).



FIGURE 309. 1. *Nasoonaria nonggangensis* **sp. n.**; **2.** *Ummeliata insecticeps* (Bösenberg & Strand, 1906).



FIGURE 310. Distribution of Linyphiidae species in Guizhou Prov.: **1.** *Bathyphantes paracymbialis* Tanasevitch, 2014; **2.** *Bifurcia ramosa* (Li & Zhu, 1987); **3.** *Bolyphantes aculeatus* **sp. n.**; **4.** *Bolyphantes arcuatus* **sp. n.**; **5.** *Bolyphantes gladius* **sp. n.**; **7.** *Dicristatus denticulatus* **sp. n.**; **8.** *Diplocephalus tongrenensis* **sp. n.**; **9.** *Diplocephaloides cucullus* **sp. n.**; **10.** *Gonatium absidatum* **sp. n.**; **11.** *Tapinocyba cornuta* **sp. n.**; **12.** *Gongylidium demersum* **sp. n.**; **13.** *Tapinocyba pingshanensis* **sp. n.**; **14.** *Hylyphantes graminicola* (Sundevall, 1830); **15.** *Nippononeta coreana* (Paik, 1991); **16.** *Prosoponoides sinensis* (Chen, 1991); **17.** *Ryojius fanjingshanensis* **sp. n.**; **18.** *Ryojius fodingshanensis* **sp. n.**; **19.** *Scotinotylus guizhouensis* **sp. n.**; **20.** *Scotinotylus longiprojectus* **sp. n.**; **21.** *Spelaeus cicatrix* **sp. n.**; **6.** *Trematocephalus cristatus* (Wider, 1834); **22.** *Walckenaeria asymmetrica* Song & Li, 2011; **23.** *Walckenaeria xingdouensis* **sp. n.**.

in other spider families such as: on epigynes in *Menarik kecil* Grall & Jäger, 2022 (Sparassidae, Heteropodinae); *Bowie natmataung* (Jäger & Minn, 2015) (Ctenidae: Cteninae) and on the dorsal shield of the carapace in *Eusparassus* Simon, 1903 (Moradmand 2013); *May* Jäger & Krehenwinkel, 2015 (Jäger & Krehenwinkel 2015); *Thunberga* Jäger, 2020 and in *Martensikara* Jäger 2021 species (Jäger 2021). Detailed morphological analysis revealed several species with unique genitalic and somatic features, which are crucial for understanding the phylogenetic relationships within the family. The documentation of these characteristics, particularly in newly described species, contributes to refining the taxonomy of Linyphiidae and aids in the identification of closely related species across different geographical regions.

As a result of the present study, which is the continuation of the work from southern China by Irfan *et al.* (2022b), we feel reasonably certain that our results are generally valid and taxonomically informative. Further investigations on Linyphiidae will be carried out from South China and neighboring places, which will definitely lead to more new discoveries that benefit our understanding of the systematics of sheet-web spiders and the spider fauna of Oriental region of China.



FIGURE 311. Distribution of *Dicymbium sinofacetum* Tanasevitch, 2006 in Hainan.

