Entomotaxonomia (2012) 34(2): 215–221 ISSN 1000–7482

A new species of *Catonidia* Uhler (Hemiptera: Fulgoromorpha: Achilidae) from China

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Abstract: One new species of the genus *Catonidia* Uhler, 1896 (Hemiptera: Fulgoromorpha: Achilidae: Achilini), *C. choui* sp. nov., from China is described and illustrated. A checklist and a key to the species of this genus worldwide are presented.

Key words: Hemiptera; Achilidae; *Catonidia*; new species; China
CLC number: Q969.36^{+}4.2 **Document code**: A
Article ID: 1000-7482(2012)02-0215-07

中国广颖蜡蝉属一新种记述（半翅目：蜡蝉总科：颖蜡蝉科）

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摘要：记述颖蜡蝉科 Achilidae 广颖蜡蝉属 *Catonidia* 1 新种：周氏广颖蜡蝉 *C. choui* sp. nov.，给出了该属物种的名录及分类检索表。模式标本存放于贵州大学昆虫研究所。

关键词：半翅目；颖蜡蝉科；广颖蜡蝉属；新种；中国

Introduction

The planthopper genus *Catonidia* (Hemiptera: Fulgoromorpha: Achilidae: Achilini) was established by Uhler (1896) for *Catonidia sobrina* Uhler, 1896 from Japan. The genus is distributed in the Oriental Region with the following eight species: *C. sobrina* Uhler, 1896 (China, Japan), *C. wuyishanana* Wang & Huang, 1990 (China), *C. fujianensis* Wang & Huang, 1990 (China), *C. tibetensis* Wang & Huang, 1991 (China), *C. guadunensis* Wang & Huang, 1991 (China), *C. emeiensis* Wang & Huang, 1991 (China), *C. lii* Chen & He, 2009 (China), and *C. daozhenensis* Chen & He, 2009 (China). All species within the genus are recorded from China, with four recorded as pests of fruit trees (Wang *et al.* 1990; Wang *et al.* 1991). It is easy to distinguish the genus *Catonidia* from other achilids based on the shape of aedeagal sheath being extremely developed (Chen & He 2009).

In this paper, one new species is described based on specimens collected from Guizhou

Received date: 29 Mar. 2012
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Province, China. A checklist and a key to the species in this genus worldwide are presented.

Material and methods

Morphological techniques and terminology follow Fennah (1950) and Chen *et al.* (1989); male genitalia follows Yang and Chang (2000). The genital segments of the examined specimens were macerated in 10% KOH and drawn from preparations in glycerin jelly with the aid of a Leica MZ 12.5 stereomicroscope. Illustrations were scanned with a Canon CanoScan LiDE 200 and imported into Adobe Photoshop CS3 for labeling and plate composition. Spinal formula means the number of apical spines of the hind tibiae and 1st and 2nd hind tarsomeres. Both types and specimens examined are deposited in the Institute of Entomology, Guizhou University, Guiyang, Guizhou Province, China (IEGU).

Description

Genus *Catonidia* Uhler, 1896

Catonidia Uhler, 1896: 281; Matsumura, 1914: 178; Chou *et al*., 1985: 28; Wang *et al.*, 1990: 120; Emeljanov, 2005: 19; Chen *et al*., 2009: 43.

Type species. *Catonidia sobrina* Uhler 1896: 281, by original designation.

Description. The distinctive characters used by Chen and He (2009) are modified as follows.

