

ORIGINAL ARTICLE

Spider diversity in Fanjing Mountain Nature Reserve, Guizhou, China, II: Clubionidae (Araneae)

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Abstract Totally fourteen species of Clubionidae are reported from the Fanjing Mountain Nature Reserve in this paper, including six species as new to science, namely, *Clubiona corrugata* Bösenberg & Strand, 1906 (♂♀), *C. dichotoma* Wang, Chen & Zhang ZS, **sp. nov.** (♂♀), *C. fanjingshan* Wang, Chen & Zhang ZS, **sp. nov.** (♂), *C. globosa* Wang, Chen & Zhang ZS, **sp. nov.** (♂♀), *C. grucollaris* Yu, Zhang & Chen, 2017, *C. huiming* Wang, Zhang F & Zhang ZS, **sp. nov.** (♂), *C. japonicola* Bösenberg & Strand, 1906 (♂♀), *C. jucunda* (Karsch, 1878) (♂♀), *C. manshanensis* Zhu & An, 1988 (♂♀), *C. pterogona* Yang, Song & Zhu, 2003 (♀), *C. subapplanata* Wang, Chen & Zhang ZS, **sp. nov.** (♂♀), *C. subcylindrata* Wang, Chen & Zhang ZS, **sp. nov.** (♂♀), *C. subrostrata* Zhang & Hu, 1991 (♂♀) and *Pristidia ramosa* Yu, Sun & Zhang, 2012 (♀). All species are described or redescribed, and photoed, except *Clubiona grucollaris* Yu, Zhang & Chen, 2017. Drawings of all new species are also provided.

Key words Asia, new species, taxonomy, morphology, illustration.

1 Introduction

Clubionidae is a relatively small, nearly globally distributed spider family, including 616 known species belonging to 15 genera worldwide and 4 genera and 113 species from China (World Spider Catalog, 2018). Among them, 15 species of *Clubiona*, the largest and nominate genus of the family, are occurring in Guizhou Province (Wang *et al.*, 2015b; Wu *et al.*, 2015; Li & Lin, 2016; Yu *et al.*, 2017). However, the diversity of the family in China is suspected to be underestimated, due to the unfinished survey of Chinese spiders and the fact that at least one third of Chinese clubionids are known by just one sex.

The paper is one of the series work for spiders of Fanjing Mountain Nature Reserve, explored by author s' group (Junxia Zhang and Zhisheng Zhang) since 2001. The first clubionids, *Clubiona pterogona* was found and published by Yang, Song & Zhu (2003) (♀ only). Our investigations in 2013–2014 in Fanjing Mountain Nature Reserve yielded 13 clubionids, including six new species. Illustrations and photographs of the new species, as well as photographs of the known species, are provided. This paper blends to a series dealing with the spider diversity of this reserve. In previous publications, six new species of Phrurolithidae (Wang *et al.*, 2015a) and one new species of the dictynid genus *Brommella* (Lu *et al.*, 2015) have been described. Recently, one more species, *Clubiona grucollaris* Yu, Zhang & Chen, 2017 was described on the basis of materials from this Reserve and some other localities in China. Thus, up to date, 14 *Clubiona* species are recorded from Fanjing Mountain Nature Reserve.

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2 Materials and methods

Species are listed alphabetically. All specimens are preserved in 75% ethanol and were examined, illustrated, photographed and measured using a Leica M205C stereomicroscope equipped with a drawing tube, a Leica DFC420 Camera and LAS software (Ver. 4.0). Male pedipalps and epigynes were examined and illustrated after they were dissected. Epigynes were cleared in 90% lactic acid. Eye sizes are measured as the maximum diameter from above. Leg measurements are shown as: total length (femur, patella + tibia, metatarsus, tarsus). All measurements are in millimetres (*mm*). For location of Fanjing Mountain, see Wang *et al.* (2015a).

Specimens examined here will be deposited in the Museum of Hebei University, Baoding, China (MHBUC).

Abbreviations used in the text:

ALE—anterior lateral eye;

AME—anterior median eye;

LTA—lateral tibial apophysis

MOA—median ocular area;

PLE—posterior lateral eye;

PME—posterior median eye;

RTA—retrolateral tibial apophysis;

VTA—ventral tibial apophysis.

3 Systematics

Family Clubionidae Wagner, 1887

3.1 Genus *Clubiona* Latreille, 1804

Clubiona corrugata Bösenberg & Strand, 1906 (Figs 1A–F)

Clubiona corrugata Bösenberg & Strand, 1906: 283, pl. 16, fig. 482 (♀); Song *et al.*, 1999: 415, figs 245D–E, 247M–N (♂♀); Ono & Hayashi, 2009: 540, figs 3–5, 115–117 (♂♀); Yin *et al.*, 2012: 1090, figs 572a–d (♂♀). For full list of publications and synonyms concerning this species see World Spider Catalog (2018).

Material examined. 1♂1♀, W slope of Mt. Fanjing (no exact coordinates), 29.VII.2001, J.X. Zhang & Z.S. Zhang leg.

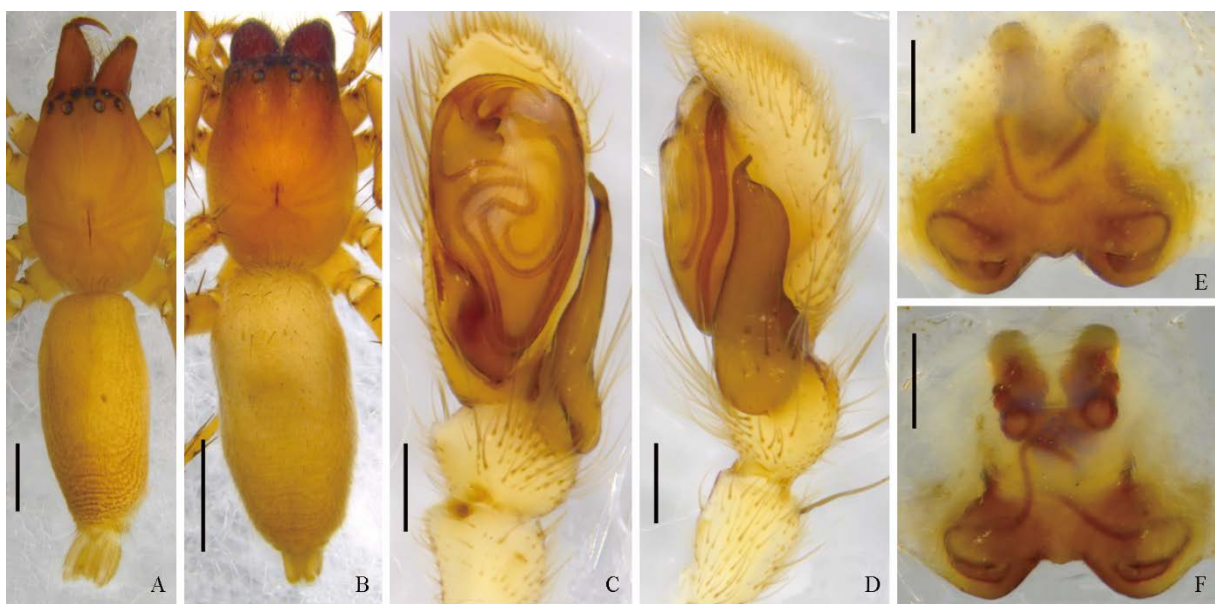


Figure 1. *Clubiona corrugata* Bösenberg & Strand, 1906. A–B. Habitus, dorsal view. A. Male; B. Female. C–D. Left male pedipalp. C. Ventral view; D. Retrolateral view. E–F. Epigyne. E. Ventral view; F. Dorsal view. Scale bars: A = 1 mm; B = 2 mm; C–F = 0.2 mm.

Description. See Yin *et al.* (2012) and Ono & Hayashi (2009). Habitus, male pedipalp and epigyne as in Figs 1A–F. Distribution. China (north to Inner Mongolia and Jinlin, south to Taiwan and Guangdong), South Korea, Japan, Thailand. Comment. This species belongs to the *C. obesa*-group.

***Clubiona dichotoma* Wang, Chen & Zhang ZS, sp. nov.** (Figs 2A–D, 3A–G)

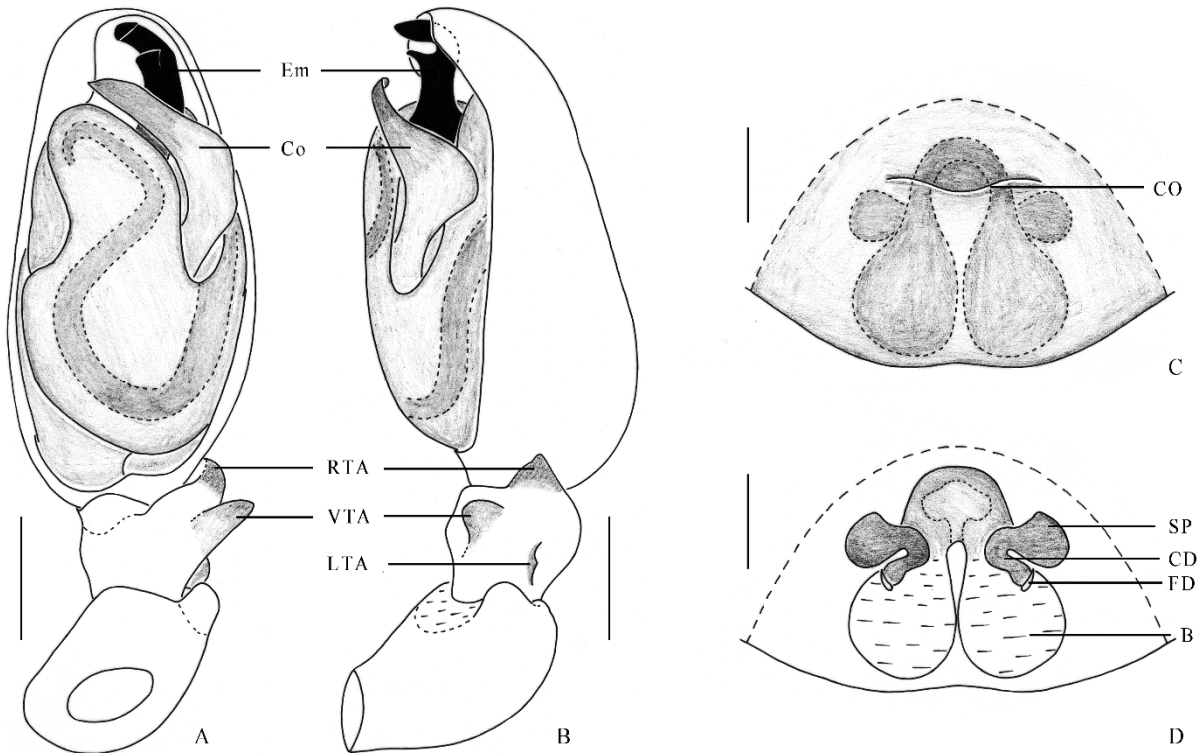


Figure 2. *Clubiona dichotoma* Wang, Chen & Zhang ZS, **sp. nov.** A–B. Holotype male, left pedipalp. A. Ventral view; B. Retrolateral view. C–D. Paratype female, epigyne. C. Ventral view; D. Dorsal view. Abbreviations: B—bursa; CD—copulatory duct; Co—conductor; CO—copulatory opening; Em—embolus; FD—fertilization duct; LTA—lateral tibial apophysis; RTA—retrolateral tibial apophysis; SP—spermathecae; VTA—ventral tibial apophysis. Scale bars=0.2 mm.

