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### A taxonomic review of the subfamily Pristocerinae (Hymenoptera: Chrysoidea: Bethyloidea) from Korea with descriptions of two new species

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## A taxonomic review of the subfamily Pristocerinae (Hymenoptera: Chrysoidea: Bethyridae) from Korea with descriptions of two new species

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Six species of the subfamily Pristocerinae (Hymenoptera: Bethyridae) are recognized from Korea, including not only two newly recorded species, *Apenesia elegans* Terayama 1999 and *A. okinawensis* Terayama 1999, but also two new to science, *Pseudisobrachium koreana* sp. nov. and *Parascleroderma tetradentica* sp. nov. A key to the species of the subfamily Pristocerinae in Korea is provided with diagnostic illustrations and biometric measurement data for each species and its male genitalia.

**Keywords:** Bethyridae; Pristocerinae; *Pseudisobrachium koreana* sp. nov.; *Parascleroderma tetradentica* sp. nov.; Korea

### Introduction

The subfamily Pristocerinae Dalla Torre, one of the family Bethyridae, consists of 736 species in 24 genera around the world: 179 species from the Afrotropical region, 3 from the Australian region, 70 from the Nearctic region, 350 from the Neotropical region, 70 from the Oriental region, 71 from the Palaearctic region and 2 from fossil specimens (Gordh 1990; Gordh and Móczár 1990; Terayama 1995a, 1995b, 1995c, 1995d, 1996a, 1996b, 1998, 1999a, 1999b, 2001, 2002a, 2002b, 2004, 2006; Terayama and Yamane 1998; Azevedo 1999a, 1999b, 1999c, 2000, 2001, 2003, 2004; Corrêa and Azevedo 2001; Leal and Azevedo 2001; Azevedo and Batista 2002; Xu, He et al. 2002; Xu, Terayama, et al. 2002; Waichert and Azevedo 2003; Lanes and Azevedo 2004, 2007; Redighieri and Azevedo 2004; Azevedo and Waichert 2006; Várkonyi and Polaszek 2007).

The members of the Pristocerinae show distinct sexual dimorphism; males are fully winged with ocelli and tegulae, whereas females look like ants, being completely apterous without ocelli or tegular. In the Bethyridae, the pristocerine species can be distinguished from the other subfamilies by “having five or six segmented maxillary

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palpi, three segmented labial palpi and well separated scutellum and propodeum in males; apterous, small or absent compound eye and elongated propodeum in females” (Evans 1964).

As natural enemies, most members of the Pristocerinae are the ectoparasitoids of coleopterous larvae in concealed habitat (Terayama 2006). Females are often found in ant nests, so it suggested that they are the parasitoids of ants (Evans 1961, 1964) or myrmecophilous beetles (Finamore and Gauld 1995). Tachikawa (1985) summarized the families Curculionidae, Bostrychidae, Cleridae and Elateridae as the coleopteran hosts of the Pristocerinae.

In Korea, there have been no additional pristocerine species since *Pristocera formosana* Miwa and Sonan, 1935 and *Acrepyris minutus* (Yasumatsu, 1955) were recorded by Terayama and Yamane (1998) and Terayama (2006) respectively.

In this study, all Korean pristocerine specimens are examined and the species which have been recorded by previous researchers are reviewed. Also, a key to the species of the subfamily Pristocerinae is provided.

### Materials and methods

Most samples examined for this study were collected nationally in South Korea by Malaise traps from 2005 to 2008. Some specimens were also available from private collections. They are available from the following institutes and private collection: CALS SNU, the College of Agriculture and Life Science, Seoul National University, Seoul, Korea; YNU, Yeungnam University, Gyeongsan-si, Gyeongsangbuk-do, Korea; NMNS, National Museum of Nature and Science, Tokyo, Japan; NIAES, National Institute of Agro-Environmental Sciences, Tsukuba, Japan. TE, Dr. Terayama Private Collection, Division of Agriculture and Agricultural Life Sciences, The University of Tokyo, Tokyo, Japan.

The abbreviations for the province of collection localities are as follows: CB, Chungcheongbuk-do, CN, Chungcheongnam-do; GB, Gyeongsangbuk-do; GG, Gyeonggi-do; GN, Gyeongsangnam-do; GW, Gangwon-do; JB, Jeonlabuk-do; JJ, Jeju-do; JN, Jeonlanam-do.

The terms of integument sculpture follows Harris (1979) and the abbreviations in the descriptions and measurements are adopted from Evans (1964, 1978) and Terayama (2006) as follows: TL, total length; LH, length of head excluding mandibles; WH, width of head; WF, width of frons; LE, length of compound eye in lateral view; DAO, diameter of anterior ocellus; WOT, width of ocellar triangle; POL, posterior ocellar line; AOL, anterior-posterior ocellar line; OOL, ocello-ocular line; LPD, length of propodeal disc (measured from anterior margin to transverse carina (if transverse carina present), from anterior margin to posterior part which connects with metasoma (if transverse carina absent)); WPD, maximum width of propodeal disc; LFW, length of forewing; LM, length of mesosoma; LP, length of pronotum excluding anterior collar; WP, width of pronotum, LAntI–V and XIII, length of scape, pedicel, flagellomere I–III and XI; WAntI–V and XIII, width of scape, pedicel, flagellomere I–III and XI.

For the illustrations, we used a Leica S8 APO Stereozoom (Leica, Solms, Germany), which was connected with Spot Insight™ (SPOT Imaging Solutions Inc., Sterling Heights, USA) (model no. 14.2 Color Mosaic) and the images were combined using by IMT isolution System (IMT i-Solution Inc., Scarborough, Canada).

All the specimens including type materials examined in this study are deposited in the Insect Collection, College of Agriculture and Life Science, Seoul National University (SNU CALS).

## Systematics

Family **BETHYLIDAE** Haliday, 1839  
Subfamily **PRISTOCERINAE** Dalla Torre, 1898

Genus *Acrepyris* Kieffer, 1905

*Acrepyris* Kieffer, 1905, in André, Spec Hymén Eur Algér. 9:249 (type species: *Epyris reticulates* (Kieffer, 1904)).

*Acrepyris* Evans, 1963 [as subgenus of *Pristocera*].

*Neopristocera* Yasumatsu, 1955.

### Diagnosis

*Male*. Hypopygium simple with basal stalk (Terayama 2006); genitalia with digiti in the form of slender, curved rods, aedeagus complex, with three sets of valves which are not closely consolidated (Evans 1963a); flagellum with suberect, bristling setulae, most species without erect setae that stand above the pubescence (Evans 1963a).

*Female*. Compound eye with 10 to 50 facets (usually more than 15) (Terayama 2006); propodeum strongly constricted just behind the spiracles, its maximum width less than  $2.0 \times$  its minimum width in dorsal view (Terayama 2006); middle tibia spinose (Terayama 2006).

*Acrepyris minutus* (Yasumatsu, 1955)

(Figure 1A–J, Table 1)

*Pristocera minuta* Yasumatsu 1955, J Agr Kyushu Univ.10:246.

### Specimens examined

[Korea] (CALS SNU): 1 male, Kwanak Arboretum, Manan-gu, Anyang-si, GG, 31 August–14 September 2007, MT (Malaise trap), J.O. Lim leg.; 5 males, ditto, 15 September–25 October 2007, MT, J.O. Lim leg.; 1 male, ditto, 26 October–8 November 2007, MT, J.O. Lim leg.; 1 male, ditto, 31 August–14 September 2007, MT, J.O. Lim leg.; 1 male, ditto, 15 September–25 October 2007, MT, J.O. Lim leg.; [Japan] (TE): 1 male, Iwatsuki, Saitama, Japan, 14 August 1971, Y. Yoshikawa leg.

### Redescription (male)

*Colour*. Body brown to black. Head: mandible dark testaceous; antenna dark testaceous except scape, pedicel pale testaceous. Mesosoma: pronotum, mesonotum and propodeum black except pronotal collar dark testaceous; forewing hyaline, wing veins testaceous; coxa, femora pale testaceous and tibia and tarsal segments yellow. Metasoma: entirely black.

*Morphology*. Body (Figure 1A) 5.78 mm long.

*Head* (Figures 1B–D):  $1.0 \times$  as long as wide, with convex posterior margin and dorso-lateral corner forming round angle in full face view; frons and vertex smooth and

moderately punctuate, punctures relatively strong, each puncture separated from each other by about  $2.0\text{--}2.5 \times$  as long as their diameter (Figure 1B); mandible with four sharp teeth; anterior margin of clypeus straight; from scape to flagellomere III in ratio of 4.1: 1.0: 3.1: 2.9: 3.0 in length; from scape to flagellomere III and XI 3.2, 1.0, 2.7, 2.4, 2.6 and  $6.0 \times$  as long as wide, respectively (Figure 1D); compound eye 0.50 mm long; LE  $1.3 \times$  as wide as OOL; WF  $2.5 \times$  as wide as WOT; anterior angle of ocellar triangle obtuse, POL  $1.3 \times$  as wide as AOL; OOL  $1.4 \times$  as wide as WOT (Figure 1B).

