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Revision of the genus *Sinochlora* Tinkham (Orthoptera: Tettigoniidae, Phaneropterinae)

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Abstract
The genus *Sinochlora* Tinkham [type species *Sinochlora longifissa* (Matsumura and Shiraki)] (Orthoptera: Tettigoniidae) is revised. Six new species, *S. nonspinosa* sp. nov., *S. trapezialis* sp. nov., *S. tibetensis* sp. nov., *S. mesominora* sp. nov., *S. retrolateralis* sp. nov., *S. aequalis* sp. nov., and the male of *S. hainanensis* are described. *S. gracilisulcula* Shi and Zheng, 1996 and *S. kiangsuensis* Tinkham, 1945 are synonymized with *S. szechwanensis* Tinkham, 1945. *Holochlora voluptaria* Carl, 1914 is transferred to the genus *Sinochlora*. The significance of each taxonomic character is discussed. Characteristics of the male epiproct of most species are firstly studied in detail and considered most important and relied on to distinguish species. Some known species are redescribed based on the characters of the male epiproct and male stridulatory area. The map of geographical distribution with GIS is drawn, and the possible patterns of distribution are discussed. A key to the 13 known species in the world is provided.

Keywords: *Male epiproct, Orthoptera, Phaneropterinae, revision, Sinochlora*

Introduction

Tinkham (1945) provided a valuable work on Phaneropterinae in China, in which he established the genus *Sinochlora*, including five species from China (type species *Sinochlora kwangtungensis* Tinkham, 1945). *Sinochlora* is most closely related to *Holochlora* and distinguished by the following synapomorphies: white and black tegminal costal vein, black femoral spine, male tenth abdominal tergum produced into a pair of forcipate lateral processes and a central one, male subgenital plate from moderately to very strongly arcuately reflexed, and female ovipositor with the upper valvulae strongly truncated at the apex.

Later, Shi and Zheng (1996) described one species, *S. gracilisulcula*, from Sichuan Province, China. In Kang's master's dissertation (1987), he indicated that *Holochlora longifissa* should be transferred to the genus *Sinochlora*, *H. longifissa* and *S. kwangtungensis* are junior synonyms of *S. longifissa*, and *S. kwangtungensis* is mistakenly identified. Liu

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and Jin (1999) also considered the type species *S. kwangtungensis* as a junior synonym of *Holochlora longifissa* Matsumura and Shiraki, 1908, and did not discuss the validity of the genus *Sinochlora*. Lee (1990) reported that *Holochlora longifissa* is also present in Korea. Recently, Shi and Chang (2004) described two new species *S. stylosa* and *S. trispinosa* from southwestern China. Thus, eight species of *Sinochlora* are known, all of which are distributed in China, with one species also in Korea and Japan.

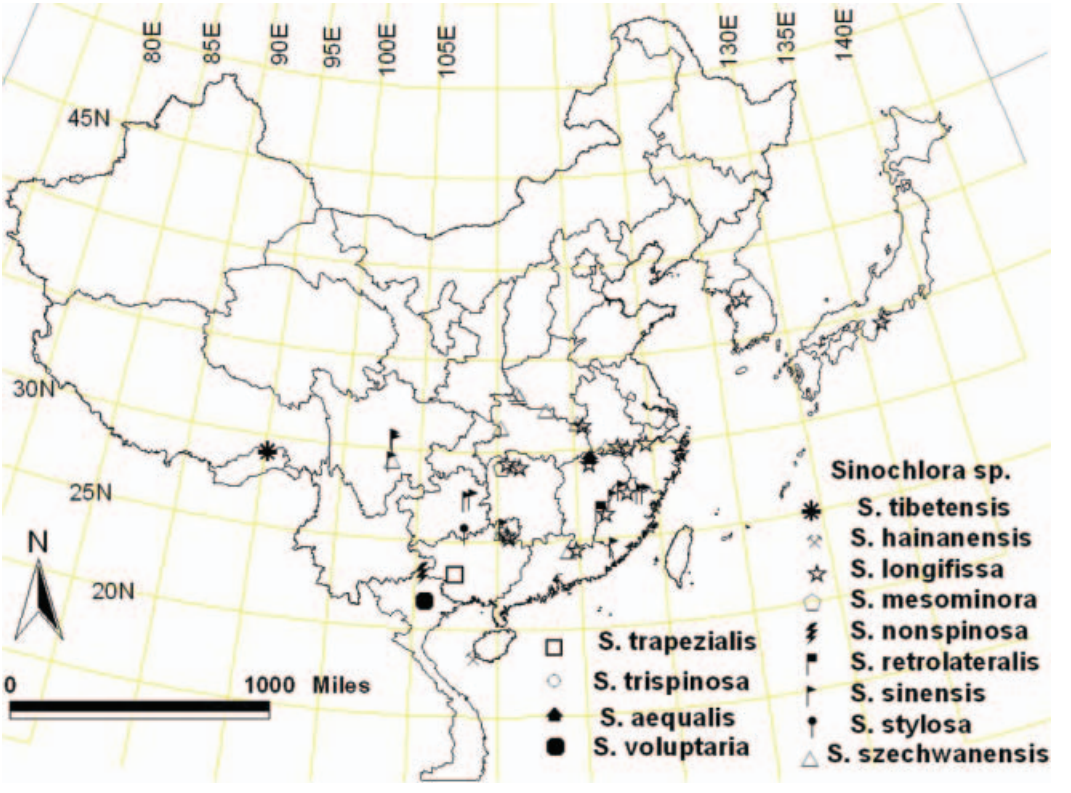
In his fine work (Tinkham 1945), such taxonomic characters as the male tenth abdominal tergum, male subgenital plate, male cerci and female subgenital plate all play important roles in the separation of species of *Sinochlora*. Shi and Zheng (1998) made a comparative study on the male stridulatory apparatus of three species, *S. sinensis*, *S. szechwanensis*, and *S. kiangsuensis*, described their morphological characters, and considered that male stridulatory apparatus is very similar among different species of *Sinochlora*. The male epiproct was firstly used as an important taxonomic character by Shi and Chang (2004), but detailed comparative descriptions are scarce.

