

Review of *Prosaspicera* Kieffer (Hymenoptera: Figitidae: Aspicerinae) with description of two new species in China

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Abstract: Two new species, *Prosaspicera tianmunensis* sp. nov. and *P. fujianensis* sp. nov. in the genus *Prosaspicera* Kieffer, 1907, are described. *P. confusa* Ros-Farré, 2006 and *P. orientalis* Pujade-Villar, 2006 are reported from China for the first time. A key to species of *Prosaspicera* in China is also provided. The type specimens are deposited in the Insect Collection of Zhejiang A & F University.

Key words: Apocrita; Cynipoidea; taxonomy; key

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中国剑盾狭背瘿蜂属二新种记述（膜翅目：环腹瘿蜂科：狭背瘿蜂亚科）

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摘要: 记述剑盾狭背瘿蜂属 *Prosaspicera* Kieffer 2 新种: 天目剑盾狭背瘿蜂 *P. tianmunensis* sp. nov. 和福建剑盾狭背瘿蜂 *P. fujianensis* sp. nov. 以及 2 中国新记录种: 异剑盾狭背瘿蜂 *P. confusa* Ros-Farré, 2006 和东方剑盾狭背瘿蜂 *P. orientalis* Pujade-Villar, 2006, 提供了中国该属的分种检索表。模式标本保存于浙江农林大学昆虫标本室。

关键词: 细腰亚目; 瘿蜂总科; 分类; 检索表

Introduction

The genus of *Prosaspicera* was established by Kieffer in 1907 with *Prosaspicera esifera* Kieffer as the type species. *Prosaspicera* is easily recognized from other genera of Aspicerinae (*Aspicera* and *Paraspicera*) by following the key characters: scutellar spine usually long and slender, vertex with median vertical groove on the posterior area, eyes bounded by a strong continuous carina.

The genus *Prosaspicera* (Figitidae: Aspicerinae) is a small genus with 30 species known widely distributed across the Nearctic, Neotropical, Afrotropical and Oriental Regions. Most

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species in this genus are in the Nearctic and Neotropical Regions, but some species also extend to the Eastern Palaearctic Regions. *Prosaspicera costulata* Ros-Farré, 2006; *P. validispina* Kieffer, 1901; *P. confusa* Ros-Farré, 2006; *P. orientalis* Pujade-Villar, 2006; *P. pseudoclavata* Ros-Farré, 2006 and *P. splendida* Ros-Farré, 2006 are found in China, Myanmar or Japan (Ros-Farré 2006). Only 2 species, *P. costulata* Ros-Farré and *P. validispina* Kieffer have been described from Hainan and Taiwan in China, respectively (Ros-Farré & Pujade-Villar 2006). Some species of *Prosaspicera* attack larvae in the family Syrphidae (Diptera) but the biology of the majority of *Prosaspicera* species is unknown (Benoit 1956; Ros-Farré & Pujade-Villar 2006).

In this paper, four species are identified with two new species, *P. tianmunensis* sp. nov. and *P. fujianensis* sp. nov., described and illustrated. *P. confusa* Ros-Farré, 2006 and *P. orientalis* Pujade-Villar, 2006 are reported for the first time from China. A key to 6 Chinese species of the genus *Prosaspicera* is also provided.

Material and methods

All species were examined with a Nikon SMZ800 stereomicroscope. Photographs were obtained using a Nikon AZ100 with Helicon focus 5.2 software.

The sculpture terminology comes from Harris (1979). POL (post-ocellar distance); OOL (ocellar-ocular distance); LOL (anterior and posterior ocellar distance) are based on Melika (2006).

Description

Key to species of *Prosaspicera* Kieffer from China

1. Scutellar spine rather short, about 0.3–0.8 times as long as the length of scutum (Figs. 2C, 4E)2
- Scutellar spine long, about 1.1–1.3 times as long as the length of scutum (Fig. 1C)3
2. Lateral surface of pronotum and gena with strong carinae, and without microsculpture. China (Hainan)
..... *P. costulata* Ros-Farré
- Lateral surface of pronotum and gena with few weak carinae or without carinae4
3. Scutellar fovea rather large or subsquared, weakly rugose inside (Fig. 1C); lateral surface of pronotum with transverse carinae dorsally in lateral view (Fig. 1D). China (Zhejiang) *P. tianmunensis* sp. nov.
- Scutellar fovea small, smooth inside; lateral surface of pronotum various5
4. Occiput without transverse carina, but with longitudinal carina on each side of median vertical groove (Fig. 2A). China (Fujian) *P. fujianensis* sp. nov.
- Occiput with one or two transversal carina (Fig. 3A). China (Ningxia); Japan *P. orientalis* Pujade-Villar
5. Lateral surface of pronotum with strong transverse carina; scutellar foveae without posterior margin. China (Taiwan) *P. validispina* Kieffer
- Lateral surface of pronotum with curling carina; scutellar foveae with posterior margin (Figs. 4C, E). China (Zhejiang, Fujian, Yunnan); Burma *P. confuse* Ros-Farré

