

Two Species of Corinnid Spider (Araneae, Corinnidae) from Korea

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ABSTRACT

Two corinnid spiders species, *Otacilia komurai* (Yaginuma, 1952) and *Phrurolithus festivus* (C. L. Koch, 1835), are described and illustrated for the first time in Korea. The present known geographical distributions of *O. komurai* are restricted to China, Japan and Korea. *P. festivus* is known to be widely distributed throughout the Palearctic region (Platnick, 2012). The occurrence of the genus *Otacilia* (Thorell, 1897) is also new to Korea.

Key words : Corinnidae, Korea, *Otacilia komurai*, *Phrurolithus festivus*

Introduction

The corinnid spiders (family Corinnidae) are generally wandering predators and contain 87 genera and 1010 species worldwide, making it a huge group in spiders [1]. Of these, however, only 13 species of 5 genera have been recorded in the Korean peninsula [2]; *Castianeira shaxianensis* Gong, 1983, *Cetonana orientalis* (Schenkel, 1936), *Orthobula crucifera* Bosenberg & Strand, 1906, *Phrurolithus coreanus* Paik, 1991, *Phrurolithus faustus* Paik, 1991, *Phrurolithus hamdeokensis* Seo, 1988, *Phrurolithus labialis* Paik, 1991, *Phrurolithus palgongensis* Seo, 1988, *Phrurolithus pennatus* Yaginuma, 1967, *Phrurolithus sinicus* Zhu & Mei, 1982, *Trachelas acuminus* (Zhu & An, 1988), *Trachelas japonicus* Bosenberg & Strand, 1906, and *Trachelas joopili* Kim & Lee, 2008. While studying corinnid specimens collected during the Korean indigenous species survey, two species new to the Korean spider fauna, *Otacilia komurai* (Yaginuma, 1952) and *Phrurolithus festivus* (C. L. Koch, 1835) were identified. The occurrence of the genus *Otacilia* Thorell, 1897 was also new to Korea. *Otacilia* is similar to *Phrurolithus* in having chelicera with at least one spine on anterior side, tibiae I-II and metatarsi I-II each with some pairs of long ventral spines,

and femora I with some spines on ventral side, but distinguished from the latter by femora II with some spines on the ventral side [3]. At present 21 species of the genus *Otacilia* were reported from mainly East and South-East Asia, 69 species of the genus *Phrurolithus* from the northern hemisphere [1]. The present known geographical distributions of *O. komurai* are restricted to China, Japan and Korea. *P. festivus* is known to be widely distributed throughout the Palearctic region [1]. In the present contribution two species, *O. komurai* and *P. festivus*, are described and illustrated for the first time in Korea.

Materials and Methods

Specimens were examined and measured using a stereomicroscope (Leica S8APO, Singapore). The photographs of specimens were taken by a digital camera (Leica DFC 420) and the images were combined using image stacking software (i-Solution, Future Science Co. Ltd., Daejeon, Korea). The following Abbreviations are used in the text: Index, (width/length) × 100; c, carapace length; AME, anterior median eye; PME, posterior median eye; ALE, anterior lateral eye; PLE, posterior lateral eye; ALE-PLE, distance between ALE and PLE; MOQ, median ocular quad-

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rangle; Leg I, length of leg I; Fem. I, length of femur I; Pat. I, length of patella I; Tib. I, length of tibia I; Met. I, length of metatarsus I; Tar. I, length of tarsus I. The examined materials are deposited in National Institute of Biological Resources (NIBR) of Ministry of Environment of Korea.

Taxonomic Accounts

Family Corinnidae Karsch, 1880

Genus *Otacilia* Thorell, 1897

(Korean name: ga-si-do-sa-geo-mi)

Otacilia komurai (Yaginuma, 1952)

(Korean name: jang-do-do-sa-geo-mi) (Figs. 1-4)

Phrurolithus komurai Yaginuma, 1952: 13 [4]; Komatsu, 1961:

26 [5]; Yaginuma, 1986: 185 [6]; Chen & Zhang, 1991: 255

[7]; Song, Zhu & Chen, 1999: 411 [8].