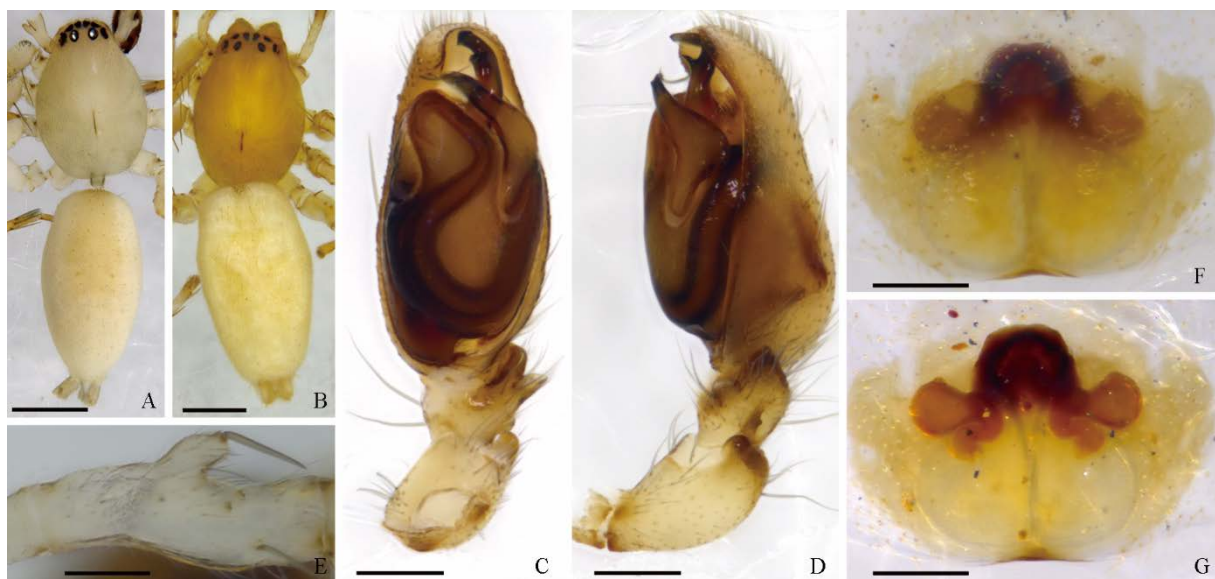


Figure 3. *Clubiona dichotoma* Wang, Chen & Zhang ZS, **sp. nov.** A–B. Habitus, dorsal view. A. Holotype male; B. Paratype female. C–E. Holotype male, left pedipalp. C. Ventral view; D. Retrolateral view; E. Femur, retrolateral view. F–G. Paratype female, epigyne. F. Ventral view; G. Dorsal view. Scale bars: A–B=1 mm; C–G=0.2 mm.

Material examined. Holotype ♂, China, Guizhou, Fanjing Mountain Reserve, Maxi'ao (28°01.16'N, 108°45.41'E; elev. 1239m), 11.X.2014, C. Jin & Z.Z. Gao leg. Paratypes. 3♀, same data as holotype; 1♂, Mianxuling (27°54.54'N, 108°39.83'E; elev. 1974m), 13.X.2014, C. Jin & Z.Z. Gao leg.; 1♀, between Jinding and Huixiangping, 1.VIII.2001, J.X. Zhang & Z.S. Zhang leg.; 1♀, Maxi'ao (28°01.16'N, 108°45.41'E; elev. 1239m), 5.X.2013, L.Y. Wang, D. Wang & X.K. Jiang leg.

Etymology. The specific name comes from the Greek word “*dichotomus*” and refers to its bifid embolus; adjective.

Diagnosis. The new species is similar to *C. subapplanata* Wang, Chen & Zhang ZS, **sp. nov.** (Figs 14A–D, 15A–F), but differs by the bifid embolus, the stronger conductor and the presence of a finger-like apophysis on male pedipalpal femur (Figs 2A–B, 3C–E) (thinner and not bifid embolus, thinner conductor and absent femoral apophysis in *C. subapplanata* Wang, Chen & Zhang ZS, **sp. nov.**), and the slit-like copulatory opening of epigyne (Figs 2C–D, 3F–G) (hole-like copulatory opening in *C. subapplanata* Wang, Chen & Zhang ZS, **sp. nov.**).

Description. Male total length 4.96–5.06. Holotype (Fig. 3A) total length 5.06. Carapace 2.07 long, 1.50 wide; abdomen 2.83 long, 1.33 wide. Carapace yellowish brown. Eye sizes and interdistances: AME 0.09, ALE 0.14, PME 0.13, PLE 0.13; AME–AME 0.04, AME–ALE 0.02, PME–PME 0.15, PME–PLE 0.07, ALE–PLE 0.06. MOA 0.33 long, front width 0.22, back width 0.38. Clypeus height 0.06. Chelicerae yellow brown, with 5 promarginal and 4 retromarginal teeth. Pairs of ventral spines: Tibia I 3; Metatarsus I 1; Tibia II 3; Metatarsus II 1. Leg measurements: I 4.69 (1.33, 1.91, 0.90, 0.55); II 4.99 (1.43, 2.05, 0.97, 0.54); III 4.26 (1.26, 1.47, 1.03, 0.50); IV 6.07 (1.71, 2.04, 1.73, 0.59). Leg formula 4213. Abdomen yellowish brown.

Male pedipalp (Figs 2A–B, 3C–E). Femur retrolaterally with a slanting finger-like apophysis bearing a spine, apophysis as long as wide, half-length of femur diameter. Tibia with 3 apophyses: retrolateral apophysis short, almost triangular; ventral apophysis short and blunt; lateral apophysis small, slightly peaked. Conductor strong, arising from the tegulum meso-retrolaterally and extending disto-prolaterally, widest in the mid part. Embolus bifurcated, arising from distal tegulum, tip ventrad. Sperm duct obvious, curved like a fishhook in ventral view.

Female paratypes total length 4.40–5.73. One of them (between Jinding and Huixiangping, Fig. 3B) total length 5.73. Carapace 2.48 long, 1.73 wide; abdomen 3.46 long, 1.74 wide. Eye sizes and interdistances: AME 0.10, ALE 0.12, PME 0.11, PLE 0.12; AME–AME 0.07, AME–ALE 0.06, PME–PME 0.28, PME–PLE 0.15, ALE–PLE 0.10. MOA 0.33 long, front width 0.27, back width 0.49. Clypeus height 0.06. Chelicerae with 6 promarginal and 4 retromarginal teeth. Leg measurements: I 4.85 (1.45, 1.95, 0.95, 0.50); II 5.22 (1.56, 2.13, 0.99, 0.54); III 4.70 (1.35, 1.69, 1.15, 0.51); IV 6.86 (1.95, 2.42, 1.87, 0.62). Leg formula 4213. Other characters as for male.

Epigyne (Figs 2C–D, 3F–G). Copulatory openings small, located anteriorly. Copulatory ducts short and curved, connecting with a pair of large, transparent bursae posteriorly. Spermathecae small, spherical, about half of the diameter of bursae, located meso-laterally, separated by more than one of their own diameter. Fertilization ducts thin and short.

Distribution. Known only from the type locality, Mt. Fanjing, Guizhou, China.

Comment. The species belongs to the *C. corticalis*-group.

Clubiona fanjingshan Wang, Chen & Zhang ZS, **sp. nov.** (Figs 4A–B, 5A–C)

Material examined. Holotype ♂, China, Guizhou, Fanjing Mountain Reserve, between Jinding and Huixiangping, 1.VIII.2001, J.X. Zhang & Z.S. Zhang leg. Paratype. 1♂, Mianxuling 27°54.54'N, 108°39.83'E; elev. 1974m), 13.X.2014, C. Jin & Z.Z. Gao leg.

Etymology. The specific name refers to the type locality (Mt. Fanjing is read as Fanjingshan in Chinese); noun.

Diagnosis. Male of the new species is similar to that of *C. subapplanata* Wang, Chen & Zhang ZS, **sp. nov.** (Figs 14A–B, 15A, C–D), but can be distinguished by the wider than long RTA, the absence of VTA, the wide and arc-shaped conductor, and the slightly curved embolus (Figs 4A–B, 5B–C) (as long as wide RTA, narrow apex of conductor and strongly curved embolus in *C. subapplanata* Wang, Chen & Zhang ZS, **sp. nov.**).