Head and thorax. Head including eyes narrower than pronotum (0.55–0.64: 1). Vertex wider at base than long in middle line (2.21–3.54: 1), anterior margin carinate, broadly convex, lateral margins excavate, median carina distinct or obsolete (Fig. 1). Frons slightly convex in profile, lateral margins shallowly convex, carinate, median carina distinct, frons longer in middle line than widest part (1.65–2.0: 1), narrower at base than at apex (0.56–0.85: 1) (Fig. 2). Antennae subglobose. Pronotum longer in middle line than vertex (1.39–3.31: 1), medially and laterally carinate, one complete ridge between eyes and tegula, median carina distinct, lateral carinae not attaining hind margin, posterior margin angularly concave. Mesonotum broad, tricarinate, longer in middle line than vertex and pronotum together (2.56–3.09: 1) (Fig. 1). Forewings longer than widest part (1.96–2.09: 1), anterior margin slightly convex, apical margin deeply rounded, Sc+R and M forking about one-seventh from base, Sc and R forking approximately one-third from base, M forking level to nodal line, Cu1 forking two-fifths from base just distad of union of claval veins, Sc with approximately seven to eight supernumerary branches at margin, R with two branches at apex, M regular with five branches, Cu1a simple, Cu1b with two to three branches (Fig. 4). Hindwings broad, R with two branches, M with four branches, Cu1 with two branches (Fig. 5). Legs slender, post-tibiae unispinose, spinal formula of hind leg 7 (8)–8 (7 or 9)–8 (9).

Male genitalia. Anal segment in dorsal view relatively large, longer than widest part (1.75–2.28: 1), widest at apical third, apical margin broadly rounded or slightly truncate (Fig. 6), in profile subparallel-sided at basal two-thirds, narrowing apically at apical third (Fig. 7). Anal style separated, situated after middle of anal segment, surpassing apical margin of anal segment. Pygofer ring-like, in profile dorsal margin very short, posterior margin with dorsal

third angulated caudad acutely or roundly (Fig. 8), in ventral view medioventral process broad at base, apical margin slightly concave or rounded medially (Fig. 9). Genital styles in lateral view elliptic, apical margin almost rounded, a stout, twisted process rising from apical third of dorsal margin, inner side of base with a finger-like process (Fig. 10). Phallobase in lateral view tubular, dorsal and lateral lobes with anterior portions protruding cephalad into body cavity, apices not separated, lateral lobes broad at middle, narrowing apically, acute at apex, directed dorsad; ventral lobes in lateral view broad at middle, basal portion stalk-like, in ventral view rod-like, single or coupled, apex acute. Suspensoria suspended phallobase with base of anal segment and dorsolateral portions of pygofer. Genital lamina sclerotized. Phallobasal conjunctival processes reaching slightly over anterior margin of pygofer, in dorsal view rod-like, straight, apical half diverging into two branches, apex rounded, each with an ear-like process at lateral margin near apex. Sheath extremely developed, broad, twisted and membranous. Connective relatively short (Fig. 11).

Host plants. Some species were collected from fruit trees such as peach, *Prunus persica*; olive, *Olea europaea*; loquat, *Eriobotrya japonica*, and orange, *Citrus aurantium* (Wang *et al.* 1990; Wang *et al.* 1991).

Distribution. Oriental Region (China, Japan).

Checklist of species of *Catonidia* Uhler, 1896

C. choui Long & Chen, sp. nov.; China (Guizhou)
C. daozhenensis Chen & He, 2009; China (Guizhou)
C. emeiensis Wang & Huang, 1991; China (Sichuan)
C. fujianensis Wang & Huang, 1990; China (Fujian)
C. guadunensis Wang & Huang, 1991; China (Fujian)
C. lii Chen & He, 2009; China (Guizhou)
C. sobrina Uhler, 1896; China (Guangxi) and Japan
C. tibetensis Wang & Huang, 1991; China (Tibet)
C. wuyishanana Wang & Huang, 1990; China (Fujian)