Otacilia komurai: Kamura, 2005: 89 [9]; Kamura, 2009: 556 [10].

Diagnosis. The general coloration and appearance of this species resembles those of the other species of the genus but is distinguished from the latters by a median longitudinal ridge dividing the epigynum (Figs. 3, 4).

Description. Female: Carapace dark brown with a linear median furrow; radial and cervical groove distinct; carapace index 91, longer than wide. Clypeus height 2.3 times of the radius of anterior median eyes. In dorsal view anterior and posterior eye row recurved (Fig. 2). Eye ratio, PLE > AME = ALE = PME (7 : 6). AMEs separated by their radius, nearly contiguous to the laterals. PMEs separated by their diameter, from the laterals by their radius. ALE-PLE about 0.8 times of diameter of ALE apart. MOQ, posterior side > height > anterior side (18 : 17 : 15). Chelicerae with two spines anteriorly; two large promarginal and five retromarginal teeth. Sternum and labium dirty yellowish brown; index 88 and 160 respectively. Legs yellow. Leg formula 4123. Fem. I l/d 3.41. Tib. I l/d 6.00. Leg I/c 3.70. Fem. I/c 0.95. Tib I/c 1.11. Met I/c 0.87. Pat. I+tib. I/c 1.44. Met. I/tar. I 2.03. Met. IV/tar. IV 1.92. Leg spination: Femora; I v0-0-0-1-1-1-1; II v0-0-0-0-1-1. Tibiae; I, II v1-2-2-2-2-2-2. Metatarsi; I v2-2-2-2; II v1-2-2-2. Abdomen oval with a pale yellow ground color; dorsum dark brown covering ground color, with several pale yellow chevrons (Fig. 1). Epigynum with a median longitudinal ridge and a pair of depressions anteriorly (Figs. 3, 4).

Measurements (mm). Female: Body length 3.05; carapace length 1.35, width 1.23; cephalic width 0.63; labium length

0.13, width 0.20; sternum length 0.85, width 0.75; anterior eye row 0.35; posterior eye row 0.43; abdomen length 1.70, width 1.13. Leg I 4.99 (1.28, 0.45, 1.50, 1.18, 0.58), II 4.24 (1.10, 0.48, 1.08, 0.98, 0.60), III 3.56 (0.95, 0.43, 0.80, 0.80, 0.58), IV 5.56 (1.45, 0.50, 1.33, 1.50, 0.78). Palp 1.53 (0.38, 0.30, 0.30, 0.55).

Materials examined. 5 females, Jangdo-ri, Heuksan-myeon, Sinan-gun, Jeollanam-do (34° 40' 41"N, 125° 22' 26"E, 240 m), 22.v.2004, T. J. Kweon.

Distribution. China, Japan and Korea.

Genus *Phrurolithus* C. L. Koch, 1839

(Korean name: do-sa-geo-mi)

Phrurolithus festivus (C. L. Koch, 1835)

(Korean name: pyeong-chang-do-do-sa-geo-mi) (Figs. 5-14)