After our further comparative investigation of the taxonomic characters mentioned above, we considered that some characters could not be fully relied on. The structure of the male cerci is very similar among species of the genus *Sinochlora*. *S. szechwanensis* Tinkham, *S. kiangsuensis* Tinkham, and *S. gracilisulcula* Shi and Zheng all display gradual degrees of a sulcate or not-sulcate dorsal surface of the male tenth abdominal tergum, and they also possess a male subgenital plate very similar in structure. *S. szechwanensis*, *S. trispinosa*, *S. mesominora*, and *S. retrolateralis* possess the same characteristics of the male subgenital plate. In *S. szechwanensis* and *S. hainanensis*, structures of the female subgenital plate are very liable to strong individual fluctuations (see the following discussion of certain species). In addition, after examining structures of the male stridulatory field of nine species, we find that this character varies among different species, but cannot be fully depended on to determine all species exactly.

Furthermore, we found that features of the male epiproct, previously unnoticeable, play significant roles in separation between different species, after examining the structure of the male epiproct in 11 species. The contours of the epiproct, absence or presence of long black bristles on the ventral surface, number and shape of spine at the apex, and the shape of the notch between the apical spine are variable in different species. Each species can be correctly determined on the basis of characteristics of the male epiproct.

Concerning the biological and ethological characteristics of *Sinochlora* species, there has been no detailed study until now. Doing our collection at low altitude in Sichuan Province, during the daytime we usually seized them by net in the low grass or in shrubs such as tea plant and chestnut. In the primary rain forest of Hainan Island and subtropical primary forest of Tibet in China, we collected them at light during the night. Thus we can infer that they mostly live on leaf-bearing trees and bushes, and are attracted to light.

Here we also redescribe the genus *Sinochlora*, describe six new species and the previously undescribed male of *S. hainanensis* Tinkham from China, and give detailed descriptions and illustrations of the structure of the male epiproct and male stridulatory file of some known species. At the same time, we consider that *Holochlora voluptaria* Carl, 1914 should be removed from *Holochlora* and placed into the genus *Sinochlora*. *S. kiangsuensis* Tinkham and *S. gracilisulcula* Shi and Zheng are synonymized with *S. szechwanensis* Tinkham, bringing the total number of world species of *Sinochlora* to 13.



Map 1. Distribution of the species of *Sinochlora* Tinkham in the world. Locality of *Sinochlora longifissa* in Korea and that of *Sinochlora voluptaria* were taken from the literature (Lee 1990 and Carl 1914, respectively).

Material and methods

Differentiation of species is mostly based on characters of the male and female abdominal terminalia. The male stridulatory area of the left and right tegmen is also described, respectively. Characters of the male abdominal terminalia are most significant at the specific level. They mainly include tenth abdominal tergum, cerci, subgenital plate and epiproct, among which the character of the male epiproct is fully relied on to determine species. 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, although variation is found in certain speices.

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

All specimens were examined with a Leica MZ12.5 microscope, drawings were made with Leica MZ12.5 with a drawing mirror, and photographs of male stridulatory fields were taken with a Canon Powershot 40 digital camera fixed on a Leica MZ12.5 microscope.

Material comes from the following four depositories: Insect Collection of the Institute of Zoology, the Chinese Academy of Sciences, Beijing, China (IZAS); Institute of Entomology, the Chinese Academy of Sciences, Shanghai, China (MSIE); Insect Collection of China Agricultural University, Beijing, China (ICAU); and Shaanxi Normal University, Department of Biology, Xian, China (SNUB).

Taxonomy

Genus *Sinochlora* Tinkham, 1945

Type species. Sinochlora kwangtungensis Tinkham 1945, p 235–246.

