



***Kryptosega* Kimsey, 1986 (Hymenoptera, Chrysididae) is newly recorded genus from Oriental Region, with description of one new species**

SHUANG-SHUANG LI¹ & ZAI-FU XU^{1,2}

¹Department of Entomology, South China Agricultural University, Guangzhou 510640, China

²Corresponding author. E-mail: xuzai fu@scau.edu.cn

The genus *Kryptosega* Kimsey 1986 was described in the subfamily Amiseginae with two new species, *K. anomala* Kimsey and *K. kaindeana* Kimsey from New Guinea (Kimsey 1986). Later third species *K. mweramwera* Villemant was described from Vanuatu (Villemant *et al.* 2012). The genus resembles *Indothris* Krombein, 1957 by having head with occipital carina, mesopleuron without scrobal sulcus, and hind coxa without dorsobasal carina, but differs from the latter by having metanotum without median enclosure, and propodeum rounded posterolaterally (Kimsey & Bohart 1991). Amiseginae are the parasites of the eggs of walking stick insects (Phasmida) and can be found in the low vegetation or leaf litter (Kimsey & Bohart 1991). However, the biology of *Kryptosega* is still unknown (Villemant *et al.* 2012).

Materials and methods

In the last twenty years more than 700 specimens of Amiseginae were collected by sweeping net or yellow pan trap in China. Among them we discovered two males of new species of *Kryptosega*, which described herein.

The specimens were examined and described under stereomicroscope Leica MZ125. Photographs were taken with a digital camera CoolSNAP attached to Zeiss stereomicroscope Stemi 2000-CS. Images were processed using Image-Pro Plus software.

Morphological terminology follows Kimsey (1986) and Kimsey & Bohart (1991). Abbreviations used in the descriptions as follows: **F1, F2, F3, etc.** = flagellomeres 1, 2, 3, etc.; **MOD** = midocellus diameter; **MOL** = the shortest distance between median ocellus and compound eye; **MS** = malar space, the shortest distance between base of mandible and lower margin of compound eye; **OOL** = the shortest distance between posterior ocellus and compound eye; **POL** = the shortest distance between posterior ocelli; **S** = scape; **SD** = subantennal distance, the distance between a line drawn across lower edge of antennal sockets and clypeal apex; **T2, T3, T4, T5** = metasomal terga 2, 3, 4, 5. Holotype and paratype of new species are deposited in the Hymenoptera Collection of South China Agricultural University, Guangzhou (SCAU).

Genus *Kryptosega* Kimsey, 1986

Kryptosega Kimsey 1986: 160. Type species: *Kryptosega anomala* Kimsey 1986, by original designation.

Kryptosega Kimsey: Kimsey & Bohart 1991: 117; Villemant *et al.* 2012: 262.

Diagnosis. *Male.* Antennae 13-segmented; flagellar segments cylindrical, F2–F9 at least 2 × as long as wide; frons without median carina; malar space with vertical sulcus; occipital carina present; pronotum with median groove posteriorly; mesopleuron without omaulus or scrobal sulcus; metanotum about 0.8 × as long as mesoscutellum; propodeum with three transverse carinae dorsally, anterior two touch each other medially forming depressed X-shape; hind coxa without dorsobasal carina; tarsal claw tridentate; vein *Rs* and pigmented remnant forming even curve, remnant usually curved away from costal margin. *Female.* Unknown.

Distribution. Oriental Region (China); Australian Region (Papua New Guinea, Vanuatu) (Kimsey & Bohart 1991; Villemant *et al.* 2012).

Species included. *Kryptosega anomala* Kimsey 1986 (New Guinea), *K. kaindeana* Kimsey 1986 (New Guinea), *K. mweramwera* Villemant, 2012 (Vanuatu), and *Kryptosega sinensis* Li & Xu, **sp. nov.** (Oriental China).

Key to species of the genus *Kryptosega*

- 1. Body with metallic tints dorsally..... 2
- Body without metallic tints dorsally 3
- 2. Body length 2.5 mm; flagellum dark brown; scapal basin impunctate and highly polished; metanotum distinctly shorter than mesoscutellum *K. kaindeana* Kimsey
- Body length 3.2–4.2 mm; flagellum orange brown; scapal basin with polished median stripe and weak striation; metanotum distinctly longer than mesoscutellum *K. mweramwera* Villemant
- 3. Body length 3.0 mm; F1 1.2 × as long as F2; scapal basin flattened and impunctate *K. anomala* Kimsey
- Body length 5.3–6.4 mm; F1 1.6 × as long as F2; scapal basin shallow, with polished median stripe and coarse transverse lateral ridge..... *K. sinensis* sp. nov.

