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〈Original article〉

A New Species and Three New Records of the Families Gnaphosidae and Clubionidae (Araneae) from Korea

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Abstract - Four species of the families Gnaphosidae and Clubionidae are reported. *Cladothela unmunensis* n. sp. is described from Gyeongsangbuk-do, Korea. *Drassodes longispinus* Marusik and Logunov, 1995, *Gnaphosa inconspecta* Simon, 1878 and *Clubiona tongdaoensis* Zhang, Yin, Bao and Kim, 1997 are newly recorded to the Korean spider fauna.

Key words : *Cladothela*, *Clubiona*, *Drassodes*, *Gnaphosa*, Korea, new species

INTRODUCTION

The genus *Clubiona* is the largest group in the spider family Clubionidae, including 494 species worldwide (World Spider Catalog 2017). Of these 28 species are known from Korea (Yoo *et al*. 2015). The spider family Gnaphosidae includes 2197 species in 125 genera, distributed worldwide. Among them, genera *Cladothela*, *Drassodes* and *Gnaphosa* comprise 10, 168 and 145 species respectively, and in Korea, 4, 3 and 8 species respectively (World Spider Catalog 2017; Yoo *et al*. 2015).

While studying specimens collected during the Korean indigenous species survey, four species were identified as a new species and three species new to Korea; *Cladothela unmunensis* n. sp., *Drassodes longispinus* Marusik and Logunov, 1995, *Gnaphosa inconspecta* Simon, 1878 and *Clubiona tongdaoensis* Zhang, Yin, Bao and Kim, 1997.

MATERIALS AND METHODS

The sequence of leg segments in measurement data is as follows: total (femur, patella, tibia, metatarsus, tarsus). The abbreviations used in the text: c, carapace length; d, p, r and v in leg spination are dorsal, prolateral, retrolateral and ventral side of leg, respectively; Leg I, length of leg I; AER, anterior eye row; ALE, anterior lateral eye; ALE-PLE, distance between ALE and PLE; AME, anterior median eye; AME-ALE, distance between AME and ALE; AME-AME, distance between AMEs; AME-PME, distance between AME and PME; PER, posterior eye row; PLE, posterior lateral eye; PME, posterior median eye; PME-PLE, distance between PME and PLE; PME-PME, distance between PMEs. All measurements in the text are given in millimeters. The type specimens are deposited in the National Institute of Biological Resources (NIBR), Ministry of Environment, Korea.

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RESULTS AND DISCUSSION

Order Araneae Clerck, 1757 거미목
Family Gnaphosidae Pocock, 1898 수리거미과
Genus *Cladothela* Kishida, 1928 갈래꼭지거미속

***Cladothela unmunensis* n. sp. 운문갈래꼭지거미 (신칭) (Fig. 1A-F)**

Material examined: Holotype: ♀, mixed forest around Unmun Dam (35°43′07″N, 128°55′31″E, alt. 148 m), 12 km