Description. Male (Fig. 5A). Holotype total length 6.13. Carapace 2.67 long, 1.93 wide; abdomen 3.45 long, 1.68 wide. Carapace yellowish brown. Eye sizes and interdistances: AME 0.11, ALE 0.14, PME 0.12, PLE 0.13; AME–AME 0.12, AME–ALE 0.05, PME–PME 0.24, PME–PLE 0.16, ALE–PLE 0.08. MOA 0.38 long, front width 0.35, back width 0.49. Clypeus height 0.09. Chelicerae yellow brown, with 4 promarginal and 5 retromarginal teeth. Pairs of ventral spines: Tibia I 3; Metatarsus I 1; Tibia II 3; Metatarsus II 1. Leg measurements: I 7.43 (2.13, 2.90, 1.50, 0.90); II 7.86 (2.20, 3.03, 1.77, 0.86); III 6.71 (1.93, 2.20, 1.73, 0.85); IV 8.99 (2.50, 3.01, 2.63, 0.85). Leg formula 4213. Abdomen yellowish brown.

Male pedipalp (Figs 4A–B, 5B–C). Femur without apophysis. Tibia with 2 apophyses, RTA wide and short, LTA small, close to the base of tibia, proximad. Conductor wide, transversal, arc or band-shaped, prolaterad, tip distad. Embolus located distally, with sharply pointed, ventrad tip. Sperm duct long, forming a circular loop in proximal half, gradually tapering toward the base of embolus.

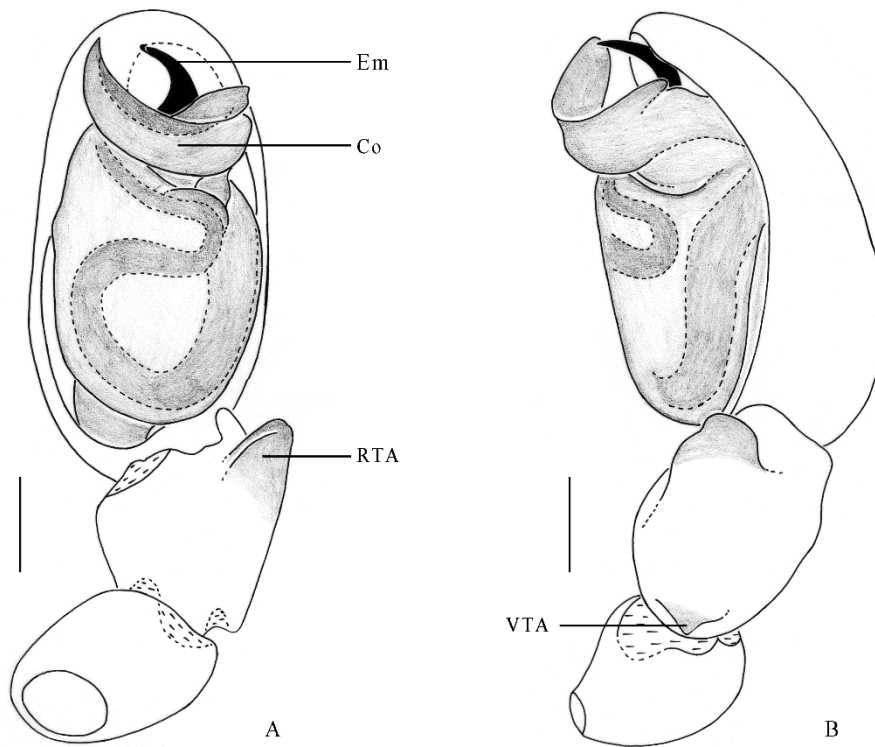


Figure 4. *Clubiona fanjingshan* Wang, Chen & Zhang ZS, **sp. nov.**, holotype male, left pedipalp. A. Ventral view. B. Retrolateral view. Abbreviations: Co—conductor; Em—embolus; RTA—retrolateral tibial apophysis; VTA—ventral tibial apophysis. Scale bars =0.2mm.

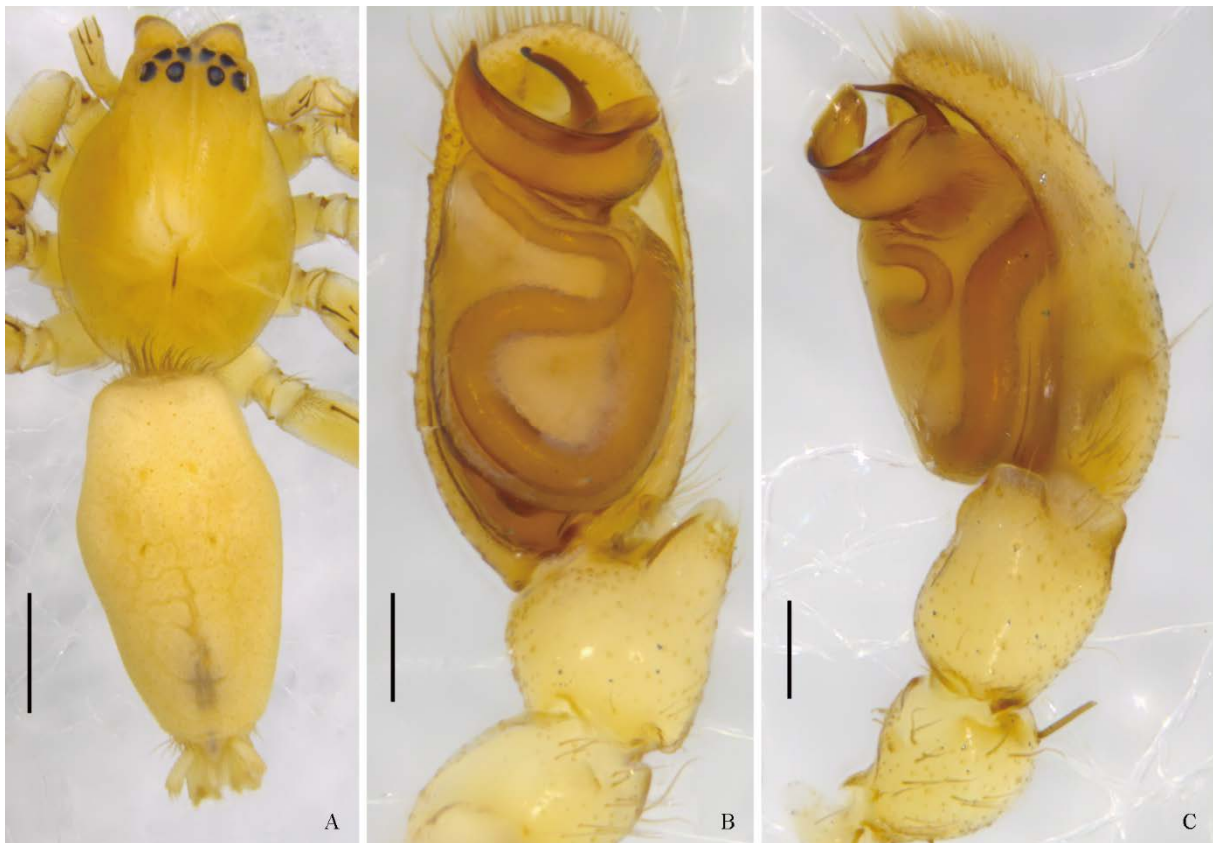


Figure 5. *Clubiona fanjingshan* Wang, Chen & Zhang ZS, **sp. nov.**, holotype male. A. Male habitus, dorsal view. B–C. Left male pedipalp. B. Ventral view; C. Retrolateral view. Scale bars: A=1 mm; B–C=0.2mm.

Female. Unknown.

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

Comment. The new species belongs to the *C. corticalis*-group.

***Clubiona globosa* Wang, Chen & Zhang ZS, sp. nov.** (Figs 6A–E, 7A–I)

Material examined. Holotype ♂, China, Guizhou, Fanjing Mountain Reserve, Macaohe (27°53.86'N, 108°44.51'E; elev. 694 m), 2.X.2013, L.Y. Wang, D. Wang & X.K. Jiang leg. Paratypes. 1♂, Yamugou (27°47.353'N, 108°43.765'E; elev. 547 m), 1.X.2013, L.Y. Wang, D. Wang & X.K. Jiang leg.; 4♀, Heiwanhe (27°50.800'N, 108°46.294'E; elev. 588 m), 20–21.VII.2014, Z.S. Zhang & L.Y. Wang leg.; 1♀, Heiwanhe, 11.X.2014, C. Jin & Z.Z. Gao leg.; 2♂1♀, Heiwanhe, 14.X.2014, C. Jin & Z.Z. Gao leg.; 1♀, Heiwanhe, 20.X.2014, C. Jin & Z.Z. Gao leg.

Etymology. The specific name comes from the Latin word “*globosus*”, referring to the shape of the male pedipalpal bulb; adjective

Diagnosis. The new species is similar to *C. qiyunensis* Xu, Yang & Song, 2003 (Wu & Zhang, 2014: 211, figs 13–23). Males differ from the latter by the strong femoral apophysis, longer than femoral width, and the tiny embolus (Figs 6A–C, 7C–E) (femoral apophysis shorter than femoral width, spine-like embolus of *C. qiyunensis*). Females differ by the oval copulatory opening (roundish in *C. qiyunensis*) (Figs 6D, 7F, 7H). Males of this new species are also similar to that of *C. pollicaris* Wu, Zheng & Zhang, 2015 (Wu, Zheng & Zhang, 2015: 20, figs 15–16, 19, 25–27), but differ from the latter by the femoral apophysis shorter than two times of femoral width (longer than two times of femoral width in *C. pollicaris*).

Description. Male (Fig. 7A). Total length 4.02–5.14. Holotype total length 5.14. Carapace 2.17 long, 1.63 wide; abdomen 2.87 long, 1.48 wide. Carapace yellow brown. Eye sizes and interdistances: AME 0.09, ALE 0.14, PME 0.12, PLE 0.13; AME–AME 0.10, AME–ALE 0.08, PME–PME 0.25, PME–PLE 0.15, ALE–PLE 0.07. MOA 0.32 long, front width 0.30, back width 0.50. Clypeus height 0.05. Chelicerae yellow brown, with 6 promarginal and 4 retromarginal teeth.