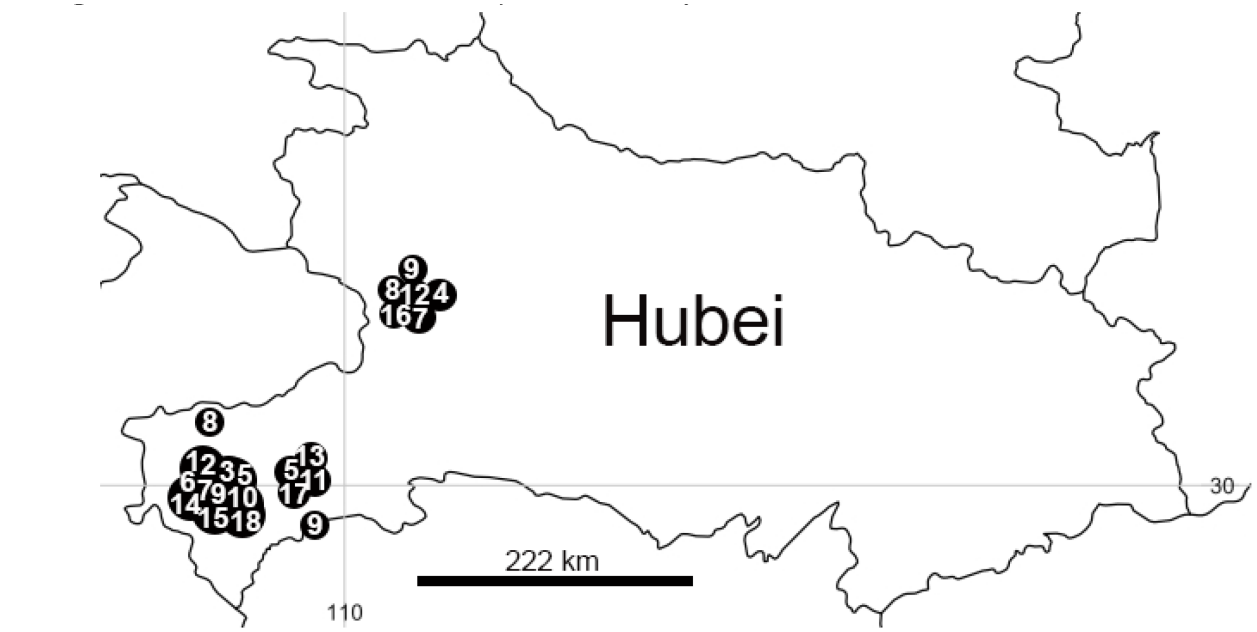


FIGURE 312. Distribution of Linyphiidae species in Hubei Prov.: **2.** *Asiagone xingdouensis* **sp. n.**; **3.** *Bathyphantes paracymbialis* Tanasevitch, 2014; **4.** *Bifurcia cochlearis* **sp. n.**; **5.** *Capsulia tianmushana* (Chen & Song, 1987); **6.** *Dicristatus cordatus* **sp. n.**; **7.** *Diplocephalus circularis* **sp. n.**; **8.** *Erigone prominens* Bösenberg & Strand, 1906; **9.** *Frontinella zhui* Li & Song, 1993; **10.** *Gnathonarium dentatum* (Wider, 1834); **11.** *Gongylidioides ensis* **sp. n.**; **12.** *Gongylidioides microdontus* **sp. n.**; **13.** *Gongylidium dawolongense* **sp. n.**; **14.** *Gongylidium minutum* **sp. n.**; **15.** *Gongylidium uncatum* **sp. n.**; **16.** *Houshenzinus rimosus* Tanasevitch, 2006; **17.** *Hylyphantes graminicola* (Sundevall, 1830); **18.** *Indophantes wushanensis* Irfan, Wang & Zhang, 2023; **1.** *Microneta maliuxiensis* **sp. n.**.