*Mesosoma* (Figure 1E–G): pronotum  $0.5 \times$  as long as wide without anterior transverse carina, mesoscutum smooth and shining with punctures as head; scutellar disc with few punctures (Figure 1E); propodeal disc as long as wide with median discal carina at anterior four-fifths; transverse carina present and sublateral carina present on distal half of disc, basal triangle area weakly depressed with few oblique rugae; sublateral area with smooth and unpunctate V-shaped area, propodeal declivity coarsely reticulate (Figure 1F). Forewing: metacarpus as long as pterostigma, discoidal vein interstitial with transverse median vein (Figure 1G).

*Metasoma* (Figure 1H): petiolate, smooth and shining.

*Genitalia* (Figure 1I, J): paramere short, thick and curved at middle part, distal margin of paramere broadly rounded, paramere and volsella with numerous hairs, aedeagus bottle-shaped, basal margin relatively straight, digitus sharply curved outward (Figure I), hypopygium with distal concave margin and angulated lateral-distal margin (Figure J).

*Measurements.* See Table 1 for biometric measurement data.

#### *Distribution*

South Korea (GG; new record); Japan (Hokkaido, Honshu, Shikoku, Kyushu, Yakushima, Ryukyu Is.) (Terayama 2006).

#### Genus *Apenesia* Westwood 1874

*Apenesia* Westwood 1874, Thesaurus Entomol Oxoniensis. Vol. 4: 170 (type species:

*Apenesia amazonica* Westwood, 1874).

*Aeluroides* Tullgren, 1904.

*Propristocera* Kieffer, 1905.

*Cleistepyris* Kieffer, 1910.

*Dipristocera* Kieffer, 1914.

*Neopristocera* Benoit, 1957.

#### *Diagnosis*

*Male.* Mandible usually with five teeth; clypeus with median lobe of very variable shape, but never trapezoidal, but is narrowly truncate; compound eye usually without hairs; occipital carina present; scutellum with transverse groove at base; propodeum



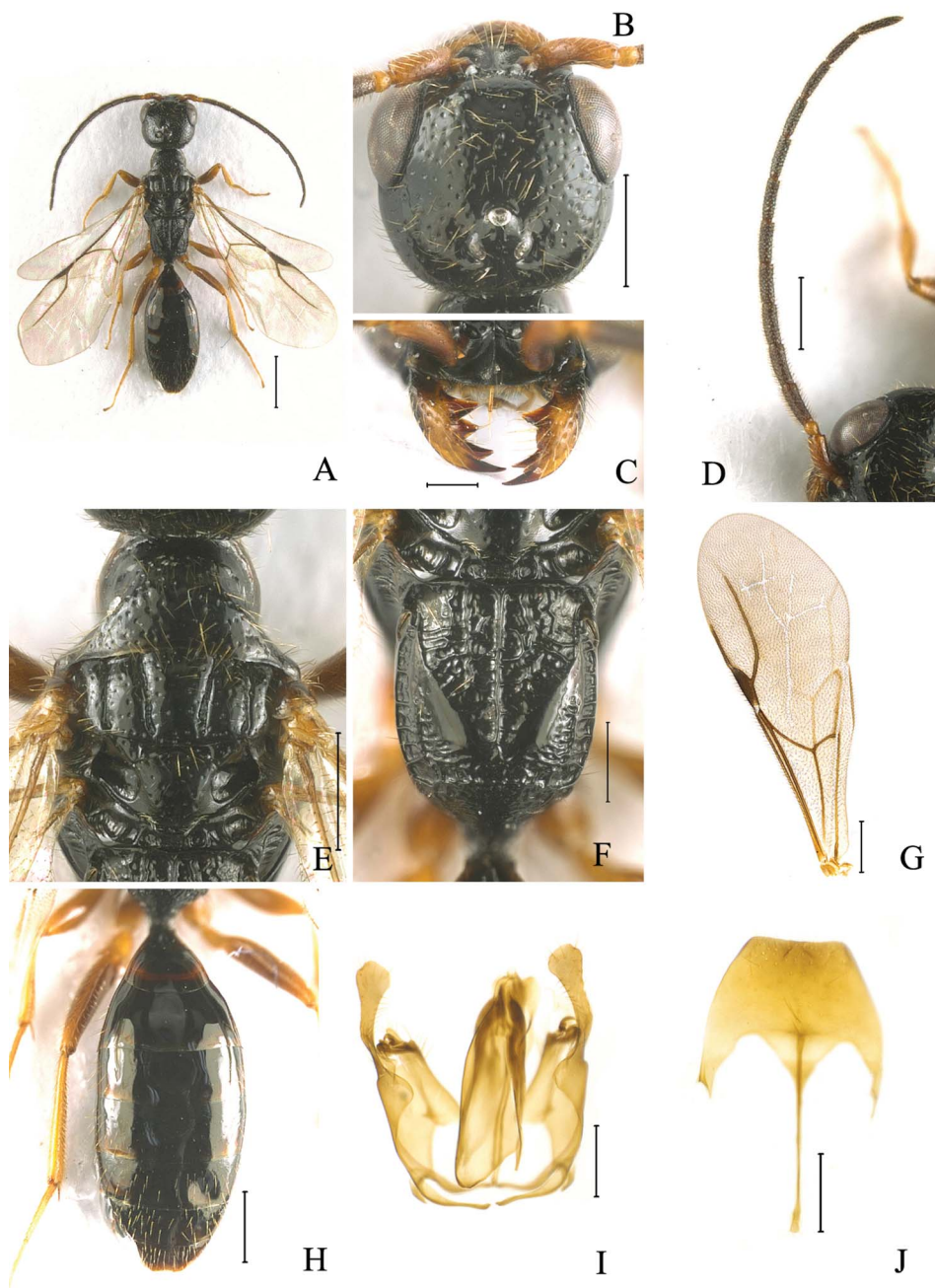


Figure 1. *Acropyris minutus* (Yasumatsu, 1955) (Male). (A) whole body; (B) head; (C) mandible; (D) antenna; (E) pronotum and mesonotum; (F) propodeum; (G) right forewing; (H) metasoma; (I) genitalia in ventral view; (J) subgenital plate in ventral view (scale bar 1.00 mm for (A); 0.50 mm for (B), (D), (E), (G) and (H); 0.20 mm for (C), (I) and (J); 0.30 mm for (F)).

Table 1. Biometric measurement data of *Acrepyris minutus* (Yasumatsu) and *Parascleroderma tetradentica* Lim and Lee sp. nov.

Part	<i>Acrepyris minutus</i> (Yasumatsu) (n = 9) (male)		<i>Parascleroderma tetradentica</i> Lim and S. Lee sp. nov. (n = 1) (male)
	Mean (mm)	Range (mm)	Value (mm)
TL	5.15	4.32–5.85	3.27
LH	0.98	0.84–1.12	0.64
WH	0.99	0.84–1.12	0.58
WF	0.63	0.55–0.74	0.35
LE	0.46	0.39–0.53	0.24
DAO	0.09	0.08–0.10	0.05
WOT	0.25	0.22–0.29	0.21
POL	0.12	0.10–0.14	0.13
AOL	0.10	0.09–0.11	0.07
OOL	0.36	0.31–0.42	0.25
LP	0.59	0.50–0.70	0.15
WP	0.61	0.52–0.75	0.48
LPD	3.44	3.06–3.77	0.31
WPD	1.92	1.62–2.26	0.41
LFW	0.35	0.31–0.40	1.85
LM	0.08	0.07–0.10	1.16
LAnt I	0.27	0.23–0.29	0.16
LAnt II	0.26	0.23–0.30	0.06
LAnt III	0.26	0.23–0.30	0.10
LAnt IV	0.30	0.27–0.34	0.09
LAnt V	0.11	0.10–0.34	0.09
LAnt XIII	0.09	0.08–0.13	0.11
WAnt I	0.10	0.08–0.10	0.06
WAnt II	0.10	0.09–0.11	0.05
WAnt III	0.10	0.09–0.11	0.06
WAnt IV	0.05	0.05–0.11	0.06
WAnt V	0.39	0.31–0.47	0.05
WAnt XIII	0.86	0.67–1.03	0.04

without marked basal triangle; forewing with costal vein extending well past stigma as strong vein.

*Female.* Mandible with from two to four teeth; clypeus emarginated, truncate or somewhat produced medially (trapezoid in some species); ocelli absent; mesopleuron smooth; wings and tegulae absent; mesonotum subtriangular, rounded behind, anterior margin of propodeum slightly extended along sides of mesonotum and arcuately embracing its posterior third (Evans 1963b; Lanes and Azevedo 2007).

*Apenesia elegans* Terayama, 1999  
(Figure 2A–J, Table 2)

*Apenesia elegans* Terayama 1999b: 703.

*Specimens examined*

[Korea] (CAL SNU): 1 male, Cheonggae, Makgye-dong, Gwacheon-si, GG, 22 September 2000, H.G. Kang leg.; 2 males, Donam-ri, Banpo-myeon, Gongju-si, CN, 6–13 September 2005, MT, Y.T. Kim leg.; 1 male, Jeolmul Recreation Forest, Donggye-myeon, Jeju-si, JJ, 16 June–23 July 2005, MT, C.H. Shin leg.; 1 male, ditto, 13–20 August 2005, MT, C.H. Shin leg.; [Japan] (NIAES): 1 male, Kunigami, Okinawa, 10–11 October 1988, K. Konishi leg. (Paratype).

