

Review of the genus *Holochlora* Stål (Orthoptera, Tettigoniidae, Phaneropterinae) from China

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Abstract

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Key Words

New species
New combination
Katydid

Species of the genus *Holochlora* Stål, 1873 (type species *Holochlora venosa* Stål, 1873) from China are reviewed with necessary illustrations. Four species, which are new to science, are described: *Holochlora cephalica* sp. n., *H. allovenosa* sp. n., *H. minor* sp. n., and *H. unciformis* sp. n.. The females of *H. fruhstoferi* Carl, 1914 and *H. venusta* Carl, 1914 and the male of *H. lancangensis* Liu et al., 1991 are described for the first time. *Holochlora semirotonda* Xia & Liu, 1990 is synonymized with *Holochlora nigrotympana* Ingrisch, 1990. *Holochlora* is identified at species level through the separate keys to male and female of twelve species from China. Distribution map of species of *Holochlora* from China is provided.

Introduction

Stål (1873) erected the genus *Holochlora* for two species *Holochlora fatidica* Stål, 1873 and *Holochlora venosa* Stål, 1873, from which the first species was already removed out and used as type for the genus *Arantia* Stål, 1874. The latter species was later designated as the type of *Holochlora* by Kirby (1906). Many authors (Stål 1874; Brunner von Wattenwyl 1878, 1891, 1893; Rehn 1909; Carl 1914; Hebard 1922; Karny 1923, 1926a, b, 1927, 1931; Ingrisch 1987, 1990; Xia & Liu 1990; Liu et al. 1991; Ingrisch & Shishodia 1998, 2000) described many new species and new subspecies from the Oriental Region. Only *H. biloba* Stål 1874 was described from Madagascar. Some authors (Kirby 1906; Karny 1926a; Liu & Jin 1999; Liu & Kang 2006, 2007a, b) gave several new synonymies. In the latest online catalogue (Eades et al. 2007), 58 species and subspecies were listed under *Holochlora*. But recently, *Holochlora voluptaria* Carl, 1914 was transferred into *Sinochlora* Tinkham, 1945 by Liu & Kang (2007a), and three species of “an *ensis* group” proposed by Karny (1926b) and Ingrisch & Shishodia (1998, 2000) were removed from *Holochlora* to a new genus *Rectimarginalis* Liu & Kang, 2007b.

Bei-Bienko (1954) indicated that species of *Holochlora* probably live on leaf-bearing trees and bushes and are attracted by light in the dark. Detailed descriptions of egg morphology, of nymphs and adults of *Holochlora bilobata* (Karny 1926a), together with descriptions of hosts, annual life history, oviposition, and natural enemies were provided by Lu & Jin (2000). Collecting at low altitudes of Yunnan Province, Hainan Island and Tibet in China, we occasionally found females of *H. allovenosa* sp. n. sitting on surfaces of the leaves with the antennae and fore legs stretched anteriorly. Sometimes we heard one male of *H. lancangensis* Liu et al., 1991, suddenly fly a very short distance out from secondary vegetation, saw it get into the short bushes and seized it by net during the daytime. We could collect more males than females at light at night.

Eight species of *Holochlora* were recorded from China (Jin & Xia 1994). The current study is based on material from five museum collections. Here we list all Chinese species of *Holochlora*, among which four species are new to science. We consider *Holochlora semirotonda* Xia & Liu, 1989 to be a junior synonym of *Holochlora nigrotympana* Ingrisch, 1989. Thus, respectively, the total number of species in *Holochlora* rises to 57 species and 2 subspecies, and to twelve species in China. We also describe the previously unknown fe-

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males of *H. venusta* Carl, 1914 and *H. fruhstorferi* Carl, 1914, and the previously unknown male of *H. lancangensis*. We redescribe and illustrate all known species in China. Separate identification keys to male and female of the Chinese species of *Holochlora* are included. Distribution map of *Holochlora* species from China is also provided.

Materials and methods

Differentiation of species is based on of the male stridulatory area of the left and right tegmina, and the male and female abdominal terminalia. Characters of male abdominal terminalia are most significant at specific level. They mainly include tenth abdominal tergum, cerci and subgenital plate. The stridulatory file on the underside of the male left tegmen also differs between species. The shape of the female subgenital plate is the most useful character for the separation of females. The posterior margin of the female tenth abdominal tergum somewhat differs between species.

The key to the species uses characters that are easily visible on dried specimens.

All specimens were examined with a Leica MZ12.5 microscope. A camera lucida fixed on Leica Mz12.5 microscope was used to make drawings. Photographs of the male stridulatory area were taken with a Canon Powershot 40 digital camera fixed on Leica MZ12.5 microscope.

Materials come from the following five depositories:

- IZAS Insect Collection of the Institute of Zoology, Chinese Academy of Sciences, Beijing, China
- KIZAS Museum of Entomology, Kunming Institute of Zoology, Chinese Academy of Sciences, Kunming, China
- MSIE Institute of Entomology, Chinese Academy of Sciences, Shanghai, China
- ICAU Insect Collection of China Agricultural University, Beijing, China
- NAFU Institute of Entomology, Northwestern A&F University, Yanglin, China

Results

Genus *Holochlora* Stål, 1873

Holochlora Stål, 1873: 42; Stål, 1874: 17; Brunner von Wattenwyl, 1878: 174, 175; Brunner von Wattenwyl, 1891: 89; Kirby, 1906: 430; Karny, 1923: 153; Karny, 1926a: 103; Karny, 1931: 35; Bey-Bienko, 1954: 108.

Type species *Holochlora venosa* Stål, 1873

Description. Fastigium verticis short triangular, narrower than scapus of antennae, with a dorsal longitudinal furrow. Occiput slightly convex. Compound eyes semi-spherical. Pronotal disc smooth; with slightly distinct median groove on hind half of pronotal disc; without lateral carina; main transverse sulcus "V"-shaped; anterior margin approximately straight, posterior margin obtuse rounded; lateral lobes of pronotum higher than long; humeral sinus distinct. Anterior coxae armed.

Anterior femur with ventro-internal spinules, middle femur with ventro-external spinules, and posterior femur with internal and external ventral spinules. Anterior tibiae dorsally sulcate; with dorso-external spinules as well as with or without one dorsal-external spine above tympana. Middle tibiae with dorso-internal spinules. Posterior tibiae with external and internal spinules on dorsal margins. Outer tympanum open, oval, membranous; inner tympanum conchate. Lower margin of hind genicular lobe bearing an accessory spine. Tegmen with costal vein sharp, straight, sometimes edged by a line; Rs bifurcate.

Male stridulatory area of left tegmen with stridulatory vein swollen, strongly elevated above wing plane (Figs 2–12). Stridulatory file strongly bulging in middle; stridulatory teeth becoming finer from middle to both sides on whole file (Figs 23–33). Stridulatory area of right tegmen with indistinct mirror. Right tegmen with strongly concave medial edge, forming a triangle, together with distal part of Cu₂ and vein along medial edge of mirror (Figs 13–23). Tenth abdominal tergum produced and split into two apical lobes, which are deflexed or not (Figs 35–46). Cerci conical, variable between species; sometimes concealed under tenth abdominal tergum. Male subgenital plate with short styli (Figs 60–71). Internal genitalia membranous.

Female. Tenth abdominal tergum not produced, with dorso-medial groove; posterior margin obtusely emarginated. Epiproct wider than long, about semicircular. Cerci short, slightly curved, uneven; gradually tapering into pointed apex. Subgenital plate often triangular (Figs 81–90). Ovipositor robust, wide; lateral surface with very conspicuous transverse convex fold at base; with some sharp dark serrate lines in distal region; dorsal margin serrate, only slightly truncate (Figs 72–80).

Notes. *Holochlora* is closely related to *Sinochlora* Thinkham, 1945 in tegminal shape, stridulatory area and male abdominal tergum. It differs by green or yellow costal vein of the tegmen (costal vein in *Sinochlora* black and white), concolorous ventral femoral spines (usually not black as in *Sinochlora*). The male subgenital plate is usually strongly constricted and parallel-sided in apical half, not moderately to very strongly arcuately reflexed as in *Sinochlora*. The female ovipositor is without distinct truncation in apical area of the dorsal margin as is the case in *Sinochlora*. *Holochlora* is also similar to *Pseudopsyra* Hebard, 1922 with regard to the shape of male tegminal stridulatory area. It differs from *Pseudopsyra* by the male abdominal apex and the female ovipositor (Liu & Kang 2006).

In China, species of *Holochlora* are widely distributed in the south (Fig. 1), from the east to the west, including the low altitude in Tibet.

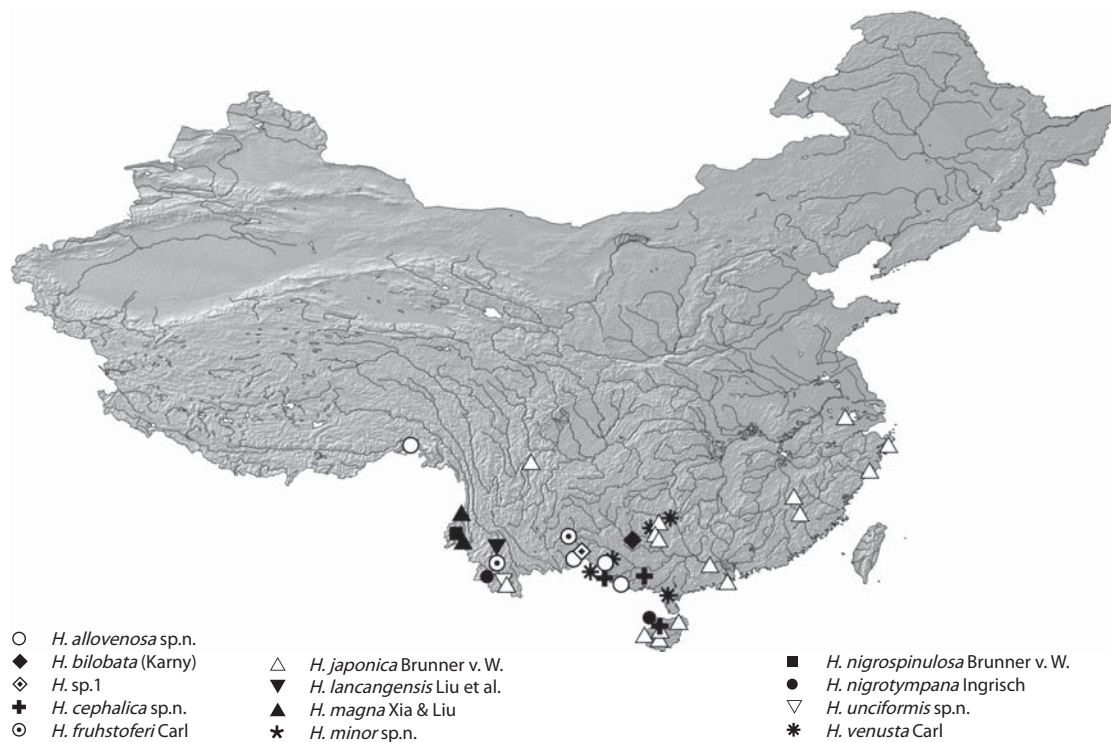


Figure 1. Distribution of the species of *Holochlora* in China.