1. *Prosaspicera tianmunensis* sp. nov. (Fig. 1)

Female 3.7 mm. Male 3.5 mm.

Coloration. Head black brown or black. Pronotum and mesoscutum black. Scutellum

black. Scutellar fovea black brown. Antennae black brown. Legs black brown. Veins of forewing brown.

Head (Figs. 1A, B). Frons coriaceous, with strong frontal carina and lateral frontal carina. Gena coriaceous, with weak transverse carina. Vertex coriaceous, with weakly rugose. POL : LOL : OOL = 2 : 1 : 1. Medial vertical groove strongly present, and smooth. Occiput coriaceous, with few transverse carinae.

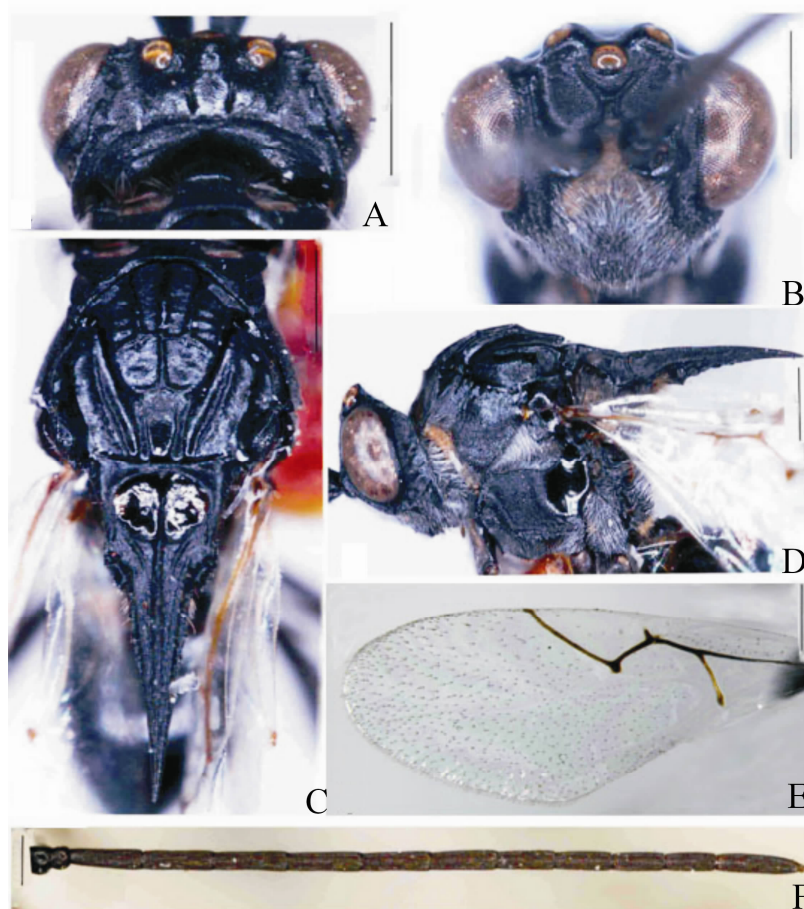


Figure 1. *Prosaspicera tianmunensis* sp. nov. A. Occiput, dorsal view; B. Head, front view; C. Mesosoma, dorsal view; D. Mesosoma, lateral view; E. Forewing; F. Antenna. Scale bars = 0.5 mm (A–E); 0.1 mm (F).

Mesosoma (Figs. 1C, D). Lateral surface of pronotum with a few transverse carina basally and dorsally. Antero-admedial line prominent, reaching 1/3 the length of mesoscutum. Scutum coriaceous, 0.8 times as long as wide. Median ridge prominent, divided before the median mesoscutal furrow. Median mesoscutal furrow present and coriaceous, but end of median mesoscutal furrow obscure. Notauli coriaceous, complete and smooth inside, area between notauli and median ridge with transverse carina. Scutellum coriaceous, with few conspicuously longitudinal carinae. Scutellum foveae deep, rather big or subquadrate, weakly rugose inside and with posterior margin; interfoveal line prominent and reaching first 1/4 of the scutellar spine. Scutellar spine long and scutellar disc wide. Mesopleura strongly

coriaceous, posterior 1/3 smooth.