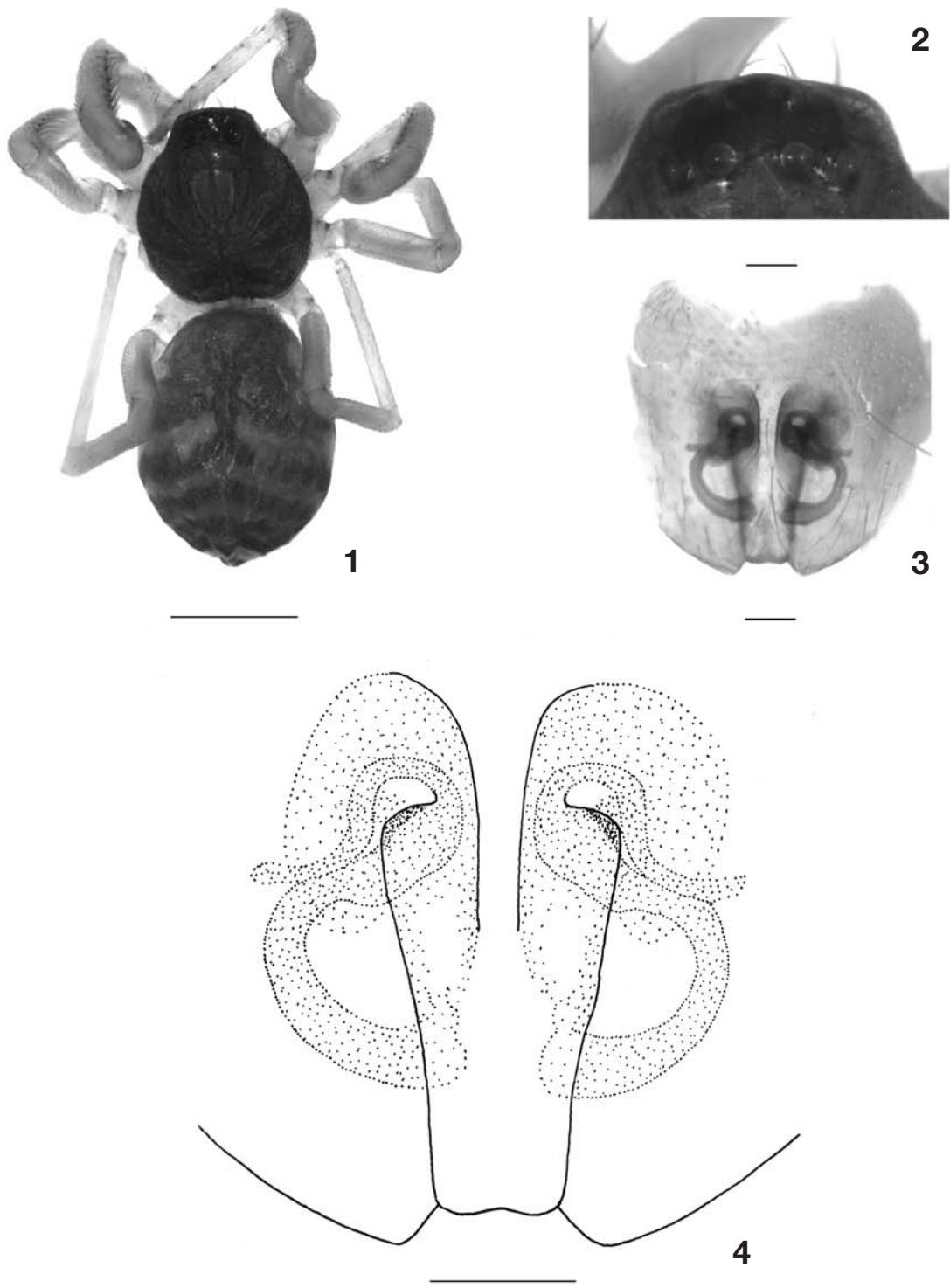
Macaria festiva C. L. Koch, 1835: 129 [1].

Phrurolithus festivus: C. L. Koch, 1839: 110 [1]; Menge, 1873: 330 [11]; Locket & Millidge, 1951: 161 [12]; Wiegle, 1967: 17 [13]; Roberts, 1985: 92 [14]; Heimer & Nentwig, 1991: 392 [15]; Danilov, 1999: 313 [16]; Song, Zhu & Chen, 1999: 411 [8]; Song, Zhu & Chen, 2001: 307 [17]; Kamura, 2004: 48 [3]; Almquist, 2006: 345 [18]; Kamura, 2009: 553 [10].

Drassus propinquus Blackwall, 1854: 175 [19].

Diagnosis. The male is similar to *Phrurolithus minimus* in general appearance, but distinguished by the shape of a long broad tibial apophysis curving ventrally around the side (Figs. 12-14). The female is also similar to *Phrurolithus minimus* in the shape of the epigynum, but distinguished from the latter having a pair of epigynal openings by having only one (Figs. 10, 11).