Key to species of the genus *Catonidia* of the world

1. Frons, vertex and anterior areas of pronotum fuscous, hind margin of pronotum yellowish brown or yellowish white (Wang *et al.* 1991: Fig. 3a, b; Chen and He 2009: Figs. 11, 34)……2
-. Frons, vertex and pronotum pale yellow, pale yellowish brown, yellowish brown, or evenly castaneous.……3
2. Clavus of forewing with a large triangular fuscous marking near apex (Wang *et al.* 1991: Fig. 3c) …… ……*C. emeiensis* Wang & Huang
-. Clavus of forewing without above marking (Chen and He 2009: Fig. 13)……*C. lii* Chen & He
3. Forewing with a sinuate, broad, brown stripe from hind margin to apical angle (Chen and He 2009: Fig. 3)…… ……*C. wuyishanana* Wang & Huang
-. Forewing without above stripe ……4
4. Pronotum with anterior margin truncate-convex (Wang *et al.* 1991: Fig. 2a); forewing yellowish white, without any marking (Wang *et al.* 1991: Fig. 2c)……*C. guadunensis* Wang & Huang
-. Pronotum with anterior margin angular or round-convex (Fig. 1; Chou *et al.* 1985: Fig. 25a; Wang *et al.* 1991: Fig. 1a; Chen & He 2009: Figs. 1, 11, 21, 31, 34, 37); forewing with dark markings (Fig. 4; Wang *et al.* 1991: Fig. 1c; Chen and He 2009: Figs. 3, 13, 23, 33, 36, 39)……5
5. Anterior margin of forewing with two fuscous markings near apical angle (Wang *et al.* 1991: Fig.1c)……

……*C. tibetensis* Wang & Huang

-. Anterior margin of forewing without above marking……6

6. Lateral carinae of mesonotum distinct (Fig. 1)……*C. choui* Long & Chen sp. nov.

-. Lateral carinae of mesonotum not distinct or obsolescent partly ……7

7. Forewing with clear small blackish brown or dark markings (Chen & He 2009: Figs. 23, 39)……8

-. Forewing with unclear small dark and pale markings (Chou *et al.* 1985: Fig. 25a)…… *C. sobrona* Uhler

8. Mesonotum with central area fuscous, longer than pronotum about 3.9 times (Wang *et al.* 1990: Fig. 2b); anterior margin of forewing with eight arcuate dark markings (Wang *et al.* 1990: Fig. 2a)……
…… *C. fujianensis* Wang & Huang

-. Mesonotum yellowish brown or yellowish white, longer than pronotum about 5.2 times (Figs. 21, 37); anterior margin of forewing without dark marking (Chen & He 2009: Figs. 23, 39)……
…… *C. daozhenensis* Chen & He

***Catonidia choui* Long & Chen sp. nov.** (Figs. 1–15)

Description. Body length (from apex of vertex to tip of tegmina): male 8.7–9. 3 mm (N = 5), female 8.0–8.7 mm (N = 2); tegmina length: male 7.5–8.2 mm (N = 5), female 6.7–7.5 mm (N = 2).

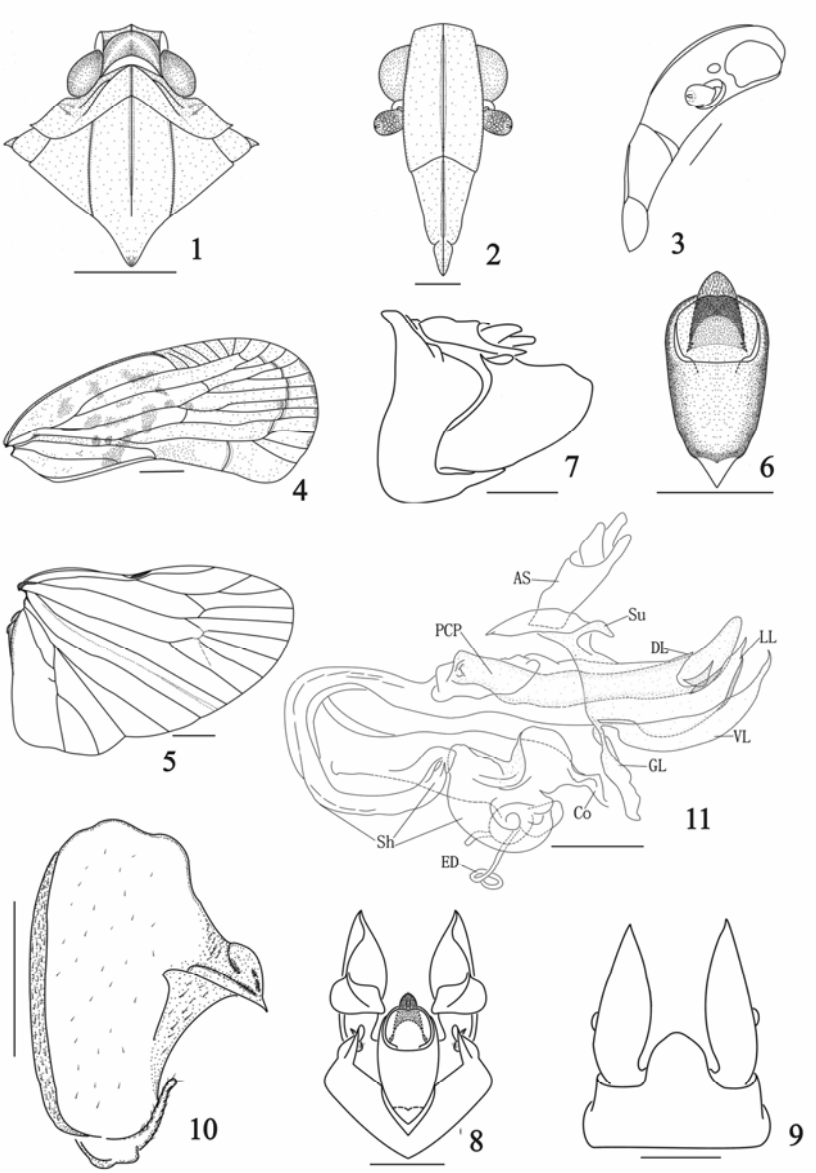
Coloration. General colour pale brown (Figs. 12–15). Vertex, frons, clypeus and genae pale brown. Eyes brown to pale yellowish brown, ocelli reddish brown. Antennae pale brown. Pronotum and mesonotum pale brown. Forewings pale yellowish brown to pale brown, semihyaline, with unclear small blackish brown or dark markings, veins pale brown, apex color dark slightly. Hindwings nearly hyaline, venations pale brown. Legs and abdomen pale brown to brown.

