

The Genus *Apenesia* Westwood (Insecta, Hymenoptera, Bethylidae) in China, with Descriptions of Three New Species

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Abstract. The bethylid wasp genus *Apenesia* Westwood, 1874, of China is treated, and descriptions of three new species, *A. sinensis*, *A. tianmuensis* and *A. clara* are given. *Apenesia okinawensis* and *A. elegans* are recorded from China for the first time.

Key words: Hymenoptera, Bethylidae, *Apenesia*, new species, China.

Introduction

The genus *Apenesia* Westwood, 1874, belonging to the subfamily Pristocerinae of the family Bethylidae, is represented by about 140 described species including 30 species from the Oriental region, and is distributed from the tropics to the temperate zone of the world. Fourteen species of this genus have been reported from East Asia up to now: 8 species from Japan and 6 from China (Taiwan Island) (Terayama, 1996, 1999).

All the *Apenesia* species show distinct sexual dimorphism; males are fully winged and have ocelli, whereas females are completely apterous and lack ocelli.

In the course of our study on the bethylid fauna of China, we were able to examine specimens of the genus *Apenesia*. As for the material from the

Mainland of China, we recognized 5 species, of which 3 are new to science and 2 are new records from the Chinese fauna. In this paper, we would like to describe them, together with a key to the Chinese species.

Materials and Methods

Twelve specimens were examined from Guizhou, Zhejiang, Fujian, Hubei, and Liaoning Provinces in the Mainland of China.

The following abbreviations for descriptions are used in this paper: HL—head length; HW—head width; WF—width of frons; LM—length of mesosoma; LP—length of propodeum; LP—length of propodeum in dorsally; WPD—width of propodeal disc; FWL—forewing length; TL—total body length; EL—eye length; DAO—diameter of anterior ocellus; POL—distance between posterior ocelli; AOL—distance between posterior ocellus and anterior ocellus; OOL—distance from a posterior ocellus to nearest eye margin; WOT—distance across and including posterior ocelli.

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Taxonomic accounts and distribution

Apenesia sinensis sp. nov.

(Figs 1, 6, 11)

Holotype. Male. HL 1.15 mm; HW 1.08 mm; WF 0.68 mm; LM 2.28 mm; LP 0.69 mm; WPD 0.73 mm; FWL 4.2 mm; TL 5.9 mm.

Head and mesosoma black; metasoma dark brown; mandible and antenna brown; legs brown.

Head 1.07 times as long as wide; posterolateral corner dully angulate in full-face view; frons and vertex smooth and moderately punctate; punctures relatively strong, interstices between punctures 2.0–2.5 times as long as diameter, smooth. Mandible modified simply with an acute apical tooth. Anterior margin of clypeus triangular, strongly produced medially. First 5 antennal segments in a ratio of about 9 : 3.5 : 5 : 4 : 4 in length; scape 2.3 times as long as wide; 2nd segment 1.4 times as long as wide; 3rd segment 2.3 times as long as wide. Eye without setae; EL 0.53 mm; WF 1.29 times EL. Ocelli forming a regular triangle, POL : AOL = 1 : 1 ; DAO 0.09 mm; OOL 1.5 times WOT.

Pronotal disc with smooth and shining interspaces and relatively large distinct punctures. Mesoscutum smooth and shining, with punctures except for the median area mostly impunctate. Scutellar disc mostly smooth and shining. Propodeum short, 0.95 times as long as wide, with a median carina present at anterior 4/5 of disc; sublateral and transverse carinae absent; basal triangular area weakly depressed, with 7–8 pairs of oblique rugae; sublateral area densely microreticulate; posterior margin of disc with several relatively irregularly transverse rugulae.

Metasoma sessile, smooth and shining.

Postmarginal vein of forewing short, 0.40 times length of pterostigma; discoidal vein arising well down on transverse median vein.

Holotype. Male, West of Mt Tianmushan, Zhejiang Province, 10–12. ix. 1983, J.-F. Wang leg.

Paratype. 1 male, Guiyang, Guizhou Province, 30.xiii.1987, J.-H. He leg.

Type depository. The types are deposited in the

collection of the Department of Plant Protection, Zhejiang University, China.

Etymology. This species is named after the type locality.

Distribution. China (Zhejiang, Guizhou).