Key to Chinese species of *Holochlora* (males only)

- 1. Subgenital plate gradually constricted from middle to apex; central area protruded ventrad; lateral areas strongly leaned (Figs 66–67) 2
 - Subgenital plate slightly expanded, with apical half parallel-sided; central area approximately flat; lateral areas hardly leaned 3
- 2. Tenth abdominal tergum, in dorsal view, like a pair of columns joining at base; notch between "U"-shaped, apical part of lobes obtusely rounded (Fig. 41); in lateral view, distinctly inflated, head-shaped (Fig. 53). Subgenital plate split from apical quarter into two narrow and sheet-like lobes (Fig. 66) *H. cephalica* Kang & Liu, sp. n.
 - Tenth abdominal tergum, in dorsal view, compressed and upright (Fig. 42); in lateral view, surface rounded (Fig. 55). Subgenital plate split in apical half into two wide and lobate lobes (Fig. 67) *H. venusta* Carl
- 3. Subgenital plate rather deeply split in or before apical third into two compressed deviating lobes 4
 - Subgenital plate rather shallowly split in or beyond distal quarter into two sheet-like lobes 9
- 4. Size small (measurement of male length: tegmen 34.8–40.9 mm, hind femur 24.2–25.5 mm). Tenth abdominal tergum shorter than twice the length of ninth abdominal tergum (Figs 57, 59) 5
 - Size larger (measurement of male length: tegmen \gg 34.8–40.9 mm, hind femur >24.2–25.5 mm. Tenth abdominal tergum rather long; apical margin rounded. Subgenital plate with styli much shorter than length of divided area. 6
- 5. Male tenth abdominal tergum with apical margin approximately truncated. Cerci short, concealed. Subgenital plate with styli as long as length of divided area (Fig. 68) *H. bilobata* (Karny)
 - Male tenth abdominal tergum with apical margin obtusely angular, slightly deflexed (Figs. 46, 59). Cerci much longer, only apex concealed. Subgenital plate with styli much shorter than divided area *H. unciformis* Liu & Kang, sp. n.
- 6. Subgenital plate deeply split slightly before middle (Fig. 64). Cerci very long, basal part crassus, distal half deflexed from middle; apex abruptly fined, compressed (Fig. 51) *H. cuisinieri* Carl
 - Subgenital plate split beyond middle. Cerci short, robust; apex incurved, abruptly narrowed 7
- 7. Tenth abdominal tergum large, divided in basal third into two spoon-like, strongly deflexed lobes, close to each other at apex (Figs 35, 48) *H. fruhstorferi* Carl
 - Tenth abdominal tergum cleft outwards in basal half into two slightly deflexed lobes (Figs 38, 40) 8
- 8. Posterior femur with ventral spines concolorous with other parts. Lobes of tenth abdominal tergum slightly cylindrical; apical margin acute rounded (Figs 38, 52) *H. lancangensis* Liu et al.
 - Posterior femur with 3–4 dark brown ventral spines. Lobes of tenth abdominal tergum cylindrical, apex obtuse (Figs 40, 53) *H. nigrospinulosa* Brunner von Wattenwyl
- 9. Tenth abdominal tergum split in distal third into two lobes; undivided basal part of dorsal surface with a rather large semicircular low concave area separated from other parts by a ridgy fringe; in lateral view ventral margin of tergum with a small round process directing downwards near apex (Figs 36, 49) *H. nigrotympana* Ingrisch

- Tenth abdominal tergum split into two lobes before basal half; undivided basal part separated from other parts by a furrow, without any low concave area; in lateral view, ventral margin of tergum not as above 10
- 10. Tenth abdominal tergum short, cleft in basal half into two lobes just extending before distal third of subgenital plate; interior edge extending mediad and almost running together at apex; in lateral view apical margin slightly deflexed with a small hook (Figs 45, 57) *H. allovenosa* Liu & Kang, sp. n.
- Tenth abdominal tergum longer, cleft before basal half into two lobes, which extending far beyond distal third of subgenital plate; interior edge extending outwards; in lateral view apical margin variable without a small hook 11
- 11. Tenth abdominal tergum split in basal third into two columniform round lobes (Fig. 37); in lateral view, lateral margin abruptly enlarged and then contract to apex (Fig. 50) *H. minor* Liu & Kang, sp. n.
- Tenth abdominal tergum divided from basal quarter into two slightly round lobes; in lateral view lower part of lobes lamelliform, prolonged laterally (Figs 43, 58) *H. japonica* Brunner von Wattenwyl

Key to Chinese species of *Holochlora* (females only)

1. Subgenital plate large, irregularly quadrangular, longer than wide, each lateral margin outspreading into a big spine at basal two thirds, then contracting into a big spine at apex; apical margin with a circular notch (Fig. 72) *Holochlora fruhstorferi* Carl
 - Subgenital plate triangular 2
2. Subgenital plate longer than wide 3
 - Subgenital plate distinct wider than long 8
3. Subgenital plate with each lateral margin with a distinct concavity near base 4
 - Subgenital plate with each lateral margin more or less straight, without a distinct concavity near base 5
4. Subgenital plate with a triangular notch at apex (Fig. 85) *Holochlora lancangensis* Liu et al.
 - Subgenital plate with apical margin approximately truncated or emarginated (Fig. 88) *Holochlora magna* Xia & Liu
5. Subgenital plate strongly elongate triangular; apex narrowly triangularly emarginated (Fig. 87) *Holochlora allovenosa* Liu & Kang, sp. n.
 - Subgenital plate slightly elongate triangular; apex rounded or truncated 6
6. Subgenital plate with lateral margin straight or slightly convex, not concave; apical margin narrowly rounded or truncated 7
 - Subgenital plate with lateral margin slightly concave; apical margin widely rounded (Fig. 86) *Holochlora cephalica* Kang & Liu, sp. n.
7. Subgenital plate with lateral margin straight; apical margin approximately truncated (Figs 83–84) *Holochlora nigrotympana* Ingrisch
 - Subgenital plate with lateral margin slightly convex; apex acute rounded (Fig. 90) *Holochlora japonica* Brunner von Wattenwyl
8. Subgenital plate small; lateral margins not convex; apical margin obtusely rounded (Fig. 84) *Holochlora venusta* Carl
 - Subgenital plate large; lateral margins slightly convex; apical margin slightly obtuse and approximately truncated (Fig. 89) *Holochlora* sp. 1

Holochlora fruhstorferi Carl, 1914

Figures 2, 13, 24, 35, 48, 60, 72, 81

Holochlora fruhstorferi Carl, 1914: 550; Jin & Xia, 1994: 21; Eades et al., 2007.

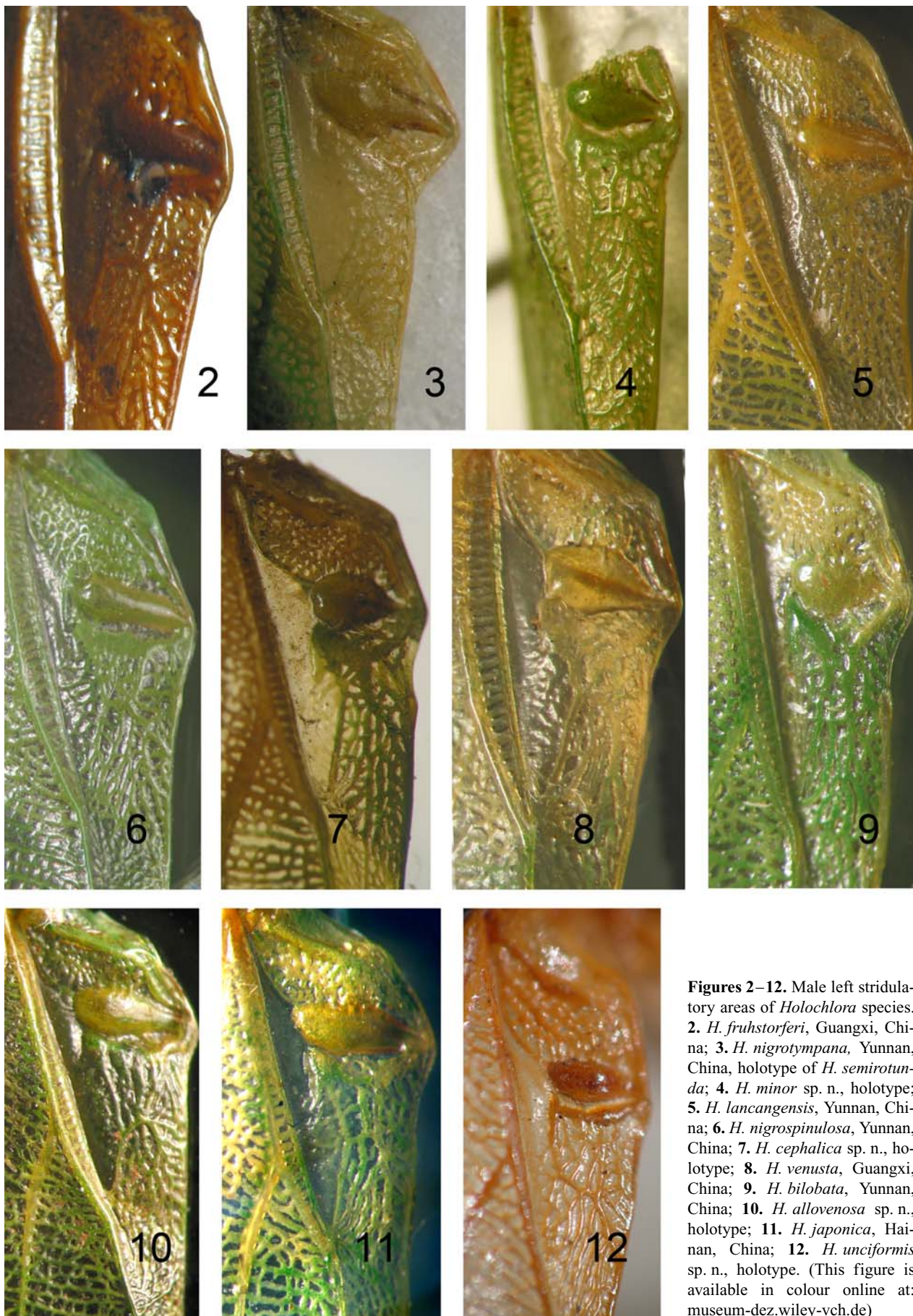
Redescription. Male. Large-sized. Stridulatory file on underside of left tegmen with about forty widely arranged teeth as well as eleven obsolescent small teeth at distal fifth (Fig. 24). Tenth abdominal tergum large; basal undivided third area with an obtuse angular region in central area; notch between apical lobes “U”-shaped; lateral margin of apical lobe strongly deflexed, gradually widened in middle, then tapering distad; apical margin curly inwards, obtuse. Cerci short, robust, incurved; apex abruptly narrowed into a subacute spine (Fig. 48). Subgenital plate elongate, divided into two compressed deviating lobes in little more than apical third, notch between obtuse angular; with a distinct median carina in undivided basal area and two lateral carinae throughout ventral surface; styli narrow, short (Fig. 60).

First description of female. Costa straight and short; Rs branched before middle of tegmen, bifurcate in basal third, radius stem with three more oblique branches.