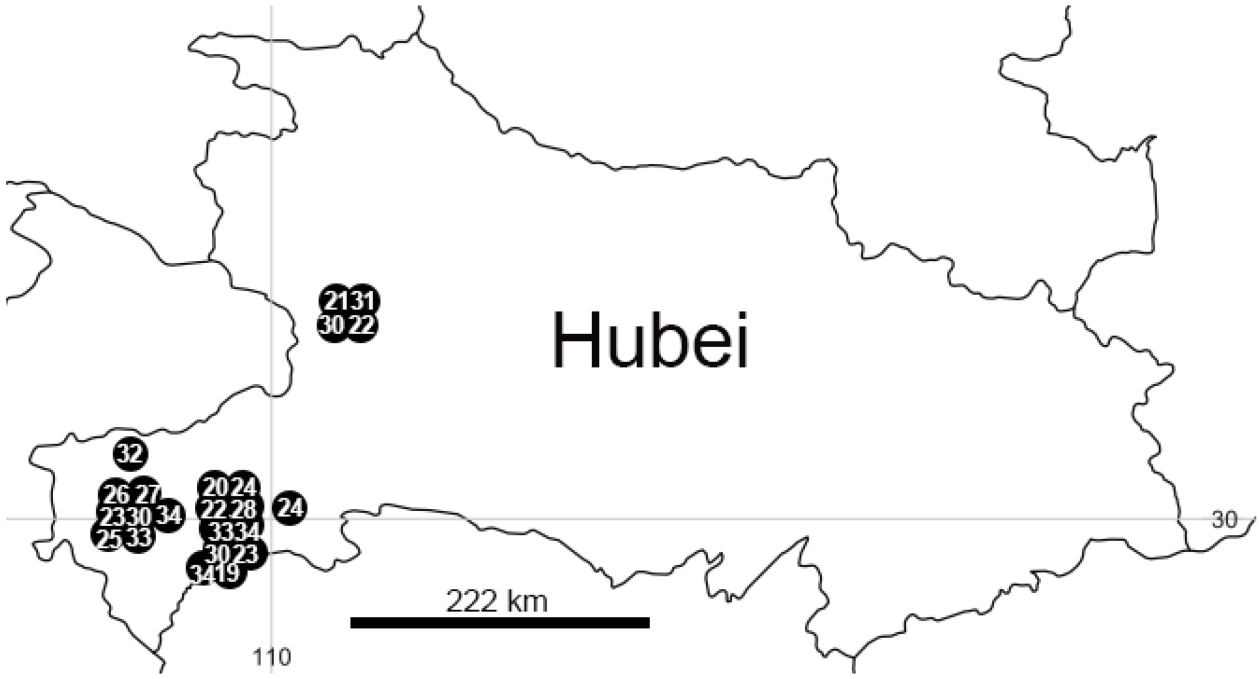


FIGURE 313. Distribution of Linyphiidae species in Hubei Prov.: **19.** *Lepthyphantes ellipticus* **sp. n.**; **20.** *Lepthyphantes frondeus* **sp. n.**; **21.** *Linyphia songziyuanensis* **sp. n.**; **22.** *Lenis longiabdominis* **sp. n.**; **23.** *Wulinggone qizimeiensis* **sp. n.**; **24.** *Nematogmus ligulatus* **sp. n.**; **25.** *Nematogmus sanguinolentus* (Walckenaer, 1841); **26.** *Nippononeta coreana* (Paik, 1991); **27.** *Oedothorax collinus* Ma & Zhu, 1991; **28.** *Paikiniana lurida* (Seo, 1991); **29.** *Parameioneta bilobata* Li & Zhu, 1993; **30.** *Wulingnus furcatus* **sp. n.**; **31.** *Wulingnus inversus* **sp. n.**; **32.** *Platyspira tanasevitchi* Song & Li, 2009; **33.** *Prosoponoides sinensis* (Chen, 1991); **34.** *Ryojius lianghekouensis* **sp. n.**