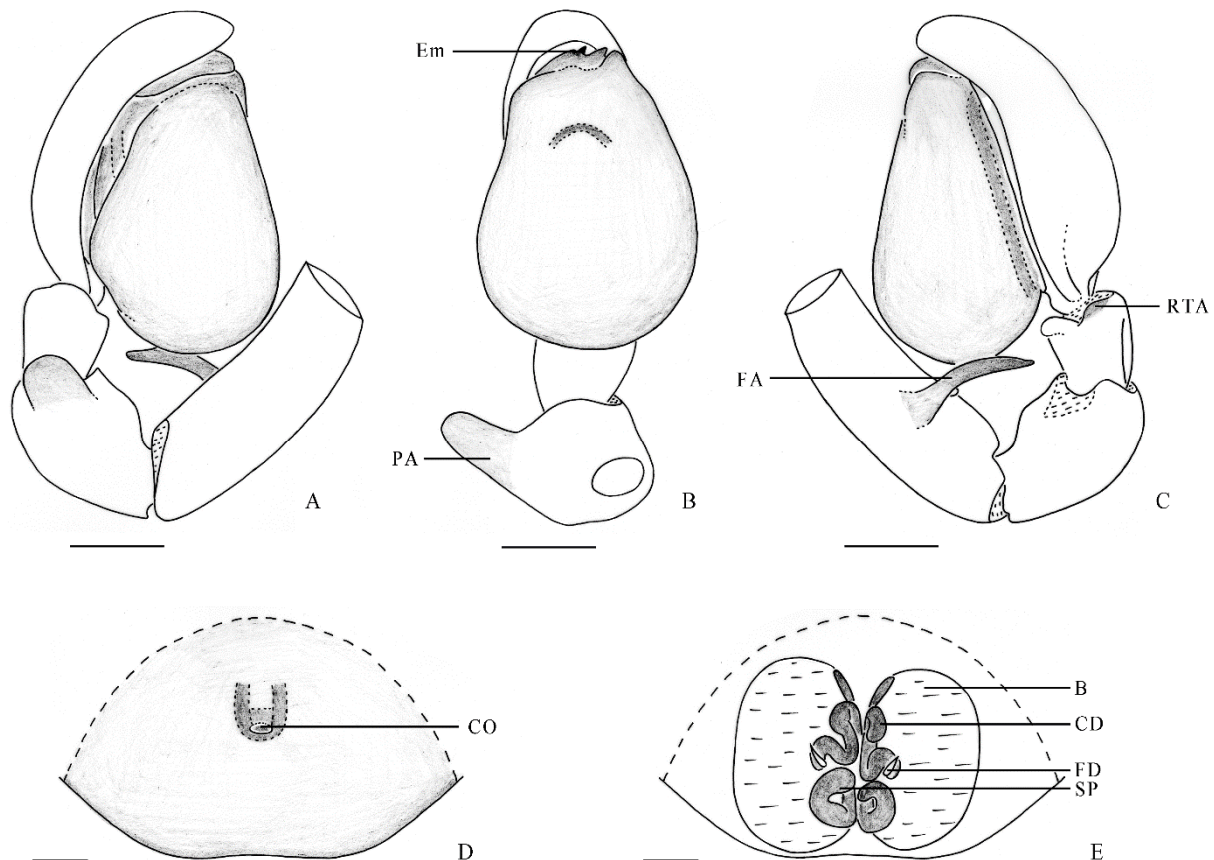


Figure 6. *Clubiona globosa* Wang, Chen & Zhang ZS, sp. nov. A–C. Holotype male, left pedipalp. A. Pro-lateral view; B. Ventral view; C. Retrolateral view. D–E. Paratype female, epigyne. D. Ventral view; E. Dorsal view. Abbreviations: B—bursa; CD—copulatory duct; CO—copulatory opening; Em—embolus; FA—femoral apophysis; FD—fertilization duct; PA—patella apophysis; RTA—retrolateral tibial apophysis; SP—spermathecae. Scale bars=0.2 mm.

Gnathocoxae yellow brown, longer than wide. Labium yellow brown, longer than wide. Sternum yellowish brown, heart-shaped, with sparse brown hairs. Pairs of ventral spines: Tibia I 2; Metatarsus I 1; Tibia II 2; Metatarsus II 1. Leg measurements: I 4.38 (1.28, 1.72, 0.86, 0.52); II 4.97 (1.48, 2.01, 0.93, 0.55); III 4.12 (1.19, 1.43, 1.03, 0.47); IV 5.92 (1.69, 2.03, 1.56, 0.64). Leg formula 4213. Abdomen oval. Both dorsum and venter yellow brown.

Male pedipalp (Figs 6A–C, 7C–E). Femoral apophysis strong, 5 times longer than basal width. Patella with blunt and wide prolateral apophysis, its width about 1/2 of patellar diameter. RTA small and blunt, located distally. Bulb nearly spherical, widest proximally. Embolus arising from tegulum distally, very small. Sperm duct narrow.

Female paratypes total length 5.23–7.09. One of them (Fig. 7B) total length 6.71. Carapace 2.38 long, 1.84 wide; abdomen 4.21 long, 2.42 wide. Eye sizes and interdistances: AME 0.09, ALE 0.14, PME 0.11, PLE 0.14; AME–AME 0.09, AME–ALE 0.06, PME–PME 0.28, PME–PLE 0.15, ALE–PLE 0.09. MOA 0.38 long, front width 0.30, back width 0.52. Clypeus height 0.07. Chelicerae with 4 promarginal and 6 retromarginal teeth. Leg measurements: I 5.11 (1.46, 2.04, 1.00, 0.61); II 5.86 (1.75, 2.33, 1.15, 0.63); III 4.93 (1.46, 1.69, 1.24, 0.54); IV 7.18 (2.02, 2.49, 2.00, 0.67). Leg formula 4213. Other characters as in male.

Epigyne (Figs 6D–E, 7F–I). Copulatory opening small, located centrally. Copulatory ducts strongly twisted, connected

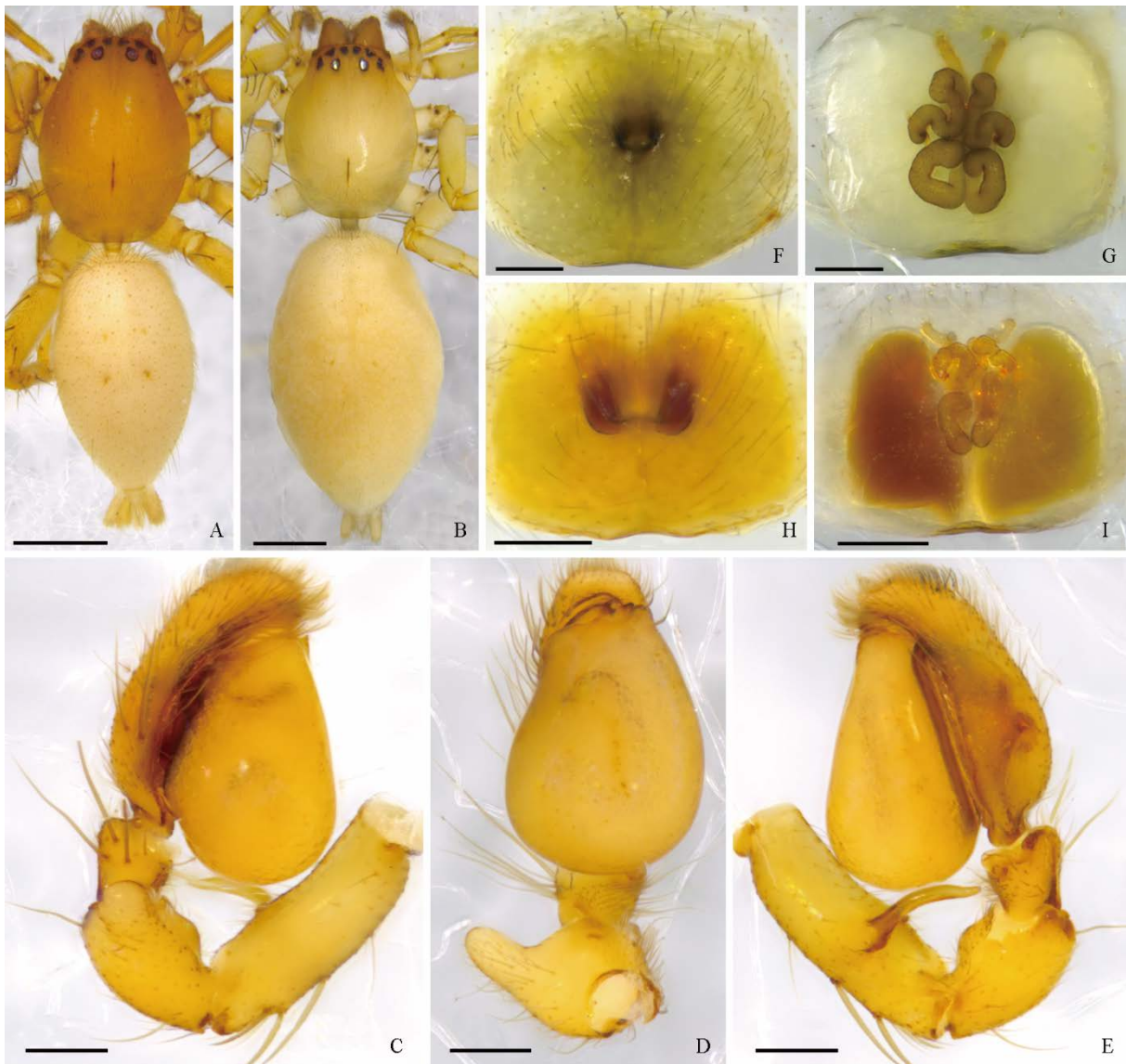


Figure 7. *Clubiona globosa* Wang, Chen & Zhang ZS, **sp. nov.** A–B. Habitus, dorsal view. A. Holotype male; B. Paratype female. C–E. Holotype male, left pedipalp. C. Prolateral view; D. Ventral view; E. Retrolateral view. F–I. Paratype female, epigyne. F, H. Ventral view; G, I. Dorsal view (F and G from the same specimen of Mt. Fanjing, H and I from another one of Mt. Fanjing). Scale bars: A–B = 1 mm; C–I = 0.2 mm.

with a pair of large, transparent, oval bursae and tube-like spermathecae. Fertilization ducts small.

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

Comment. The new species belongs to the *C. corticalis*-group.