*Redescription (male)*

*Colour.* Body testaceous to black. Head: mandible yellow with apical margin testaceous; antenna yellow to pale testaceous. Mesosoma: pronotum and mesonotum dark testaceous; propodeum black; forewing hyaline, wing veins testaceous; coxa, femora, and tibia pale testaceous; tarsal segments yellow. Metasoma: entirely testaceous.

*Morphology.* Body (Figure 2A) 4.32 mm long.

*Head* (Figure 2B–D): 1.0 × as long as wide, with straight posterior margin and dorso-lateral corner forming round angle in full face view; frons and vertex smooth and moderately punctate, separated from each other by about 2.0–3.0 × as long as their diameter; mandible with four sharp teeth (Figure 2C); anterior margin of clypeus broadly rounded with minute median stalk; from scape to flagellomere III in ratio of 3.7: 1.0: 2.1: 2.0: 1.9 in length; from scape to flagellomere III and XI 3.8, 1.3, 3.1, 2.7, 2.5 and 3.7 × as long as wide respectively (Figure 2D); compound eye 0.34 mm long with sparse, short, erect hairs; LE 1.6 × as wide as OOL; WF 2.4 × as wide as WOT; anterior angle of ocellar triangle obtuse, POL 1.2 × as wide as AOL, OOL 1.3 × as wide as WOT (Figure 2B).

*Mesosoma* (Figure 2E–G): pronotum 0.5 × as long as wide without anterior transverse carina, mesoscutum smooth and shining with punctures as head; scutellar disc with few punctures (Figure 2E); propodeal disc as long as wide with subparallel sides in dorsal view. Median discal carina present, median area with strong transverse and oblique rugae, sublateral area and propodeal declivity strongly reticulate, transverse carina absent (Figure 2F). Forewing: metacarpus about 1.2 × as long as pterostigma, discoidal vein arising slightly down on transverse median vein (Figure 2G).

*Metasoma* (Figure 2H): petiolate, rather smooth and subopaque.

*Genitalia* (Figure 2I–J): paramere long and thin and widest at distal part, inner margin with ten or eleven short hairs and distal margin with few hairs, volsella short, about half length of paramere with few hairs, aedeagus bottle-shaped, basal margin rounded, digitus rounded outward (Figure 2I), hypopygium with round lateral-distal margin (Figure 2J).

*Measurements.* See Table 2 for biometric measurement data.

*Distribution*

South Korea (GG, CN, JJ; new record); Japan (Honshu, Ryukyus (Amami Is., Okinawa Is.)) (Terayama 2006); China (Hubei, Zhejiang, Liaoning) (Xu, Terayama et al. 2002).



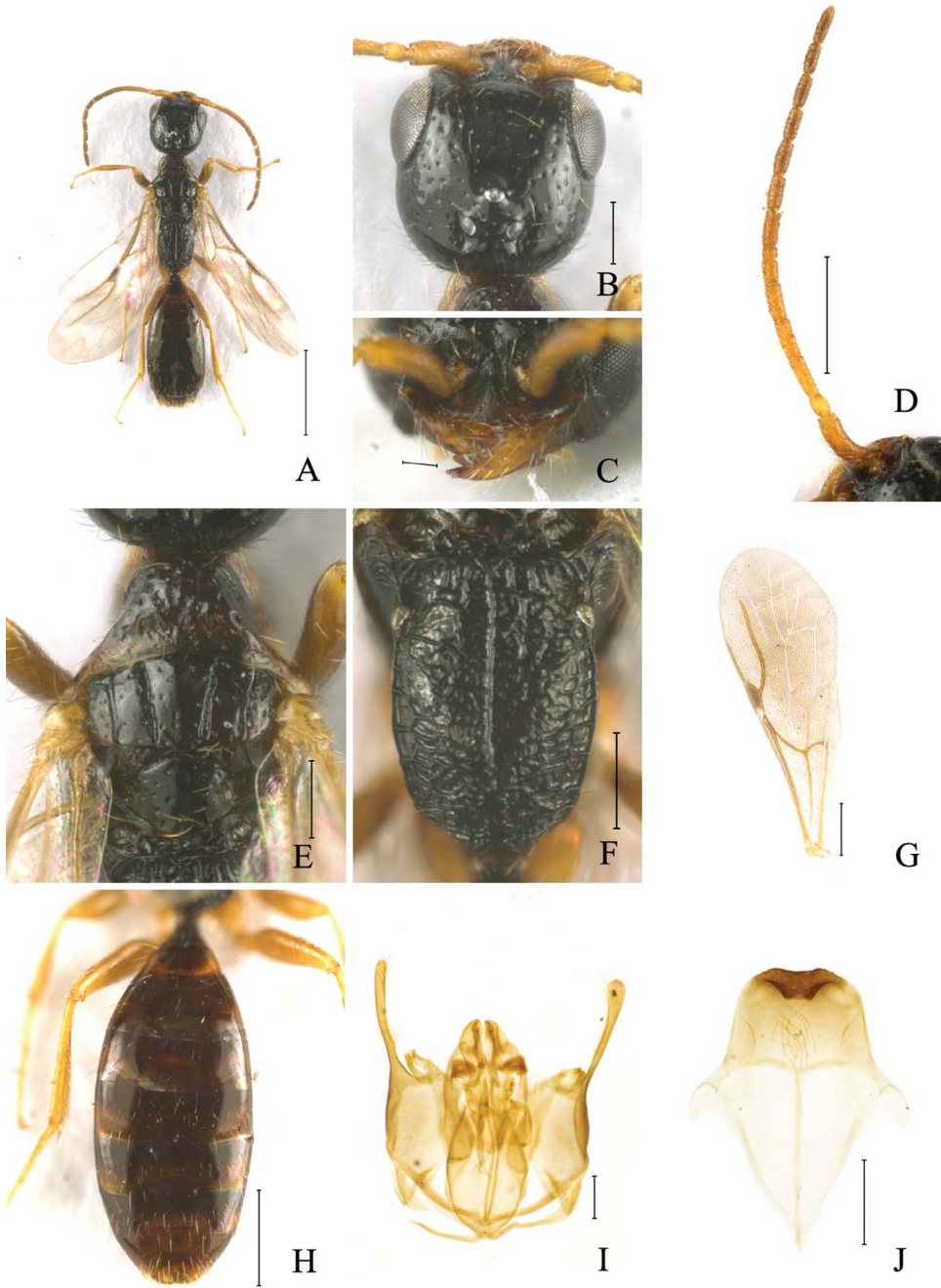


Figure 2. *Apenesia elegans* Terayama, 1999 (male). (A) whole body; (B) head; (C) mandible; (D) antenna; (E) pronotum and mesonotum; (F) propodeum; (G) right forewing; (H) metasoma; (I) genitalia in ventral view; (J) subgenital plate in ventral view (scale bar 1.00 mm for (A); 0.20 mm for (B), (E), (F) and (J); 0.10 mm for (C), (I); 0.50 mm for (D), (G), (H)).

Table 2. Biometric measurement data of *Apenesia elegans* Terayama and *A. okinawensis* Terayama.

Part	<i>Apenesia elegans</i> Terayama (n = 5) (male)		<i>Apenesia okinawensis</i> Terayama (n = 1) (male)
	Mean (mm)	Range (mm)	Value (mm)
TL	4.32	4.12–4.54	3.80
LH	0.78	0.73–0.85	0.80
WH	0.75	0.68–0.82	0.78
WF	0.50	0.46–0.56	0.50
LE	0.34	0.31–0.37	0.07
DAO	0.06	0.06–0.07	0.21
WOT	0.21	0.19–0.23	0.11
POL	0.10	0.10–0.11	0.07
AOL	0.09	0.08–0.10	0.26
OOL	0.28	0.25–0.30	0.33
LP	0.48	0.44–0.53	0.30
WP	0.47	0.42–0.53	0.69
LPD	2.77	2.65–2.91	0.33
WPD	1.53	1.32–1.72	0.47
LFW	0.30	0.26–0.32	2.50
LM	0.08	0.07–0.09	1.37
LAnt I	0.17	0.16–0.19	0.23
LAnt II	0.16	0.15–0.17	0.08
LAnt III	0.15	0.14–0.16	0.11
LAnt IV	0.17	0.16–0.18	0.12
LAnt V	0.08	0.08–0.08	0.11
LAnt XIII	0.07	0.06–0.07	0.19
WAnt I	0.06	0.06–0.06	0.07
WAnt II	0.06	0.06–0.06	0.06
WAnt III	0.06	0.06–0.07	0.06
WAnt IV	0.05	0.05–0.05	0.06
WAnt V	0.30	0.28–0.33	0.06
WAnt XIII	0.63	0.59–0.72	0.05

*Apenesia okinawensis* Terayama, 1999

(Figure 3A–J, Table 2)

*Apenesia okinawensis* Terayama, 1999b: 706.*Specimens examined*

[Korea] (CAL SNU): 1 male, Donam-ri, Banpo-myeon, Gongju-si, CN, 8–14 September 2007, MT, Y.T. Kim leg.; [Japan] (TE): 1 male, Kanpira, Iriomote, Okinawa, Japan, 28 June 1993, K. Konishi leg.