Remarks. This species closely resembles *A. kushigematii* Terayama, 1999, from the Ryukyu Islands, Japan and *A. formosimonticola* Terayama, 1996, from Taiwan. It is, however, separated from the latter two by the absence of transverse carina of propodeum.

Apenesia tianmuensis sp. nov.

(Figs 2, 7, 12)

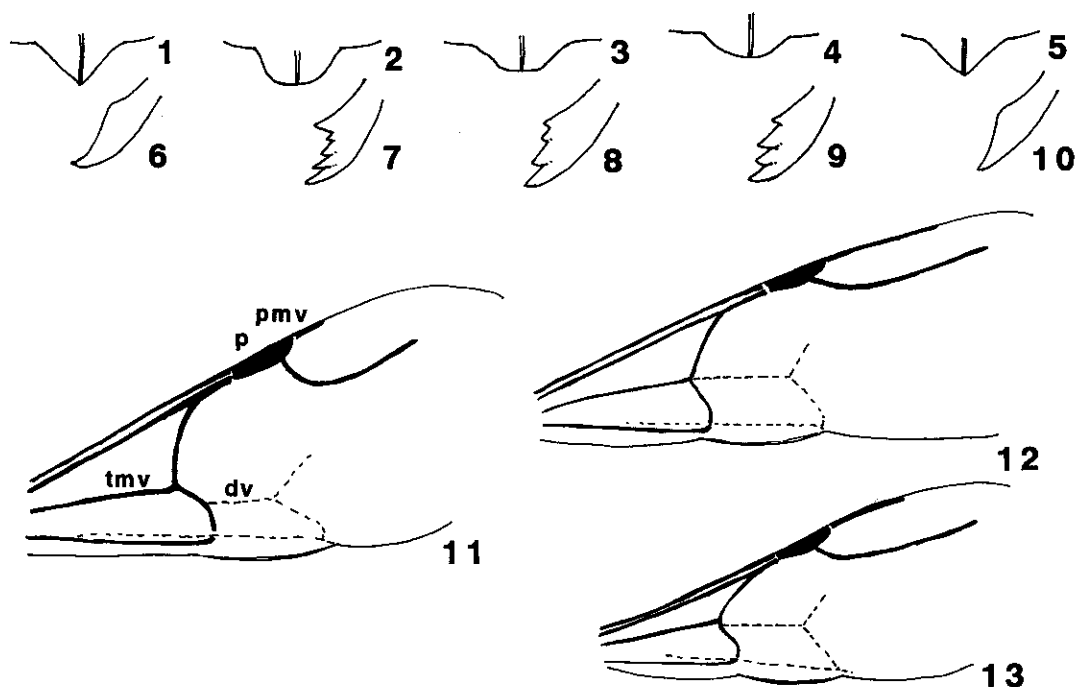
Holotype. Male. HL 1.10 mm; HW 1.08 mm; WF 0.65 mm; LM 2.20 mm; LP 0.88 mm; WPD 0.65 mm; FWL 3.7 mm; TL 5.5 mm.

Head and mesosoma dark brown except for propodeum black; metasoma brown, with a reddish tinge; mandible, antenna and legs yellowish brown.

Head round, almost as long as wide, with shallowly convex posterior margin in full-face view; posterolateral corner round, not forming angle; frons and vertex smooth and shining, and moderately punctate. Mandible with 5 teeth including apical projection; basal 2nd tooth small. Anterior margin of clypeus broadly round. First 5 segments of antenna in a ratio of about 8 : 2 : 5.5 : 5 : 5 in length; scape long, 4.0 times as long as wide; 2nd segment as wide as long; 3rd segment 4.2 times as long as wide. Eye without setae; EL 0.50 mm; FW 1.30 times EL. Ocelli forming a rather compact triangle; POL : AOL = 1 : 1; DAO 0.10 mm; OOL 1.3 times WOT.

Pronotal disc trapezoidal, half times as long as wide in dorsal view, moderately punctate with smooth interspaces. Mesonotum punctated, with smooth and shining interspaces. Propodeal disc 1.35 times as long as wide; transverse carina absent; median carina present in basal 3/5 of disc; sublateral carinae present in posterior half of disc; basal triangular area large with strong reticulum; sublateral area subopaque and without rugae.