Description. Male: Carapace dark brown with a linear median furrow; cervical and radial groove indistinct (Fig. 5); carapace index 87, longer than wide. Clypeus height 2.4 times of the diameter of AME. In dorsal view both eye rows nearly straight (Fig. 6). Eye ratio, ALE > PME = PLE > AME (6.5 : 5 : 4). AMEs separated by 0.8 times of their diameter, nearly contiguous to the laterals. PMEs separated by 0.4 times of their diameter, from the laterals by their radius. ALE-PLE radius of PLE apart. MOQ, posterior side = height > anterior side (13 : 12). Chelicerae with two teeth on each margin. Sternum brown with dark brown margin, the index 92. Labium reddish brown, the index 117. Legs yellow, but both sides of femora and tibiae black. Leg formula 4123. Fem. I l/d 3.72. Tib. I l/d 5.87. Leg I/c 3.09. Fem. I/c 0.82. Tib I/c 0.78. Met I/c 0.71. Pat. I+tib. I/c 1.12. Met. I/tar. I 1.60. Met. IV/tar. IV 1.67. Leg spination: Femora; I v0-0-0-0-0-1. Tibiae; I v1-2-2-2-2; II v2-2-2. Metatarsi; I v2-2-2-2-1; II v2-2-2. Abdominal oval, index 69; dorsum