***Kryptosega sinensis* Li & Xu, sp. nov.**

(Figs 1–7)

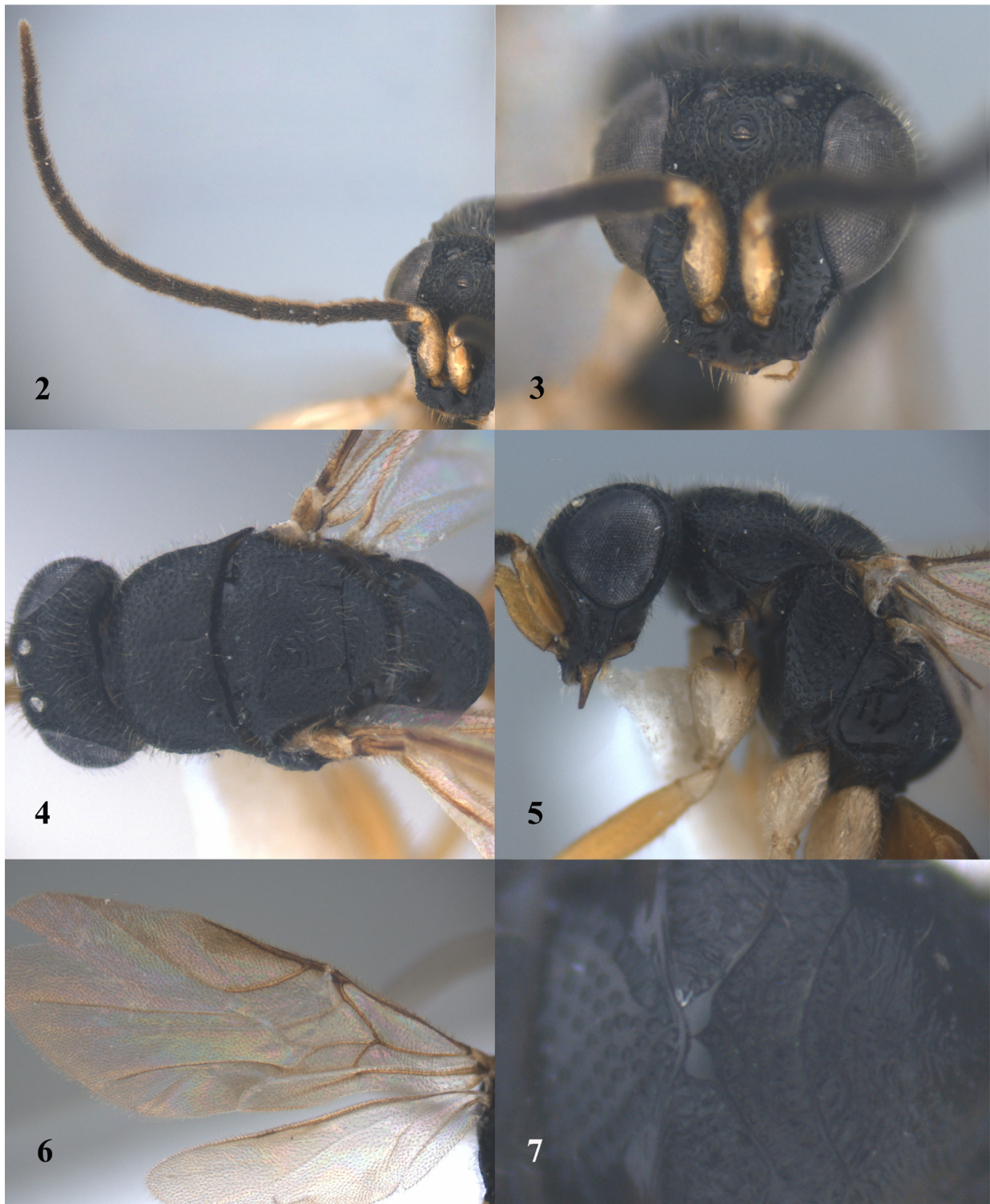
Material examined. Holotype: ♂, CHINA: Yunnan, Gejiu, Lvchun (22°54'01"N 103°13'49"E), 25.VII.2003, Qiang Li (SCAU). Paratype: 1♂, CHINA: Hainan, Wuzhishan, Shuiman Town (18°52'55"N 109°40'01"E), 15–18.V.2007, Jie Zeng (SCAU).