Description

Tinkham (1945).

Diagnosis

Male. Tegmen with stridulatory area elongate, left tegmen with stridulatory vein distinctly coarse, strongly elevated and massive above the wing plane, and right tegmen with mirror indistinct, only having a small transparent area (Figures 1, 2). Stridulatory file on underside of left tegmen with teeth regularly arranged, becoming gradually smaller from the middle to both sides (Figure 3). Tenth abdominal tergum possessing a medial and a pair of lateral processes, which varies in different species (Figures 4A, G, 5A, B, E, 6B, 7A, B, 9B, I, 10A, B, E, 11D, G). Epiproct of various shapes, dorsally deeply concave towards the inside; ventral surface strongly convex downwards, with or without black long bristles according to the different species (Figures 4C, D, J–L, 5C, 6C–E, 7C, D, 8G–R, 9J–L, 10C–E, F, 11F, G, K, L).

Female. Ovipositor equally broad throughout, axe-shaped, dorsal margin with apical part truncated and serrated, ventral margin with apical part spiniferous (Figures 4F, 6G, 9D–G).

Notes

We consider that *Holochlora voluptaria* Carl, 1914 should be transferred to the genus *Sinochlora* for its following characters: black and white tegminal costal vein, strong black femoral spines, male tenth abdominal tergum possessing a straight crassus median process and two small lateral lobes (which is similar to *S. sinensis* Tinkham and *S. nonspinosa* sp. n.), male epiproct developed (Figure 5E), male subgenital plate with lateral margin convex after basal constriction (Figure 5F), and female ovipositor with apical half of dorsal margin truncated, finely serrated (Figure 5G).

Discussion

The genus *Sinochlora* is most closely related to the genus *Holochlora* in the tribe Holochlorini. Most similarities and differences between the two genera have been discussed in detail in Tinkham's work (1945). Here we just mention features of the male stridulatory apparatus and male epiproct. These two genera share the following characters: male stridulatory vein on male left tegmen coarse, strongly elevated and massive above the wing plane, teeth of stridulatory file on the underside of left tegmen regularly densely arranged and becoming smaller proximally, and mirror on the right tegmen indistinct.

Key to species of *Sinochlora*

1. Male with central portion of tenth abdominal tergum produced, elongate, covering the epiproct; the lateral processes of the tergum present as a small downward projecting lobe (Figures 4B, H, 5B) 2