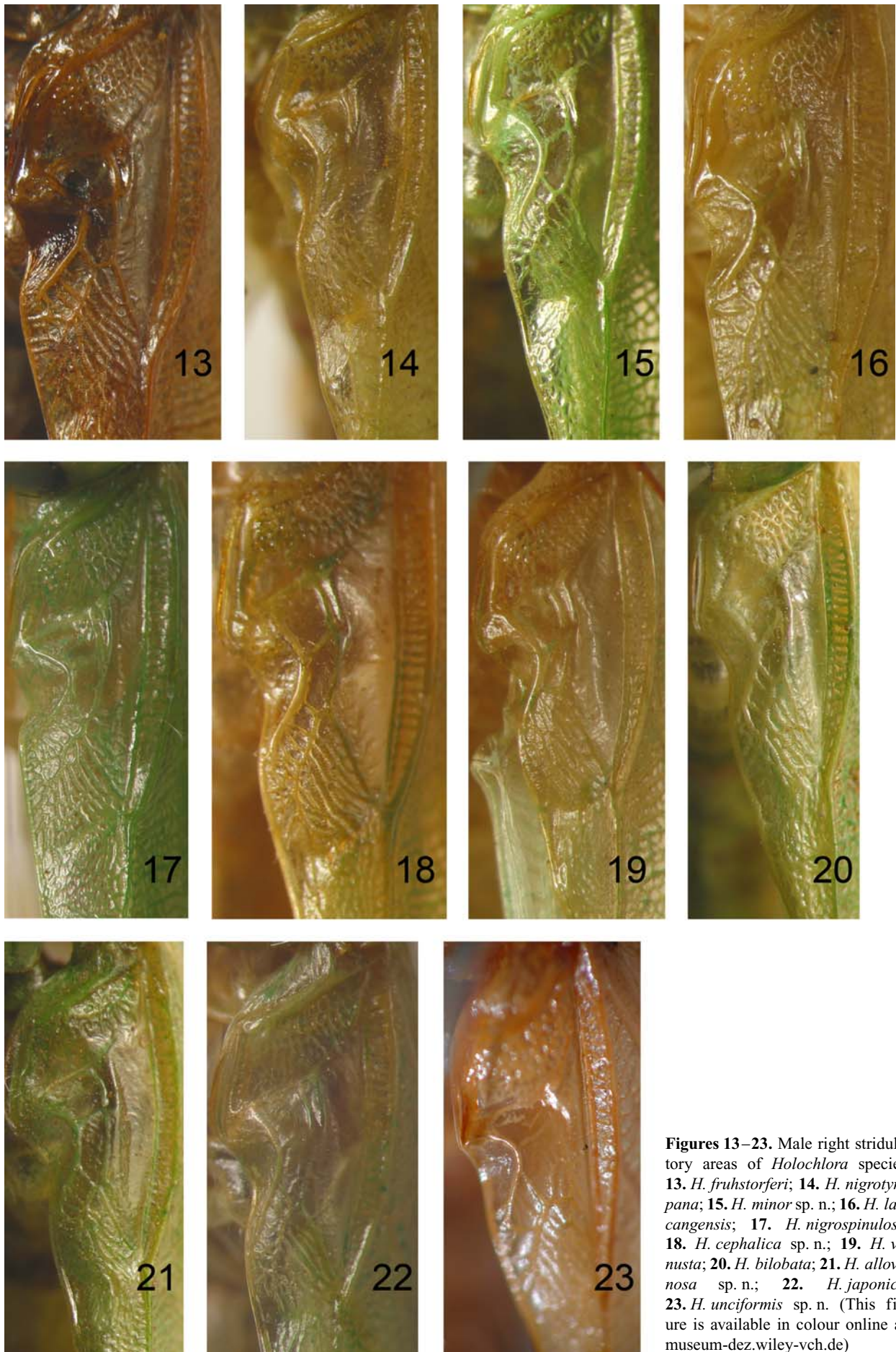
Subgenital plate large, longer than wide, basal margin with a big acute angular notch; lateral margin terminating into a spine at basal two thirds, then triangularly contracted in distal third; apex with a circular notch (Fig. 81). Ovipositor with basal part strongly ridgy; distal quarter of dorsal margin slightly obliquely truncated; dorsal margin denticulate throughout, ventral margin in apical quarter denticulate; lateral surface coarse with 4 rows of spines at distal half (Fig. 72).

Coloration. Green or greenish yellow (green when alive). Compound eyes dark brown. Tegmina with base of R and joint between each femur and tibia with black marking. Anterior tibiae with inner tympanum concolorous to other part, around and above tympana black. Spines of hind femur dark brown. Ovipositor with apical part dark brown.

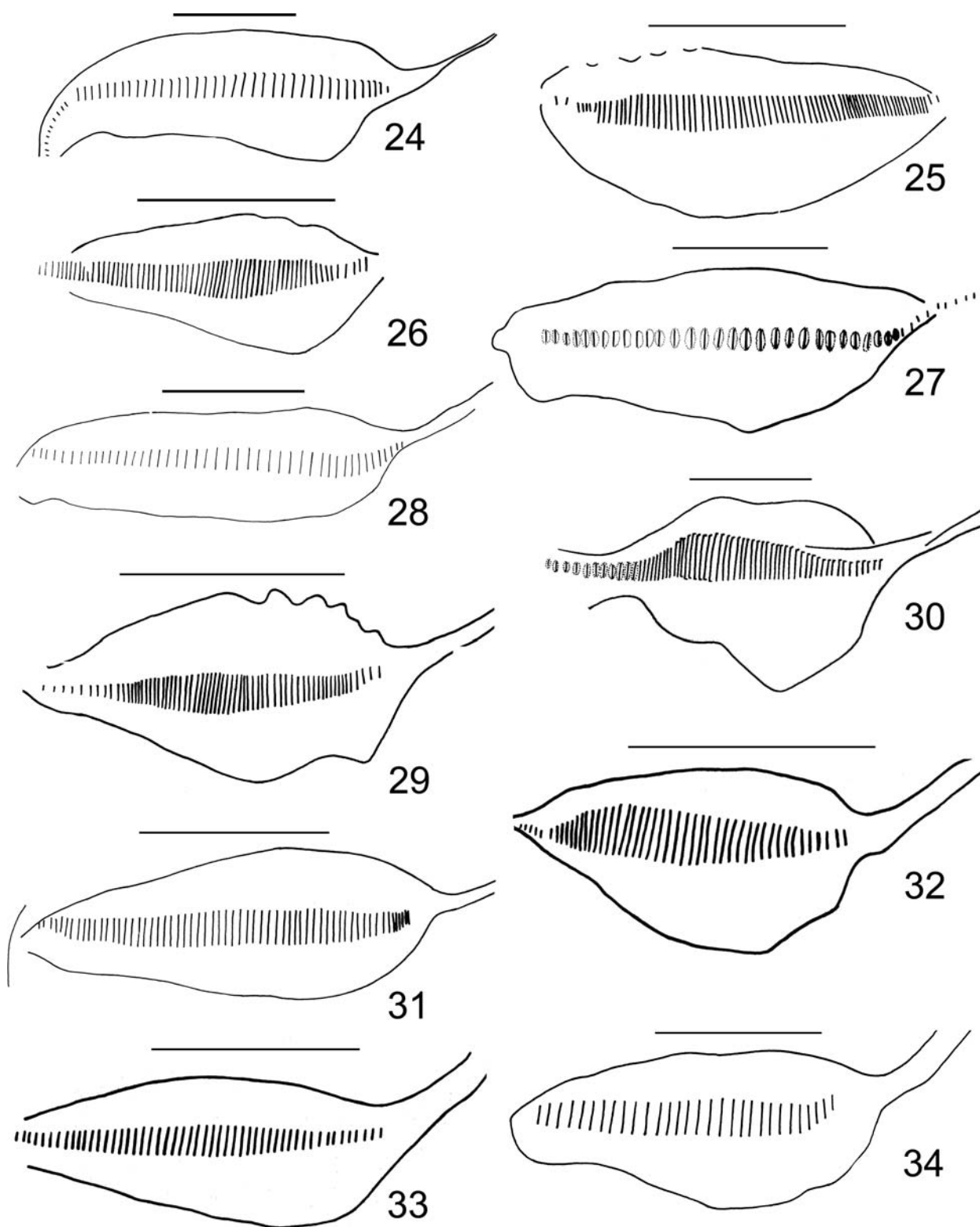
Measurements (mm). Length of body: male 36.0, female 36.0; length of pronotum: male 8.9, female 10.5; length of tegmen: male 59.5, female 65.0; greatest width of tegmen: male 14.0, female 17.5; length of hind wing: male 70.0, female 72.0; length of anterior femur: male 9.0, female 9.5; length of median femur: male 14.0, female 15.0; length of posterior femur: male 34.0, female 37.0; length of ovipositor: 13.0.



Figures 2–12. Male left stridulatory areas of *Holochlora* species. 2. *H. fruhstorferi*, Guangxi, China; 3. *H. nigrotympana*, Yunnan, China, holotype of *H. semirotunda*; 4. *H. minor* sp. n., holotype; 5. *H. lancangensis*, Yunnan, China; 6. *H. nigrospinulosa*, Yunnan, China; 7. *H. cephalica* sp. n., holotype; 8. *H. venusta*, Guangxi, China; 9. *H. bilobata*, Yunnan, China; 10. *H. allovernosa* sp. n., holotype; 11. *H. japonica*, Hainan, China; 12. *H. unciformis* sp. n., holotype. (This figure is available in colour online at: museum-dez.wiley-vch.de)



Figures 13–23. Male right stridulatory areas of *Holochlora* species. **13.** *H. fruhstorferi*; **14.** *H. nigrotympana*; **15.** *H. minor* sp. n.; **16.** *H. lancangensis*; **17.** *H. nigrospinulosa*; **18.** *H. cephalica* sp. n.; **19.** *H. venusta*; **20.** *H. bilobata*; **21.** *H. allove-nosa* sp. n.; **22.** *H. japonica*; **23.** *H. unciformis* sp. n. (This figure is available in colour online at: museum-dez.wiley-vch.de)



Figures 24–34. Male stridulatory file on the underside of left tegmen of *Holochlora* species. **24.** *H. fruhstorferi*; **25.** *H. nigrotympana*; **26.** *H. minor* sp. n.; **27.** *H. lancangensis*; **28.** *H. nigrospinulosa*; **29.** *H. cephalica* sp. n.; **30.** *H. venusta*; **31.** *H. bilobata*; **32.** *H. allovernosa* sp. n.; **33.** *H. japonica*; **34.** *H. unciiformis* sp. n. (Scale bar = 1 mm).

Material examined. 1 male, 1 female, Tonkin, Mt. Bavi, vii.1914, leg. A. De Cooman (IZAS, No. 360813-160814); 2 males, 6 females, China: Guangxi Prov.: Mt. Miaoershan, 450–600 m, 25.viii.1992, [2 females, Coll. Yang Jikun (ICAU), 2 males, 4 females, Coll. Liu Xianwei & Yin Haisheng (MSIE)]; 2 males, China: Guangxi Prov.: Longzhou City: Nonggang Nature Reserve, 18.–

23.viii.1995, Liu Xianwei, Jin Xingbao & Zhang Weinian (MSIE); 1 male, at light, China: Yunnan Prov.: Simao District: Caiyanghe nature reserve, 1400 m, 24.viii.–28.viii.2004, Coll. Liu Chunxiang (IZAS); 2 males, at light, China: Guizhou Prov.: Libo Country: Maolan nature reserve, Wuyanqiao, 500 m, 5.ix.2008, Coll. Liu Chunxiang (IZAS).

Distribution. Vietnam; China.

***Holochlora nigrotympana* Ingrisch, 1990**

Figures 3, 14, 25, 36, 49, 61, 73, 82

Holochlora nigrotympana Ingrisch, 1990 (1989): 105; Ingrisch & Shishodia, 1998: 364; Eades et al., 2007.

Holochlora semirotonda Xia & Liu 1990 (1989): 157; Eades et al., 2007. syn. n.

Redescription. Small-sized. Tegmen with Costa bordered by a brown line, Rs branched off slightly before middle of tegmen; radius stem also with three more oblique veins.