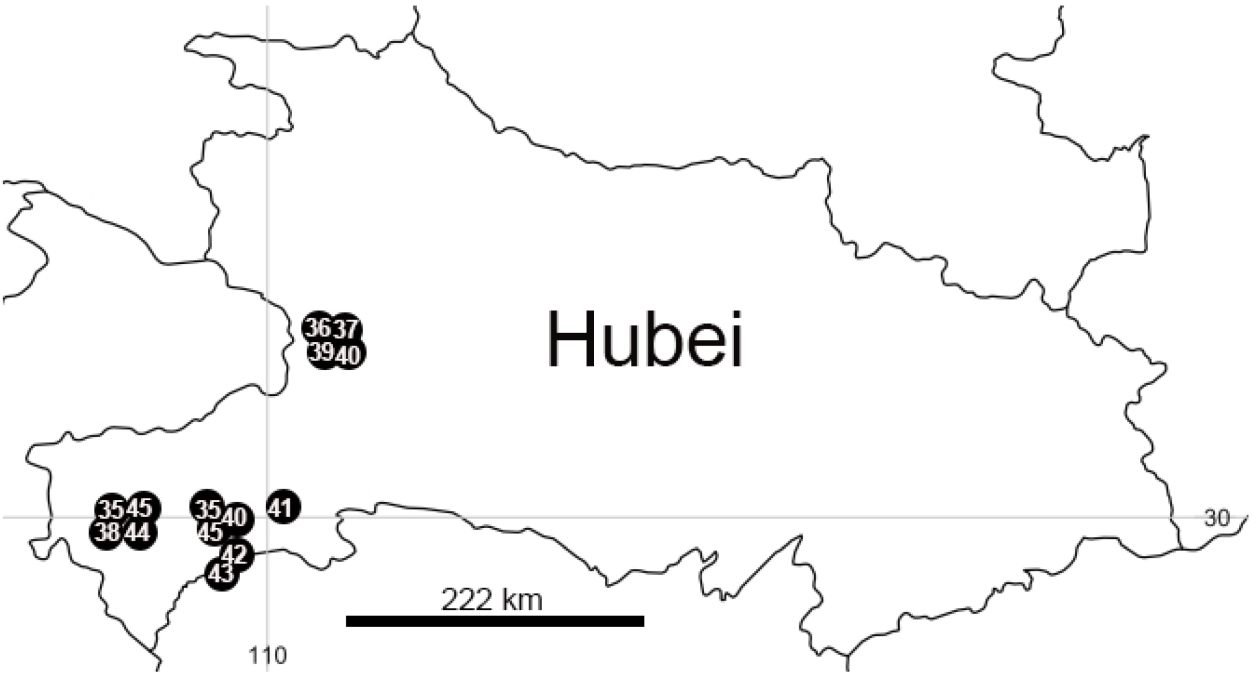


FIGURE 314. Distribution of Linyphiidae species in Hubei Prov.: **35.** *Scotinotylus longiprojectus* **sp. n.**; **36.** *Shaanxinus longiembolus* **sp. n.**; **37.** *Sinogone puteus* **sp. n.**; **38.** *Syedra yuelushanensis* **sp. n.**; **39.** *Taibaishanus badongensis* **sp. n.**; **40.** *Ummeliata feminea* (Bösenberg & Strand, 1906); **41.** *Ummeliata insecticeps* (Bösenberg & Strand, 1906); **42.** *Walckenaeria enshiensis* **sp. n.**; **43.** *Walckenaeria extenuata* **sp. n.**; **44.** *Walckenaeria xingdouensis* **sp. n.**; **45.** *Wuliphantes tongluensis* (Chen & Song, 1988).