Wings (Fig. 1E). Hyaline and membranous. Radial cell 2.0 times as long as wide; R1 short, but distinctly present. Rs straight or slightly curved.

Antenna (Fig. 1F). ♀. Filiform, as long as body length. Relative lengths of antennal segments from F1 to F11 as 3 : 3 : 3.5 : 3 : 3 : 3 : 2.8 : 2 : 4 : 1.5 : 4. ♂. Filiform. F1 very weakly excavated.

Male. All characters are similar to female except the end of median ridge strongly prominent in lateral view.

Biology. Unknown.

Holotype. ♀, **China:** Zhejiang: Lin'an, Tianmushan, 20-VII-1998, Mingshui ZHAO.

Paratypes. 1♀, Lin'an, Tianmushan, 25-VII-2011, Huayan CHEN; 1♀, Lin'an, Tianmushan, 31-V-1998, Xuexin CHEN; 1♀, Lin'an, Tianmushan, 04-VI-1994, Xuexin CHEN; 1♂, Lin'an, Tianmushan, 20-VII-1998, Mingshui ZHAO; 1♂, Lin'an, Tianmushan, 29-VII-1984, Xiaoqing WU; 1♂, Lin'an, Tianmushan, 15-VII-2013, Juan WANG; 1♂, Lin'an, Tianmushan, 01-VII-2001, Meihua PIAO.

Distribution. China (Zhejiang).

Diagnosis. This new species is similar to *P. validispina* Kieffer, 1910 and *P. confusa* Ros-Farré, 2006 with the scutellar spine long and frontal carina strong. But this new species can be separated from the latter two by the following characters: the end of median mesoscutum furrow blurred, lateral surface of pronotum with few transverse carinae basally and dorsally, scutellar foveae rather big or subsquared, weakly rugose inside.

Etymology. This new species is named after the collection location of the type specimens: Tianmushan in Zhejiang, China.

2. *Prospicera fujianensis* sp. nov. (Fig. 2)

Female 2.8 mm. Male unknown.

Coloration. Head black. Pronotum black brown or brown. Scutum black brown. Scutellum brown or pale brown, but scutellum fovea brown or blackish brown. Vein of forewing yellowish. Antenna brown.

Head (Figs. 2A, B). Frons coriaceous, frontal carina blurred but visible. Lateral frontal carina prominent. Gena coriaceous, round behind eyes and with strongly transverse carina. Median vertical groove weakly present, with one or two longitudinal carinae on each side. Vertex coriaceous, weakly rugose. POL : LOL : OOL = 2 : 1 : 1.

Mesosoma (Figs. 2C, D). Lateral surface of pronotum coriaceous, with transverse carinae. Scutum coriaceous, 0.7 times as long as wide. Antero-media line prominent, reaching 1/2 the length of mesoscutum. Median ridge strongly prominent and reaching 1/3 or 1/2 the length of mesoscutum. Median mesoscutal furrow expanding, smooth inside. Notauli wide but narrowing at anterior, with slightly transverse carina inside. Area between notauli and median ridge with transverse carinae. Parascutal sulcus coriaceous and wide. Scutellum coriaceous, median carina reaching 1/3 or 1/2 the length of scutellum. Scutellar foveae smooth inside, without posterior margin. Mesopleura coriaceous, obviously coarse on anterior 1/2.

Wings (Fig. 2E). Hyaline and membranous. Radial cell 2.0 times as long as wide. R1 short, but distinctly present. Rs straight or slightly curved.

Antenna (Fig. 2F). Filiform. Relative lengths of antennal segments from F1 to F11 as 2 :

2 : 2 : 2 : 2 : 1.8 : 1.5 : 1.5 : 1.5 : 1.5 : 3.

Holotype. ♀, **China:** Fujian, X-1989, Zhishan WU.

Distribution. China (Fujian).

Diagnosis. *P. fujianensis* sp. nov. is similar to *P. breispinosa*. They both have a short scutellar spine, scutellar foveae smooth inside and without posterior margin. But it can be easily differentiated from the latter by vertex shallowly rugose but *P. breispinosa* deeply incised on the vertex. In *P. fujianensis* sp. nov., the occipital carina is rounded behind dorsal 1/3 of eye and medial vertical groove weakly present; notauli with weak transverse carina.