Male. Stridulatory file on underside of left tegmen with about seventy distinct fine teeth (Fig. 25). Tenth abdominal tergum rather short; in dorsal view, extending backwards, basal part of dorsal surface with a rather large lower semicircular concavity separated from other part by a fringe ridge; distal third split into two pilose tumid lobes with apex slightly incurved (Fig. 36); in lateral view, ventral margin possessing a small process pointing downwards near apex (Fig. 49). Cerci short, concealed by tenth abdominal tergum. Subgenital plate split into two sheet-like lobes from distal quarter; styli short (Fig. 60).

Female. Subgenital plate triangular, distinctly longer than wide, with lateral margin straight and apical margin emarginated or truncated (Figs 82–83).

Coloration. Body green. Compound eyes dark brown. Anterior tibiae with inner tympanum and above tympanum black.

Measurements (mm). Length of body: male 19.5, female 30.0; length of pronotum: male 5.2, female 7.0; length of tegmen: male 36.0, female 47.0; greatest width of tegmen: male 7.5, female 12.0; length of hind wing: male 40.5, female 55.5; length of anterior femur: male 5.5, female 6.5; length of median femur: male 9.5, female 11.0; length of posterior femur: male 24.0, female 31.5; length of ovipositor 10.0.

Material examined. 2 males (including holotype of *H. semirotonda*), China: Yunnan Prov., Mengla, 18.iv.1982, Collector unknown (MSIE); 3 males, China: Yunnan Prov., Mengla, 20.iv.1982, Coll. Wang Sumei & Zhou Jingruo (WAFU); 1 female, China: Yunnan Prov., Damenglong, 29.x.1987, Coll. Liu Lan & Li Li (WAFU); 1 male, 1 female, China: Hainan Island, Nada, 24.iv.–30.v.1983, Coll. Zhang Yalin (WAFU); 1 male, China: Yunnan Prov., Mengla, 20.iv.1982, Coll. Wang Sumei & Zhou Jingruo (WAFU).

Discussion. The holotype of *H. nigrotympana* Ingrisch was not available for study. Just based on the original description, illustration and types' photographs of *H. nigrotympana*, we found that it has similar or same distinguishing characteristics, e.g., size, coloration, male stridulatory file, male and female abdominal apices as those in *H. semirotonda*. *H. nigrotympana* published on February 5, 1990, whereas, *H. semirotonda* was published on January 1, 1992. It is obvious that *H. nigro-*

tympana has priority, thus, we consider *H. semirotonda* to be a junior synonym of *H. nigrotympana*.

Distribution. Thailand; India; Bhutan; China.

***Holochlora minor* Liu & Kang, sp. n.**

Figures 4, 15, 26, 37, 50, 62, 74

Description. Holotype (male). Small-sized. Tegmen with distinct Costa bordered by a lightly yellow line; Rs branched off slightly before middle of tegmen, and radius stem also with other more two oblique veins.

Male. Stridulatory file with about sixty distinct fine teeth (Fig. 4). Tenth abdominal tergum rather long; undivided basal part of dorsal surface with a dark triangular region separated from other part by a fringe ridge; distal two thirds split into two pilose tumid lobes (Fig. 37); in lateral view, lateral margin abruptly enlarged and then contract to apex (Fig. 50). Cerci rather short, concealed by tenth abdominal tergum. Subgenital plate split in distal fifth into two sheet-like lobes; styli short (Fig. 62).

Female. Unknown.

Coloration. Green. Compound eyes dark brown. R with a black sign at base. Anterior tibiae with inner tympana and above tympanum black. Joint between posterior femur and tibia black.

Measurements of male (mm). Length of body 19.2; length of pronotum 5.2; length of tegmen 34.0; greatest width of tegmen 7.2; length of hind wing 38.0; length of anterior femur 6.0; length of median femur 10.0; length of posterior femur 29.0.

Type Material. Holotype, male, China: Yunnan Prov.: Jinghong City: Jinnuo, 8.ix.1991, Coll. Liu Zuyao, Wang Tianqi & Yin Haisheng (MSIE).

Etymology. The name refers to the size of the new species being minor.

Discussion. The new species resembles *Holochlora signata* Brunner von Wattenwyl, 1891 in size and color, but differs by male tenth abdominal tergum cleft into two apical lobes and male subgenital plate not deeply split. It also resembles *Holochlora japonica* Brunner von Wattenwyl, 1878 in size, but differs by coloration, shape of male tenth abdominal tergum and male subgenital plate.

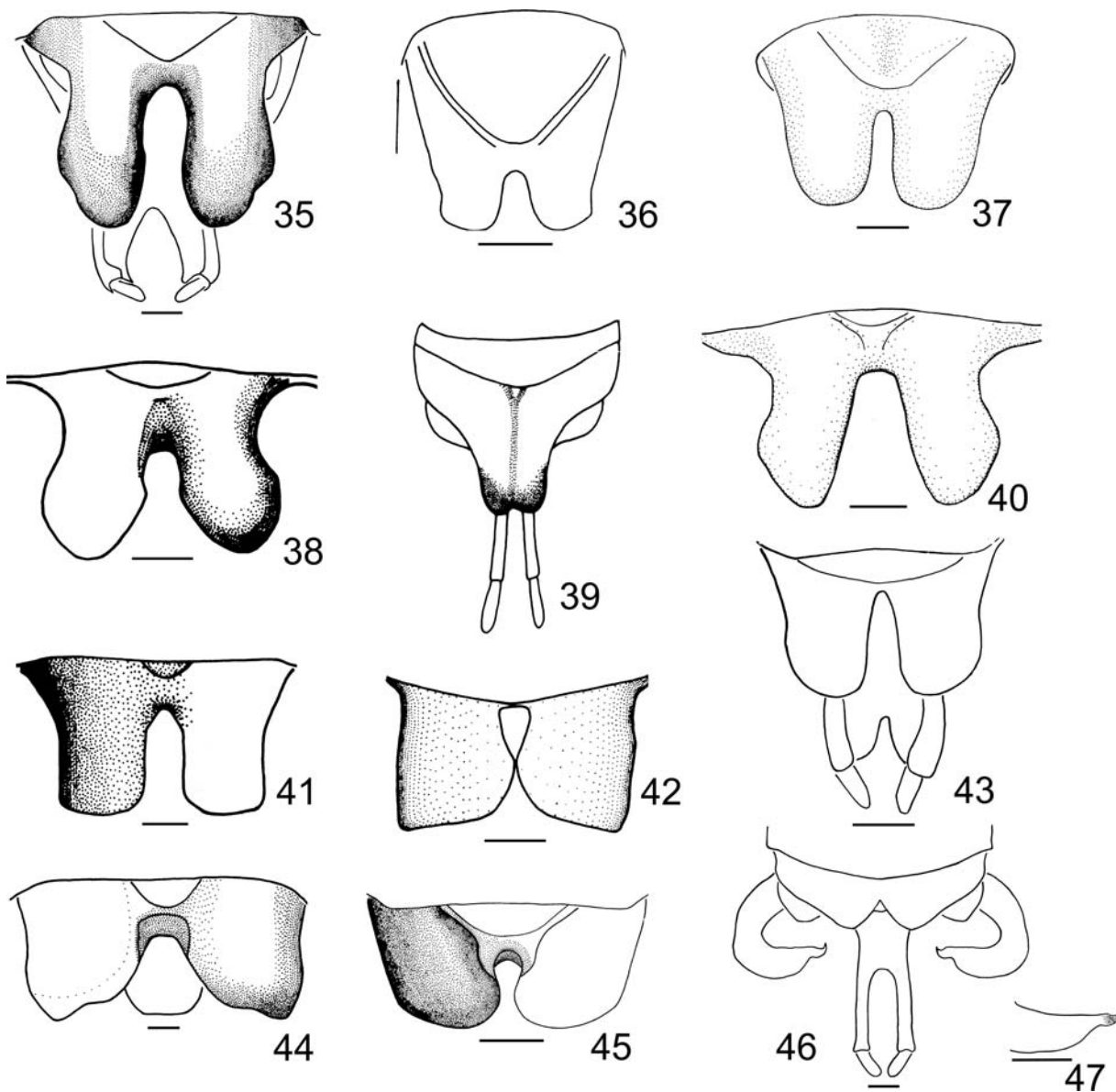
Distribution. China.

***Holochlora lancangensis* Liu et al., 1991**

Figures 5, 16, 27, 38, 52, 63, 75, 85

Holochlora lancangensis Liu et al., 1991: 117; Jin & Xia, 1994: 21; Eades et al., 2007.

First description of male. Large-sized. Tegmen with costa distinct bordered by a brown line; Rs branched off before middle of tegmen; radius stem with three more oblique veins.



Figures 35–45. Male tenth abdominal tergum of *Holochlora* species; **46.** Male abdominal apex, dorsal view; **47.** Enlarged male cerci, apico-dorsal view. **35.** *H. fruhstorferi*; **36.** *H. nigrotympana*; **37.** *H. minor* sp. n.; **38.** *H. lancangensis*; **39.** *H. cuisinieri*; **40.** *H. nigrospinulosa*; **41.** *H. cephalica* sp. n.; **42.** *H. venusta*; **43.** *H. japonica*; **44.** *H. bilobata*; **45.** *H. allovernosa* sp. n.; **46, 47.** *H. unciiformis* sp. n. (Fig. 38, after Carl 1914: 553, fig. 11); (Scale bar = 1 mm).

Male. Stridulatory file with about twenty-nine irregularly large teeth plus about ten indistinct obsolescent small teeth in basal area (Fig. 27). Tenth abdominal tergum cleft outwards from basal half into two slightly deflexed lobes, with apical halves convex and spoon-like; apical margins acute-angularly rounded (Fig. 38). Cerci very short, cylindrical, incurved, thickest at base, with apex suddenly narrowed into an incurved spine. Subgenital plate widest at base, gradually tapering, split in apical two fifths into two thin lobes diverging from each other at base, approaching each other in apical area; styli short, conical; subgenital plate on ventral surface with two lateral and one median carinae (Fig. 63).

Female. Epiproct wider than long, with a median furrow, basal half with parallel lateral margins, distal

half triangular. Cerci evenly incurved, basal two thirds cylindrical, distal third conical; apex tapering into a sharp spine (Fig. 75). Subgenital plate about as long as wide, triangular, basal part with lateral margins slightly concave, apex with a small right-angled notch (Fig. 85).

Coloration. Green on the whole. Compound eyes dark brown. Tegmina with base of R and joint between each femur and tibia with black marking. Tympana of anterior tibiae with interior opening and dorsal margin black. Tegmina with cells between R and posterior margin with many small brown dots. Female tenth abdominal tergum rufous.

Measurements (mm). Length of body: male 27.0–30.0, female 31.0; length of pronotum: male 6.5–7.2, female 7.2; length of tegmen: male 47.5–57.5, female 60.0;

greatest width of tegmen: male 11.8–14.0, female 17.0; length of hind wing: male 53.0–54.2, female 67.2; length of anterior femur: male 7.2–8.3, female 7.8; length of median femur: male 11.5–12.5, female 14.1; length of posterior femur: male 28.0–31.5, female 35.5; length of ovipositor: 10.0–11.0.