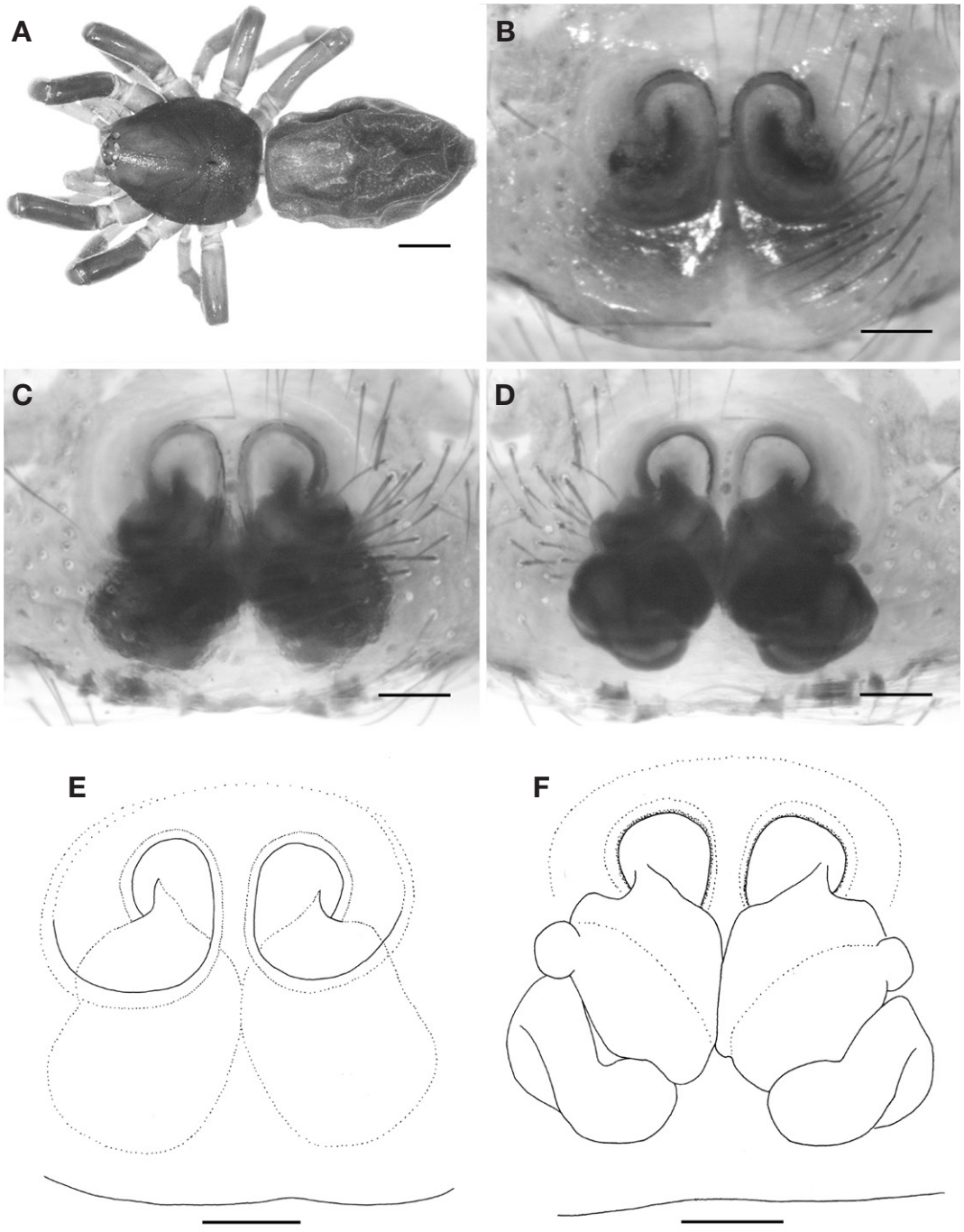

Fig. 1. *Cladothela unmunensis* n. sp., female: A - habitus, dorsal view; B - epigynum; C, E - internal genitalia, ventral view; D, F - ditto, dorsal view. Scale bars: 1 mm (A), 0.1 mm (rest).

north of the summit of Mt. Unmun, Unmun-myeon, Cheongdo-gun, Gyeongsangbuk-do, 25 August 2011, J. S. Park.

Etymology. The specific name comes from the type locality, Mt. Unmun,

Diagnosis. The female of *C. unmunensis* n. sp. is very similar to that of *C. auster* Kamura, 1997 in the epigynum, but different from the latter by the structure of the internal genitalia (Fig. 1B-F).