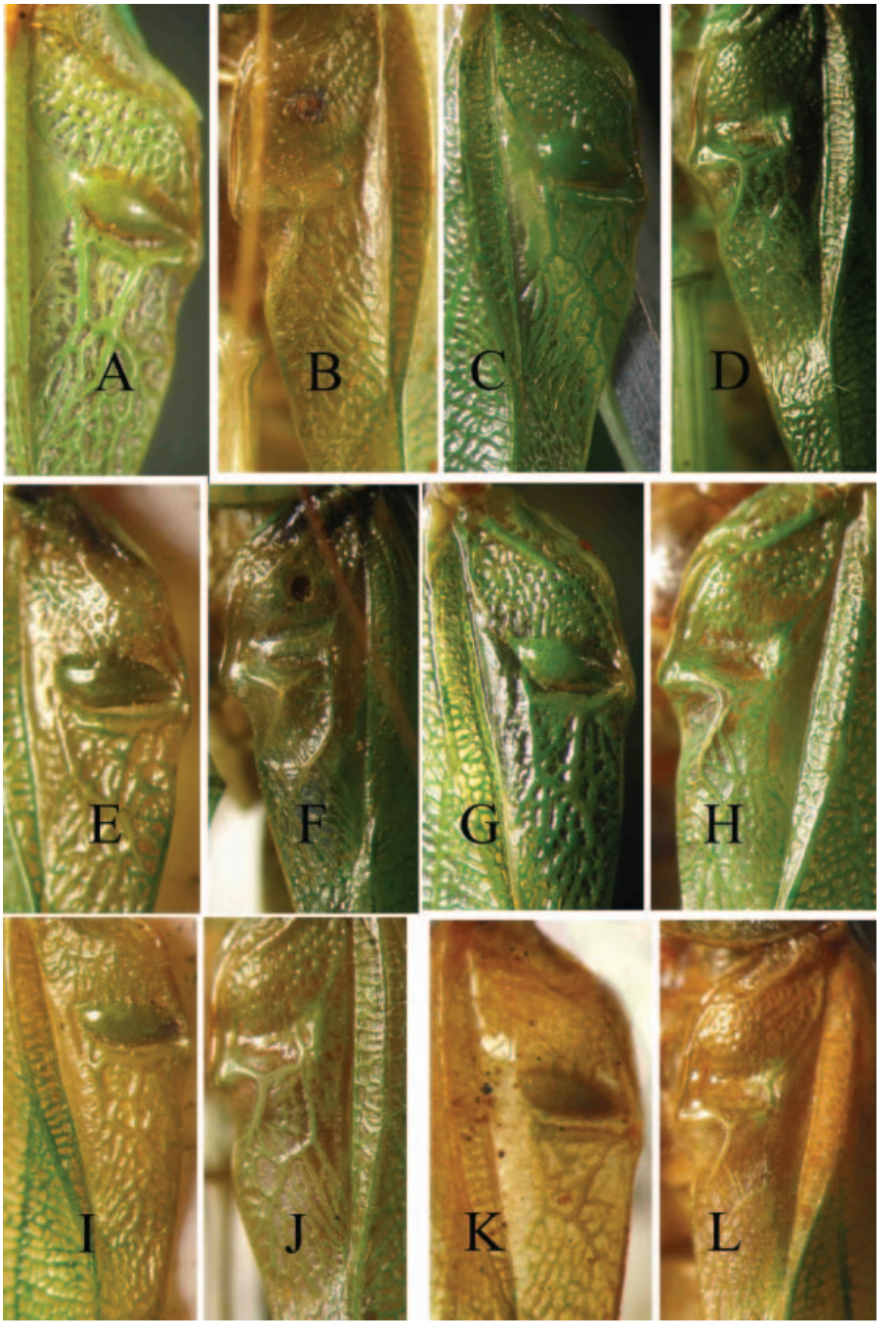


Figure 1. Male left and right stridulatory areas of *Sinochlora* species. (A, B) *S. sinensis*; (C, D) *S. trapezialis* sp. n.; (E, F) *S. nonspinosa* sp. n.; (G, H) *S. hainanensis*; (I, J) *S. longifissa*; China; (K, L) *S. mesominora* sp. n. (A, C, E, G, I, K) Male left stridulatory areas, dorsal view; (B, D, F, H, J, L) male right stridulatory areas, dorsal view.