Material examined. 1 female (Holotype), China: Yunnan Prov.: Lancang, 23.ix.1980, Coll. Zheng Zheming (IMSE); 6 males, China: Yunnan Prov.: Lancang, Shangyun, 12.ix.1991, Coll. Liu Zuyao, Wang Tianqi & Yin Haisheng (MSIE); 1 male, 2 females, China: Yunnan Prov.: Xishuangbanna, Meng'a, 1030–1080 m, 4.viii.1958, Coll. Wang Shuyong (IZAS); 1 male, China: Yunnan Prov.: Xishuangbanna, Mengzhe, 870 m, 4.ix.1958, Coll. Pu Fuji (IZAS); 1 male (acquired by net), 5 males (at light), China: Yunnan Prov.: Simao District: Ailaoshan nature reserve, 1400 m, 16.–22.viii.2004, Coll. Liu Chunxiang (IZAS); 1 male, at light, Yunnan Prov.: Simao District: Caiyanghe nature reserve, 1400 m, 24.–28.viii.2004, Coll. Liu Chunxiang (IZAS); 1 male, China: Yunnan Prov.: Hushui, Pianma, 26.viii.1998, Coll. Xiongjiang (KIZAS); 1 male, China: Yunnan Prov.: Ruili, 20.x.1981, Coll. Shen Farong (KIZAS).

Discussion. Male of the species resembles *Holochlora fruhstoferi* Carl and *Holochlora nigrospinulosa* Brunner von Wattenwyl, 1893 in male subgenital plate, but differs from *H. fruhstoferi* by size, coloration, the male tenth abdominal tergum and amazing female subgenital plate, and differs from *H. nigrospinulosa* by coloration and shape of male tenth abdominal tergum.

Distribution. China.

***Holochlora nigrospinulosa* Brunner von Wattenwyl, 1893**

Figures 6, 17, 28, 38, 53, 65

Holochlora nigrospinulosa Brunner von Wattenwyl, 1893: 170; Kirby, 1906: 431; Ingrisch, 1990 (1989): 105; Eades et al., 2007.

Redescription. Male. Stridulatory file with about forty-five teeth (Fig. 28). Tenth abdominal tergum cleft outwards in basal half into two slightly deflexed lobes; apical half convex (Fig. 38). Cerci very short, slightly cylindrical, incurved, thickest at base; apex abruptly narrowed into an incurved spine (Fig. 53). Subgenital plate widest at base, tapering, split from apical two fifths into two thin sheet lobes which diverging from each other at base, approaching each other from middle; with two lateral and one median carinae; styli short, widened, conical. (Fig. 65).

Coloration. Green. Compound eyes dark brown. Tegmina with base of R and joint between each femur and tibia with black marking. Tegmina with cells between R and posterior margin with many small brown dots. Tympana of anterior tibiae with inner opening and dorsal margin black. Spines of hind femur dark brown.

Measurements of male (mm). Length of body 24.0; length of pronotum 7.0; length of tegmen 49.0; greatest width of tegmen 12.0; hind wing 53.5; length of anterior femur 8.0; length of median femur 11.0; length of posterior femur 32.0.

Material examined. 1 male, P.R. China: Yunnan Prov.: Mangshi, 19.ix.1981, Coll. Li Fasheng (ICAU).

Distribution. Burma; Thailand; China.

***Holochlora cephalica* Kang & Liu, sp. n.**

Figures 7, 18, 29, 41, 54, 66, 76, 86

Description. Male (holotype). Medium-sized. Tegmen with costa bordered by a yellow line; Rs branching slightly before middle of tegmen; Radius stem with two more lateral branches. Stridulatory vein shuttle-shaped, strongly bulging in middle, with about forty-four closely arranged large teeth, except about eleven small obsolescent teeth in distal fifth (Fig. 29).

Tenth abdominal tergum in lateral view distinctly inflated as head-shaped; basal part widest; lateral margin "S"-shaped, slightly concave in middle; in the dorsal view cylindrical lobes joining together at base, then cleft with a "U"-shaped notch, apical margin obtuse (Figs 41, 54). Cerci short, conical, evenly incurved into a hook at apex. Subgenital plate slightly shorter than anterior femur, widest at base, gradually tapering distad, and split from distal quarter into two lobes; median carina distinct; styli short; central area strongly produced ventrad; lateral areas strongly leaned (Fig. 66).

Female. Ovipositor with ventral margin concave in basal area (Fig. 76). Subgenital plate triangular, as long as wide; middle carina distinct; lateral margins slightly concave; apical margin widely rounded (Fig. 86).

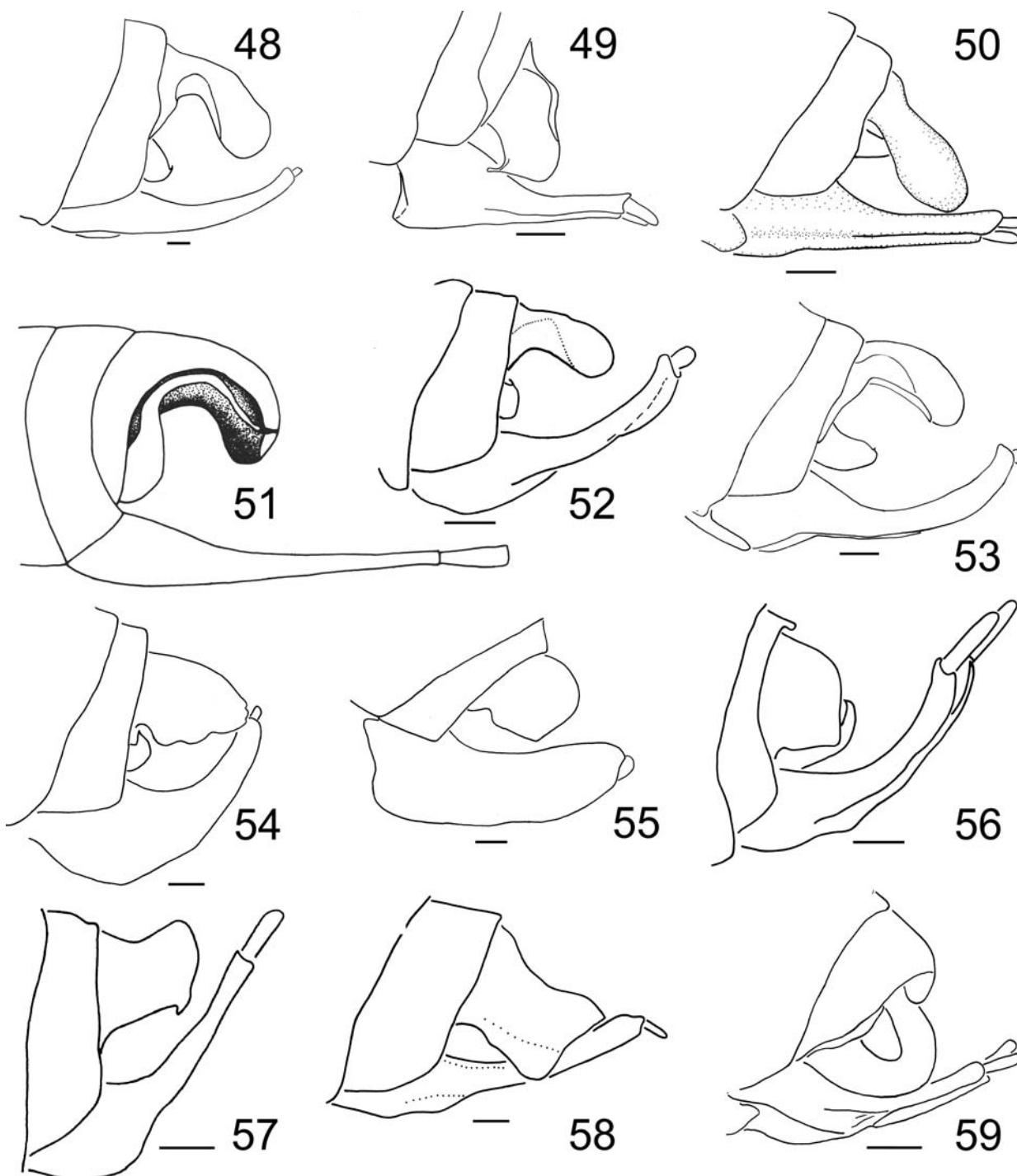
Coloration. Brownish green (Green when alive). Compound eyes dark brown. Tympana of anterior tibiae with inner opening and dorsal margin black. Tegmina with Costa yellow bordered by a dark brown line. Male tenth abdominal tergum with lobes dark brown. Female ovipositor with apical area dark brown.

Measurements (mm). Length of body: male 27.0–31.0, female 26.0; length of pronotum: male 6.5–7.0, female 7.5; length of tegmen: male 45.0–46.0, female 53.0; greatest width of tegmen: male 10.0–12.0, female 13.0; length of hind wing: male 48.5–50.0, female 59.4; length of anterior femur: male 7.5, female 8.5; length of median femur: male 11.0, female 12.0; length of posterior femur: male 29.0, female 29.5; length of ovipositor 14.0.

Type material. Holotype: male, China: Hainan Island: Jianfengling, 17.viii.1982, Coll. Chen Peizhen (IZAS). Paratypes: 1 male, 1 female, same data as the holotype, but Coll. Lin Youdong & Gu Maobin (MSIE); 1 male, same data as the holotype, but 25.xi.1983, Coll. Liu Yuanfu (IZAS); 1 male, China: Guangxi Prov.: Mt. Lingshan, 6.x.1980, Coll. Huang Jiuli (ICAU); 10 males, China: Hainan Island: Baisha County: Yingeling Nature Reserve, 27.viii–5.ix.2005, Coll. Liu Chunxiang (IZAS).

Etymology. The name refers to male tenth abdominal tergum which is head-shaped.

Discussion. The new species resembles *Holochlora venusta* in size, and shape of tegmen, but differs from it



Figures 48–59. Male abdominal apex, lateral apex, *Holochlora* species. 48. *H. fruhstorferi*; 49. *H. nigrotympana*; 50. *H. minor* sp. n.; 51. *H. cuisinieri*; 52. *H. lancangensis*; 53. *H. nigrospinulosa*; 54. *H. cephalica* sp. n.; 55. *H. venusta*; 56. *H. bilobata*; 57. *H. allovernosa* sp. n.; 58. *H. japonica*; 59. *H. unciformis* sp. n. (Scale bar = 1 mm).

by the tegminal Costal vein not being bordered by a black stripe, the color of the femoral spines being not black, characters of the male tenth abdominal tergum, and male and female subgenital plates. It is also similar to *Holochlora astyla* Karny, 1926b in the shape of the male subgenital plate, but differs by the size being larger, the male tenth abdominal tergum being head-shaped and the male subgenital plate being shallowly split and having small styli.