Description. Female (holotype). Total length 7.10. Habitus as in Fig. 1A. Carapace deep reddish brown, chitinized; 3.10

long, 2.40 wide; median furrow and radial grooves distinct; clypeus height 1.8 times of diameter of AME. AER 0.69, PER 0.73. AER retrocurved and PER procurved in dorsal view. AME 0.08, ALE 0.20, PME 0.20, PLE 0.16, AME-AME 0.09, AME-ALE 0.01, PME-PME 0.05, PME-PLE 0.07, AME-PME 0.09, and ALE-PLE 0.05. Median ocular quadrangle, height > posterior side > anterior side (30 : 29 : 27). Sternum 1.79 long, 1.44 wide. Labium 0.49 long, 0.43 wide. Leg measurements: I 6.36 (1.95, 1.13, 1.39, 1.01, 0.88), II 5.92 (1.76, 1.13, 1.20, 1.01, 0.82), III 5.23 (1.51, 0.88, 0.95, 1.07, 0.82), IV 7.00 (1.89, 1.01, 1.45, 1.70, 0.95). Leg I/c 6.36. Fem. I/c 1.95. Tib I/c 1.39. Met I/c 1.01. Pat. I + tib. I/c 2.52. Met. I/tar. I 1.15. Met. IV/tar. IV 1.79. Leg spination pattern: Femora; I-III d1-1; IV d1-1-1-1. Tibiae; III d1-0, p1-1-1, r0-1-0, v0-2-2; IV d1-0-0, p0-1-1, r1-0-1, v2-2-2-2. Metatarsi; III d0-1-0, p1-1-1, r1-1-1, v2-0; IV d0-1-1, p0-0-1-1, r1-1-1, v0-1-1-1. Abdomen oval, dark brown, and 4.00 long, 2.50 wide. Epigynum with a medial longitudinal ridge and a pair of copulatory openings anteriorly; internal genitalia with a pair of spermathecae; genital ducts poorly developed; fertilization ducts well developed (Fig. 1B-F).

Habitat: Mixed forest.

World Distribution: Korea (Gyeongsangbuk-do).

Deposition: NIBR.

Identifier: Bo Keun Seo.

Genus *Drassodes* Westring, 1851 수리거미속

***Drassodes longispinus* Marusik and Logunov, 1995 긴침수리거미(신칭) (Fig. 2A-F)**

Material examined: 3우우, mixed forest (36°35′44″N, 127°51′42″E, alt. 363 m), 5 km north of the summit of Mt. Sokri, Hwabuk-myeon, Sangju-si, Gyeongsangbuk-do, 22 August 2011, T. B. Ryu.

Diagnosis. The female of *D. longispinus* Marusik and Logunov, 1995 is very similar to that of *D. jiufeng* Tang, Song and Zhang, 2001 in the epigynum and the internal genitalia, but differs from the latter by the circular margins of epigynal median septum and the size of fertilization ducts in the internal genitalia (Fig. 2B-F),

Description. Female. Total length 12.50. Habitus as in Fig. 2A. Carapace brown; 4.67 long, 3.33 wide; cervical grooves, median furrow and radial grooves distinct; clypeus height 1.6 times of diameter of AME. AER 1.02, PER 2.02. AER retrocurved slightly and PER straight in dorsal view. AME 0.22, ALE 0.18, PME 0.22, PLE 0.16, AME-AME 0.14, AME-ALE 0.08, PME-PME 0.10, PME-PLE 0.36, AME-PME 0.28, and ALE-PLE 0.28. Median ocular quadrangle, height > anterior side > posterior side (33 : 26 : 25). Sternum 2.71 long, 2.02 wide. Labium 0.95 long, 0.76 wide. Leg measurements: I 13.61 (3.65, 2.08, 3.15, 2.71, 2.02), II 12.85 (3.53, 1.89, 2.90, 2.58, 1.95), III 11.97 (3.40, 1.64, 2.52, 2.58, 1.83), IV 15.87 (4.22, 1.95, 3.59, 4.16, 1.95). Leg I/c 2.91. Fem. I/c 0.78. Tib I/c 0.67. Met I/c 0.58. Pat. I + tib. I/c 1.12. Met. I/tar. I 1.34. Met. IV/tar. IV 2.13. Leg spination pattern: Femora; I d1-1, p0-1; II d1-1, p0-1-1; III d1-1-1, p1-1-1-2, r0-1-1-1; IV d1-1-1, p0-1-1, r0-1-1. Tibiae; I, II v0-0-1; III d1-0, p1-1-1-1, r1-1-1, v1-2-2; IV d1-0-1, p2-1-1, r1-1-1, v2-2-1-2-2. Metatarsi; I, II v1-0-0; III p1-2-2, r1-2-2, v1-2-2-1-2; IV d1-1-2-2, p1-1-1-1, r1-1-1, v2-2-2. Abdomen oval, pale gray, and 7.17 long, 4.50 wide. Epigynum; circular margins of broad median septum connected anteriorly with copulatory openings; internal genitalia with two pairs of spermathecae; genital ducts poorly developed; fertilization ducts well developed, arise from posterior part of spermathecae (Fig. 2B-F).