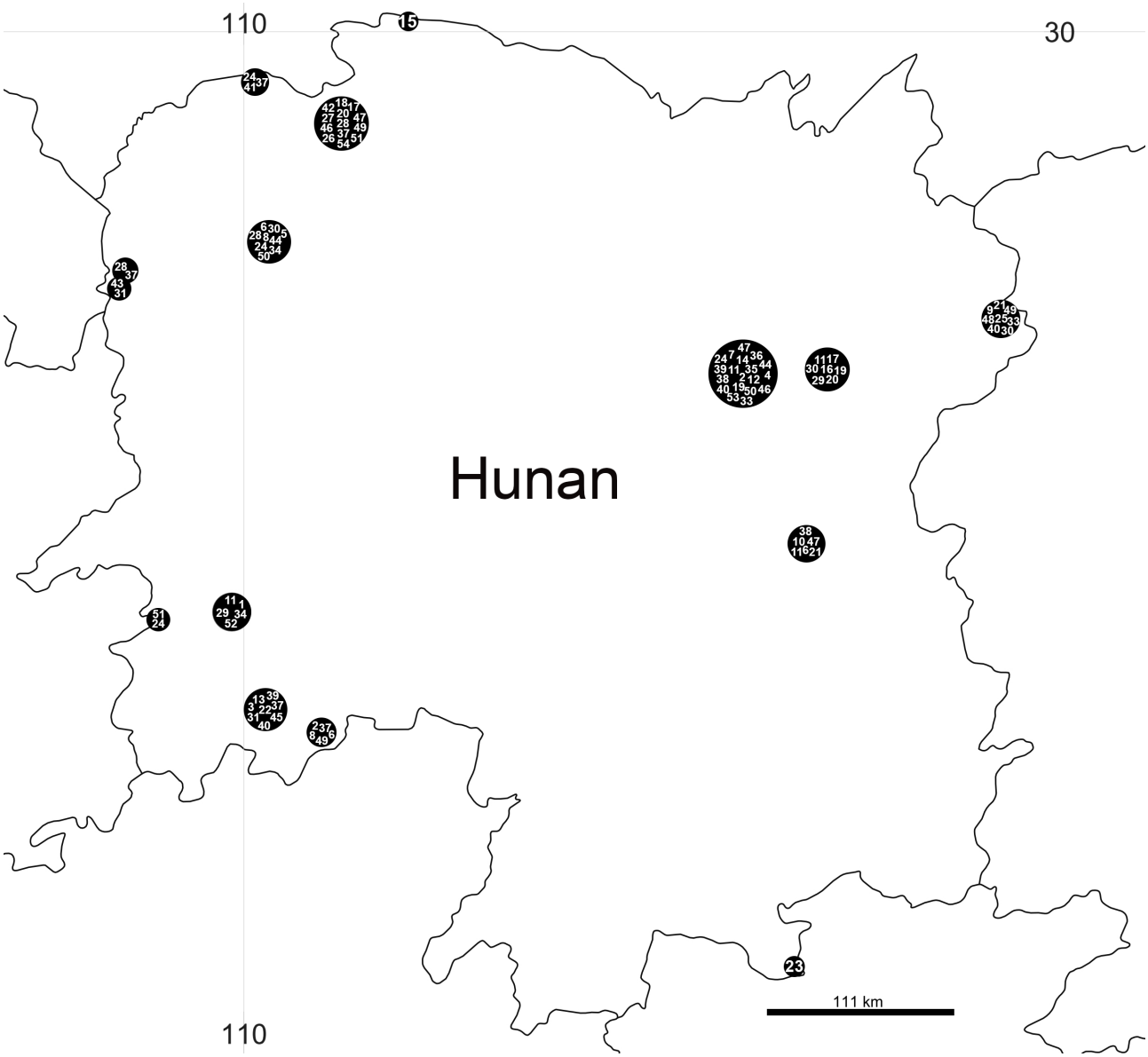


FIGURE 315. Distribution of Linyphiidae species in Hunan Prov.: **1.** *Acanoides cornutus* **sp. n.**; **2.** *Acanoides ningxiangensis* **sp. n.**; **4.** *Auriculaiana yongshunensis* **sp. n.**; **5.** *Baryphyma* xiaoxiense **sp. n.**; 6. *Bathyphantes paracymbialis* Tanasevitch, 2014; **7.** *Bathyphantes pseudogracilis* **sp. n.**; **8.** *Bifurcia ramosa* (Li & Zhu, 1987); **9.** *Bolyphantes arcuatus* **sp. n**; **10.** *Bolyphantes gladius* **sp. n.**; **11.** *Capsulia tianmushana* (Chen & Song, 1987); **12.** *Dicristatus cordatus* **sp. n.**; **13.** *Diplocephalus circularis* **sp. n.**; **14.** *Drapetisca boletus* **sp. n.**; **15.** *Drapetisca nanpingensis* **sp. n.**; **16.** *Drapetisca yuelushanensis* **sp. n.**; **17.** *Erigone prominens* Bösenberg & Strand, 1906; **18.** *Frontinella zhui* Li & Song, 1993; **19.** *Gnathonarium dentatum* (Wider, 1834); **20.** *Gnathonarium gibberum* Oi, 1960; **21.** *Oedothorax fortis* **sp. n.**; **22.** *Tapinocyba sulcata* **sp. n.**; **23.** *Himalaphantes azumiensis* (Oi, 1979); **24.** *Hylyphantes graminicola* (Sundevall, 1830); **25.** *Kaestneria bicultrata* Chen & Yin, 2000; **26.** *Lepthyphantes frondeus* **sp. n.**; **27.** *Microlinyphia zhejiangensis* (Chen, 1991); **3.** *Microneta acutalis* **sp. n.**; **28.** *Nematogmus sanguinolentus* (Walckenaer, 1841); **29.** *Nippononeta alpina* (Li & Zhu, 1993); **30.** *Nippononeta coreana* (Paik, 1991); **31.** *Oia baiyunensis* **sp. n.**; **32.** *Oia lata* **sp. n.**; **33.** *Oia yinae* **sp. n.**; **34.** *Oilinyphioides triangularis* **sp. n.**; **35.** *Paikiniana lurida* (Seo, 1991); **36.** *Parameioneta bilobata* Li & Zhu, 1993; **37.** *Prosoponoides sinensis* (Chen, 1991); **38.** *Ryojius lianghekouensis* **sp. n.**; **39.** *Ryojius nanyuensis* (Chen & Yin, 2000); **40.** *Scotinotylus longiprojectus* **sp. n.**; **41.** *Shaanxinus insectus* **sp. n.**; **42.** *Shaanxinus longiembolus* **sp. n.**; **43.** *Sinolinyphia henanensis* (Hu, Wang & Wang, 1991); **44.** *Syedra yuelushanensis* **sp. n.**; **45.** *Tenuiphantes taipingensis* **sp. n.**; **46.** *Ummeliata feminea* (Bösenberg & Strand, 1906); **47.** *Ummeliata insecticeps* (Bösenberg & Strand, 1906); **48.** *Walckenaeria xingdouensis* **sp. n.**; **49.** *Walckenaeria extenuata* **sp. n.**; **50.** *Walckenaeria yanglinensis* **sp. n.**; **51.** *Wuliphantes tongluensis* (Chen & Song, 1988); **52.** ***Yuelushannus*** *diaotangensis* **sp. n.**; **53.** ***Yuelushannus*** *jinyuanensis* **sp. n.**; **54.** ***Yuelushannus*** *wenfengensis* **sp. n.**.