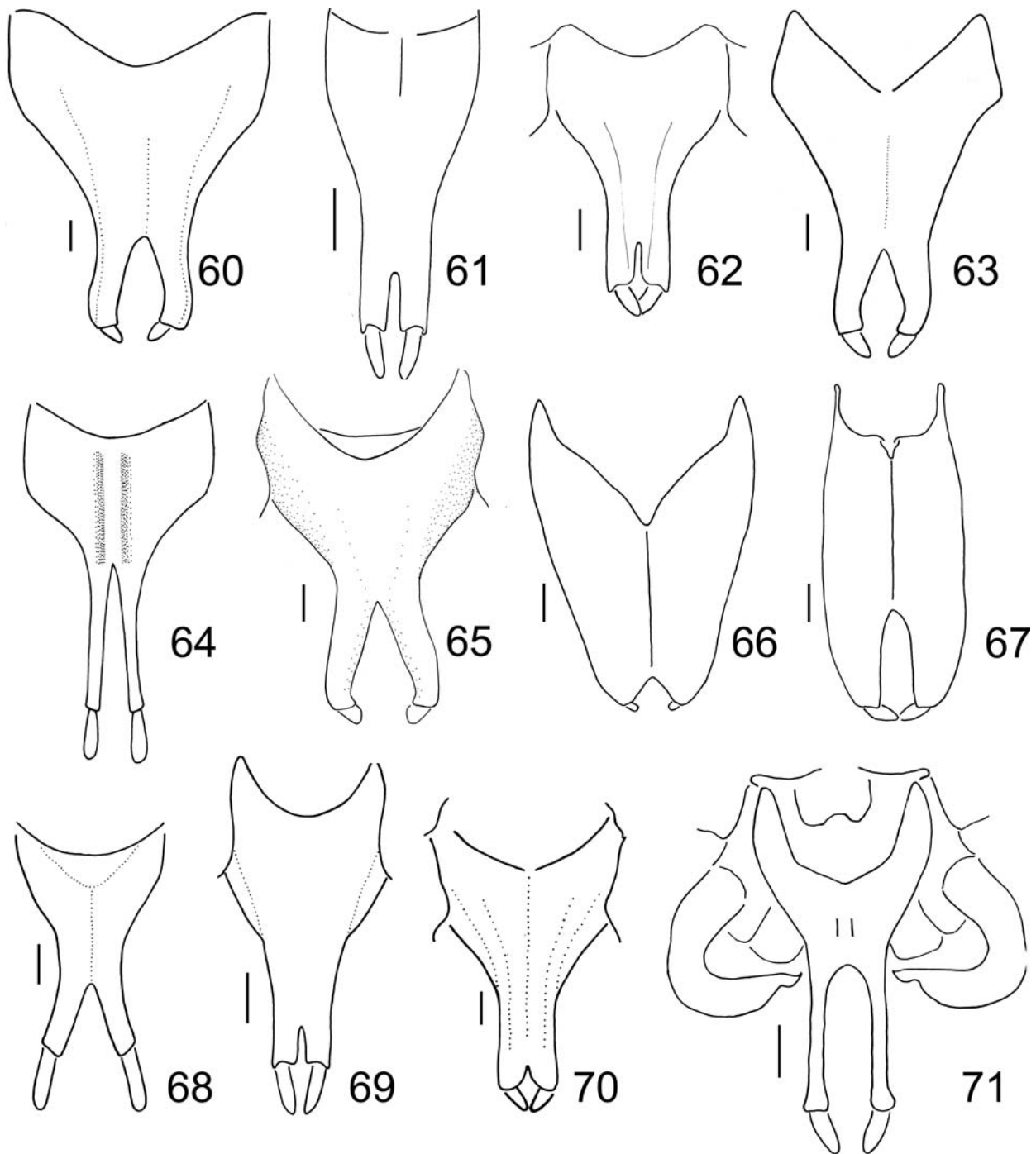
Distribution. China.

***Holochlora venusta* Carl, 1914**

Figures 8, 19, 30, 42, 55, 67, 77, 84

Holochlora venusta Carl, 1914: 551; Jin & Xia, 1994: 21; Eades et al., 2007.

Redescription. Male. Medium-sized. Tegmen narrow, C bordered by a black line; stridulatory area widened,



Figures 60–70. Male subgenital plate of *Holochlora* species; **71.** Male abdominal apex, ventral view. **60.** *H. fruhstorferi*; **61.** *H. nigrotympana*; **62.** *H. minor* sp. n.; **63.** *H. lancangensis*; **64.** *H. cuisinieri*; **65.** *H. nigrospinulosa*; **66.** *H. cephalica* sp. n.; **67.** *H. venusta*; **68.** *H. bilobata*; **69.** *H. allovernosa* sp. n.; **70.** *H. japonica*; **71.** *H. unciiformis* sp. n. (Scale bar = 1mm).

oval (Fig. 8). Stridulatory file shuttle-shaped and moderately bulging mediad on whole view, with sixty rather distinct teeth plus about six obsolescent teeth in apical area (Fig. 30). Tenth abdominal tergum split into two lobes, which are upright and flat in dorsal view, rounded in lateral view, obtuse triangular in ventral view (Figs 42, 55). Cerci compressed, gradually tapering towards apex, incurved. Subgenital plate widest in basal area, tapering towards apex; cleft in basal half into two wide, sheet-like, tapering lobes; styli short (Fig. 67).

First description of female. Subgenital plate triangular, wider than long; with distinct median carina; apical margin obtuse (Fig. 84).

Coloration. Brownish viridescent (maybe viridescent when alive). Compound eyes dark brown. Costa whitish, bordered by a black line. Sc and R vein yellow. Anterior and posterior femora with some black dots on ventrolateral margins. Spines of each femur black. Tympana of anterior tibiae with inner opening and dorsal margin black.

Measurements (mm). Length of body: male 21.0–28.0, female 32.0; length of pronotum: male 5.2–5.5, female 7.2; length of tegmen: male 39.2–41.0, female 51.0; greatest width of tegmen: male 8.8, female 11.5; length of hind wing: male 43.9–47.0, female 57.5; length of anterior femur: male 6.5, female 8.0; length of median femur: male 10.0, female 12.5; length of posterior femur: male 28.0, female 35.0; length of ovipositor 12.0.

Material examined. 1 male, China: Guangxi Prov.: Quanzhou County: Anhe, 15.ix.1980, Coll. Huang Jinsun (IZAS); 1 male, China: Guangxi Prov.: Guilin City: Liangfeng, 200 m, 11.vii.1963, Coll. Wang Shuyong (IZAS); 1 male, China: Guangdong Prov., Zhanjing, 12.viii.1989, Coll. Zhang Yalin (WAFU); 50 males, 23 females, China: Guangxi Prov.: Longan City: Longhushan Mt., [23 males, 10 females, 29.viii.1995, Coll. Liu Xianwei, Jin Xingbao & Zhang Weinian (MSIE); 27 males, 13 females, 18.viii. – 20.viii.2007, Coll. Liu Chunxiang (IZAS)]; 5 males, 3 females, China: Guangxi Prov.: Longzhou City: Nonggang Nature Reserve, 10–23.viii.1995, Coll. Liu Xianwei, Jin Xingbao & Zhang Weinian (MSIE).

Distribution. Vietnam; China.

***Holochlora bilobata* (Karny, 1926)**

Figures 9, 20, 31, 44, 56, 68

Pseudopsyra bilobata Karny, 1926a: 96–97; Jin & Xia, 1994: 23; Lu & Jin, 2000: 89.

Holochlora bilobata: Liu & Kang, 2006: 57; Eades et al., 2007.

Redescription. Male. Small-sized. Tegminal radius sector branching slightly before middle of tegmen; radius stem with two more lateral branches.

Male. Stridulatory area of tegmen with stridulatory vein swollen on dorsal side (Figs 9, 20). Stridulatory vein greatly broadened and bulging, with about forty-five distinct teeth (Fig. 31). Tenth abdominal tergum short; undivided part in basal half with a semicircular concavity; apical margin truncated; apical lobes cylindrical, inclined outwards, swollen in lateral view; apical margin curly inwards, with internal lateral apical angle denticulate in apical view (Figs 44, 56). Epiproct thick with apical margin obtuse, exposing beyond tenth abdominal tergum. Cerci rather short, conical, slightly curved; apex subacute (Fig. 56). Subgenital plate elongate, basal area with distinct median carina; little more than apical third divided into two compressed deviating lobes; notch in between acute angular; styli narrow, as long as length of divided area (Fig. 68).

Female. Subgenital plate triangular, with distinct median ventral carina; apex slightly flattened (Lu & Jin 2000).

Coloration. Brownish green to light green or uniform green (maybe green when alive). Antennae dark brown; base light green. Compound eyes dark brown. Tegmina green. Legs light green. Anterior tibiae with interior tympanum dark brown.

Measurements (mm). Length of body: male 21.5–25.0, female 32.3–37.0; length of pronotum: male 5.5, female 7.5–7.9; length of tegmen: male 34.8–38.5, fe-

male 48.0–49.5; greatest width of tegmen: male 8.5; hind wing: male 44.0; length of anterior femur: male 7.0; length of median femur: male 10.5; length of posterior femur: male 24.2–25.0, female 30.0–30.5. [Measurements of female from Lu & Jin (2000)]

Material examined. 1 male, China: Yunnan Prov.: Yingjiang, Xima, 1800 m, 14.ix.1996, Coll. Xiong Jiang (KIZAS); 1 male, China: Yunnan Prov., Menglun, 1.xi.1987, Coll. Xue Zengzhao and Feng Jinian (WAFU); 1 male, China: Guangxi Prov.: Luocheng, 28.vii.1980, Coll. Lan Wanfu (ICAU); 1 male, China: Yunnan Prov.: Jinghong City: Menglun County, 4.ix.1991, Coll. Liu Xianwei, Wang Tianqi & Yin Haisheng (MSIE); 1 male, Tonkin: Vinh. Quang, 1937, Coll. L. Cornilla (IZAS).

Discussion. According to original description, illustration and types' photographs (Eades et al. 2007) of *H. tumida*, it is very similar to *H. bilobata* in following structures: size, coloration, the male stridulatory area and file, the male tenth abdominal tergum and subgenital plate. It's just a pity that the holotype specimens of *Holochlora tumida* Ingrisch & Shishodia was not available for study, thus the relationship between these two species will be presented through more detailed study in the future.

Distribution. China; Peninsular Malaysia.