Etymology. This new species is named after Fujian, the collection location of the type specimens.

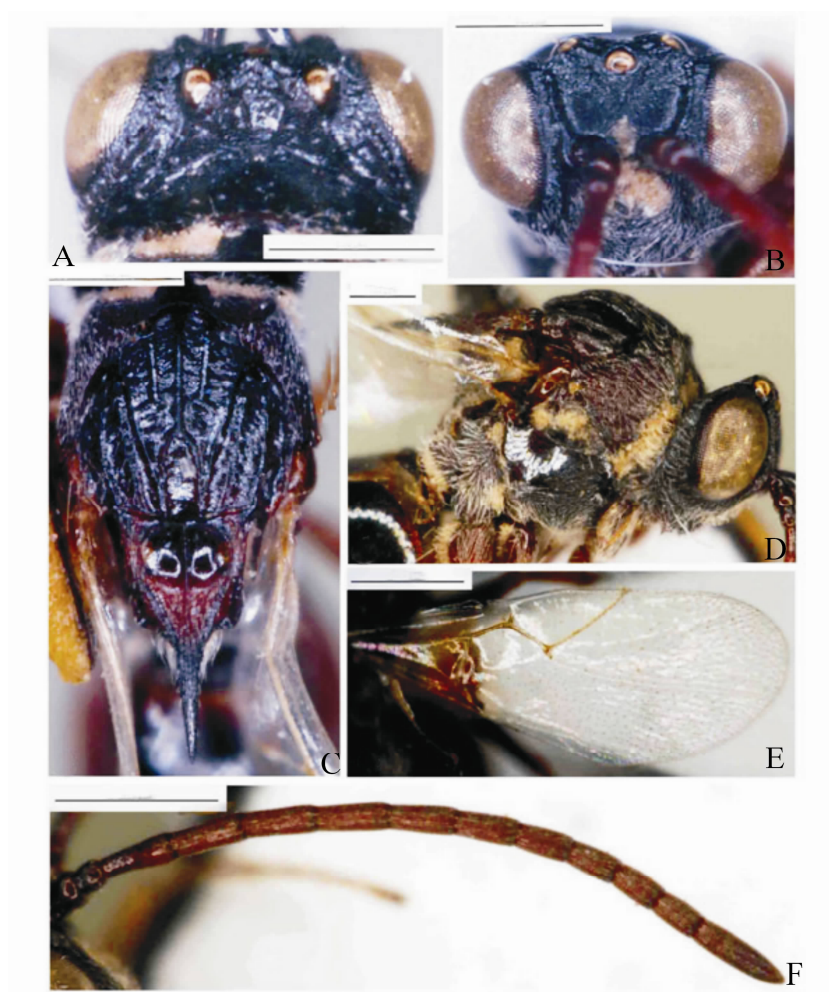


Figure 2. *Prosaspicera fujianensis* sp. nov. A. Occiput, dorsal view; B. Head, front view; C. Mesosoma, dorsal view; D. Mesosoma, lateral view; E. Forewing; F. Antenna. Scale bars = 0.5 mm (A–C, E, F); 0.2 mm (D).

3. *Prosaspicera confusa* Ros-Farré, 2006 (Fig. 3), new record to China

Prosaspicera confusa Ros-Farré, 2006. Zootaxa, 1379: 28.

Female 3.3 mm. Male unknown.

Coloration. Head and mesosoma black or black brown. Vein of forewing black brown. Femur and metatibia brown. Antenna light brown.

Head (Figs. 3A, B). Frons coriaceous, with strong frontal carina. Occiput coriaceous, with one or two transverse carinae. Gena coriaceous, expanded, with weak broadly transverse carina and round behind eyes. Vertex coriaceous, weakly rugose and with one longitudinal carina on each side of median vertical groove. POL : LOL : OOL = 2 : 1 : 1.