Metasoma sessile, smooth and shining.



Figs 1–13. *Apenesia* spp., male. 1, 6, 11. *A. sinensis* sp. nov. 2, 7, 12. *A. tianmuensis* sp. nov. 3, 8. *A. clara* sp. nov. 4, 9, 13. *A. elegans* Terayama. 5, 10. *A. okinawensis* Terayama. 1–5: Anterior margin of clypeus; 6–10: mandible; 11–13: fore wing vein (p, pterostigma; pmv, postmarginal vein; tmv, transverse median vein; dv, discoidal vein).

Postmarginal vein of forewing long, 0.70 mm in length, 1.75 times as long as length of pterostigma; discoidal vein interstitial with transverse median vein.

Holotype. Male, West of Mt Tianmushan, Zhejiang Province, 30. vi. 1998, M.-S. Yue leg.

Paratypes. 2 males, Sangang, Fujian Province, 9. ix. 1983, J.-S. Wang leg.

Etymology. This species is named after the type locality.

Type depository. The types are deposited in the collection of the Department of Plant Protection, Zhejiang University, China.

Distribution. China (Zhejiang, Fujian).

***Apenesia clara* sp. nov.**

(Figs 3, 8)

Holotype. Male. HL 0.80 mm; HW 0.83 mm; WF 0.49 mm; LM 1.50 mm; LP 0.63 mm; WPD 0.48 mm;

FWL 2.8 mm; TL 4.0 mm.

Head and mesosoma black; metasoma reddish brown with yellow band at posterior margin of tergite; mandible, antenna and legs yellowish brown.

Head as long as wide, smooth and shining with relatively large punctures; punctures on frons separated by 1–2 times their own diameters. Mandible with 4 acute teeth. Anterior margin of clypeus broadly round. First 5 antennal segments in a ratio of 8 : 3 : 7 : 6.5 : 6.5 in length; scape 2.5 times as long as wide; 2nd segment as long as wide; 3rd segment 2.8 times as long as wide. Eye without setae; EL 0.40 mm; WF 2.06 times LE. Ocelli forming a regular triangle; POL : AOL = 1 : 1; AOL 0.08 mm; OOL 1.6 times WOT.

Pro- and mesonotal discs weakly punctate, with smooth and shining interspaces. Propodeum 1.31 times as long as wide; median carina present at anterior 3/5 of disc; basal triangular area reticulate

and with 3 or 4 pairs of irregular longitudinal carinae; sublateral area reticulate.

Metasoma sessile, smooth and subopaque.

Postmarginal vein of forewing long, 0.45 mm in length, 1.29 times as long as length of pterostigma; discoidal vein interstitial with transverse median vein.

Holotype. Male, Zhangzhou City, Fujian Province, iv. 1987. N.-Q. Lin leg.

Etymology. The specific epithet is named after the light coloration of metasoma.

Type depository. The type is deposited in the collection of the Department of Plant Protection, Zhejiang University, China.

Remarks. This species resembles *A. meifuia* Terayama, 1996, from Taiwan, but separated from the latter by the absence of short erect setae of eyes, the long propodeum and round anterior margin of clypeus.

Distribution. China (Fujian).

Apenesia elegans Terayama, 1999

(Figs 4, 9, 13)

Apenesia elegans Terayama, 1999. In Yamane *et al.*, *Identification guide to the Aculeate of the Nansei Islands, Japan*: 703, figs 12–16.

Diagnosis. TL 3.5–4.0 mm in males. Head black; pro- and mesonota testaceous excepting yellow pronotal collar; propodeum dark brown; mandible and antenna yellow to brown; legs yellow.

Head slightly longer than wide; posterolateral corner rounded, not forming distinct angle in full-face view; frons and vertex with punctures and smooth interspaces; interstices between punctures about 2 times as long as diameter. Mandible with 4 acute teeth. Anterior margin of clypeus broadly round, with a minute median angle. Pro- and mesonotal discs smooth and shining, with a few punctures. Propodeum 1.3–1.4 times as long as wide, with subparallel sides in dorsal view; median carina strong; median area smooth with transverse rugae; sublateral area and declivity strongly reticulate.

Postmarginal vein of forewing longer than pterostigma; discoidal vein arising slightly down on

transverse median vein.