***Clubiona huiming* Wang, Zhang & Zhang, sp. nov.** (Figs 8A–B, 9A–C)

Material examined. Holotype ♂, China, Guizhou, Fanjing Mountain Reserve, Mianxuling (27°54.54'N, 108°39.83'E; elev. 1974m), 30.IX.2013, L.Y. Wang, D. Wang & X.K. Jiang leg. Paratype. 1♂, between Jinding and Jiandaoxia, 13.X.2014, C. Jin & Z.Z. Gao leg.

Etymology. The specific name honours Dr. Huiming Chen, a researcher on biospeleology and local animal resource of Guizhou, China; noun.

Diagnosis. Males of the new species are similar to *C. subapplanata* Wang, Chen & Zhang ZS, **sp. nov.** (Figs 14A–B, 15A, C–F), but differs from the latter by the VTA as long as wide, the long and slender embolus and the tapering and coiled conductor (Figs 8A–B, 9B–C) (VTA wider than long, embolus short and conductor reduced in *C. subapplanata* Wang, Chen & Zhang ZS, **sp. nov.**).

Description. Male (Fig. 9A). Holotype total length 4.16. Carapace 2.10 long, 1.58 wide; abdomen 2.07 long, 1.27 wide. Carapace yellowish brown. Eye sizes and interdistances: AME 0.08, ALE 0.14, PME 0.12, PLE 0.14; AME–AME 0.07, AME–ALE 0.04, PME–PME 0.17, PME–PLE 0.10, ALE–PLE 0.05. MOA 0.31 long, front width 0.25, back width 0.40. Clypeus height 0.07. Chelicerae yellow brown, with 5 promarginal and 5 retromarginal teeth. Pairs of ventral spines: Tibia I 3; Metatarsus I 1; Tibia II 3; Metatarsus II 1. Leg measurements: I 4.92 (1.42, 1.98, 0.96, 0.56); II 5.35 (1.61, 2.13, 1.01, 0.60); III 4.57 (1.34, 1.62, 1.11, 0.50); IV 6.58 (1.96, 2.09, 1.94, 0.59). Leg formula 4213. Abdomen yellowish brown.

Male pedipalp (Figs 8A–B, 9B–C). Femur without apophysis. Patella longer than wide. Tibia shorter than patella, with 3 apophyses. RTA almost conical, located distally. VTA almost as long as wide. LTA wide and short, located proximally. Embolus long and coiled, arising distally from tegulum. Conductor wide in mid-part and tapering toward its apex. Sperm duct U-shaped.

Female. Unknown.

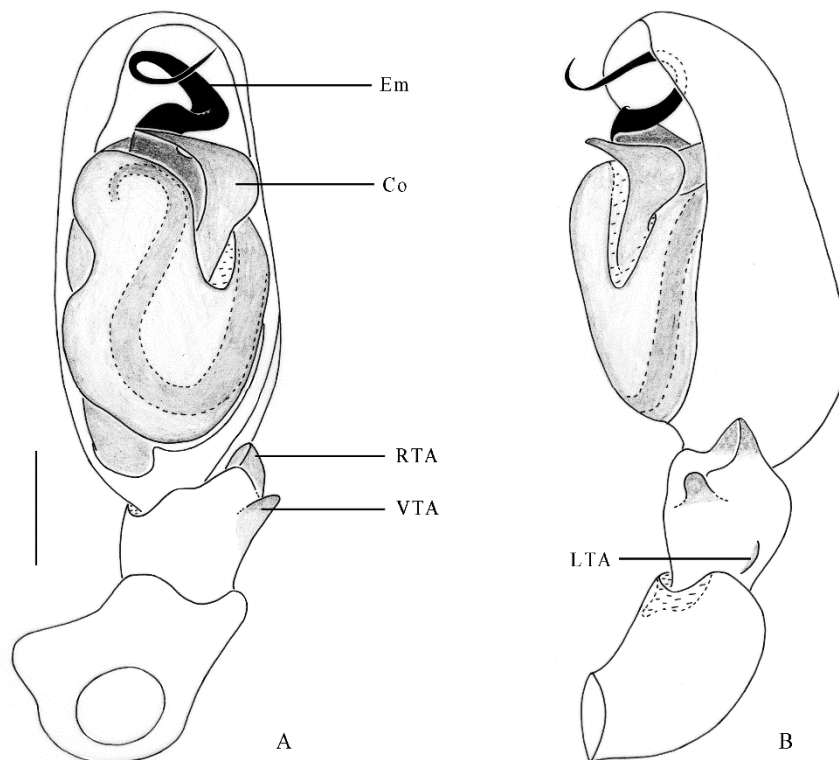


Figure 8. *Clubiona huiming* Wang, Zhang & Zhang, **sp. nov.**, holotype male, left pedipalp. A. Ventral view. B. Retrolateral view. Abbreviations: Co—conductor; Em—embolus; LTA—lateral tibial apophysis; RTA—retrolateral tibial apophysis; VTA—ventral tibial apophysis. Scale bars=0.2 mm.

Distribution. Known only from the type locality, Guizhou, China.
 Comment. The new species belongs to the *C. corticalis*-group.

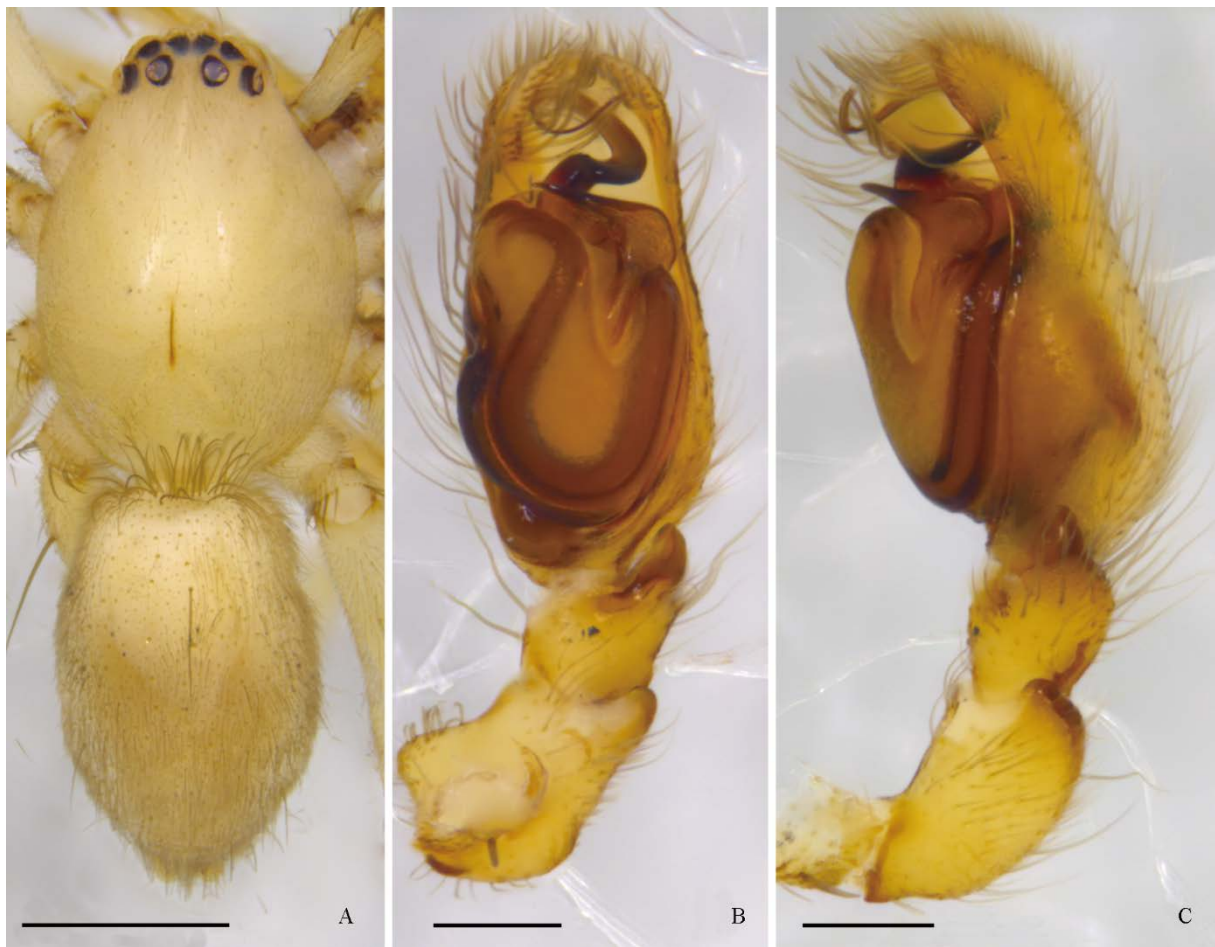


Figure 9. *Clubiona huiming* Wang, Chen & Zhang ZS, **sp. nov.**, holotype male habitus. A. Dorsal view. B–C. Left male pedipalp. B. Ventral view; C. retrolateral view. Scale bars: A=1 mm; B–C=0.2 mm.

***Clubiona japonicola* Bösenberg & Strand, 1906** (Figs 10A–F)

Clubiona japonicola Bösenberg & Strand, 1906: 281, pl. 16, fig. 498 (♂♀); Song *et al.*, 1999: 416, figs 246L–M, 249K–L (♂♀); Ono & Hayashi, 2009: 535, figs 50–52 (♂♀); Huang & Chen, 2012: 64, figs 18A–F, box 2B, 3D (♂♀); Zhu & Zhang, 2011: 359, figs 258A–E (♂♀). For full list of taxonomic references see World Spider Catalog (2018).

Material examined. 1♂3♀, Mt. Fanjing (no detailed data), 27.VII.2001, J.X. Zhang & Z.S. Zhang leg.

Description. See Huang & Chen (2012). Habitus as shown in Figs 10A–B, male pedipalp as in Figs 10C–D, epigyne as in Figs 10E–F.

Distribution. China (north to Jilin and south to Yunnan); Russia (Far East); South Korea; Japan; Philippines; Indonesia.

Comment. The species belongs to the *C. japonicola*-group.