***Holochlora allovenosa* Liu & Kang, sp. n.**

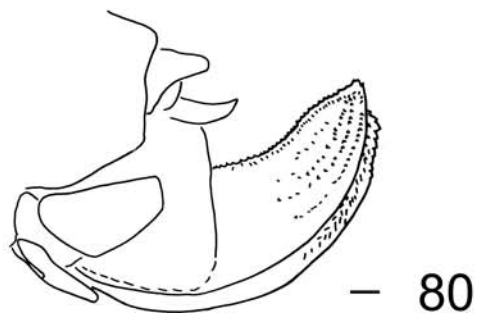
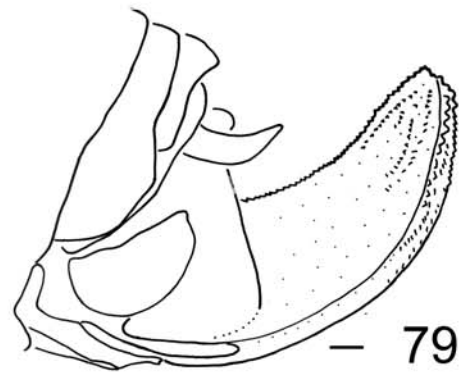
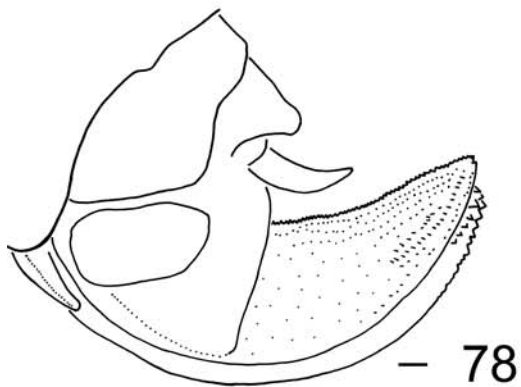
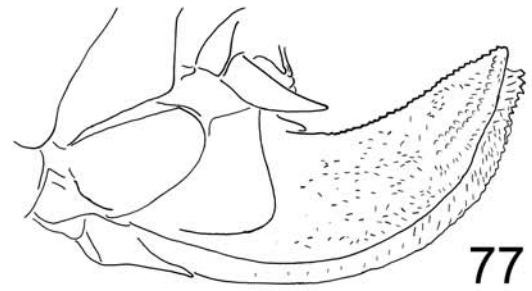
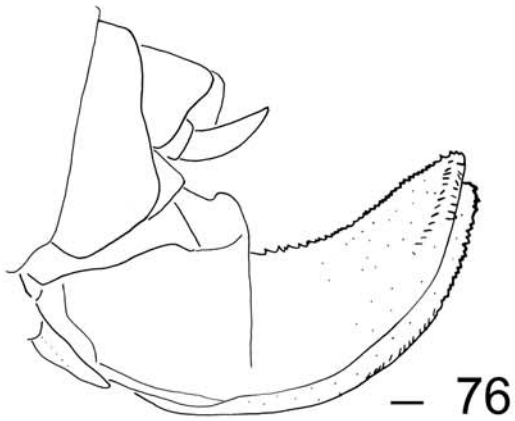
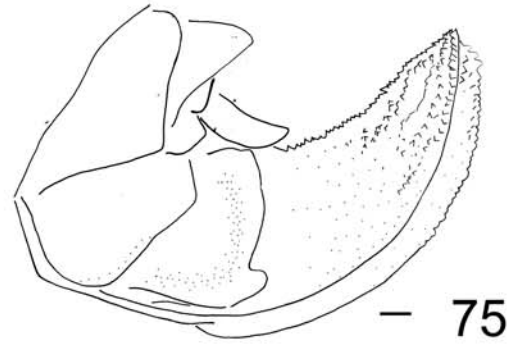
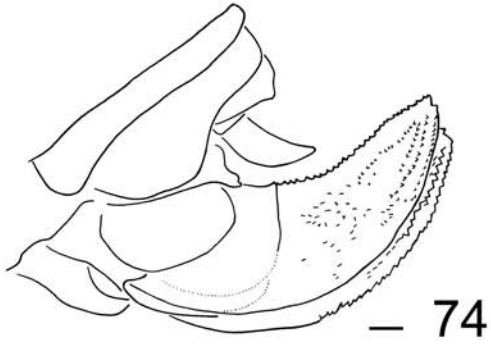
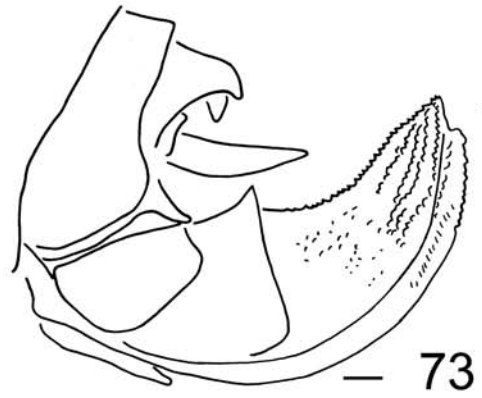
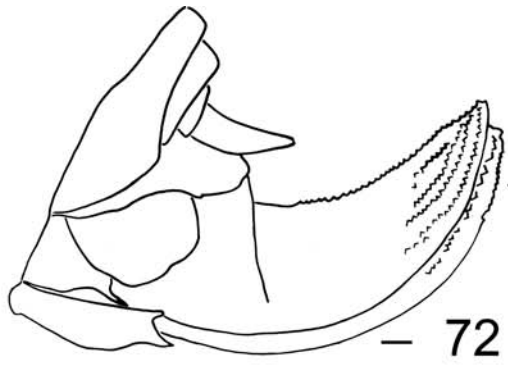
Figures 10, 21, 32, 45, 57, 69, 74, 87

Description. Male. Stridulatory vein on the underside of left tegmen not broadened nor bulging, with about fifty teeth (Fig. 10). Tenth abdominal tergum short, cleft in basal half into two apical lobes; basal third with an obtuse triangular area, separated from other part by a distinct obtuse triangular furrow; both lobes with interior edge extended mediad, almost running together at apex; in lateral view apical margin slightly deflexed with a small hook. Cerci conical, strongly incurved, concealed by tenth abdominal tergum (Figs 45, 57). Subgenital plate extending far beyond tenth abdominal tergum, widest at base, gradually tapering, split in apical sixth into two subparallel thin sheet-like lobes; styli short (Fig. 69).

Female. Size much larger than male. Subgenital plate strongly elongate triangular; lateral margins in basal half slightly convex, but in apical half straight, gradually constricted towards narrowly triangularly emarginated apex (Fig. 87).

Coloration. Brownish green or green (maybe green when alive). Compound eyes dark brown. Tympana of anterior tibiae with inner opening dark brown, dorsal margin light brown.

Measurements (mm). Length of body: male 19.5–21.0, female 43.8; length of pronotum: male 5.5–6.0, female 9.2; length of tegmen: male 36.5–38.0, female 64.3; greatest width of tegmen: male 9.0, female 17.2; length of hind wing: male 41.0–44.5, female 71; length of anterior femur: male 5.5, female 13.3; length of median femur: male 10.0–10.5, female 17.2; length of posterior femur: male 26.8–27.0, female 38.1; length of ovipositor 14.9.



Type material. Holotype: male, at night, China: Tibet: Motuo, Didong, 840 m, 29.21923° N, 95.09818° E, 15.viii.2006, Coll. Liu Chunxiang (IZAS); Paratypes: 2 males, China: Guangxi Prov.: Fangcheng, Banba County, 550 m, 4.vi.2000, Coll. Zhang Yanzhou (IZAS); 2 males, China: Guangxi Prov.: Napo, Beidou, 550 m, 22.vi.2000, Collector unknown (IZAS); China: Tibet: Motuo, 1 female, Didong, 840 m, 29.21923° N, 95.09818° E, 3 males (at night), 3 females, Beibeng, 870 m, 29.24563° N, 95.17454° E, 3 males (at night), Yarang, 15.viii.–19.viii.2006, Coll. Liu Chunxiang (IZAS).

Etymology. The name shows that the new species has been mistaken for the species *Holochlora venosa* Stål.

Discussion. *H. allovenosa* is distinguished from other congeners by size, the male tenth abdominal tergum, the male subgenital plate and the special female subgenital plate.

H. allovenosa obviously differs from *H. venosa* Stål (length of whose female elytra is 43 mm) by the size being much larger and the distinct female subgenital plate, but it seems that the male tenth abdominal apex of *H. allovenosa* matches Hebard's (1922) illustrations about *H. venosa* Stål in lateral view. The specimen was identified as *H. venosa* by Hebard (1922), just based on Brunner von Wattenwyl's description of the male sex. And Karny (1926b) has questioned that Brunner von Wattenwyl (1878) erroneously determined the species *H. venosa*. Stål (1873, 1878) just described female of *H. venosa* and indicated the length of its elytra as 43 mm (Stål 1873), or as 44 mm (Stål 1874), whereas Brunner von Wattenwyl (1878) indicated those for both sexes as 34 mm. Here we agree with Karny's opinion (1926b) that Hebard (1922)'s identification about *H. venosa* is erroneous, but whether the specimen can be identified as *H. allovenosa* sp. n. will be decided after reexamining the related specimens.

Distribution. China.

***Holochlora magna* Xia & Liu, 1989**

Figures 78, 88

Holochlora magna Xia & Liu, 1989: 57; Eades et al., 2007.

Redescription. Female. Large. Tegminal radius sector branching slightly behind middle of tegmen length, radius stem with three more lateral branches. Ovipositor long, slightly upcurved; dorsal margin serrate throughout; apex obliquely truncated; ventral margin with apical sixth serrate; apical quarter of lateral surface with 4–5 rows of small regular spines (Fig. 78). Subgenital plate distinctly longer than wide, triangular, with two lateral carinae; basal margin strongly extended outwards; lateral margin in base area distinctly concave;

apical margin slightly sinuate, with two small obtuse angular processes and a small slightly flat median concavity (Fig. 88).

Coloration. Greenish brown (maybe green when alive). Compound eyes dark brown. Tegmen with light brown spots in cells. Anterior tibiae with opening of inner tympana dark brown. Ovipositor with dorsal margin and apical fourth dark brown.

Male unknown.

Measurements of female (mm). Length of body 32.5; length of pronotum 7.5; length of tegmen 60.0; greatest width of tegmen 15.5; length of hind wing 60.0; length of anterior femur 8.5; length of median femur 13.0; length of posterior femur 35.0; length of ovipositor 14.5.

Material examined. 2 females (including holotype), China: Yunnan Prov., Mangshi, 26.x.1981, Collector unknown (MSIE); 1 female, China: Yunnan Prov.: Liuku, 860 m, 4.ix.1996, Coll. Xiong Jiang (KIZAS).

Distribution. China.

***Holochlora* sp.**

Figures 79, 89

Description. Female. Medium-sized. Tegmen with radius sector branching in middle of tegmen, radius stem with three more lateral branches. Tenth abdominal tergum slightly with a median longitudinal furrow; apical margin widely concave. Cerci conical, slightly incurved. Ovipositor rather long, slightly upcurved; dorsal margin approximately straight mediad, finely serrate, apex slightly obliquely truncated, serrate; ventral margin with apical sixth serrate; apical quarter of lateral surface with 4–5 rows of small regular spines; basal plica angular (Fig. 79). Subgenital plate distinctly broader than long, triangular, with lateral margin convex, with one median longitudinal carina; apical margin obtusely truncated (Fig. 89).

Coloration. Light green (Green when alive). Compound eyes dark brown. Tegmen green without any spots; Costa light yellow. Anterior tibiae with opening of interior tympana brown. Legs with tip of spines brown. Ovipositor with both margins and apical quarter dark brown.

Male unknown.

Measurements of female (mm). Length of body 32.0; length of pronotum 8.5; length of tegmen 58.0; greatest width of tegmen 13.5; length of hind wing 64.0; length of anterior femur 8.0; length of median femur 12.5; length of posterior femur 33.5; length of ovipositor 13.5.



Figures 72–80. Female abdominal apex, lateral view, *Holochlora* species. **72.** *H. fruhstorferi*, Guangxi, China; **73.** *H. nigrotympana*, Yunnan, China; **74.** *H. allovenosa* sp. n., Xizang, paratype; **75.** *H. lancangensis*, holotype; **76.** *H. cephalica* sp. n., Hainan, paratype; **77.** *H. venusta*, Guangxi, China; **78.** *H. magna*, holotype; **79.** *H.* sp.1; **80.** *H. japonica*, Hainan, China (Scale bar = 1 mm).

Material examined. 1 female, China: Yunnan Prov.: Funing, 27.viii.1982, Coll. Zhou Yousheng (KIZAS).

Discussion. The specimen resembles *H. magna* in the size and the tegminal venation, but differs by the green tegmen being green without any spots, structure of the subgenital plate, and the rather short ovipositor. It seems that the specimen may ascribe to *H. obtusa* Brunner von Wattenwyl, 1878, for the similar structure of the ovipositor and the rather short triangular female subgenital plate. It just differs by the size much larger (in *H. obtusa*, length of elytra is 52 mm, length of posterior femur 31 mm) and the female subgenital plate being slightly obtuse and approximately truncated (not obtuse). The male of this species and that of *H. obtusa* weren't found so far, thus here we just consider the species unidentified.

Distribution. China.

***Holochlora japonica* Brunner von Wattenwyl, 1878**

Figures 11, 22, 33, 43, 58, 70, 80, 90

Holochlora japonica Brunner von Wattenwyl, 1878: 175, 181; Kirby, 1906: 431; Okazaki, 1922: 26; Hebard, 1922: 340; Tinkham, 1943: 38; Bei-Bienko, 1954: 113; Eades et al., 2007.