*Redescription (male)*

*Colour.* Body dark testaceous to black. Head: black with clypeus testaceous, mandible yellow with apical margin testaceous; antenna yellow except distal segments dark

testaceous. Mesosoma: pronotum and mesonotum black except pronotal collar dark testaceous; pronotum black; forewing hyaline, wing veins testaceous; legs yellow except coxa and femora testaceous. Metasoma: dark testaceous with distal pale testaceous transverse band.

*Morphology.* Body (Figure 3A) 3.80 mm long.

*Head* (Figure 3B):  $1.03 \times$  as long as wide with convex posterior margin and posterolateral margin bluntly angulated in full face view; frons and vertex strongly reticulate with dense shallow punctures, separated from each other by  $0.3\text{--}1.0 \times$  their diameter ( $0.03\text{--}0.04$  mm); mandible with one tooth (Figure 3C); anterior margin of clypeus projecting with obtuse angle; from scape to flagellomere III in ratio of 3.1: 1.0: 1.5: 1.5: 1.4 in length; from scape to flagellomere III and XI 3.1, 1.2, 1.9, 1.9, 1.8 and  $3.5 \times$  as long as wide respectively (Figure 3D); compound eye 0.37 mm long and smooth without hairs; LE  $1.4 \times$  as wide as OOL; WF  $2.4 \times$  as wide as WOT; anterior angle of ocellar triangle obtuse, POL  $1.5 \times$  as wide as AOL, OOL  $1.3 \times$  as wide as WOT (Figure 3B).

*Mesosoma* (Figure 3E, H, J): pronotum  $0.4 \times$  as long as wide without transverse carina, smooth, not reticulate, relatively deep punctures distributed over anterior half, posterior half with few small punctures; mesoscutum and scutum with few small punctures; notaulix well developed, scutellar pits connected to each other (Figure 3E); propodeal disc short,  $0.7 \times$  as long as wide with convex lateral margin in dorsal view. Median, lateral and transverse carinae present; median discal carina reaches transverse carina, basal triangular area weakly depressed, coarsely reticulate, sublateral area reticulated with irregular rugae (Figure 3J). Forewing: metacarpus short, about  $0.3 \times$  as long as pterostigma, discoidal vein arising posteriorly from transverse median vein (Figure 3H).

*Metasoma* (Figure 3I): petiolate, relatively flat in lateral view, smooth and shining.

*Genitalia* (Figure 3F, G): paramere short and thick, distal margin narrowly rounded with dense hairs; aedeagus short, bottle-shaped, basal margin broadly concave; digitus shorter than aedeagus, inner margin and distal part of aedeagus well sclerotized (Figure 3F), hypopygium short, median area sclerotized with three basal projections and concave margin, discal margin well-developed, median concave margin curved with many hairs (Figure 3G).

*Measurements.* See Table 2 for biometric measurement data.

#### *Distribution*

South Korea (CN; new record); Japan (Ryukyus Is.); China (Zhejiang, Fujian) (Terayama 2006).

#### Genus *Parascleroderma* Kieffer, 1904

*Parascleroderma* Kieffer 1904, Ann Mus Civ Stor Nat Genova Ser 3. 1:376 (type species: *Parascleroderma nigriceps* Kieffer, 1904).  
*Ceratepyris* Kieffer, 1905.

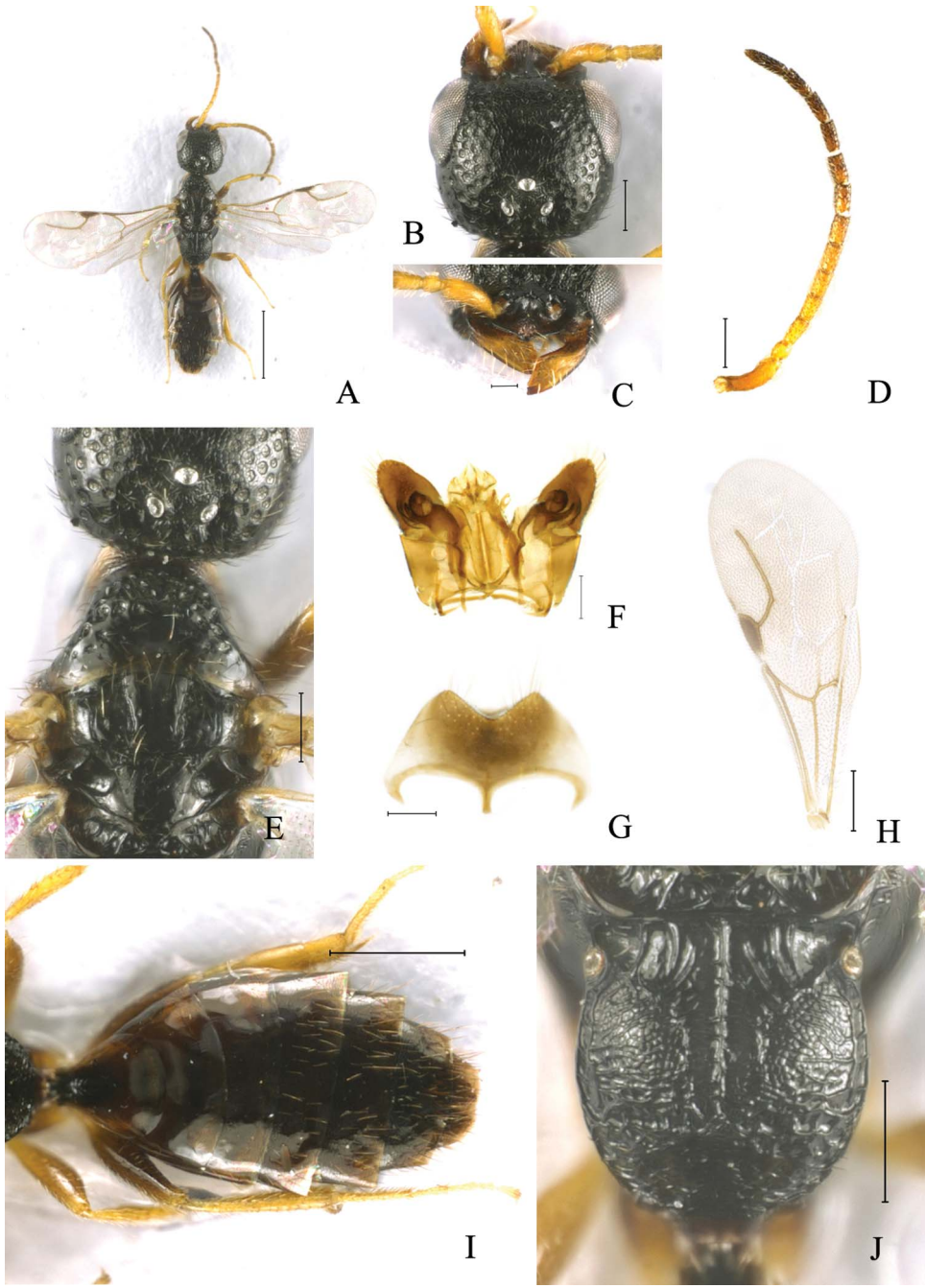


Figure 3. *Apenesia elegans* Terayama, 1999 (male). (A) whole body; (B) head; (C) mandible; (D) antenna; (E) pronotum and mesonotum; (F) genitalia in ventral view; (G) subgenital plate; (H) right forewing; (I) metasoma; (J) propodeum (scale bar 1.00 mm for (A); 0.10 mm for (C), (F) and (G); 0.20 mm for (B), (D), (E) and (J); 0.50 mm for (H) and (I)).

*Diagnosis*

*Male.* Maxillary palpi with three to six segments, labial with two or three; clypeus not strongly projecting anteriorly; antenna short to relatively short, submoniliform; compound eye large, evenly convex, hairless; ocelli forming obtuse triangle, situated close to occipital margin; metanotum with a small fovea at middle; propodeal disc with median discal carina, disc smooth or weakly micro-reticulate; transverse carina present; forewing without metacarpus; hypopygium with three basal stalks.

*Female.* Body strongly depressed dorsoventally; maxillary palpi with three segments, labial with two; clypeus simple, not strongly projecting anteriorly; compound eye consisting of 10 to 50 facets; mesopleura produced laterally; mesonotum small, subtriangular or rectangular; scutellum absent; propodeum very long with lateral margin almost parallel in dorsal view; outer margin of middle tibia without spines (Terayama 1998).

***Parascleroderma tetradentica* Lim and S. Lee sp. nov.**  
(Figure 4A–J, Table 1)

*Specimen examined*

*Holotype.* [Korea] (YNU): 1 male, Yongsan-dong, Jeongeup-si, JB Jeollabuk-do, South Korea, 19 May–19 June 2004, MT, M.K. Yun leg.

*Description (male)*

*Colour.* Body testaceous to black. Head black except mandible dark testaceous; antenna testaceous except pedicel pale testaceous. Mesosoma dark testaceous; forewing hyaline, wing veins yellow except pterostigma testaceous; legs testaceous except tibia and tarsi yellow. Metasoma testaceous.

*Morphology.* Body (Figure 4A) 3.27 mm long.