Habitat: Mixed forest.

World Distribution: China, Korea (Gyeongsangbuk-do), Russia.

Deposition: NIBR.

Identifier: Bo Keun Seo.

Genus *Gnaphosa* Latreille, 1804 넓적니거미속

***Gnaphosa inconspecta* Simon, 1878 천성넓적니거미 (신칭) (Fig. 3A-F)**

Material examined: 2우우, mixed forest (35°23′27″N, 129°06′16″E, alt. 658 m), 1.8 km southwest of the summit of Mt. Cheonseong, Sangbuk-myeon, Yangsan-si, Gyeongsangnam-do, 27 November 2010, J. C. Lim.

Diagnosis. The female of *G. inconspecta* Simon, 1878 is similar to that of *G. potanini* Simon, 1895 in the general appearance, but distinguished from the latter by the longer epigynal midpiece, the curved medial epigynal ducts, and the shapes of the spermathecae and the fertilization ducts

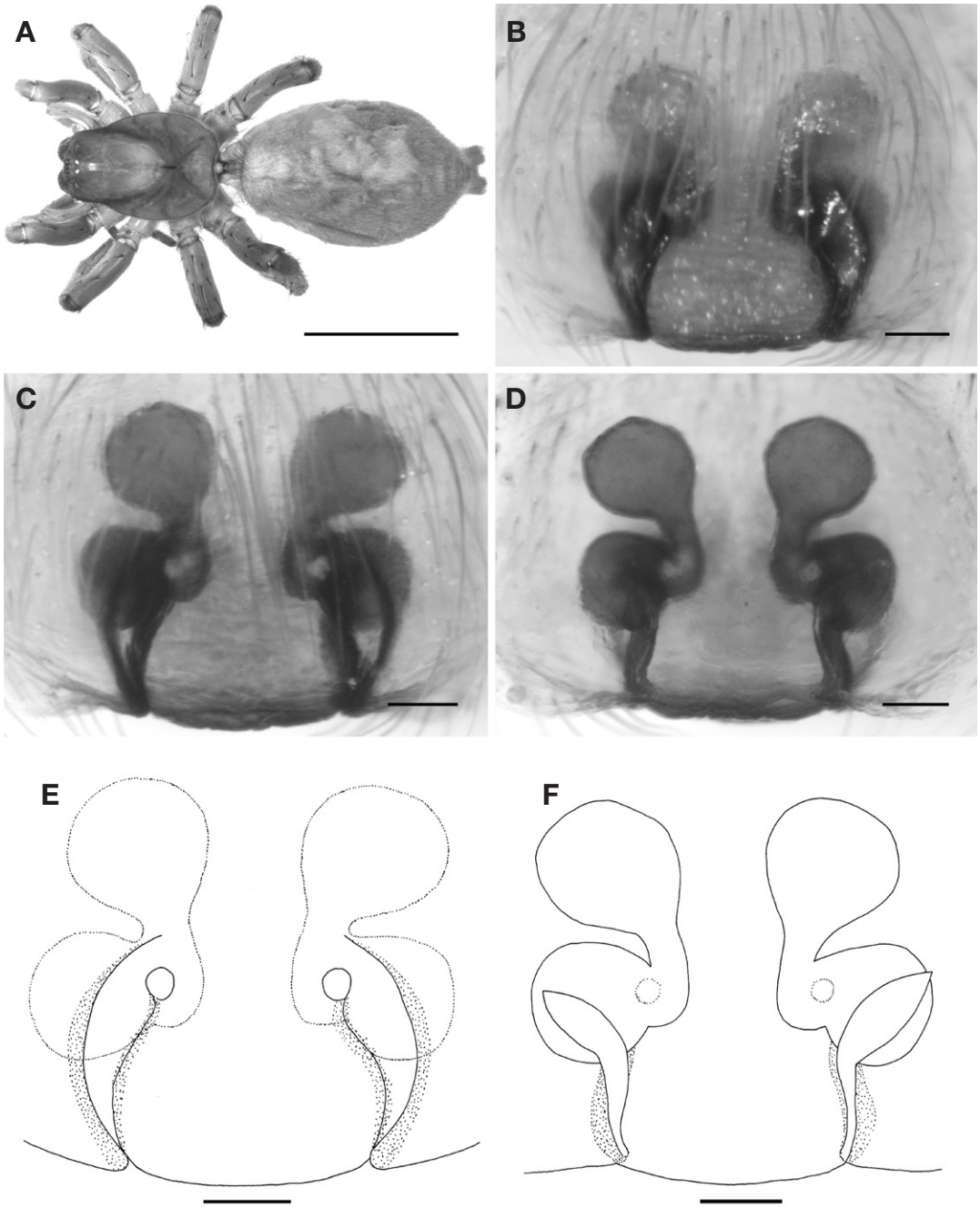

Fig. 2. *Drassodes longispinus* Marusik and Logunov, 1995, female: A - habitus, dorsal view; B - epigynum; C, E - internal genitalia, ventral view; D, F - ditto, dorsal view. Scale bars: 5 mm (A), 0.1 mm (rest).

(Fig. 3B-F).

Description. Female. Total length 9.70. Habitus as in Fig. 3A. Carapace reddish brown; 4.00 long, 3.10 wide; cervical grooves, median furrow and radial grooves distinct; clypeus height 1.1 times of diameter of AME. AER 0.79, PER 1.09. AER straight and PER procurved in dorsal view. AME 0.16, ALE 0.21, PME 0.20, PLE 0.18, AME-AME 0.10, AME-ALE 0.03, PME-PME 0.04, PME-PLE 0.25, AME-PME 0.18, and ALE-PLE 0.30. Median ocular quadrangle, height > posterior side > anterior side (39 : 33 : 31). Sternum 2.10 long, 1.80 wide. Labium 0.70 long, 0.50 wide. Leg measurements: I 9.00 (2.60, 1.60, 1.90, 1.50, 1.40), II 8.20 (2.40,