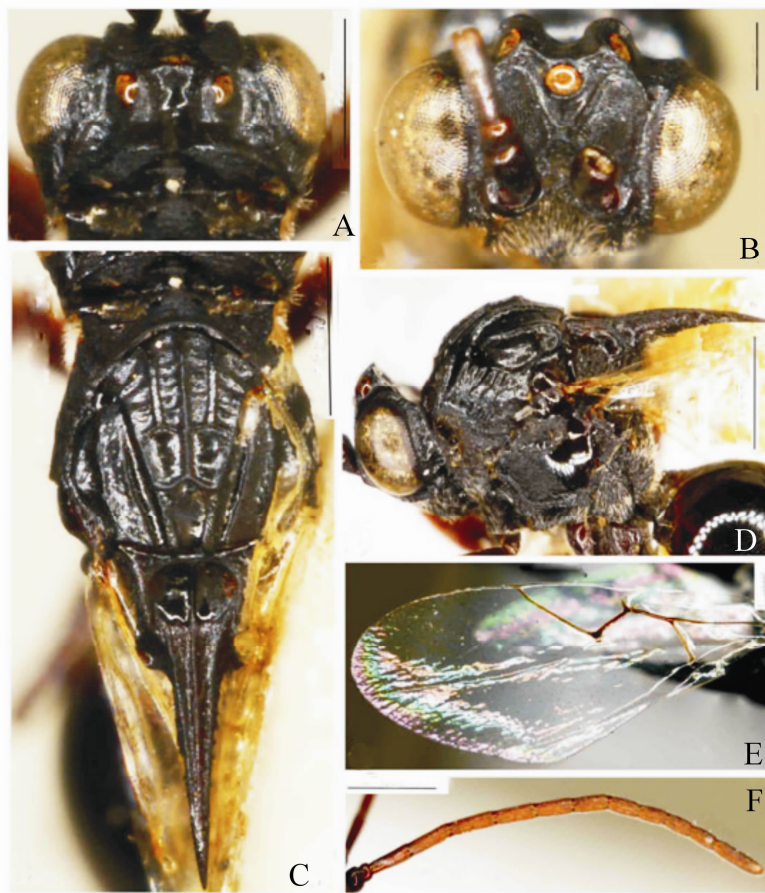


Figure 3. *Prosaspicera confusa* Ros-Farré. A. Occiput, dorsal view; B. Head, front view; C. Mesosoma, dorsal view; D. Mesosoma, lateral view; E. Forewing; F. Antenna. Scale bars = 0.5 mm (A, C, D, F); 0.2 mm (B); 0.1 mm (E).

Mesosoma (Figs. 3C, D). Lateral surface of pronotum coriaceous, with conspicuous sinuate carina. Scutum coriaceous, median ridge and antero-median line prominent. Median ridge complete, and the end of median mesoscutal furrow strongly prominent in lateral view. Antero-median line prominent, parallel in posterior, reaching 1/3 or 1/2 the length of mesoscutum. Median mesoscutal furrow coriaceous and smooth. Notauli coriaceous, smooth inside and narrowing toward anterior. Area between notauli and antero-median line with transverse carinae. Parascutal sulcus coriaceous and expanded. Scutellar foveae smooth, 0.7 times as long as wide; interfoveal carinae reaching 3/4 length of scutellar. Mesopleura strongly

coriaceous on posterior 1/3 smooth.

Wings (Fig. 3E). Hyaline and membranous. Radial cell 2.0 times as long as wide. R1 short, but present. Rs straight or slightly curved.

Antenna (Fig. 3F). Filiform, 13-segmented. Relative lengths of antennal segments from F1 to F11 as 2 : 2 : 3 : 3 : 2.5 : 2.5 : 2 : 2 : 1.8 : 2 : 3.7.

Biology. Unknown .

Distribution. China (Zhejiang, Fujian, Yunnan); Myanmar.

Specimens examined. China: 1♀, Zhejiang, Tianmushan, 02-VII-2013. Juan WANG; 1♀, Zhejiang, Qingyuan, 25-VII-1985, Quancong WU; 2♀, Fujian, Wuyishan, 14-VII-1994, Zaifu XU & Xuexin CHEN; 1♀, Fujian, 21-VII-1988, Naiquan LIN; 1♀, Fujian, Liancheng, 27-VIII-1988, Jian HUANG; 1♀, Fujian, 06-VIII-1983, Yun MA; 1♀, Yunnan, Xishuangbanna, 20-III-1957, Lingchao ZANG.

4. *Prosaspicera orientalis* Pujade-Villar, 2006 (Fig. 4), new record to China

Prosaspicera orientalis Pujade-Villar, 2006, Zootaxa, 1379: 41–42.