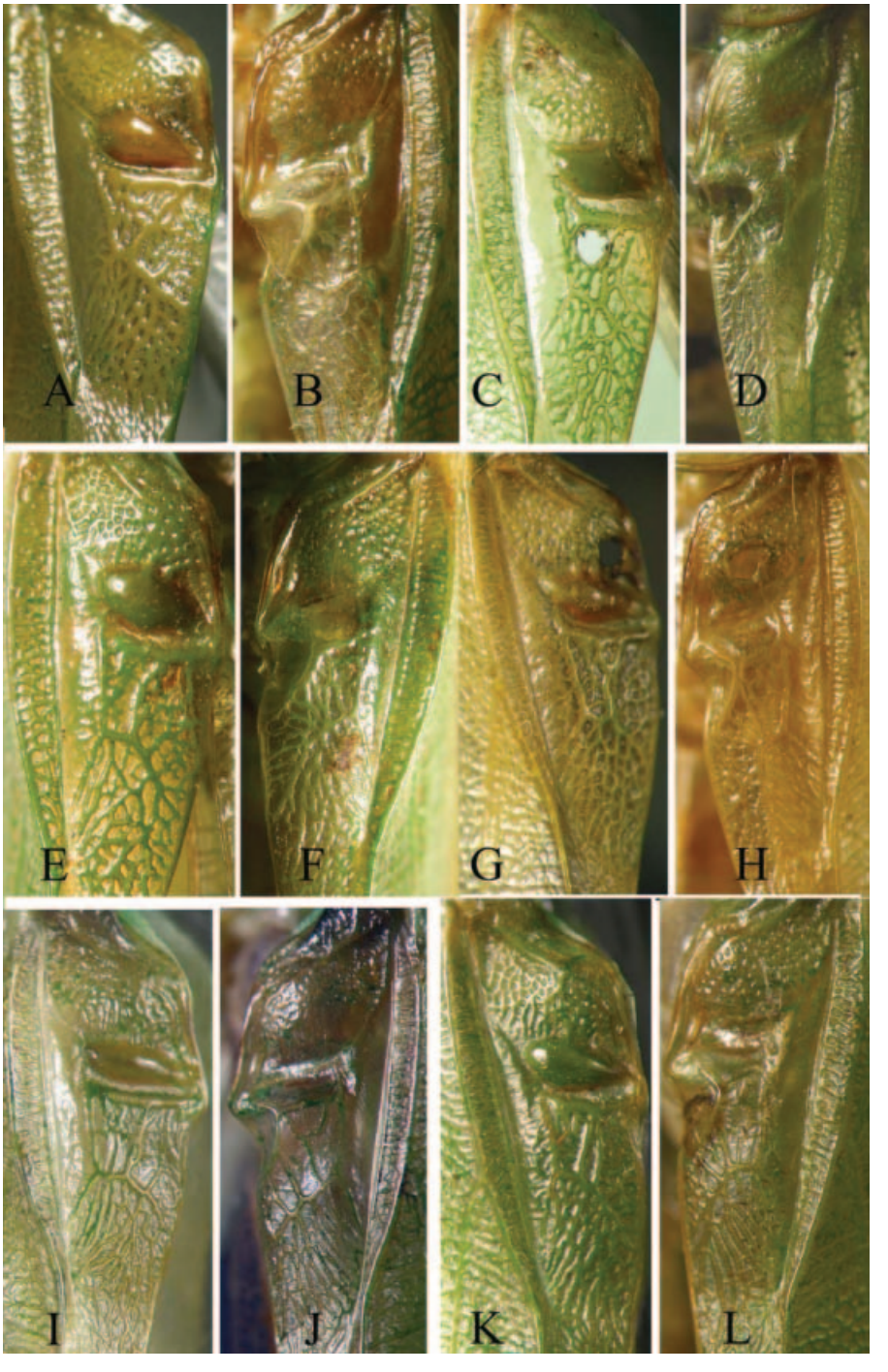


Figure 2. Male left and right stridulatory areas of *Sinochlora* species. (A, B) *S. szechwanensis* from Jiangxi Prov.; (C, D) *S. szechwanensis* from Zhejiang Prov.; (E, F) *S. trispinosa*; (G, H) *S. retrolateralis* sp. n.; (I, J) *S. tibetensis* sp. n.; (K, L) *S. aequalis* sp. n.