Head and thorax. Head including eyes narrower than pronotum (0.64： 1). Vertex wider than long in middle line (2.59： 1). Frons longer in middle line than widest part (1.65： 1), width at base narrower than width at apex (0.85： 1. Pronotum longer in middle line than vertex (1.31： 1); Mesonotum longer in middle line than pronotum (5.46： 1), longer than pronotum and vertex together (3.09： 1). Forewings longer than widest part (2.09： 1). Spinal formula of hind leg 8–8–8.

Male genitalia. Anal segment longer than widest part about 1.89: 1 in dorsal view, apical margin broadly rounded (Fig. 6), basal margin acute angled. Pygofer in profile dorsal margin distinctly shorter than ventral margin, posterior margin with dorsal two-fifths strongly angulated caudad, in ventral view medioventral process broad at base, lateral margins slightly converging apically, apex protruded subangularly. Genital style longer than width, apical margin broadly rounded with slightly concave bilaterally, stout, twisted process rising from apical third of dorsal margin, inner side of base with slender, finger-like process (Fig. 10). Phallobase tubular, in lateral view broad at base, dorsal lobe stout tooth-like, lateral lobes narrowing apically, lateral margins rolled slightly and then acute at apex, both dorsal and lateral lobes forming a subforcipiform, directed upward; ventral lobe slender, with basal part constricted into a short stalk, apex acute. Genital lamina sclerotized (Fig. 11). Phallobasal conjunctival processes in lateral view strongly constricted at median third, rounded at apex, each with an ear-like lobe near apex (Fig. 11).

Holotype. ♂, **China:** Guizhou, Fanjingshan National Natural Reserve, Jiangkou County, 25-IX-2011, coll. Jiankun LONG. **Paratypes.** 1♂1♀, same locality as holotype, 03-VI-2002, coll. Xiangsheng CHEN; 1♂, **China:** Guizhou, Fanjingshan National Natural Reserve,

Jiangkou County, 25-IX-2011, coll. Jiankun LONG; 1♂, same locality as holotype, 20–22-IX-2011, coll. Zhimin CHANG; 1♂, Leigongshan National Natural Reserve, Leishan County, 02-VII-2011, light lamp, coll. Weibin ZHENG; 1♂, Leigongshan National Natural Reserve, Leishan County, 04-VII-2011, light lamp, coll. Jiankun LONG.