*Head* (Figure 4B–D): 1.0 × as long as wide with straight posterior margin and sides of head converging from eye to posterior margin in full face view; frons and vertex micro-reticulate with small and shallow punctures, separated each other by 3.0–5.0 × as their diameters; mandible with four teeth, outer surface with some hairs; anterior margin of clypeus short and small with median lobe convex (Figure 4C); from scape to flagellomere III in ratio of 2.5: 1.0: 1.5: 1.3: 1.4 in length; from scape to flagellomere III and XI 2.8, 1.3, 1.7, 1.5, 1.8 and 3.0 × as long as wide respectively (Figure 4D); compound eye 0.24 mm, long and smooth without hairs; LE 0.9 × as wide as OOL; WF 1.7 × as wide as WOT; anterior angle of ocellar triangle obtuse; POL 2.0 × as wide as AOL; OOL 1.2 × as wide as WOT (Figure 4B).

*Mesosoma* (Figure 4E, G): pronotum 0.3 × as long as wide, micro-reticulate with a few small and shallow punctures, posterior margin concave broadly; notaulix well-developed and divergent anteriorly, scutellum with anterior transverse deep groove; metanotum well-developed; propodeal disc short, 0.8 × as long as maximum width with convex lateral margin and concave posterior margin in dorsal view, median,



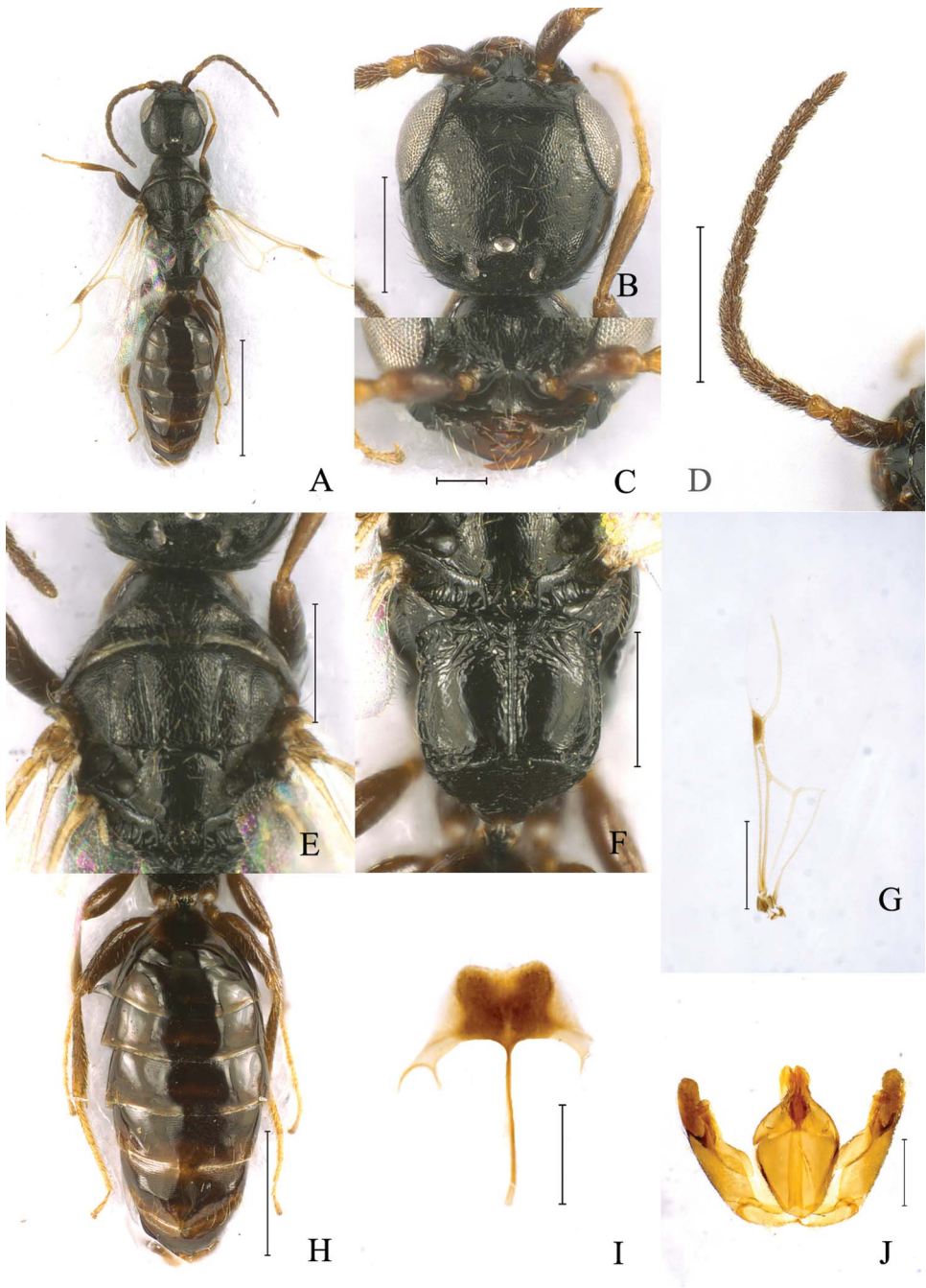


Figure 4. *Parascleroderma tetradentica* Lim and S. Lee sp. nov. (male). (A) whole body; (B) head; (C) mandible and clypeus; (D) antenna; (E) pronotum and mesonotum; (F) propodeum; (G) right forewing; (H) metasoma; (I) subgenital plate in ventral view; (J) genitalia in ventral view (scale bar 1.00 mm for (A); 0.20 mm for (C), (I) and (J); 0.30 mm for (B) and (D)–(F); 0.50 mm for (G) and (H)).



lateral and transverse carinae present, submedian and sublateral carinae absent, anterior one-third of disc with irregular rugose, median longitudinal area depressed with median carina (Figure 4F), remaining area smooth and shiny; propodeal declivity without longitudinal carina. Forewing: metacarpus present, about  $2.5 \times$  as long as pterostigma (Figure 4G).

*Metasoma* (Figure 4H): petiolate and shining, without punctures, with few hairs in latero-distal parts of each tergum in dorsal view.

*Genitalia* (Figures 4I, J): paramere long and thick, longer than aedeagus, distal margin narrowly rounded with dense hairs; aedeagus bottle-shaped, basal margin broadly concave, thickest at distal one-third part; digitus shorter than aedeagus, inner margin and distal part of aedeagus well sclerotized (Figure 4J), hypopygium long, median projection well developed with two pairs of small projections, distal margin concave, median area well sclerotized (Figure 4I).

*Measurements.* See Table 1 for biometric measurement data.

#### *Distribution*

South Korea (JB).

#### *Etymology*

The specific name is derived from the diagnostic characteristic of four mandibular teeth.

#### *Diagnosis*

This species is similar to *P. ishana* Terayama, 2006 from Japan, but can be distinguished by its four mandibular teeth (five teeth in *P. ishana*); convex median lobe of clypeus (broadly round in *P. ishana*); scape  $2.0 \times$  as long as wide ( $3.0 \times$  as long as wide in *P. ishana*); notauli anteriorly divergent (parallel in *P. ishana*); propodeal disc short,  $0.8 \times$  as long as maximum width ( $1.3 \times$  as long as width in *P. ishana* Terayama).

#### Genus *Pristocera* Klug, 1808

*Pristocera* Klug 1808, Ges Nat Freunde Berl Mag. 2:48–63 (type species: *Bethylus depressus* Fabricius, 1805).

*Mangesia* Kieffer, 1911.

*Trichelobrachium* Kieffer, 1914.

#### *Diagnosis*

*Male.* Antenna short or moderate length, flagellum with subrecumbent pubescence and also with at least a few longer, erect setulae; compound eye without hairs; propodeum without transverse carina; hypopygium deeply divided to base (Evans 1963a).

*Female.* Body at most only weakly flattened; compound eye large, consisting of more than fifteen facets (with a few exceptions), mesopleura developed; propodeal constriction strong, maximum width of propodeum at least twice that at constriction (Terayama 2003).

***Pristocera formosana* Miwa and Sonan, 1935**

(Figures 5A–J, 6A–J, Table 3)

*Pristocera formosana* Miwa and Sonan 1935, Taiwan Hakub Gakk Kaiho [Trans Nat Hist Soc Formosa], 25:91.