***Clubiona jucunda* (Karsch, 1879)** (Figs 11A–F)

Clubiona jucunda Karsch, 1879: 92; Mikhailov, 1995: 34, figs 5, 14 (♂♀); Song *et al.*, 1999: 425, figs 246P, 249M (♂♀); Ono & Hayashi, 2009: 535, figs 35–40 (♂♀); Zhu & Zhang, 2011: 360, figs 259A–E (♂♀); Yin *et al.*, 2012: 1105, figs 582a–e (♂♀); Huang & Chen, 2012: 67, figs 19A–F, pl. 5B–D, 6A–B, box 2H. For full list of taxonomic references see World Spider Catalog (2018).

Material examined. 1♂1♀, Mt. Fanjing (no detailed data), 2.VIII.2001, J.X. Zhang & Z.S. Zhang leg.

Description. See Huang & Chen (2012). Photos of habitus shown in Fig. 11A–B, male pedipalp as in Figs 11C–D, epigyne as in Figs 11E–F.

Distribution. China (north to Heilongjiang and south to Taiwan); Russia (southern Far East), South Korea and Japan.

Comment. The species belongs to the *C. jucunda*-group.



Figure 10. *Clubiona japonicola* Bösenberg & Strand, 1906. A–B. Habitus, dorsal view. A. Male; B. female. C–D. Left male pedipalp. C. Ventral view; D. Retrolateral view. E–F. Epigyne. E. Ventral view; F. Dorsal view. Scale bars: A–B = 2 mm; C–D = 0.3 mm; E–F = 0.2 mm.



Figure 11. *Clubiona jucunda* (Karsch, 1879). A–B. Habitus, dorsal view. A. Male; B. Female. C–D. Left male pedipalp. C. Ventral view; D. Retrolateral view. E–F. Epigyne. E. Ventral view; F. Dorsal view. Scale bars: A = 1 mm; B = 2 mm; C–F = 0.2 mm.

***Clubiona manshanensis* Zhu & An, 1988** (Figs 12A–F)

Clubiona manshanensis Zhu & An, 1988: 73, figs 7–11 (♂♀); Song *et al.*, 1999: 425, figs 250I–J, 252M–N (♂♀); Zhu & Zhang, 2011: 364, figs 262A–E (♂♀); Yin *et al.*, 2012: 1111, figs 587a–e (♂♀). For full list of taxonomic references see World Spider Catalog (2018).

Material examined. 2♂2♀, Macaohe (27°53.742'N, 108°45.127'E; elev. 767 m), 24.VII.2013, L.Y. Wang, T. Lu & X.K. Jiang leg.; 1♂1♀, Jinchang (28°00.554'N, 108°43.769'E; elev. 952 m), 27.VII.2013, L.Y. Wang, T. Lu & X.K. Jiang leg.; 1♀, Mengjiatun (27°50'053"N, 108°51'37.39"E; elev. 411 m), 8.X.2013, L.Y. Wang, D. Wang & X.K. Jiang leg.

Description. See Zhu & Zhang (2011). Habitus as shown in Fig. 12A–B, male pedipalp as in Figs 12C–D, epigyne as in Figs 12E–F.

Distribution. Endemic of China (north to Hebei and south to Yunnan).

Comment. The species belongs to the *C. obesa*-group.

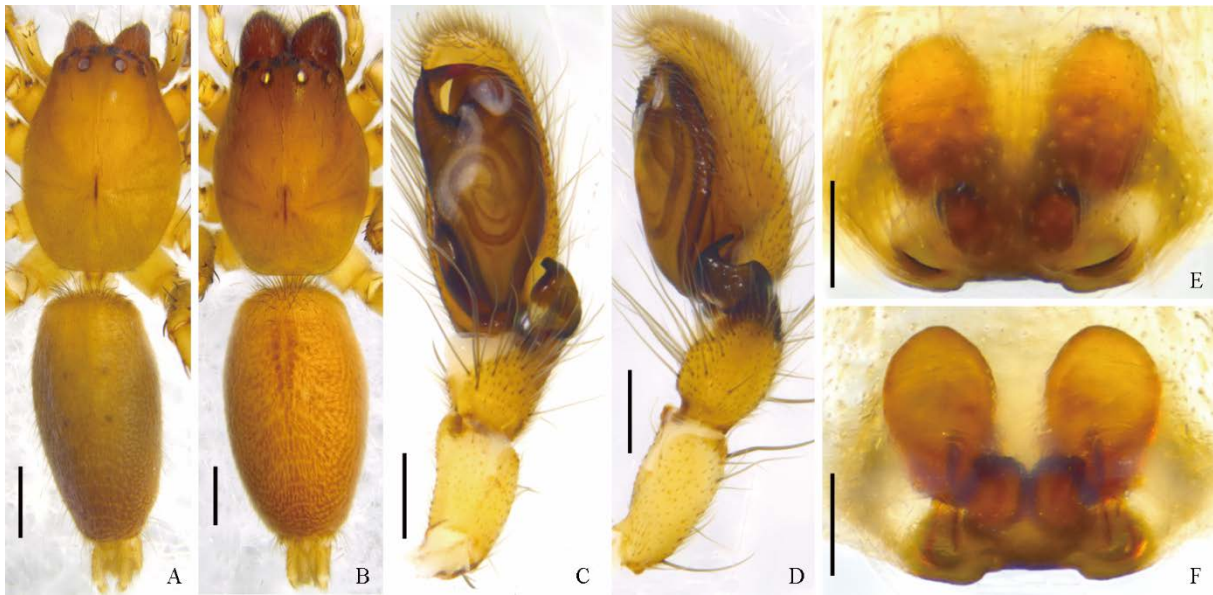


Figure 12. *Clubiona manshanensis* Zhu & An, 1988. A–B. Habitus, dorsal view. A. Male; B. Female. C–D. Left male pedipalp. C. Ventral view; D. Retrolateral view. E–F. Epigyne. E. Ventral view; F. Dorsal view. Scale bars: A–B = 1 mm; C–D = 0.3 mm; E–F = 0.2 mm.

***Clubiona pterogona* Yang, Song & Zhu, 2003** (Figs 13A–C)

Clubiona pterogona Yang *et al.*, 2003: 8, figs 3A–C (♀).

Material examined. 1♀, Mianxuling (27°54.626'N, 108°40.288'E; elev. 1997m), 25.VII.2013, L.Y. Wang, T. Lu & X.K. Jiang leg.

Description. See Yang *et al.* (2003). Female habitus as shown in Fig. 13A. Epigyne as in Figs 13B–C. Male unknown.

Distribution. Known only from Mt. Fanjing, Guizhou, China.

Comments. Judging from the shape of epigyne this species may belong to the *C. marmorata*-group as defined by Mikhailov (1995). Three species described here on the basis of males belong to the *C. corticalis*-group and therefore cannot be conspecific with this species.

***Clubiona subapplanata* Wang, Chen & Zhang ZS, sp. nov.** (Figs 14A–D, 15A–F)

Material examined. Holotype ♂, China, Guizhou, Fanjing Mountain Reserve, Jinding (27°54.49'N, 108°41.86'E; elev. 2214m), 29.IX.2013, L.Y. Wang, D. Wang & X.K. Jiang leg. Paratypes. 1♀, same data as holotype; 5♀, Jinding (27°54.54'N, 108°41.88'E; elev. 2289m), 23.VII.2013, L.Y. Wang, T. Lu & X.K. Jiang leg.; 2♂2♀, Mianxuling (27°54.54'N, 108°39.83'E; elev. 1974m), 13.X.2014, C. Jin & Z.Z. Gao leg.

Etymology. The specific name refers to its similarity of *C. applanata* Liu, Yan, Griswold & Ubick, 2007; adjective.

Diagnosis. The new species is similar to *C. applanata* Liu, Yan, Griswold & Ubick, 2007 (Liu *et al.*, 2007: 64, figs 1–5), but differs from the latter by the blunt RTA, the wider than long VTA, the presence of LTA and the wider conductor (in ventral view) (Figs 14A–B, 15C–D) (RTA relatively peaked, VTA as long as wide, LTA absent and conductor narrow in *C. applanata*) and a tiny copulatory opening of epigyne (14C–D, 15E–F) (copulatory opening small in *C. applanata*).

Description. Male (Fig. 15A). Holotype total length 5.15. Carapace 2.42 long, 1.75 wide; abdomen 2.79 long, 1.37 wide. Carapace yellowish brown. Eye sizes and interdistances: AME 0.12, ALE 0.15, PME 0.13, PLE 0.15; AME–AME 0.06, AME–ALE 0.04, PME–PME 0.21, PME–PLE 0.11, ALE–PLE 0.07. MOA 0.36 long, front width 0.28, back width 0.45. Clypeus height 0.07. Chelicerae yellow brown, with 4 promarginal and 4 retromarginal teeth. Pairs of ventral spines: Tibia I 3; Metatarsus I 1; Tibia II 3; Metatarsus II 1. Leg measurements: I 5.31 (1.50, 2.23, 1.00, 0.58); II 5.80 (1.84, 2.33, 1.06, 0.57); III 5.22 (1.55, 1.83, 1.26, 0.58); IV 7.38 (2.13, 2.54, 2.04, 0.67). Leg formula 4213. Abdomen yellowish brown.

Male pedipalp (Figs 14A–B, 15C–D) without femoral and patellar apophysis. Tibia with 3 apophyses: RTA blunt, as long as wide, VTA wider than long and LTA short, much wider than long. Embolus located anteriorly, anterior part curved ventrally. Conductor relatively long, wide medially and thin anteriorly. Sperm duct distinct, U-shaped in ventral view.

Female paratypes total length 5.06–6.17. One paratype (Fig. 15B) total length 5.60. Carapace 2.61 long, 1.81 wide; abdomen 3.07 long, 1.73 wide. Eye sizes and interdistances: AME 0.12, ALE 0.16, PME 0.13, PLE 0.15; AME–AME 0.08, AME–ALE 0.04, PME–PME 0.25, PME–PLE 0.14, ALE–PLE 0.08. MOA 0.39 long, front width 0.31, back width 0.50. Clypeus height 0.07. Leg measurements: I 5.01 (1.55, 2.05, 0.88, 0.53); II 5.34 (1.60, 2.23, 0.93, 0.58); III 4.74 (1.45, 1.54, 1.20, 0.55); IV 6.89 (1.98, 2.31, 1.88, 0.72). Leg formula 4213. Other characters as for male.