Holochlora nawae Matsumura & Shiraki, 1908: 17; Bei-Bienko, 1954: 113 (syn.).

Redescription. Male. Small-sized. Stridulatory vein on underside of left tegmen shuttle-shaped and moderately swollen in middle, with about 51 stridulatory teeth (Fig. 33). Tenth abdominal tergum twice longer than ninth abdominal tergum; divided into two lobes from basal quarter (Figs 43, 58). Cerci short, concealed by tenth abdominal tergum; apical part slightly incurved into a black spine (Fig. 58). Subgenital plate long; widest part and distal half gradually acuminate; apical eighth with small narrow triangular notch; lobes parallel, with styli as short as lobes (Fig. 70).

Female. Tenth abdominal tergum, cerci, ovipositor similar to other congener. Cerci short, slightly curved, gradually tapering in pointed apex (Fig. 80). Subgenital plate triangular, slightly elongate; lateral margins straight; apex acute (Fig. 90).

Coloration. Brown, greenish brown to green (maybe green when alive). Compound eyes dark brown. Tympana with interior opening light brown; dorsal margin concolorous to other parts. Ovipositor with apical part dark brown.

Measurements (mm). Length of body: male 21.0–25.0, female 26.0–32.0; length of pronotum: male 5.5–6.0, female 7.2–7.5; length of tegmen: male 36.0–38.0, female 48.0–50.0; greatest width of tegmen: male 7.5, female 11.8; length of hind wing: male 39.0–42.5, female 50.5–51.0; length of anterior femur: male 7.0, female 7.5; length of median femur: male 11.0, female 11.5; length of posterior femur: male 25.0–27.0, female 31.5–32.0; length of ovipositor 10.0–10.5.

Material examined. 1 female, China: Kwangtung, Maan Chi Shaan, x.–xii.1921, collector unknown (from C. W. Howard); 1 male, China: Guangxi Prov.: Guilin, Yanshan, 22.vii.–5.x.1953, collector unknown (IZAS); 1 female, China: Guangxi Prov.: Yangshuo, 185 m, 18.vii.1963, Coll. Wang Chunguang (IZAS); 1 female, China: Guangxi Prov.: Nandan, viii.1980, Coll. Lan Wanfu (ICAU); 1 female, China: Guangxi Prov.: Miaoershan Mt., 24.viii.1992, Coll. Yang Shouqing (ICAU); 1 female, China: Hainan Island: Yinggen, 200 m, 5.v.1996, Coll. Li Changqing (IZAS), 1 female, China: Hainan Island: Qiongzong, 400 m, 5.v.1960, Coll. Li Xiaofu (IZAS); 5 males, 1 female, China: Hainan Island, Jianfengling, [2 males, 29.iv.–7.ix.1982, Coll. Gu Maobin, Chen Peizhen (IZAS), 1 male, 27.iv.1983, Coll. Gu Maobin (IZAS), 2 males, 1 female, 13.–18.X.1992, Coll. Liu Zuyao, Wang Tianqi & Yin Haisheng (MSIE)]; 1 male, China: Hainan Island: East Wenchang Island, 15.vii.1984, collector unknown (IZAS); 2 males, China: Hainan Island, Baoting, 80 m, 27.vii.1960, Coll. Li Xiaofu & Li Changqing (IZAS); 1 male, China: Hainan Island: Xinglong, 24.iv.1983, Coll. Zhang Yalin (WAFU); 1 female, Hainan Prov.: Nada, 30.v.1983, Coll. Zhang Yalin (WAFU); 1 male, 2 females, China: Fujian Prov.: Shaowu, Chengguan, 150–260 m, 16.viii.1960, Coll. Zhang Yiran (IZAS); 1 male, China: Fujian Prov., Shaxian, 1.viii.1979, Coll. Jiang Fan (IZAS); 1 female, at light, China: Zhejiang Prov.: Huangyan, 29.vii.1962, Coll. Zhang Baolin (IZAS); 3 males, 5 females, China: Zhejiang Prov.: Tianmushan Mt.: Laodian, 11.x.–13.x.1999, Coll. Liu Xianwei & Yin Haisheng (MSIE); 2 females, China: Jiangsu Prov., 8.v.1930, Coll. O. Piel. (Musee. Hedue); 1 male, 2 females, China: Zhejiang Prov., 1.vii.1931, Coll. O. Piel. (Musee. Hedue); 1 female, Hongkong, 29.x.1932, Coll. O. Piel. (Musee. Hedue); 1 female, China: Zhejiang Prov.: Zhoushan, Shenjiamen, 11.x.1974, Coll. Li Fasheng (ICAU); 1 male, 1 female, China: Jiangsu Prov.: Yixing, [1 female, Hufu, 30.ix.1974, Coll. Li Fasheng (ICAU), 1 male, Yinxing Forestry Centre, 9.–27.viii.1994, Coll. Liu Xianwei & Zhang Weinian (MSIE)]; China: Sichuan Prov.: Mt. O'meishan, 1 female, 18.viii.1980, Coll. Zhou Yousheng (IZAS), 1 female, Baoguosi, 550–750 m, 7.ix.1957, Coll. Zhu Fuxing (IZAS); 1 female, China: Sichuan Prov.: Shimian, 31.viii.–1.ix.1990, Coll. Feng Yan (MSIE); 1 female, China: Yunnan Prov.: Mengla, 20.iv.1982, Coll. Wang Sumei and Zhou Jingruo (WAFU); 1 male, 2 females, China: Yunnan Prov.: Mengla, 15.iv.–25.v.1982, Coll. Lu Huaping (KIZAS); 1 female, China: Yunnan Prov.: Jiangcheng, 7.iv.1982, Coll. Lu Huaping (KIZAS).

Distribution. Korea, China, Ryukyu, Japan, Hawaii, North Vietnam.

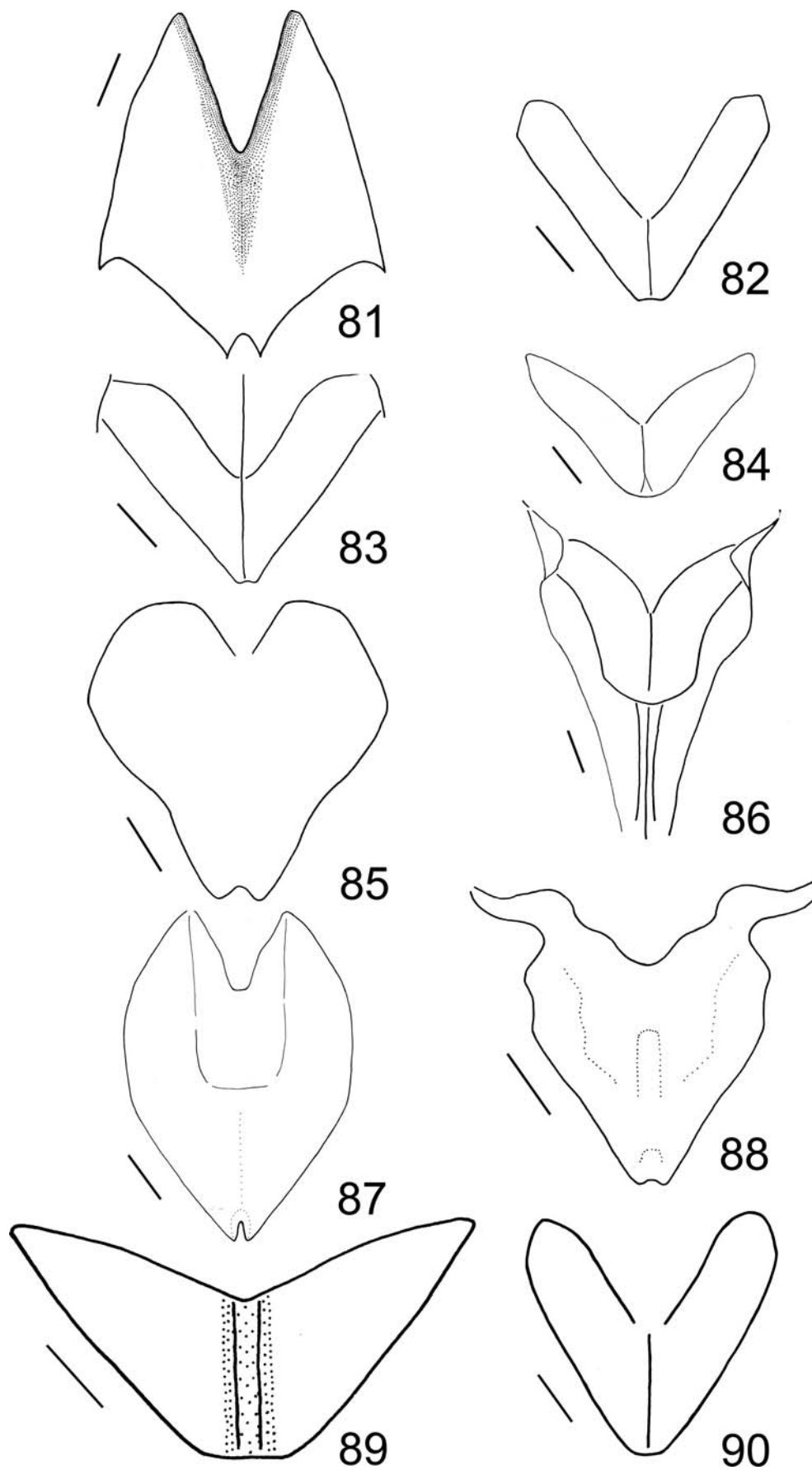
***Holochlora unciformis* Liu, Liu & Kang, sp. n.**

Figures 2, 23, 34, 46, 47, 59, 71

Redescription. Male. Small-sized. Stridulatory vein on underside of left tegmen shuttle-shaped and moderately swollen in middle, with about 30 stridulatory teeth (Fig. 34). Tenth abdominal tergum one and a half times longer than ninth abdominal tergum; divided into two lobes from basal two thirds (Figs 46, 59). Cerci rather long, robust, gradually tapering from the base to the middle, incurved, with slightly upcurved hook at apex concealed by tenth abdominal tergum (Figs 46, 47, 59). Subgenital plate long; widest part and distal half gradually acuminate; apical half with small obtuse triangular notch; lobes parallel, with styli as long as half of lobes (Fig. 71).

Female unknown.

Measurements of male (mm). Length of body 24.0; length of pronotum 6.2; length of tegmen 40.9; greatest



Figures 81–90. Female subgenital plate, ventral view, *Holochlora* species. **81.** *H. fruhstorferi*; **82.** *H. nigrotympana*; **83.** *H. nigrotympana*; **84.** *H. venusta*; **85.** *H. lancangensis*; **86.** *H. cephalica* sp. n.; **87.** *H. allovernosa* sp. n.; **88.** *H. magna*; **89.** *H.* sp. 1; **90.** *H. japonica* (Scale bar = 1 mm).

width of tegmen 9.0; length of hind wing 44.1; length of posterior femur 25.5.

Material examined. 2 males, China: Yunnan: Xishuangbanna: Xiaomengyang, 850 m, 21.x.1957, Coll. Wang Shuyong (IZAS).

Etymology. The name refers to the male cerci having a slightly upcurved apical hook.

Discussion. The species resembles *Holochlora signata bogoriensis* Karny, 1926b and *Holochlora prasina* Rehn, 1909 in the male tenth abdominal tergum being short and slightly deflexed, and male subgenital plate being deeply split. It just distinctly differs by the male cerci being robust, gradually tapering from the base to the middle, and having a slightly upcurved hook at apex.

Distribution. China.

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