*Specimens examined*

[Korea] (CAL SNU): 1 male, Geyang-dong, Incheon-si, South Korea, 20 August 1999, S.I. Kim leg.; 1 male, ditto, 14.viii.2001, S.Y. Oh leg.; 1 male, Kyoosan-gun, CB, South Korea, 19 August 2000, S.B. Jang leg.; 1 male, Majeong-ri, Buk-myeon, Jeongeub-si, JB, South Korea, 12–19 July 2005, MT, J.W. Park leg.; 1 male, Dapcheon-ri, Ibanseong-myeon, Jinju-si, GN, South Korea, 12–26 August 2005, MT, B.K. Ahn leg.; 1 male, Pungsan-ri, Dado-myeon, Naju-si, JN, South Korea, 16–30 August 2005, MT, S.B. Yu leg.; 1 male, ditto, 30 August–9 September 2005, MT, S.B. Yu leg.; 1 male, Jinae-ri, Dong-myeon, Chuncheon-si, GW, South Korea, 13–20 September 2005, S.J. Jang leg.; 1 male, ditto, 11–18 August 2006, MT, S.J. Jang leg.; 1 male, Daejeon Univ., Yongwoon-dong, Dong-gu, Daejeon-si, South Korea, 15 August–30 September 2006, MT, J.W. Lee leg.; 1 male, ditto, 21 July–September 2006, MT, J.W. Lee leg.; 1 male, Changchon-ri, Danseong-myeon, Sancheong-gun, GN, South Korea, GPS N35°15'47.2", E127°54'24.8", altitude 105 m, 11 August 2008, S.W. Park leg.; 1 female, Yongjusa, Annyeong-ri, Taean-eub, Hwaseong-si, GG, South Korea, 22–29 August 2005, MT, Y.D. Kwon leg.; 1 female, ditto, 29 August–5 September 2005, MT, Y.D. Kwon leg.; 4 females, Donam-ri, Banpo-myeon, Gongju-si, CN, South Korea, 30 August–6 September 2005, MT, Y.T. Kim leg.; 1 female, ditto, 6–13 September 2005, MT, Y.T. Kim leg.; 2 females, Majeong-ri, Buk-myeon, Jeongeub-si, JB, South Korea, 12–19 July 2005, MT, J.W. Park leg.; 2 females, ditto, 9–16 August 2005, MT, J.W. Park leg.; 1 female, ditto, 16–23 August 2005, MT, J.W. Park leg.; 2 females, ditto, 26–30 August 2005, MT, J.W. Park leg.; 1 female, ditto, 30 August–6 September 2005, MT, J.W. Park leg.; 2 females, ditto, 6–20 September 2005, MT, J.W. Park leg.; 2 females, Namsa-ri, Hyeongok-myeon, Kyeongju-si, GB, South Korea, 2–8 September 2005, MT, J.T. Mun leg.; 1 female, Dapcheon-ri, Ibanseong-myeon, Jinju-si, GN, South Korea, 12–26 September 2005, MT, B.K. Ahn leg.; [Japan] (NMNS): 1 male, 1 female, Suigen, Keikido, Chosen, 7 September 1923, Sato leg.

*Redescription (male)*

*Colour.* Body dark testaceous to black. *Head:* black except mandible, maxillary palpi and labial palpi testaceous; antenna dark testaceous. Mesosoma: dark testaceous; forewing hyaline, wing veins and legs dark testaceous. Metasoma: dark testaceous.

*Morphology.* Body (Figure 5A) 9.21 mm long.

*Head* (Figure 5B): 1.0 × as long as wide with convex posterior margin and posterolateral margin broadly rounded in full face view; frons and vertex densely foveolate

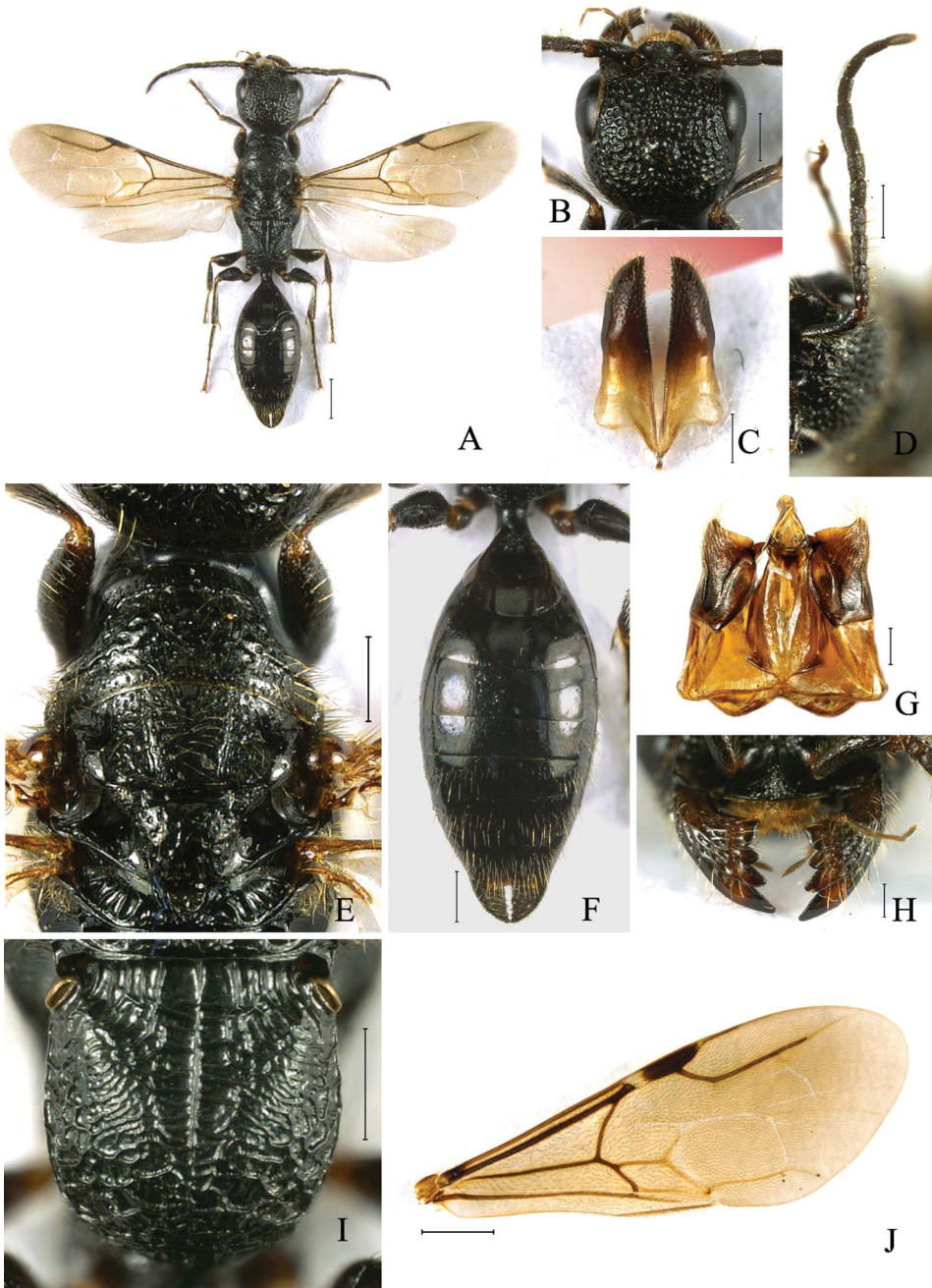


Figure 5. *Pristocera formosana* Miwa and Sonan, 1935 (male). (A) whole body; (B) head; (C) subgenital plate in ventral view; (D) antenna; (E) pronotum and mesonotum; (F) metasoma; (G) genitalia in ventral view; (H) propodeum; (J) right forewing (scale bar 0.20 mm for (A), (G) and (H); 0.50 mm for (B)–(F) and (J); 1.00 mm for (J)).

with deep punctures, separated from each other by  $0.2\text{--}0.5 \times$  their diameter ( $0.04\text{--}0.09$  mm); mandible with four teeth, outer surface with elongate punctures and hairs, uppermost tooth anteriorly truncated, lowest tooth sharp (Figure 5H); anterior margin of clypeus broadly round, median carina reaches antennal sockets; from scape to flagellomere III in ratio of 5.1: 1.0: 1.9: 1.7: 2.4 in length; from scape to flagellomere III and XI 3.2, 1.1, 1.6, 1.5, 2.0 and  $2.4 \times$  as long as wide respectively; compound eye 0.80 mm long and smooth without hairs; LE  $1.4 \times$  as wide as OOL; WF  $3.1 \times$  as wide as WOT; anterior angle of ocellar triangle right angled; POL  $1.1 \times$  as wide as AOL; OOL  $1.5 \times$  as wide as WOT (Figure 5B).

*Mesosoma* (Figure 5E, I): pronotum  $0.4 \times$  as long as wide, more sparsely punctate than head, anterior margin with transverse groove; notaulix well-developed and anteriorly divergent, scutellum with anterior transverse deep groove; metanotum well-developed with oblique deep groove apically (Figure 5E); propodeal disc short,  $0.8 \times$  as long as maximum width with convex lateral margin in dorsal view, median and lateral carinae present, transverse carina absent, median and submedian area irregularly rugulose (Figure 5I); forewing with long metacarpus, about  $0.5 \times$  as long as pterostigma, discoidal vein arising posteriorly from transverse median vein (Figure 5J); foreleg and hindleg with one tibial spur and midleg with two tibial spurs.

*Metasoma* (Figure 5F): petiolate, smooth and shining with few hairs.

*Genitalia* (Figure 5G, C): paramere short, lateral margin curved at distal two-thirds of paramere, distal margin of paramere angled with many hairs, distal half well-sclerotized, micro-reticulate; aedeagus longer than paramere, bottle-shaped, well-sclerotized; digitus shorter than aedeagus, dorsally curved; basal margin relatively straight (Figure 5G); hypopygium divided into two distinct lobes, distal half well-sclerotized, basal margin with median projection, distal one-third with dense punctures and hairs (Figure 5C).

### *Female*

*Colour.* Body yellowish testaceous to dark testaceous. Head: dark testaceous black except mandible testaceous with clypeus black; antenna testaceous. Mesosoma: pronotum, mesonotum and propodeum dark testaceous except mesopleuron pale testaceous; legs entirely pale testaceous. Metasoma: each tergite dark testaceous apart from distal testaceous thick transverse band.