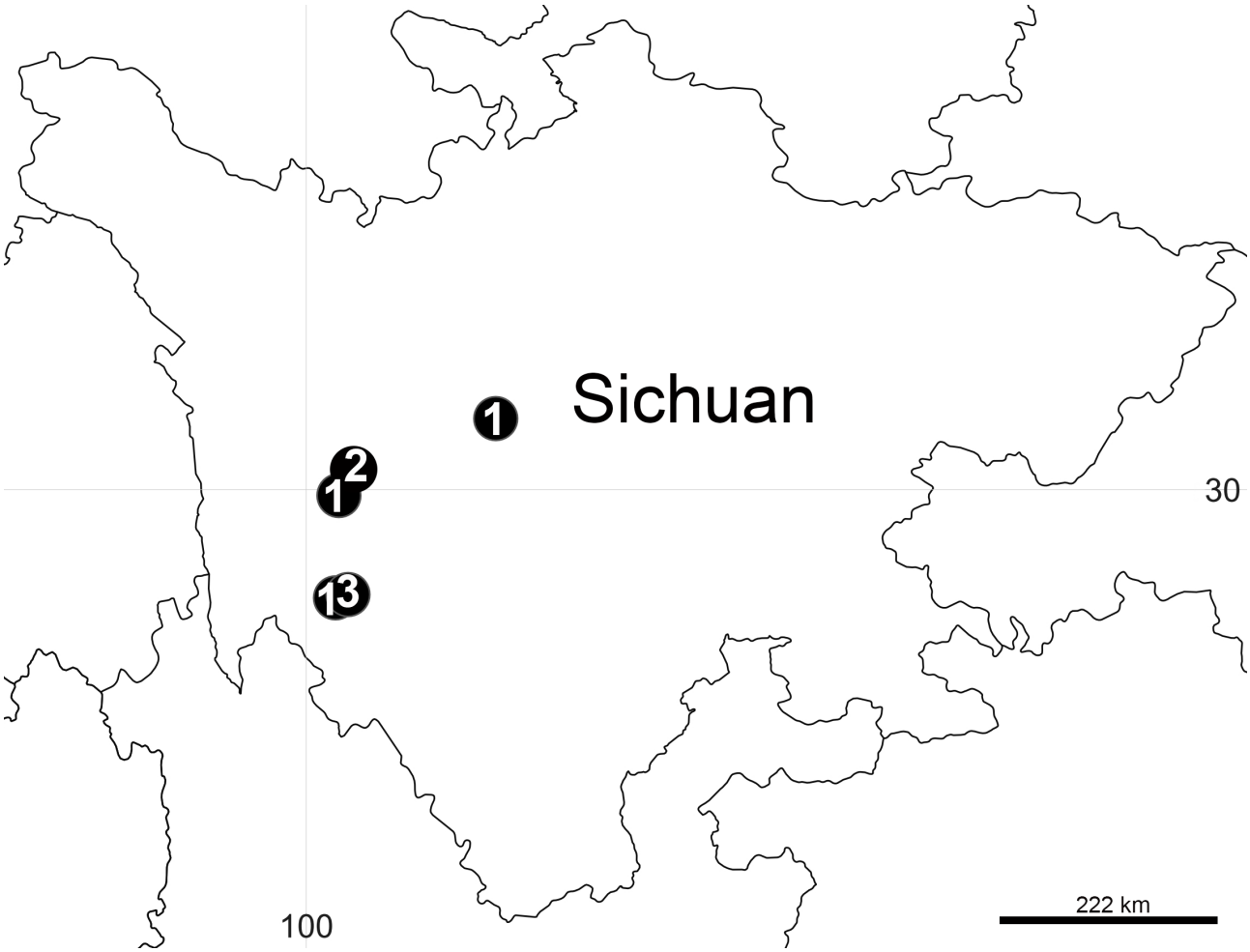


FIGURE 316. Distribution of Linyphiidae species in Sichuan Prov.: **1.** *Collinsia inerrans* (O. Pickard-Cambridge, 1885); **2.** *Erigone kazhiensis* **sp. n.**; **3.** *Micrargus longiembolus* **sp. n.**.