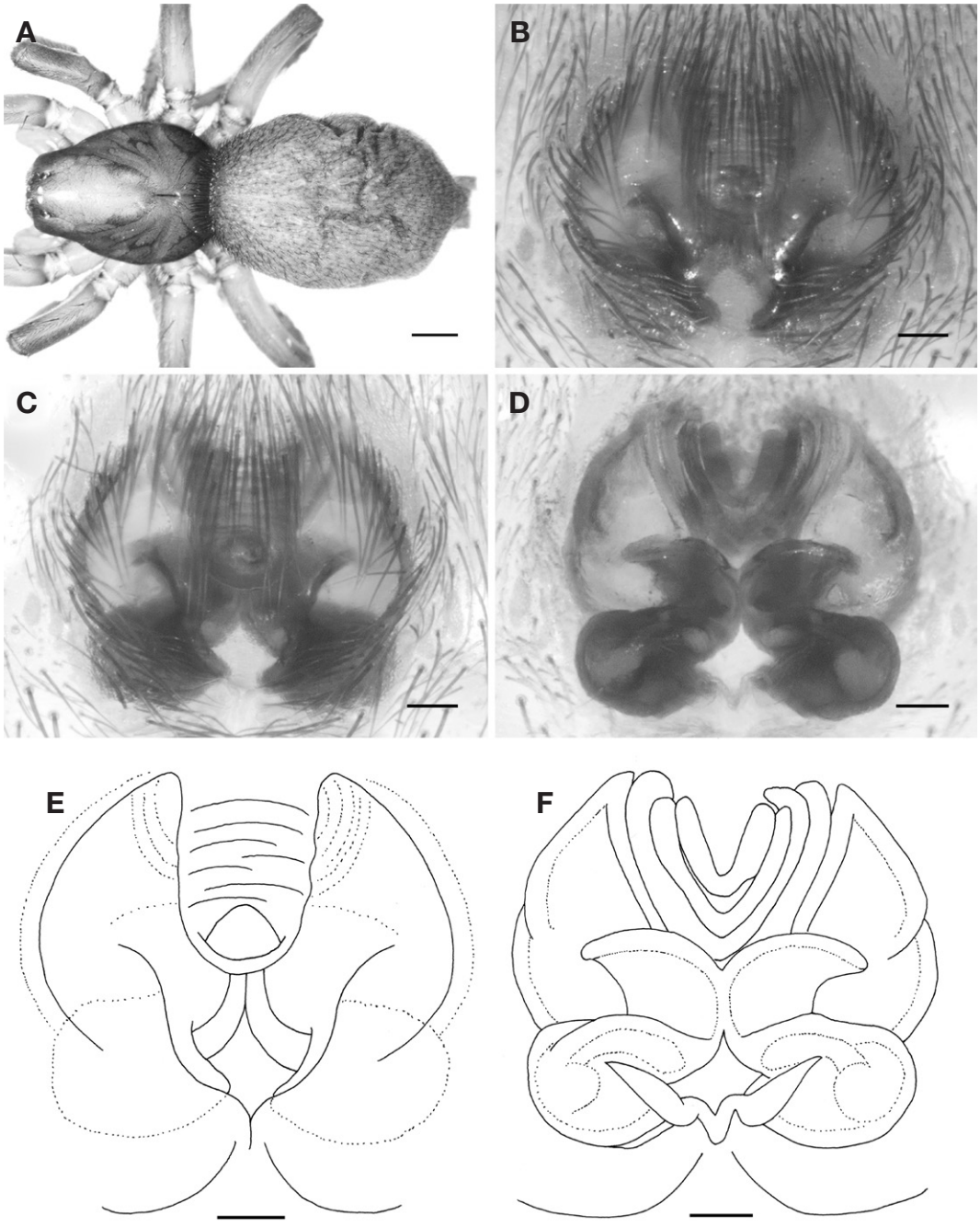

Fig. 3. *Gnaphosa inconspecta* Simon, 1878, female; A - habitus, dorsal view; B - epigynum; C, E - internal genitalia, ventral view; D, F - ditto, dorsal view. Scale bars: 1 mm (A), 0.1 mm (rest).

1.40, 1.60, 1.50, 1.30), III 7.90 (2.20, 1.20, 1.40, 1.80, 1.30), IV 11.10 (2.90, 1.60, 2.10, 2.90, 1.60). Leg I/c 2.25. Fem. I/c 0.65. Tib I/c 0.48. Met I/c 0.38. Pat. I + tib. I/c 0.88. Met. I/tar. I 1.07. Met. IV/tar. IV 1.81. Leg spination pattern: Femora; I, II d1-1, p0-0-1; III d1-1, p0-1-1, r0-1-1; IV d1-1, p0-0-1, r0-0-1. Tibiae; I v0-0-1; II v0-0-2; III, IV d1-0, p2-1-1, r2-1-1, v2-2-2. Metatarsi; I, II v2-2; III p1-2-2, r1-1-2, v2-2-2; IV d1-2-2, p1-1-1, r1-1-1, v2-1-1-2. Abdomen elliptical and dark gray, covered with spines; 5.60 long, 3.90 wide. Epigynum with a long midpiece, long lateral epigynal margins and the curved medial epigynal ducts; internal genitalia with a pair of spermathecae and well developed