*Morphology.* Body (Figure 6A) 6.38–9.40 mm long.

*Head* (Figure 6B, D–F):  $1.3 \times$  as long as wide with convex posterior margin and postero-lateral margin bluntly angulated in full face view; frons and vertex smooth with dense deep punctures, separated from each other by  $0.5\text{--}3.0 \times$  their diameter ( $0.03\text{--}0.05$  mm), median longitudinal area of head smooth with few small punctures; mandible with four teeth and dense elongate punctures and hairs (Figure 6F); margin of clypeus short, produced anteriorly with triangle in front view; from scape to flagellomere III in ratio of 5.3: 1.0: 1.1: 1.0: 1.0 in length; from scape to flagellomere III and XI 2.9, 0.8, 0.9, 0.7, 0.7 and  $1.6 \times$  as long as wide respectively (Figure 6D); compound eye very small, 0.2 mm long, LE  $1.9 \times$  as long as LH, ocelli absent (Figure 6E).





Figure 6. *Pristocera formosana* Miwa and Sonan, 1935 (female). (A) whole body; (B) head; (C) pronotum and mesonotum; (D) antenna; (E) head in lateral view; (F) mesopleuron in lateral view; (H) metasoma; (I) propodeum; (J) tibia of midleg (scale bar 0.20 mm for (E), (F) and (J); 0.50 mm for (C), (D), (G), (H) and (I); 1.00mm for (A) and (B)).

*Mesosoma* (Figure 6C, 6I): pronotum  $1.2 \times$  as long as wide with fewer deep punctures than head, dorsal surface smooth except anterior, lateral and distal margins micro-reticulate with small, shallow rugae, pronotal collar micro-reticulate without any deep punctures; scutellum with few punctures; mesopleuron reticulate with shallow big punctures (Figure 6G); propodeal disc long,  $2.0 \times$  as long as maximum width of propodeum, widest at about two-thirds of propodeum, median area smooth without any punctures or hairs except distal half area micro-reticulate, anterior margin V-shaped, lateral margin carinate (Figure 6I).

*Metasoma* (Figure 6H): petiolate and shining, each tergum with small punctures, from tergite III to V with biconvex margin distally in dorsal view.

#### *Measurements.*

See Table 3 for biometric measurement data.

#### *Distribution*

South Korea (Incheon, Daejeon, GG, GW, CB, CN, JB, JN, GB, GN); Taiwan (Terayama and Yamane 1998).

#### Genus *Pseudisobrachium* Kieffer, 1904

*Pseudisobrachium* Kieffer 1904, Ann Mus Civ Stor Nat Genova. 41:368 (type species: *Pseudisobrachium laticeps* Kieffer, 1904).

*Monepyris* Kieffer, 1905.

*Xestobethylus* Cameron, 1909.

*Plutobethylus* Kieffer, 1910.

*Lyssepyris* Kieffer, 1913.

*Xantepyris* Kieffer, 1913.

*Parisobrachium* Kieffer, 1914.

*Afrisobrachium* Benoit, 1957.

*Edapholigon* Ogloblin, 1963.

#### *Diagnosis*

*Male.* Mandible with four or five (rarely three) teeth; clypeus with median carina, usually truncate but occasionally dentate or emarginate apically; compound eye with abundant short hair; antenna simple, thirteen segments, the flagellar pubescence appressed or suberect, never erect and bristling; pronotum without transverse grooves or carina; scutellum with basal transverse groove and with lateral foveae; propodeum with single median carina (rarely obsolete) and without posterior carina.

*Female.* Mandible with three or four teeth; clypeus with median carina, truncate or emarginate apically; compound eye each consisting of single facet, sometimes indistinct; ocelli absent; head longer than wide; antenna short, flagellum somewhat thickened; wings and tegula absent; pronotum longer than wide; mesonotum subtriangular, subacute behind; propodeum gradually narrowed anteriorly to pair of points



Table 3. Biometric measurement data of *Pristocera formosana* Miwa and Sonan.

Part	Male (n = 12)		Female (n = 20)	
	Mean (mm)	Range (mm)	Mean (mm)	Range (mm)
TL	9.21	7.85–10.29	7.91	6.38–9.40
LH	1.87	1.53–2.30	1.40	0.89–1.68
WH	1.80	1.45–2.12	1.09	0.74–1.32
WF	1.18	0.97–1.42	0.94	0.66–1.12
LE	0.80	0.65–0.97	0.17	0.14–0.20
DAO	0.15	0.13–0.19	–	–
WOT	0.38	0.28–0.44	–	–
POL	0.15	0.12–0.17	–	–
AOL	0.13	0.10–0.14	–	–
OOL	0.56	0.48–0.64	–	–
LP	0.59	0.49–0.66	0.83	0.66–0.98
WP	1.68	1.33–1.98	0.69	0.55–0.85
LPD	1.03	0.84–1.27	1.16	1.16–1.49
WPD	1.28	1.02–1.50	0.57	0.47–0.68
LFW	5.94	4.86–6.51	–	–
LM	3.45	2.75–3.84	2.27	1.82–2.68
LAnt I	0.76	0.56–1.42	0.58	0.41–0.71
LAnt II	0.15	0.12–0.23	0.11	0.08–0.14
LAnt III	0.28	0.18–0.35	0.12	0.09–0.15
LAnt IV	0.26	0.20–0.31	0.11	0.07–0.16
LAnt V	0.36	0.22–1.20	0.11	0.07–0.15
LAnt XIII	0.36	0.31–0.40	0.23	0.19–0.27
WAnt I	0.18	0.15–0.20	0.20	0.16–0.23
WAnt II	0.14	0.12–0.16	0.13	0.12–0.15
WAnt III	0.15	0.12–0.16	0.14	0.12–0.17
WAnt IV	0.16	0.12–0.20	0.15	0.12–0.18
WAnt V	0.17	0.13–0.22	0.15	0.11–0.17
WAnt XIII	0.12	0.10–0.20	0.14	0.11–0.18

which flank posterior point of mesonotum, the thorax much constricted laterally at junction of propodeum and mesonotum (Evans 1961).

***Pseudisobrachium koreana* Lim and S. Lee sp. nov.**

(Figure 7A–J, Table 4)

*Specimens examined*

*Holotype*. [Korea] (CAL SNU): male, Kwanak Arboretum, Manan-gu, Anyang-si, GG, South Korea, 15 September–25 October 2007, MT, Jongok Lim leg.

*Paratypes*. [Korea] (CAL SNU): 9 males, same collection data as holotype, MT, Jongok Lim leg.; 3 males, ditto, 31 August–14 September 2007, MT, Jongok Lim leg.; 1 male, Donggye-dong, Jeju-si, JJ, South Korea, 20–27 August 2005, MT, Changhoon

Shin leg.; 1♂, ditto, 10–16 September 2005, MT, Changhoon Shin leg.; 1 male, Donam-ro, Banpo-myeon, Gongju-si, CN, South Korea, 6–13 August 2005, MT, Yeontae Kim leg.; 1 male, ditto, 8–14 August 2007, MT, Yeontae Kim; 1 male, Jinae-ri, Dong-myeon, Chuncheon-si, GW, South Korea, 20–27 August 2005, MT, Seokjoon Jang leg.; 1 male, Goyang-dong, Deokyang-gu, Goyang-si, GG, South Korea, 7 August–6 October 2007, MT, Jongok Lim leg.

*Description (male holotype)*

*Colour.* Body testaceous to black. *Head:* black except mandible dark testaceous; antenna dark testaceous except basal four-fifths of scape black. Mesosoma: pronotum and mesonotum black with pronotal collar dark testaceous; forewing hyaline, wing veins testaceous; legs yellow except coxa, trochanter and femora dark testaceous. Metasoma: testaceous except posterior-lateral surface yellow.

*Morphology.* Body (Figure 7A) 5.07 mm long.

*Head* (Figures 7B, C, H)  $1.0 \times$  as long as wide with almost straight posterior margin and postero-lateral margin with rounded angle in full face view; frons and vertex micro-reticulate with dense shallow and large punctures, separated from each other by  $0.5\text{--}2.0 \times$  their diameter (0.03–0.04 mm); mandible with five teeth, upper three teeth very small and lowest tooth most sharp, developed (Figure 7H); anterior margin of clypeus broadly truncated with obtuse lateral margin, median carina present (Figure 7C); from scape to flagellomere III in ratio of 3.8: 1.0: 1.8: 1.7: 1.6 in length; from scape to flagellomere III and XIII 3.8, 1.1, 2.0, 1.9, 1.7 and  $2.7 \times$  as long as wide respectively; compound eye 0.42 mm long with dense hairs, LE  $1.4 \times$  as wide as OOL, WF  $2.3 \times$  as wide as WOT, ocelli forming almost right angle, POL  $1.2 \times$  as wide as AOL, OOL  $1.1 \times$  as wide as WOT (Figure 7B).