Specimens examined. 1 male, Fangxian, Hubei Province, 29. viii. 1982, J.-H. He leg.; 1 male, Mt Tianmushan, Zhejiang Province, 2. ix. 1987, X.-G. Wang leg.; 1 male, Shenyang, Liaoning Province, 27. vii. 1990, G.-C. Liu leg.

Distribution. China (Hubei, Zhejiang, Liaoning), Japan (Honshu, the Ryukyus).

Remarks. Although the Chinese specimens slightly differ from the Japanese specimens in the shape of propodeum, we regard this as a geographical variation within the species.

Apenesia okinawensis Terayama, 1999

(Figs 5, 10)

Apenesia okinawensis Terayama, 1999. In Yamane *et al.*, *Identification guide to the Aculeate of the Nansei Islands, Japan*: 706, figs 23–26.

Diagnosis. TL 3.5–3.7 mm in males. Body black; clypeus dark reddish brown; mandible, antenna and legs reddish brown.

Head almost as long as wide, with weakly convex posterior margin and dully angulate posterolateral corners in full-face view; frons and vertex strongly microreticulate with relatively large punctures; interstices between punctures 0.5–1.0 times as long as diameter. Mandible only with an apical tooth. Clypeus produced medially, forming an obtuse angle.

Pronotal disc trapezoidal; anterior half with large irregular punctures; posterior half smooth, shining, and impunctate in most part. Mesonotum smooth and shining, with only a few shallow small punctures. Propodeal disc wider than long; lateral and transverse carinae present; median carina reaching the transverse carina; basal triangular area coarsely reticulate; sublateral area with transverse rugae.

Postmarginal vein of forewing short, 0.33 times length of pterostigma; pterostigma large and wide, 2.4 times as long as wide; discoidal vein arising well down on transverse median vein.

Specimens examined. 1 male, Mt Longwangshan, Zhejiang Province, 31. viii. 1993, Y. Ma leg.; 1 male, Mt Jiulongshan, Zhejiang Province, 18. viii. 1994, X.-

X. Chen leg.; 1 male, Mt Wuyishan, Fujian Province, 8. ix. 1986, J.-S. Wang leg.

Distribution. China (Zhejiang, Fujian), Japan (the Ryukyus).

A key to the Chinese species of *Apenesia*

- 1. Mandible with a single tooth (apical projection); postmarginal vein shorter than the length of pterostigma; discoidal vein arising well down on transverse median vein 2
- Mandible with 3–5 teeth including apical projection; postmarginal vein longer than the length of pterostigma; discoidal vein interstitial with median vein or arising slightly down on transverse median vein 5
- 2. Head with large relatively dense punctures and smooth and shining interspaces 3
- Head with small shallow sparse punctures and coarsely microreticulate and opaque interspaces 4
- 3. Propodeum without transverse vein; median vein of propodeal disc strong, present at anterior 4/5 of disc *A. sinensis* sp. nov.
- Propodeum with transverse vein; median vein of propodeal disc weak, present at anterior half of disc *A. formosimonticola* Terayama, 1996
- 4. Mandible without longitudinal ruga *A. okinawensis* Terayama, 1999
- Mandible with 2 straight longitudinal rugae *A. pingtungensis* Terayama, 1996
- 5. Mandible with 5 teeth 6
- Mandible with 4 or 3 teeth 8
- 6. Eye with short erect hairs; small species, total body length less than 3 mm *A. takasago* Terayama, 1996
- Eye without hairs; larger species, total body length more than 5 mm 7

- 7. Head almost as long as wide; mandible with small basal 2nd tooth ... *A. tianmuensis* sp. nov.
- Head 1.2 times as long as wide; basal 2nd tooth of mandible subequal in size to the basal most tooth *A. chitouensis* Terayama, 1996
- 8. Eye with short erect hairs 9
- Eye without hairs *A. clara* sp. nov.
- 9. Mandible with 3 teeth; pronotal disc with a transverse groove at posterior portion *A. liukueiensis* Terayama, 1996
- Mandible with 4 teeth; pronotal disc without transverse groove 10
- 10. Anterior margin of clypeus rounded *A. elegans* Terayama, 1999
- Anterior margin of clypeus convex with an obtuse angle medially *A. meifuiae* Terayama, 1996

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