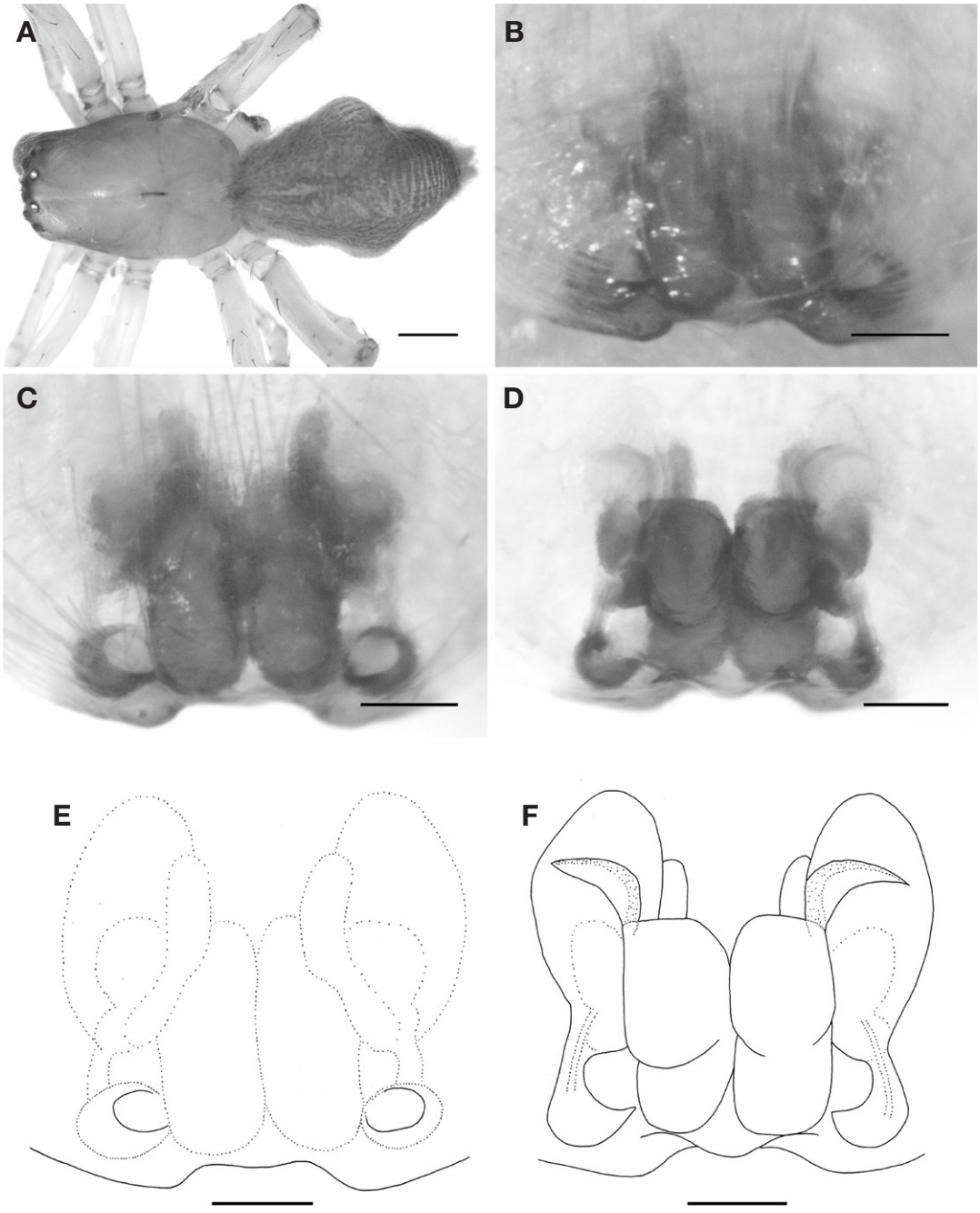

Fig. 4. *Clubiona tongdaoensis* Zhang, Yin, Bao and Kim, 1997, female: A - habitus, dorsal view; B - epigynum; C, E - internal genitalia, ventral view; D, F - ditto, dorsal view. Scale bars: 1 mm (A), 0.1 mm (rest).

fertilization ducts (Fig. 3B-F).

Habitat: Mixed forest.

World Distribution: Palearctic region.

Deposition: NIBR.

Identifier: Bo Keun Seo.

Family Clubionidae Wagner, 1887 염낭거미과

Genus *Clubiona* Latreille, 1804 염낭거미속

***Clubiona tongdaoensis* Zhang, Yin, Bao and Kim, 1997 울릉염낭거미 (신칭) (Fig. 4A-F)**

Material examined: 1♀, mixed forest around Nari Basin (37°30′57″N, 130°52′11″E, alt. 403 m), Buk-myeon, Ulleung-gun, Gyeongsangbuk-do, 24 August 2006, B. K. Seo.

Diagnosis. The female of *C. tongdaoensis* Zhang, Yin, Bao and Kim, 1997 is similar to that of *C. lena* Bösenberg and Strand, 1906 in the epigynum, the copulatory openings, and the spermathecae and fertilization ducts of the internal genitalia, but different from the latter by the size of spemathecae and the length of genital ducts (Fig. 4B-F).

Description. Female. Total length 7.40. Habitus as in Fig. 4A. Carapace yellowish brown; 3.80 long, 2.60 wide; median furrow and radial grooves distinct; clypeus height 0.4 times of diameter of AME. AER 1.10, PER 1.48. AER straight