*Mesosoma* (Figure 7E, I): pronotum  $0.6 \times$  as long as wide, micro-reticulate with relatively large and shallow punctures; mesoscutum with shallow punctures and scutum polished with few punctures; notaulix weakly developed on anterior half of mesoscutum, scutellum with anterior transverse groove, about  $5.0 \times$  as wide as long (Figure 7E); propodeum long,  $1.6 \times$  as long as wide with parallel lateral margin in dorsal view; median discal carina, lateral and sublateral carinae weakly developed, median discal carina reaches anterior half of propodeum, median area with longitudinal irregular rugae, sublateral area with weak irregular rugae, median area with U-shaped polished area (Figure 7I); wings with LFW 3.52 mm long, pterostigma short, about  $2.0 \times$  as long as wide, metacarpus absent, discoidal vein arising nearby from transverse median vein (Figure 7J).

*Metasoma* (Figure 7F): petiolate, shining with dense hairs posteriorly and relatively flat in lateral view.

*Genitalia* (Figures 7D, G): paramere long, divided into two lobes distally, distal margin of paramere narrowly rounded, paramere and volsella with long hairs; aedeagus elongate, bottle-shaped; basal margin narrowly rounded; distal margin of digitus well sclerotized (Figure 7D); hypopygium rounded and densely haired, anterior margin well-sclerotized with three projections (Figure 7G).

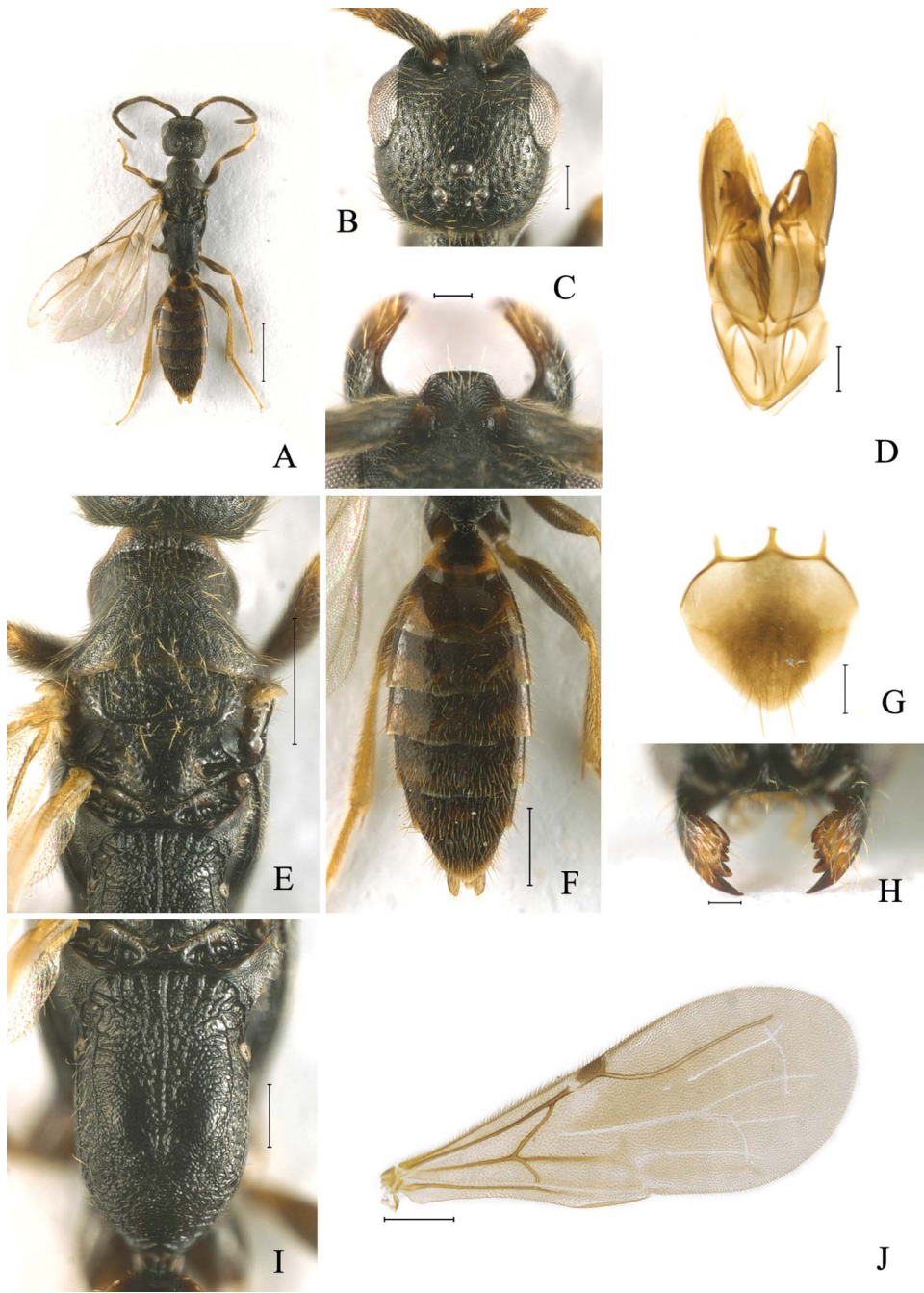


Figure 7. *Pseudisobrachium koreana* Lim and S. Lee sp. nov. (A) whole body; (B) head; (C) clypeus; (D) genitalia; (E) pronotum and mesonotum; (F) metasoma; (G) subgenital plate in ventral view; (H) mandible; (I) propodeum; (J) right forewing (scale bar 0.10 mm for (C), (D), (G) and (H); 0.20 mm for (B) and (I); 0.50 mm for (E), (F) and (J); 1.00 mm for (A)).

Table 4. Biometric measurement data of *Pseudisobrachium koreana* Lim and Lee sp. nov.

Part	<i>Pseudisobrachium koreana</i> Lim and S. Lee sp. nov. (n = 19) (male)	
	Mean (mm)	Range (mm)
TL	4.57	3.64–5.07
LH	0.78	0.66–0.92
WH	0.79	0.68–0.89
WF	0.53	0.46–0.62
LE	0.37	0.42–0.42
DAO	0.08	0.10–0.10
WOT	0.24	0.23–0.27
POL	0.10	0.09–0.12
AOL	0.09	0.08–0.10
OOL	0.24	0.18–0.30
LP	0.37	0.32–0.48
WP	0.78	0.64–0.86
LPD	0.77	0.59–0.94
WPD	0.49	0.40–0.57
LFW	3.38	3.13–3.59
LM	1.76	1.47–2.02
LAnt I	0.33	0.27–0.38
LAnt II	0.09	0.07–0.10
LAnt III	0.16	0.14–0.18
LAnt IV	0.15	0.13–0.19
LAnt V	0.14	0.10–0.17
LAnt XIII	0.21	0.19–0.24
WAnt I	0.10	0.08–0.12
WAnt II	0.08	0.07–0.10
WAnt III	0.09	0.07–0.10
WAnt IV	0.09	0.08–0.11
WAnt V	0.09	0.07–0.11
WAnt XIII	0.08	0.07–0.09

*Measurements.* See Table 4 for biometric measurement data.

#### *Distribution*

South Korea (CN, GW, GG, JJ).

#### *Etymology*

The specific name is derived from Korea, the locality of the type specimens.

#### *Diagnosis*

In general external morphology, this species is similar to *P. ryukyuanum* Terayama, 1999 from Japan. However, the new species is distinguished from the latter by

its head having a rounded posterior-lateral corner (distinctly angulated corner in *P. ryukyuanum*); the flagellomere I 1.8 × as long as the pedicel (3.0 × as long in *P. ryukyuanum*); the coxa, trochanters and femora dark brown (legs entirely yellow in *P. ryukyuanum*); the propodeum 1.6 × as long as wide (1.4 × as long as wide in *P. ryukyuanum*) and the propodeum without transverse rugae on median area (with transverse rugae on median area in *P. ryukyuanum*).

**Key to species of Pristocerinae in Korea**

1. Apterous; tegulae and ocelli absent (female) .....  
 ..... *Pristocera formosana* Miwa and Sonan (female)  
 Alate; tegulae and ocelli present (male) ..... 2
2. Big and robust (TL more than 7.8 mm); hypopygium deeply divided into two lobes in dorsal view ..... *Pristocera formosana* Miwa and Sonan (male)  
 Small and slender (TL less than 5.2 mm); hypopygium not divided into two lobes in dorsal view ..... 3
3. Anterior margin of clypeus trapezoidal and truncate anteriorly; eye covered with dense hairs; genitalia with paramere deeply divided into two lobes in lateral view ..... *Pseudisobrachium koreana* Lim and S. Lee sp. nov.  
 Anterior margin of clypeus various but not trapezoidal; eye glabrous, or only scattered with short hairs; genitalia with parameres not deeply divided into two lobes in lateral view ..... 4
4. Metacarpus absent; ocelli forming a flat triangle and situated near the occipital margin ..... *Parascleroderma tetradentica* Lim and S. Lee sp. nov.  
 Metacarpus present; ocelli forming a right angle and situated far from the occipital margin ..... 5
5. Basal tooth of mandible curved inwardly; terminal segment of antenna thin, more than 3 × as long as wide with acute tip .....  
 ..... *Acrepyris minutus* (Yasumatsu)  
 Basal tooth of mandible not curved inwardly; terminal segment of antenna thick, less than 2.5 × as long as wide with obtuse tip..... 6
6. Clypeus with round angle broadly; head micro-reticulate with dense shallow punctures..... *Apenesia okinawensis* Terayama  
 Clypeus with triangle anteriorly; head not micro-reticulate with smooth surface..... *Apenesia elegans* Terayama

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