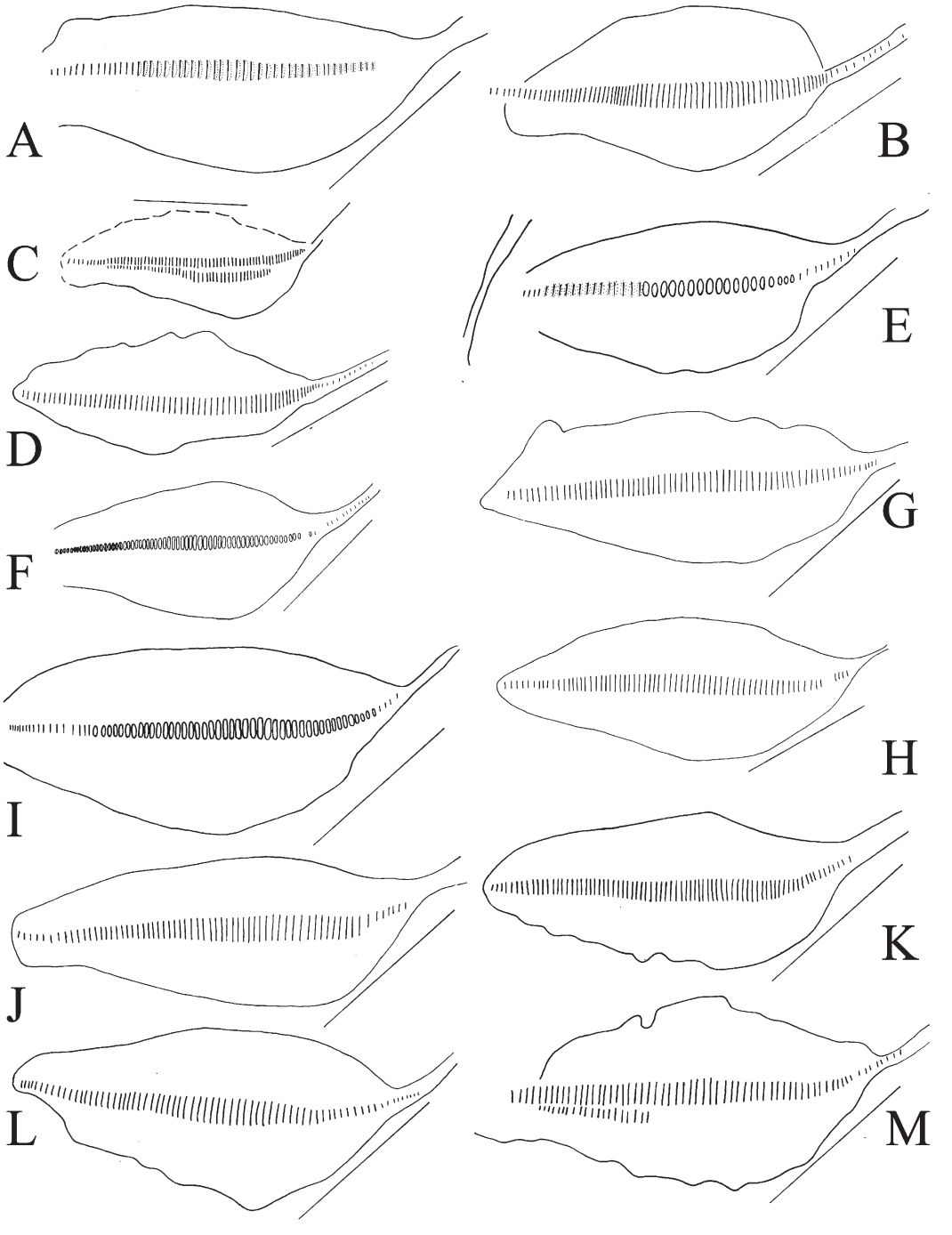


Figure 3. Stridulatory file on underside of left tegmen of *Sinochlora* species. (A) *S. sinensis*; (B) *S. trapezialis* sp. n.; (C) *S. nonspinosa* sp. n.; (D) *S. hainanensis*; (E) *S. longifissa*; (F) *S. szechwanensis* from Jiangxi Prov., China; (G) *S. mesominora* sp. n.; (H) *S. retrolateralis* sp. n.; (I) *S. trispinosa* sp. n.; (J) *S. szechwanensis* from Henan Prov., China; (K) *S. szechwanensis* from Hubei Prov., China; (L) *S. szechwanensis* from Hunan Prov., China; (M) *S. szechwanensis* from Zhejiang Prov., China. Scale bars: 1 mm.

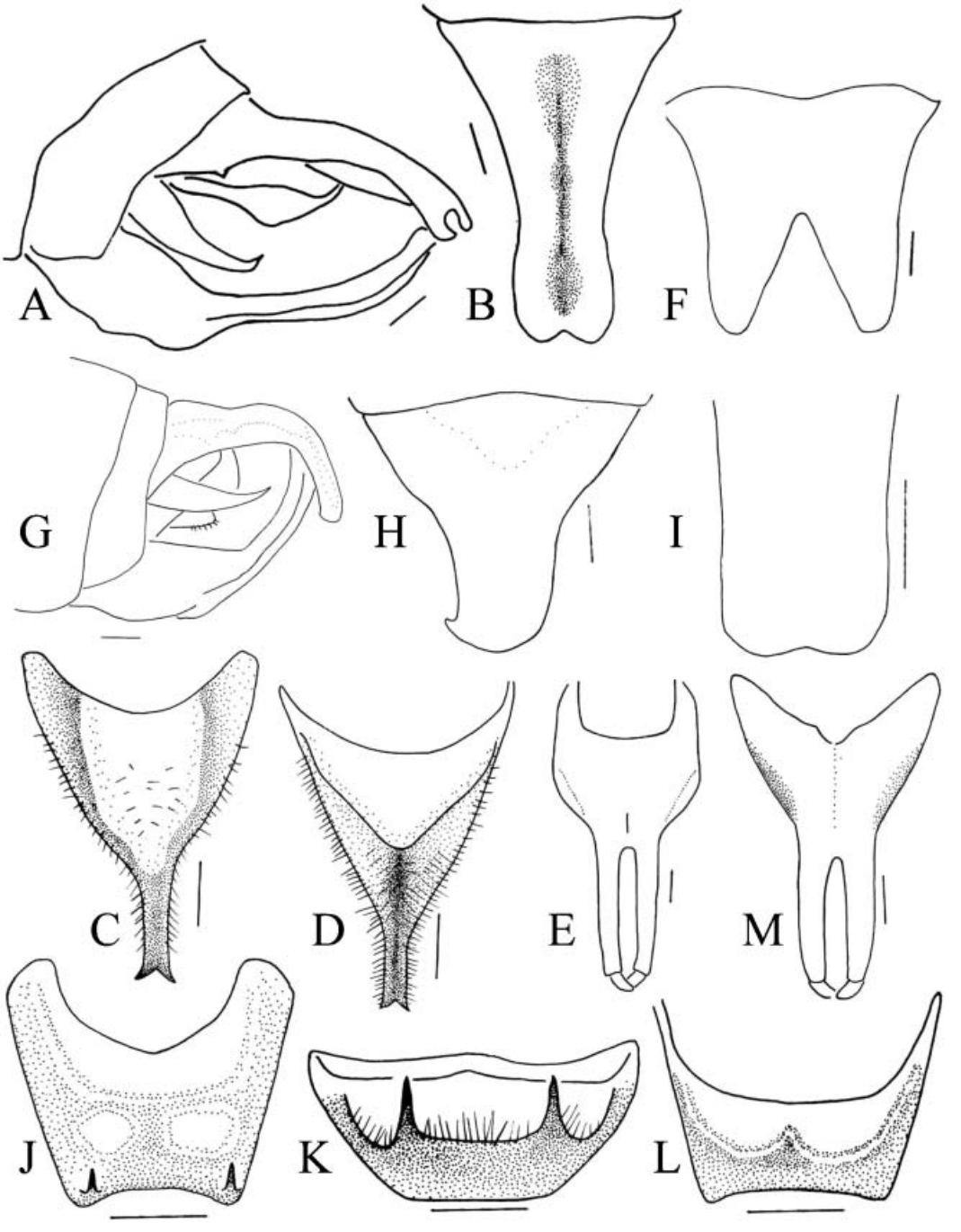


Figure 4. (A–F) *Sinochlora sinensis*; (G–M) *S. trapezialis* sp. n. (A, G) Male abdominal apex, lateral view; (B, H) male tenth abdominal tergum, dorsal view; (C, J) male epiproct, dorsal view; (D, L) male epiproct, ventral view; (E, M) male subgenital plate, ventral view; (F) female subgenital plate, ventral view; (I) male tenth abdominal tergum, dorso-apical view; (K) male epiproct, dorso-apical view. Scale bars: 1 mm.