and PER slightly recurved in dorsal view. AME 0.16, ALE 0.19, PME 0.16, PLE 0.18, AME-AME 0.16, AME-ALE 0.14, PME-PME 0.42, PME-PLE 0.30, AME-PME 0.18, and ALE-PLE 0.16. Median ocular quadrangle, posterior side > height > anterior side (37 : 26 : 24). Sternum 1.92 long, 1.22 wide. Labium 0.76 long, 0.52 wide. Leg measurements: I 8.80 (2.50, 1.40, 2.30, 1.60, 1.00), II 9.40 (2.70, 1.40, 2.40, 1.70, 1.20), III 8.10 (2.30, 1.20, 1.70, 2.10, 0.80), IV 11.40 (3.10, 1.30, 2.60, 3.30, 1.10). Leg I/c 2.32. Fem. I/c 0.66. Tib I/c 0.61. Met I/c 0.42. Pat. I + tib. I/c 0.97. Met. I/tar. I 1.60. Met. IV/tar. IV 3.00. Leg spination pattern: Femora; I, II d1-1-2; III d1-3-3; IV d1-2-3. Tibiae; I, II v2-2-0; III, IV p1-1, r1-1, v1-1-0. Metatarsi; I, II v2-0-0; III d0-1-0, p1-1-2, r1-0-2, v2-2; IV d0-1-0, p1-1-2, r1-1-2, v2-1-2. Abdomen oval and grayish brown, 3.50 long, 2.20 wide. Epigynum with a pair of copulatory organs posteriorly; internal genitalia with two pairs of large spermathecae, and outer ones transparent, with short genital ducts, and inner ones with well developed fertilization ducts anteriorly (Fig. 4B-F).

Habitat: Mixed forest.

World Distribution: China, Korea (Gyeongsanbuk-do).

Deposition: NIBR.

Identifier: Bo Keun Seo.

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