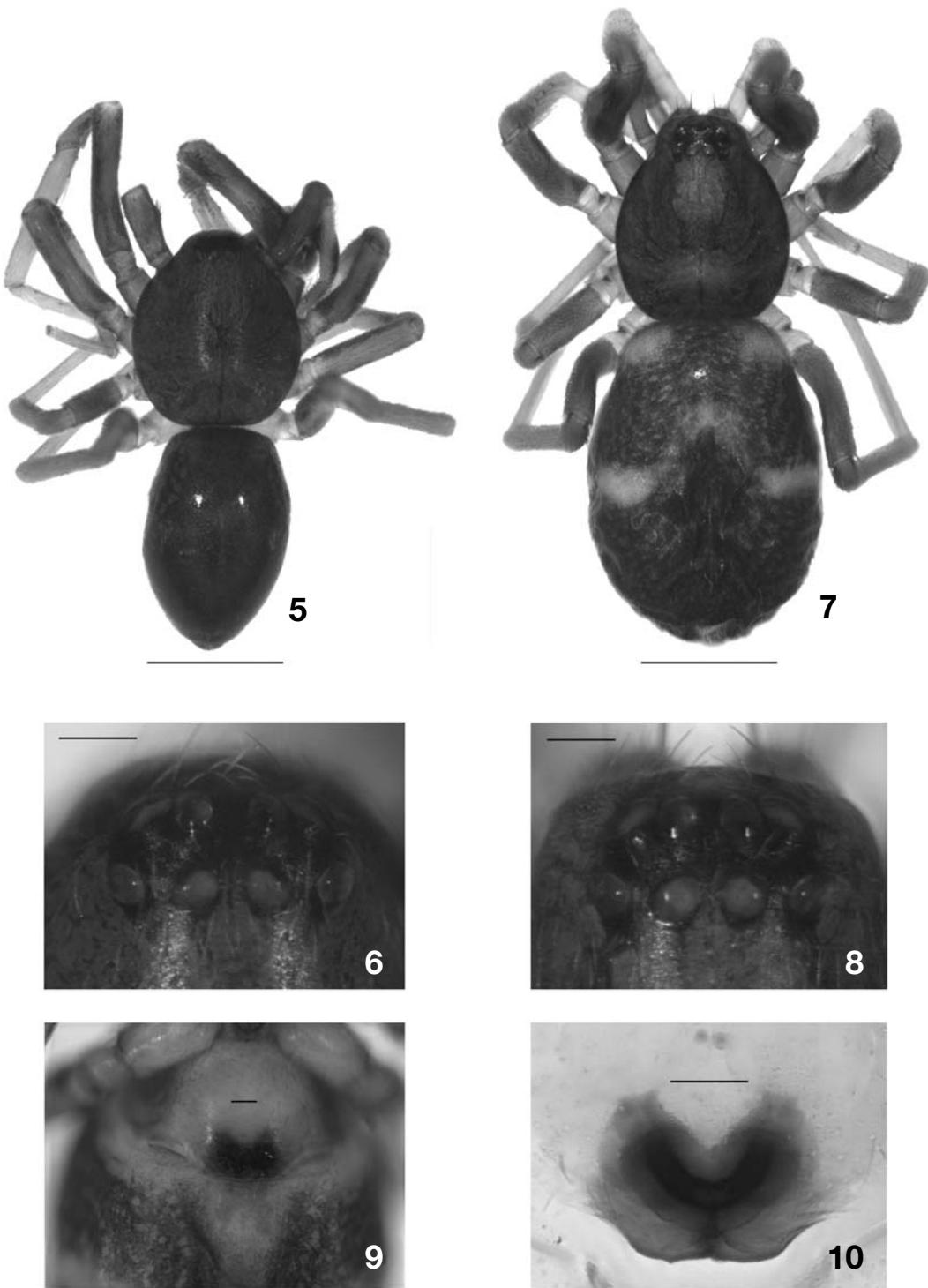


Figs. 1-4. *Otacilia komurai* (Yaginuma, 1952): 1. Female, dorsal view. 2. Ditto, eye area, dorsal view. 3, 4. Epigynum, ventral view. Scale bars: 0.5 mm (1), 0.1 mm (2-4).

dark brown with a scutum covering almost entire dorsal surface (Fig. 5); venter black. Male palp with a long broad tibial apophysis curving ventrally around the side. Genital bulb with

hooked embolus apically (Figs. 12-14).

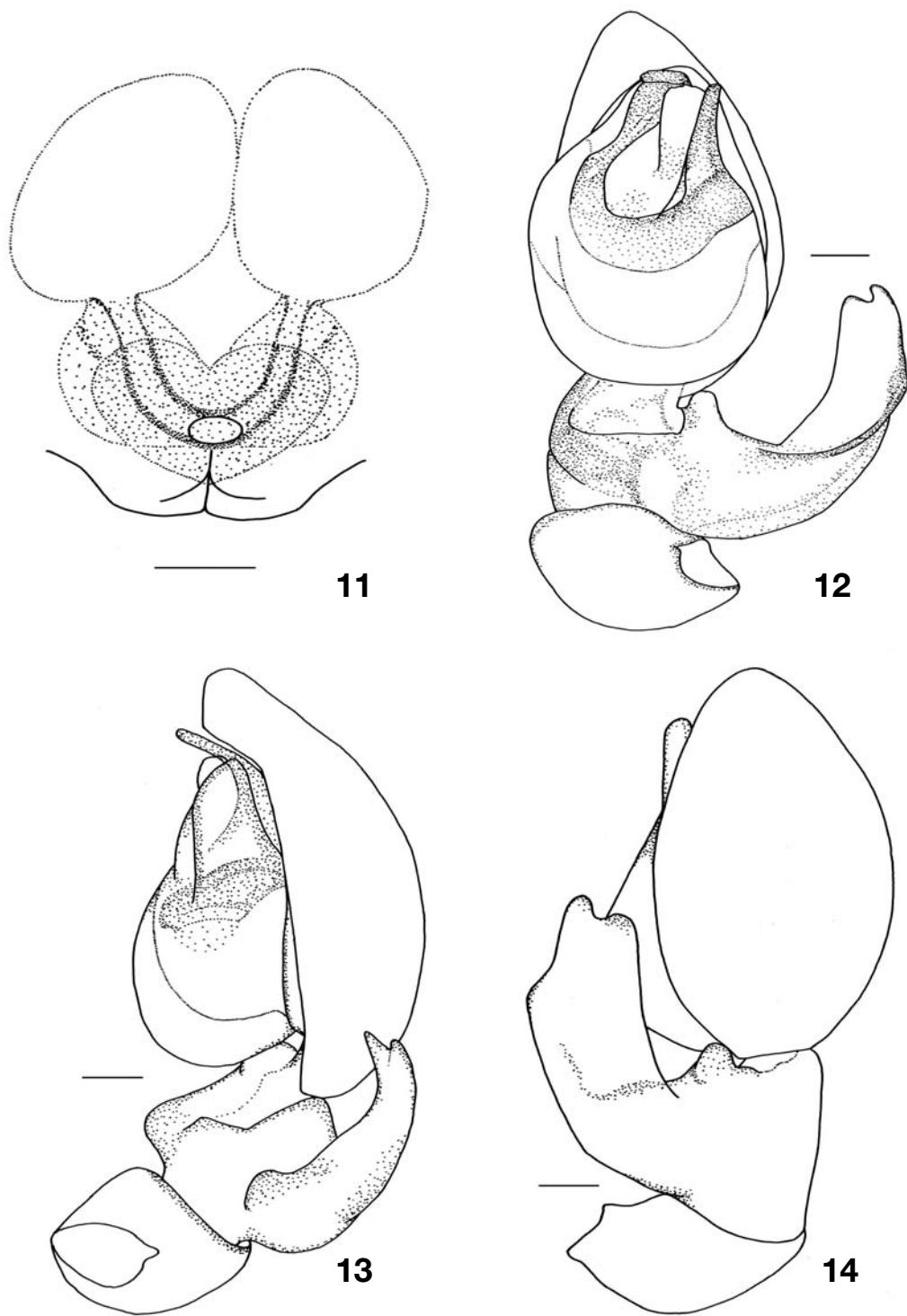
Female: Carapace reddish brown with a linear median furrow; cervical and radial groove indistinct (Fig. 7); carapace index