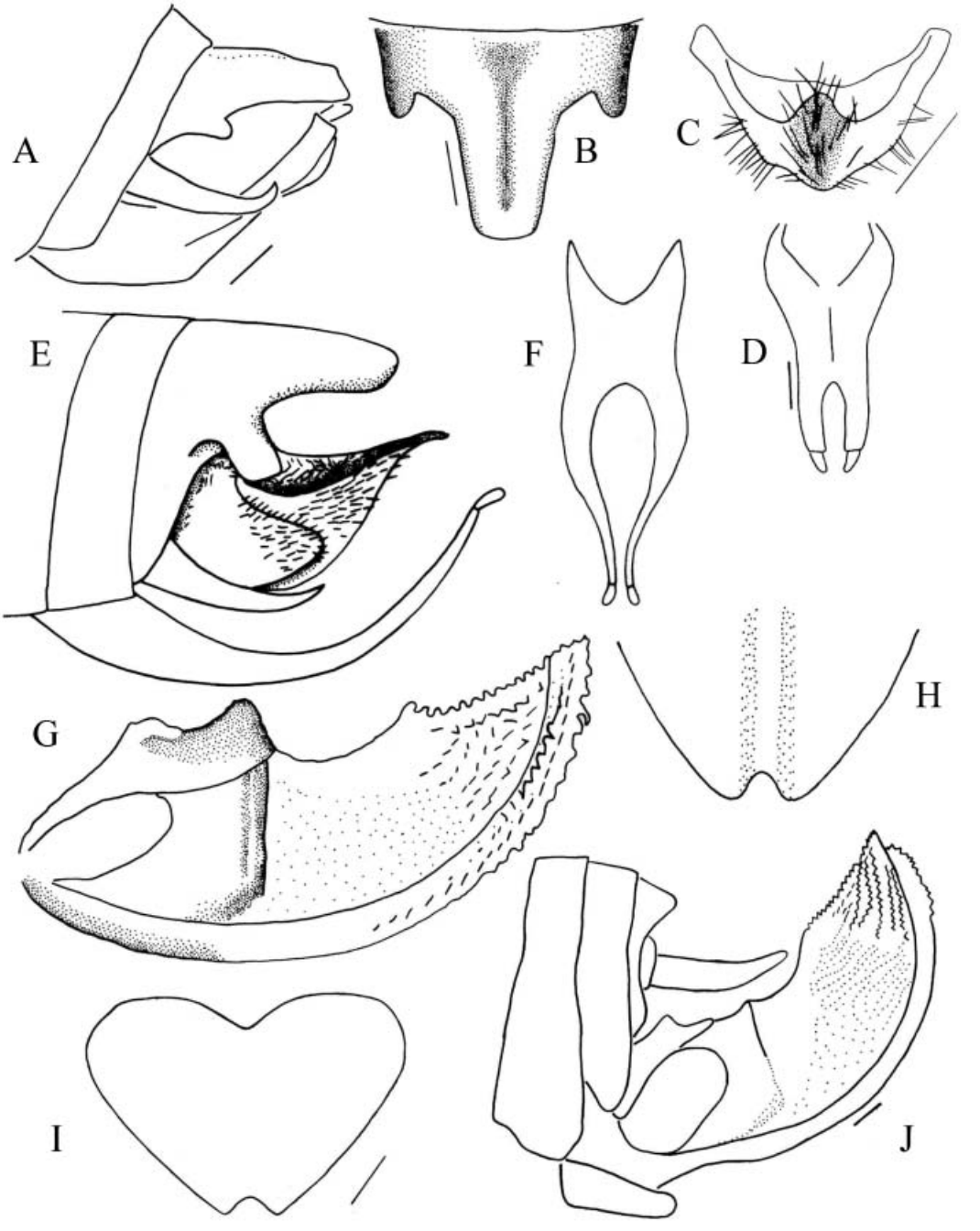


Figure 5. (A–D) *Sinochlora nonspinosa* sp. n.; (E–H) *S. voluptaria*; (I, J) *S. tibetensis* sp. n. (A, E) Male abdominal apex, lateral view; (B) male tenth abdominal tergum, dorsal view; (C) male epiproct, dorso-apical view; (D, F) male subgenital plate, ventral view; (G, J) female ovipositor, lateral view; (H, I) female subgenital plate, ventral view. (E–H) After Carl (1914, p 549, Figures 3–6). Scale bars: 1 mm.