Epigyne (Figs 14C–D, 15E–F) with a small copulatory opening anteriorly. Copulatory ducts short and curved, with a pair of large, transparent bursae posteriorly. Spermathecae spherical, meso-laterally located and separated from each other by at least two times of their diameter. Fertilization ducts short.

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

Comment. The new species belongs to the *C. corticalis*-group.



Figure 13. *Clubiona pterogona* Yang, Song & Zhu, 2003. A. Female habitus, dorsal view. B–C. Epigyne. B. Ventral view; C. Dorsal view. Scale bars: A = 1 mm; B–C = 0.2 mm.

***Clubiona subcylindrata* Wang, Chen & Zhang ZS, sp. nov.** (Figs 16A–C, 17A–D)

Material examined. Holotype ♂, China, Guizhou, Fanjing Mountain Reserve, Heiwanhe (27°50.778'N, 108°46.362'E; elev. 533 m), 26.IX.2013, L.Y. Wang, D. Wang & X.K. Jiang leg.

Etymology. The specific name is taken from its similarity to *C. cylindrata* Liu, Yan, Griswold & Ubick, 2007; adjective.

Diagnosis. The new species is similar to *C. cylindrata* Liu, Yan, Griswold & Ubick, 2007 (Liu *et al.*, 2007: 67, figs 11–15), but differs from the latter by the RTA wider than a half of its length, much wider, membranous conductor (Figs 16A–C, 17B–D) (width of RTA less than a half of its length and slender, indistinct conductor in *C. cylindrata*).

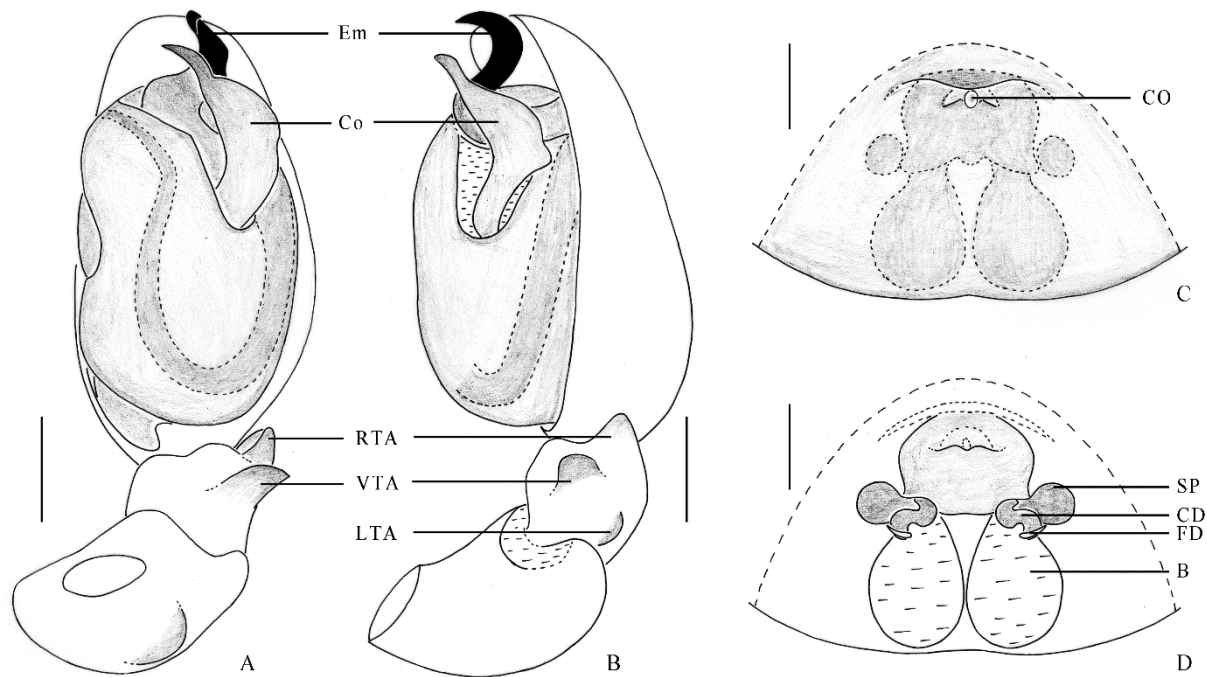


Figure 14. *Clubiona subapplanata* Wang, Chen & Zhang ZS, **sp. nov.** A–B. Holotype male, left pedipalp. A. Ventral view; B. Retrolateral view. C–D. Paratype female, epigyne. C. Ventral view; D. Dorsal view. Abbreviations: B—bursa; CD—copulatory duct; Co—conductor; CO—copulatory opening; Em—embolus; FD—fertilization duct; LTA—lateral tibial apophysis; RTA—retrolateral tibial apophysis; SP—spermathecae; VTA—ventral tibial apophysis. Scale bars=0.2 mm.



Figure 15. *Clubiona subapplanata* Wang, Chen & Zhang ZS, **sp. nov.** A–B. Habitus, dorsal view. A. Holotype male; B. Paratype female. C–D. Holotype male, left pedipalp. C. Ventral view; D. Retrolateral view. E–F. Paratype female, epigyne. E. Ventral view; F. Dorsal view. Scale bars: A–B=1 mm; C–F=0.2 mm.

Description. Male (Fig. 17A). Holotype total length 8.72. Carapace 3.72 long, 2.72 wide; abdomen 5.12 long, 2.23 wide. Eye sizes and interdistances: AME 0.16, ALE 0.20, PME 0.17, PLE 0.17; AME–AME 0.17, AME–ALE 0.07, PME–PME 0.34, PME–PLE 0.24, ALE–PLE 0.12. MOA 0.50 long, front width 0.49, back width 0.67. Clypeus height 0.10. Chelicerae with 4 promarginal and 2 retromarginal teeth. Pairs of ventral spines: Tibia I 2; Metatarsus I 1; Tibia II 2; Metatarsus II 1. Leg measurements: I 10.50 (2.88, 4.16, 2.24, 1.22); II 11.74 (3.13, 4.73, 2.53, 1.35); III 9.21 (2.61, 3.33, 2.44, 0.83); IV 12.08 (3.02, 4.08, 3.78, 1.20). Leg formula 4213. Abdomen yellow brown.

Male pedipalp (Figs 16A–C, 17B–D). Femur and patella without apophysas. Patella and tibia almost 2 times longer than wide. Tibia with two apophyses: RTA short, with slightly peaked apex; VTA small, slightly wider than long. Conductor

membranous, wide and slightly folded. Embolus slender, arising prolaterally, extending distally. Part of sperm duct visible on disto-retrolateral side of tegulum.

Female. Unknown.

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

Comment. The new species belongs to the *C. corticalis*-group.

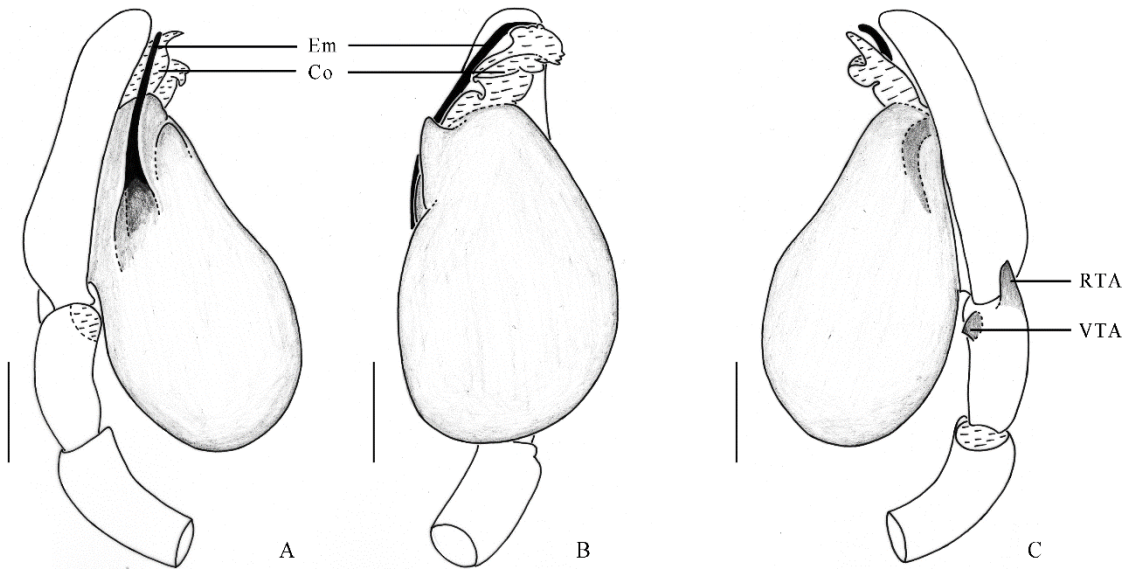


Figure 16. *Clubiona subcylindrata* Wang, Chen & Zhang ZS, **sp. nov.**, holotype male, left pedipalp. A. Prolateral view. B. Ventral view. C. Retrolateral view. Abbreviations: Co—conductor; Em—embolus; RTA—retrolateral tibial apophysis; VTA—ventral tibial apophysis. Scale bars: A–C=0.5 mm.