Figs. 5-10. *Phrurolithus fetivus* (C. L. Koch, 1835): 5. Male, dorsal view. 6. Ditto, eye area, dorsal view. 7. Female, dorsal view. 8. Ditto, eye area, dorsal view. 9, 10. Epigynum, ventral view. Scale bars: 0.5 mm (5, 7), 0.1 mm (6, 8, 9, 10).

83, longer than wide. Clypeus height 2 times of the diameter of AME. In dorsal view both eye rows nearly straight (Fig. 8). Eye ratio, ALE>PLE>AME=PME (7:6:5). AMEs separated

by 0.4 times of their diameter, nearly contiguous to the laterals. PMEs separated by their radius, from the laterals by 0.6 times of their diameter. ALE-PLE radius of PLE apart. MOQ, height



Figs. 11-14. *Phrurolithus fetivus* (C. L. Koch, 1835): 11. Epigynum, ventral view. 12. Male palp, ventral view. 13. Ditto, retrolateral view. 14. Ditto, dorsal view. Scale bars: 0.1 mm (11-14).

> posterior side > anterior side (14 : 13 : 12). Chelicerae with two teeth on each margin. Sternum yellow with dark brown margin, the index 90. Labium yellow, the index 150. Fem. I

I/d 3.33. Tib. I l/d 4.13. Leg I/c 3.08. Fem. I/c 0.83. Tib I/c 0.78. Met I/c 0.73. Pat. I+tib. I/c 1.07. Met. I/tar. I 1.66. Met. IV/tar. IV 1.83. Leg spination: Femora; I v0-0-0-0-0-1. Tibiae; I v2-

2-2-2-2; II v2-2-2-2. Metatarsi; I v2-2-2-1; II v2-2-2. Abdomen oval and black, with two whitish band and a posterior white spot (Fig. 8); front band broken in middle region and ventrally passes behind epigyne; the second forms a chevron and comes to spinnerets ventrally. Epigynum with a black depression having one genital opening at posterior median region (Figs. 9-11).