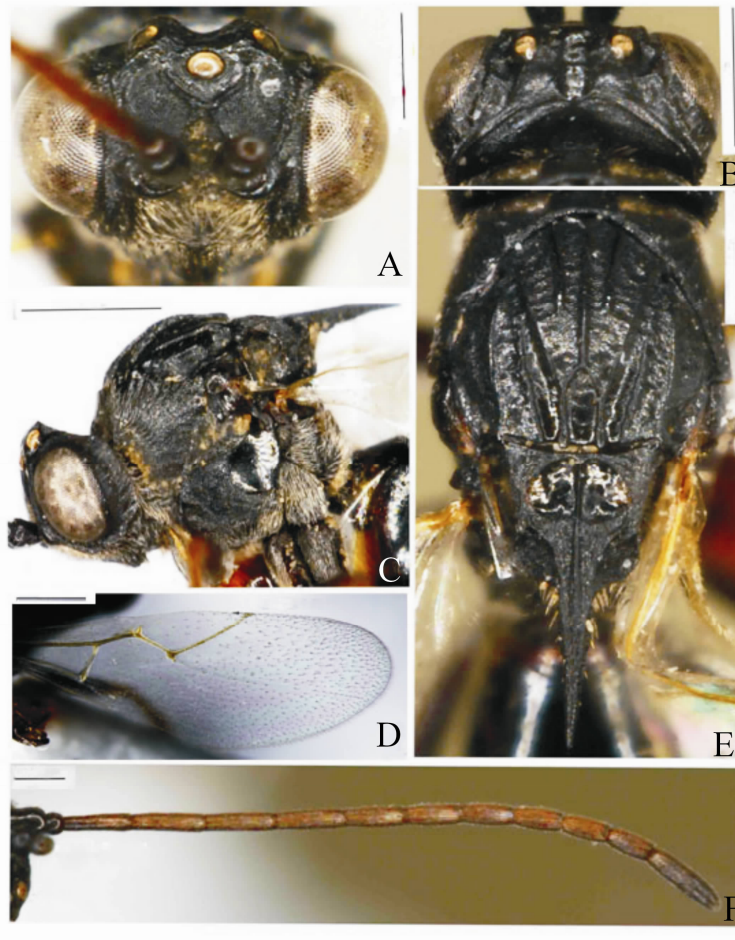


Figure 4. *Prosaspicera orientalis* Pujade-Villar. A. Head, front view; B. Head, dorsal view; C. Mesosoma,

lateral view; D. Forewing; E. Mesosoma, dorsal view; F. Antenna. Scale bars = 0.5 mm (A–E); 0.1 mm (F).

Female 3.3 mm. Male unknown.

Coloration. Head and mesosoma black. Antenna blackish brown. Vein of forewing brownish yellow.

Head (Figs. 4A, B). Frons coriaceous, with strong frontal carina. Area between lateral of frontal and eyes with weakly transverse carinae. Vertex coriaceous, weakly rugose, and with a longitudinal carina on each side of median vertical groove. POL : LOL : OOL = 2 : 1 : 1. Occiput coriaceous, with one or two weak transverse carinae. Medial vertical groove present and conspicuous. Gena coriaceous, expanded and with strongly transverse carinae.

Mesosoma (Figs. 4C, E). Lateral surface of pronotum coriaceous, with strong carina in dorsal half. Median ridge prominent, not divided before median mesoscutal furrow, reaching 2/3 the length of mesoscutum. Antero-median line conspicuous, parallel, reaching 1/3 or 1/2 the length of mesoscutum. Median mesoscutal furrow coriaceous, smooth centrally. Notauli narrow, coriaceous and with weakly transverse carina at margin. Area between notauli and median ridge with strongly transverse carinae. Scutellum short, 0.8 times as long as length of scutum. Scutellum foveae round, coriaceous, without posterior margin. Scutellum spine with one or two longitudinal carinae on each side of median carinae; interfoveal line reaching last 1/3 the length of spine. Mesopleura coriaceous, obviously coarse on anterior 1/2.

Wings (Fig. 4D). Hyaline and membranous. Radial cell 0.8 times longer than wide. R1 short, but present. Rs straight or slightly curved.

Antenna (Fig. 4F). Filiform. Relative lengths of antennal segments from F1 to F11 as 2 : 2.7 : 2.6 : 2.6 : 2 : 2 : 2 : 2 : 2 : 2 : 3.5.

Biology. Unknown.

Distribution. China (Liaoning, Ningxia, Zhejiang); Japan.

Specimens examined. 4♀, **China:** Ningxia, Liupanshan, 09–14-VII-2009, Guangyue WANG; 1♀, Liaoning, Laotudingzi, 16–19-VII-2011, Huayan CHENG; 1♀, Zhejiang, Deqing, 27-V-1996, Junhua HE.

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