Diagnosis. Male. Body without metallic tints dorsally; F1 1.6 × as long as F2; scapal basin shallow, with polished median stripe and coarse transverse ridges. Female unknown.

Description. Holotype. *Male.* Body length 5.3 mm; fore wing length 5.2 mm; MOL=2.0 MOD; MS=2.2 MOD; OOL=2.3 MOD; POL=0.8 MOD; SD=1.3 MOD; ratios S:F1:F2:F3=1.5:1.9:1.2:1.1.



FIGURE 1. *Kryptosega sinensis*, ♂, holotype, habitus, lateral view.



FIGURES 2–7. *Kryptosega sinensis*, ♂, holotype. 2. Antenna; 3. Head, frontal view; 4. Head and mesosoma, dorsal view; 5. Head and mesosoma, lateral view; 6. Fore and hind wings; 7. Propodeum, dorsal view.

Head. Frons and vertex with punctures 0.3 MOD apart; scapal basin shallow, with polished median stripe and coarse transverse ridges laterally; head as long as wide; eye not encircled by carina; MS less than half of eye height; ocellar triangle obtuse isosceles; clypeus smooth and rounded apically; F1 4.8 × as long as wide; F2 3.0 × as long as wide; F3 2.8 × as long as wide; F11 5.5 × as long as wide.

Mesosoma. Pronotum, mesoscutum, mesoscutellum and metanotum with punctures 0.6–1.2 PD apart; pronotum 0.8 × as long as mesoscutum; notauli with posterior third distinct and anterior part faint; mesopleuron with punctures 0.6–1.2

PD apart; metanotum triangular, medially $0.9 \times$ as long as mesoscutellum, enclosure with reticulo-rugose; metapleuron depressed, mostly polished and almost impunctate; propodeum rounded posteriorly in dorsal and lateral view, with three transverse carinae; anterior two carinae touch each other medially forming X-shape on dorsal surface; posterior surface with irregular rugosity, separated from dorsal surface by posterior transverse carina.

Metasoma. T2 $0.8 \times$ as long as broad anteriorly; ratios T3:T4:T5=4:1:7.

Color. Antenna blackish-brown, with scape and pedicel yellowish-brown; mandible yellowish-brown, with apex dark reddish-brown; head and mesosoma black, without metallic tints dorsally; coxae and trochanters whitish; femora, fore and mid tarsi yellowish; hind tarsi brown; metasoma brown to blackish-brown.

Variation. Paratype. Body length 6.4 mm. Fore wing length 6.2 mm. Other characteristics similar to holotype.

Female. Unknown.

Distribution. China (Yunnan, Hainan).

Etymology. The specific name is related with the type locality, China.

Remarks. *Kryptosega sinensis* Li & Xu, **sp. nov.** is the first species of the genus recorded from Oriental Region and China.

Acknowledgements

We are indebted to A. Lelej and two anonymous reviewers for their useful suggestions to improve the manuscript. The project was partly supported by the National Basic Research Program of China (No. 2013CB127600) and the National Natural Science Foundation of China (No.30770265).

References

- Kimsey, L.S. (1986) New species and genera of Amiseginae from Asia. *Psyche*, 93, 153–165.
<http://dx.doi.org/10.1155/1986/31631>
- Kimsey, L.S. & Bohart, R.M. (1991 ["1990"]) *The Chrysidid Wasps of the World*. Oxford University Press, New York, I–IX + 652 pp.
- Krombein, K.V. (1957) A generic review of the Amiseginae, a group of phasmatid egg parasite, and notes on the Adelphinae. *Transactions of the American Entomological Society*, 82, 147–215.
- Villemant, C., Yoshida, T. & Muller, F. (2012) A new species of *Kryptosega* Kimsey, 1986 (Insecta, Hymenoptera, Chrysididae, Amiseginae) from Vanuatu. *Zoosystema*, 34 (2), 261–266.
<http://dx.doi.org/10.5252/z2012n2a4>