Measurements (mm). Male/female: Body length 2.40/3.15; carapace length 1.13/1.20, width 0.98/1.003; cephalic width 0.57/0.55; labium length 0.15/0.15, width 0.18/0.23; sternum length 0.65/0.75, width 0.60/0.68; anterior eye row 0.30/0.30; posterior eye row 0.34/0.35; abdomen length 1.28/2.05, width 0.88/1.38. Leg I 3.49/3.69 (0.93/1.00, 0.38/0.35, 0.88/0.93, 0.80/0.88, 0.50/0.53), II 2.85/3.18 (0.75/0.85, 0.34/0.35, 0.60/0.73, 0.68/0.75, 0.48/0.50), III 2.65/2.86 (0.68/0.78, 0.33/0.35, 0.50/0.58, 0.66/0.70, 0.48/0.45), IV 3.96/4.31 (1.00/1.15, 0.40/1.40, 0.88/0.98, 1.05/1.15, 0.63/0.63). Palp 1.54/1.38 (0.40/0.43, 0.33/0.25, 0.23 (0.50)/0.25, 0.58/0.45).

Materials examined. 1 male, 1 female, Hoenggye-ri, Doam-myeon, Pyeongchang-gun, Gangwon-do (37° 41'01"N, 128° 45'14"E, 842 m), 20.vii.2010, J. C. Lim. 1 female, Yongdae-ri, Buk-myeon, Inje-gun, Gangwon-do (38° 10'05"N, 128° 22'42"E, 476 m), 19.vii.2010, B. T. Ryu.

Distribution. Palearctic region.

References

- Platnick NI. The world spider catalog, version 12.5: <http://research.amnh.org/iz/spiders/catalog> [May 2012].
- Namkung J, Yoo JS, Lee SY, Lee JH, Paek WK, Kim ST. Bibliographic check list of Korean spiders (Arachnida: Araneae) ver. 2010. J Korean Nature 2009;2(3):191-285.
- Kamura T. Some taxonomic notes on Japanese spiders of the families Gnaphosidae and Liocranidae. Faculty Humanics Rev Otemon Gakuin Univ 2004;16:41-51.
- Yaginuma T. Two new species (Phrurolithus and Ariamnes) found in Japan. Arachn News 1952;21:13-16.
- Komatsu T. Notes on spiders and ants. Acta Arachn Tokyo 1961;17:25-27.
- Yaginuma T. Spiders of Japan in color. New ed. Osaka: Hoikusha Pub Co.; 1986.
- Chen ZF, Zhang ZH. Fauna of Zhejiang: Araneida. Hangzhou: Zhejiang Science and Technology Publishing House; 1991.
- Song DX, Zhu MS, Chen J. The spiders of China. Shijiazhuang: Hebei Sci Technol Publ House; 1999.
- Kamura T. Spiders of the genus Otacilia (Araneae: Corinnidae) from Japan. Acta Arachn Tokyo 2005;53:87-92.
- Kamura T. Trochanteriidae, Gnaphosidae, Prodidomidae, Corinnidae. In: Ono H, editor. The spiders of Japan with keys to the families and genera and illustrations of the species. Kanagawa: Tokai Univ Press; 2009. p. 482-500, 551-557.
- Menge A. Preussische Spinnen. VI. Abtheilung. Schrift Naturf Ges Danzig (N. F.) 1873;3:327-374.
- Locket GH, Millidge AF. British spiders. London: Ray Society; 1951.
- Wiehle H. Beiträge zur Kenntnis der deutschen Spinnenfauna, V. (Arach., Araneae). Senckenberg Biol 1967;48:1-36.
- Roberts MJ. The spiders of Great Britain and Ireland, Volume 1: Atypidae to Theridiosomatidae. Colchester: Harley Books; 1985.
- Heimer S, Nentwig W. Spinnen Mitteleuropas: Ein Bestimmungsbuch. Berlin: Verlag Paul Parey; 1991.
- Danilov SN. The spider family Liocranidae in Siberia and Far East (Aranei). Arthropoda Selecta 1999;7:313-317.
- Song DX, Zhu MS, Chen J. The spiders of China. Shijiazhuang: Hebei Sci Technol Publ House; 2001.
- Almquist S. Swedish Araneae, part 2 families Dictynidae to Salticidae. Insect Syst Ecol Suppl 2006;63:285-601.
- Blackwall J. Descriptions of some newly discovered species of Araneida. Ann Mag Nat Hist (2) 1854;13:173-180.