FIGURE 317. Distribution of Linyphiidae species in Xizang: **1.** *Microneta circumacta* **sp. n.**; **2.** *Oilinyphia daxuensis* **sp. n.**; **3.** *Walckenaeria furcillata* (Menge, 1869).

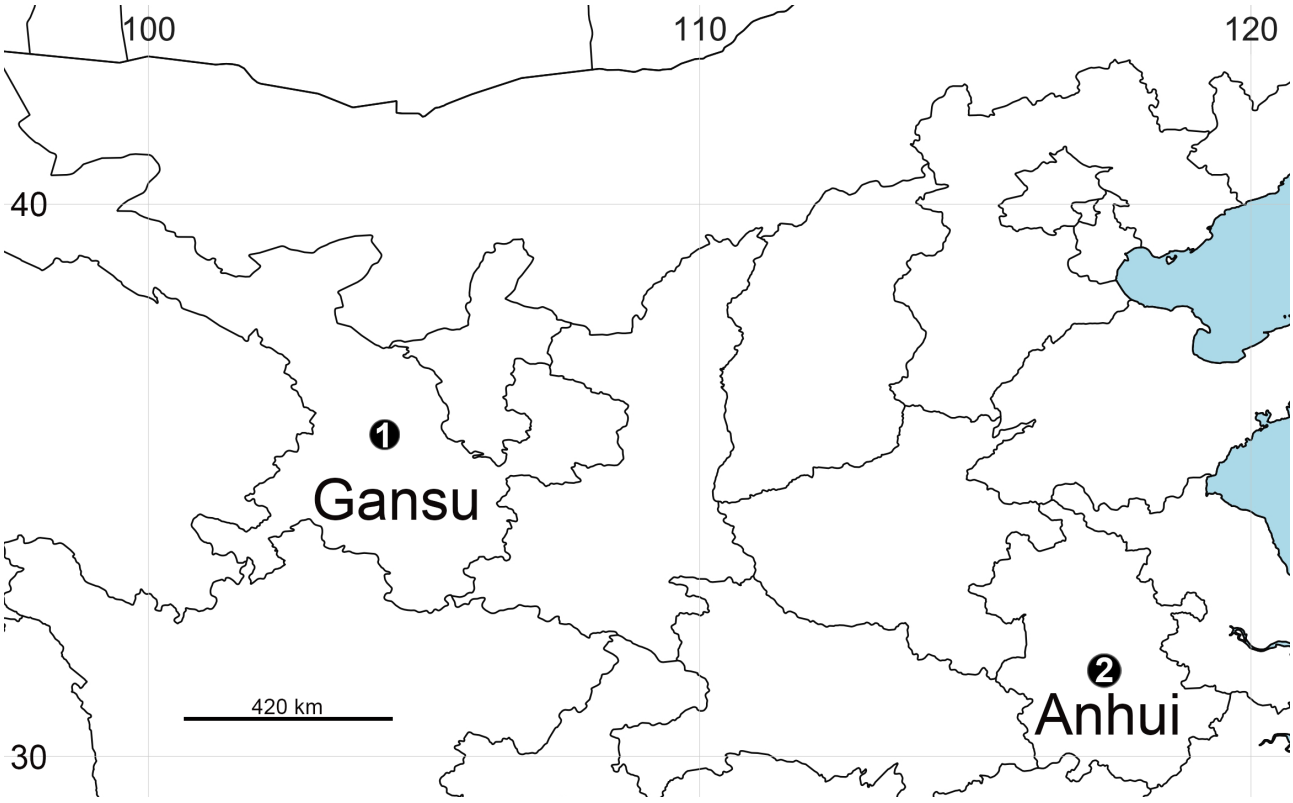


FIGURE 318. Distribution of Linyphiidae species in Anhui Prov. and Gansu Prov.: **1.** *Tenuiphantes aduncus* (Zhu, Li & Sha, 1986); **2.** *Tenuiphantes cauda* **sp. n.**.

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