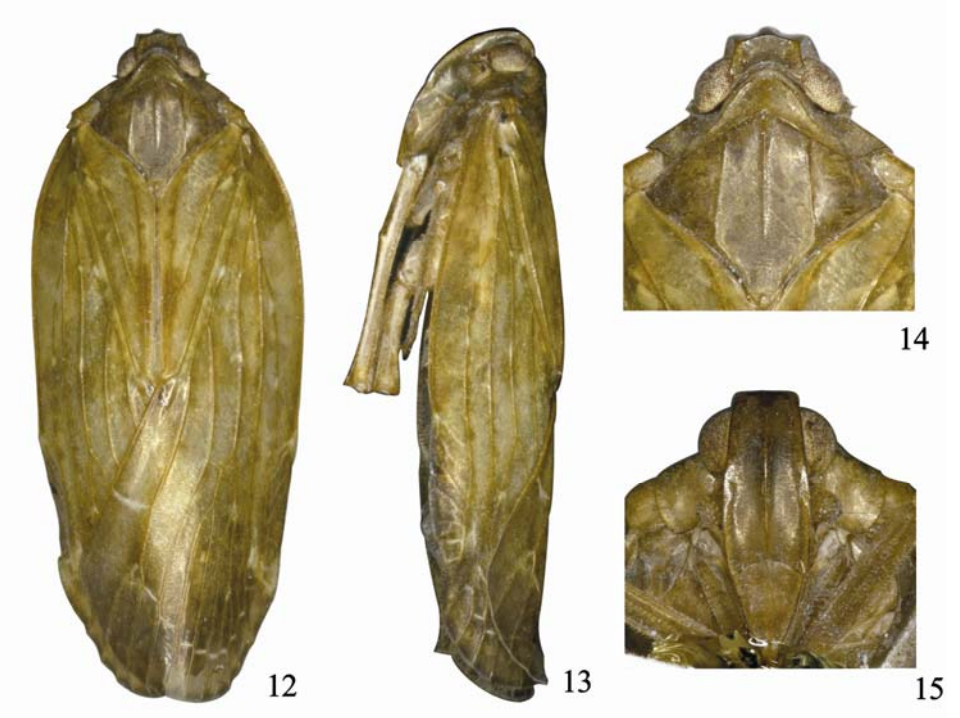
Figures 1–11. *Catonidia choui* sp. nov. 1. Head and thorax, dorsal view; 2. Frons and clypeus, ventral view; 3. Head, lateral view; 4. Forewing; 5. Hindwing; 6. Anal segment, dorsal view; 7. Male genitalia, lateral view; 8. Male genitalia, dorsal view; 9. Male genitalia, ventral view; 10. Left genital style, inner surface; 11. Aedeagus, lateral view. AS: anal segment, Co: connective, DL: dorsal lobe, ED: ejaculatory duct, GL: genital lamina, LL: lateral lobe, PCP: phallobasal conjunctival processes, Sh: sheath, Su: suspensoria, VL: ventral lobe. Scale bars = 1 mm (Figs. 1, 2); 2 mm (Figs. 3, 4) ; 0.3 mm (Figs. 5, 9); 0.5 mm (Figs. 6–8, 10).

Etymology. This new species is named in honour of Prof. Io CHOU, in recognition of his indelible memory and profound recall and upon the 100th anniversary of his birth.

Host plant. Unknown.

Distribution. China (Guizhou).

Remarks. This new species resembles *C. daozhenensis* but differs from the latter in the lateral carinae of mesonotum distinct (not distinct in *daozhenensis*), posterior margin of male pygofer with one broad process (with two small ones in *daozhenensis*), genital style with the inner basal process slender (short in *daozhenensis*), and phallobase with dorsal lobe stout and tooth-like (vestigial in *daozhenensis*).



Figures 12–15. *Catonidia choui* sp. nov. 12. ♂, Habitus, dorsal view; 13. ♂, Habitus, lateral view; 14. Head and thorax, dorsal view; 15. Frons and clypeus.

Acknowledgements

This research was supported by the National Natural Science Foundation of China (31060290, 31093430) and the International Science and Technology Cooperation Program of Guizhou (20107005).

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