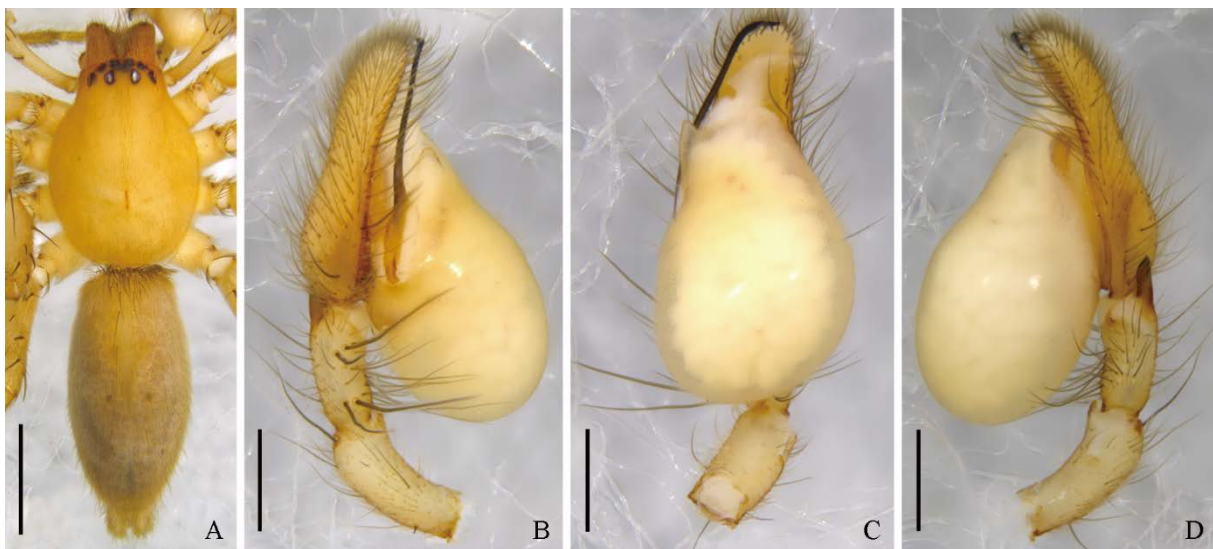


Figure 17. *Clubiona subcylindrata* Wang, Chen & Zhang ZS, **sp. nov.**, holotype male. A. Habitus, dorsal view. B–D. Left pedipalp. B. Prolateral view; C. Ventral view; D. Retrolateral view. Scale bars: A=2 mm; B–D=0.5 mm.

***Clubiona subrostrata* Zhang & Hu, 1991** (Figs 18A–F)

Clubiona subrostrata Zhang & Hu, 1991: 418, figs 5–8 (♂♀); Song *et al.*, 1999: 427, figs 251M–N, 253N–O (♂♀); Yin *et al.*, 2012: 1118, figs 592a–e (♂♀).

Material examined. 1♂, Heiwanhe (27°50.778'N, 108°46.362'E; elev. 533 m), 28.IX.2013, L.Y. Wang, D. Wang & X.K. Jiang leg.; 1♀, Yamugou (27°47.353'N, 108°43.765'E; elev. 547 m), 1.X.2013, L.Y. Wang, D. Wang & X.K. Jiang leg.

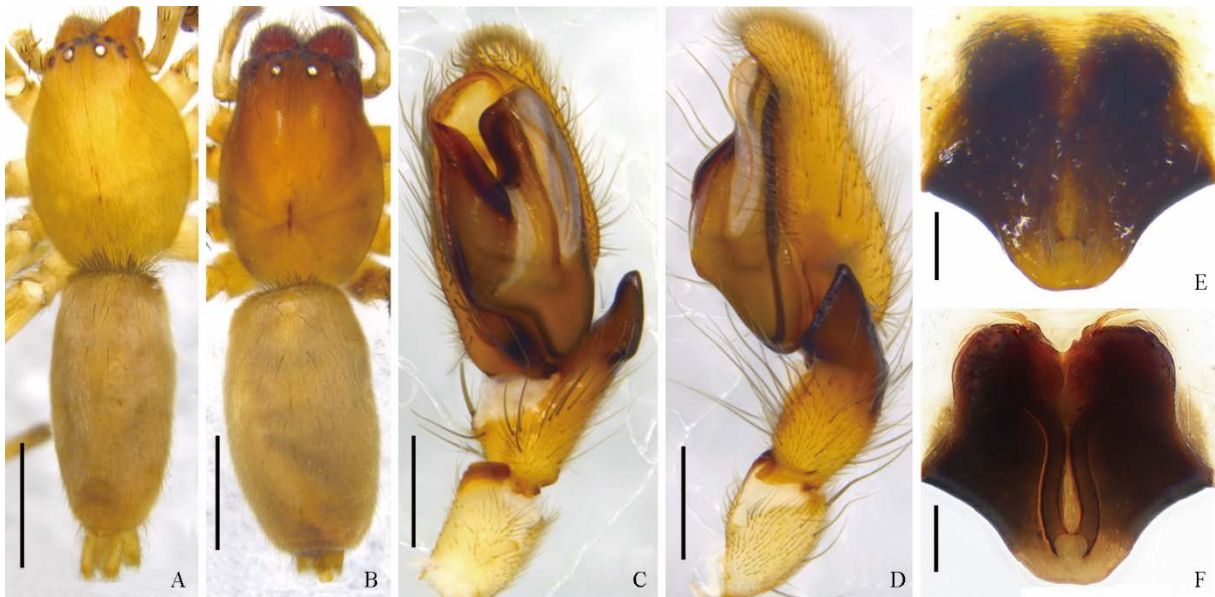


Figure 18. *Clubiona subrostrata* Zhang & Hu, 1991. A–B. Habitus, dorsal view. A. Male; B. Female. C–D. Left male pedipalp. C. Ventral view; D. Retrolateral view. E–F. Epigyne. E. Ventral view; F. Dorsal view. Scale bars: A–B=2 mm; C–D=0.5 mm; E–F=0.2 mm.

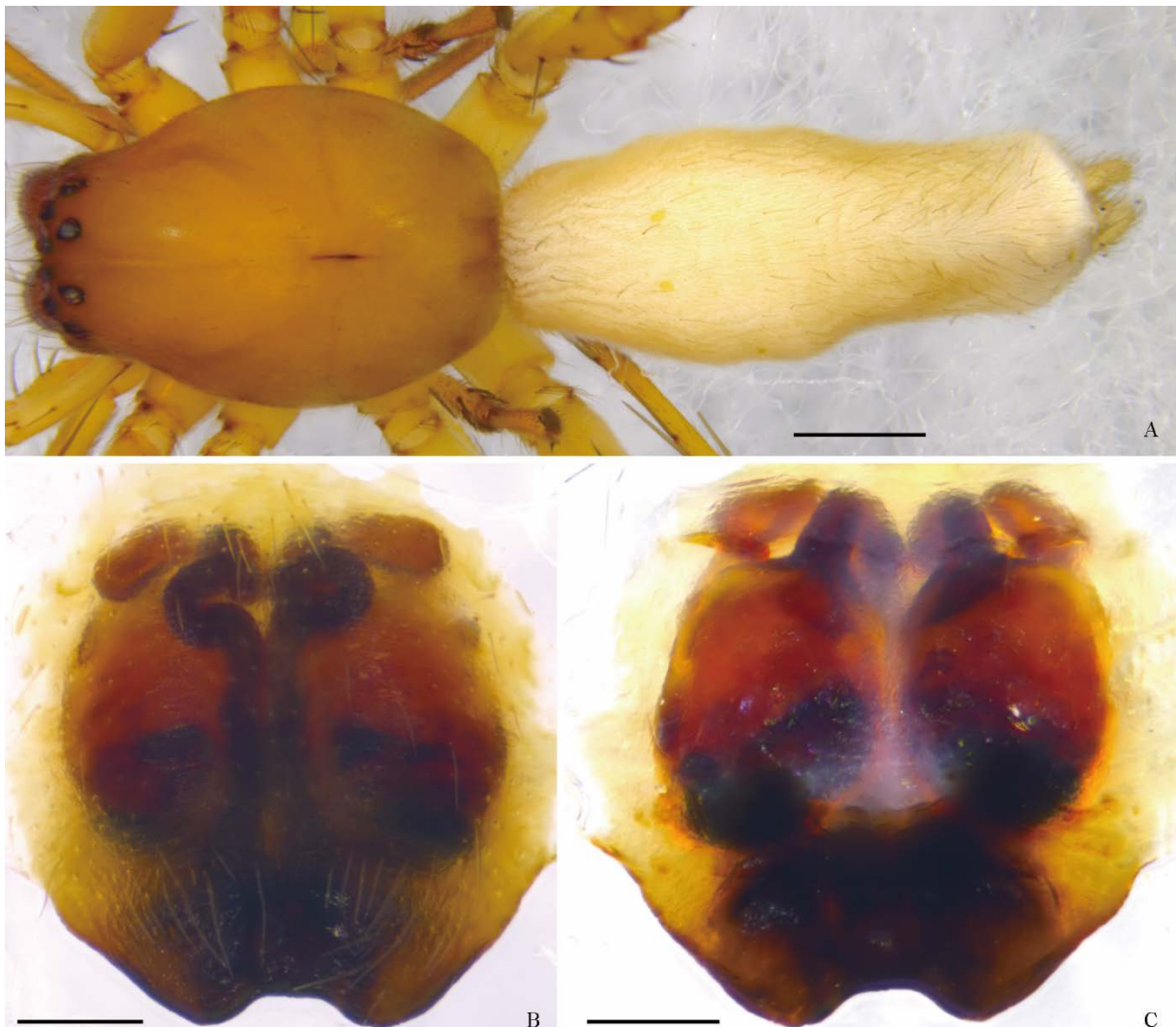


Figure 19. *Pristidia ramosa* Yu, Sun & Zhang, 2012. A. Female habitus, dorsal view. B–C. Epigyne. B. Ventral view; C. Dorsal view. Scale bars: A=1 mm; B–C=0.2 mm.

Description. See Yin *et al.* (2012). Habitus as shown in Figs 18A–B, male pedipalp as in Figs 18C–D, epigyne as in Figs 18E–F.

Distribution. China (Fujian, Hunan and Guizhou).

Comment. The species belongs to *C. trivialis*-group.

3.2 Genus *Pristidia* Deeleman-Reinhold, 2001

Pristidia ramosa Yu, Sun & Zhang, 2012 (Figs 19A–C)

Pristidia ramosa Yu *et al.*, 2012: 45, figs 1–16 (♂♀).

Material examined. 1♀, Heiwanhe (27°50.80'N, 108°46.29'E; elev. 588 m), 18.VII.2013, L.Y. Wang, T. Lu & X.K. Jiang leg.; 1♀, Heiwanhe, 24.VII.2013, L.Y. Wang, T. Lu & X.K. Jiang leg.; 1♀, Zhiwuyuan (27°50'2.42"N, 108°45'30.08"E; elev. 532 m), 26.VII.2013, L.Y. Wang, T. Lu & X.K. Jiang leg.

Description. See Yu *et al.* (2012). Habitus as shown in Fig. 19A, epigyne as in Figs 19B–C.

Distribution. China (Fujian, Guizhou, Guangxi, Jiangxi).

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