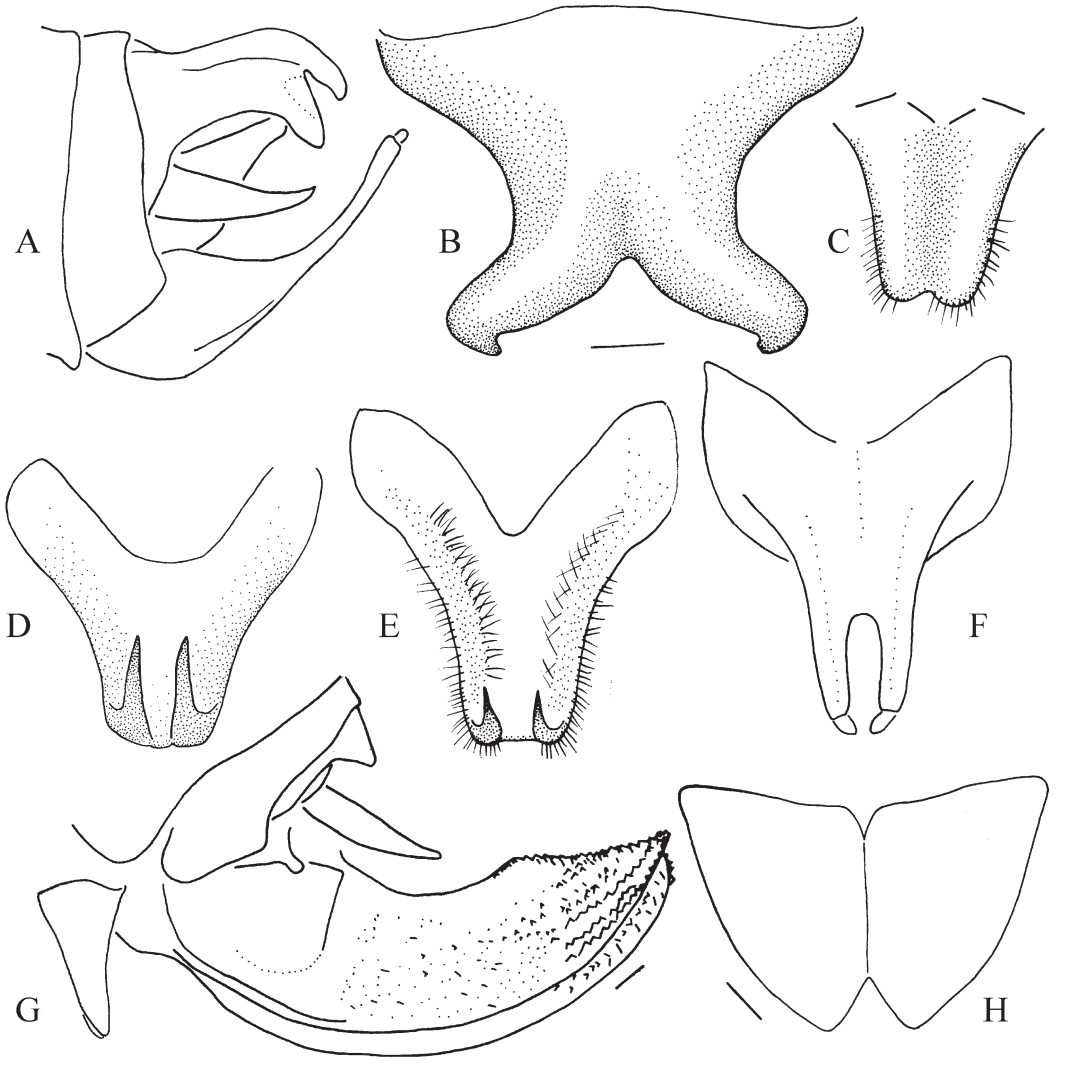


Figure 6. *Sinochlora hainanensis*. (A) Male abdominal apex, lateral view; (B) male tenth abdominal tergum, dorsal view; (C) male epiproct, ventral view; (D) male epiproct, dorsal view; (E) male epiproct, dorso-apical view; (F) male subgenital plate, ventral view; (G) female ovipositor, lateral view; (H) female subgenital plate, ventral view. Scale bars: 1 mm.

– Male with central portion of tenth abdominal plate rather short or absent; the lateral processes of the plate large (Figures 6B, 7B, 9B, 10B) 6

2. Central process of male tenth abdominal tergum much more elongate, and lateral processes almost indistinct (Figure 4A, B, G, H); male subgenital plate split from approximately apical half (Figure 4E, M) 3
– Central process of male tenth abdominal tergum slightly shorter, and lateral processes distinct (Figure 5A, B, E); male subgenital plate variable. 5

3. Central process of male tenth abdominal tergum possessing distal half strongly deflexed and with apical margin truncate or slightly clavate (Figure 10F). Male

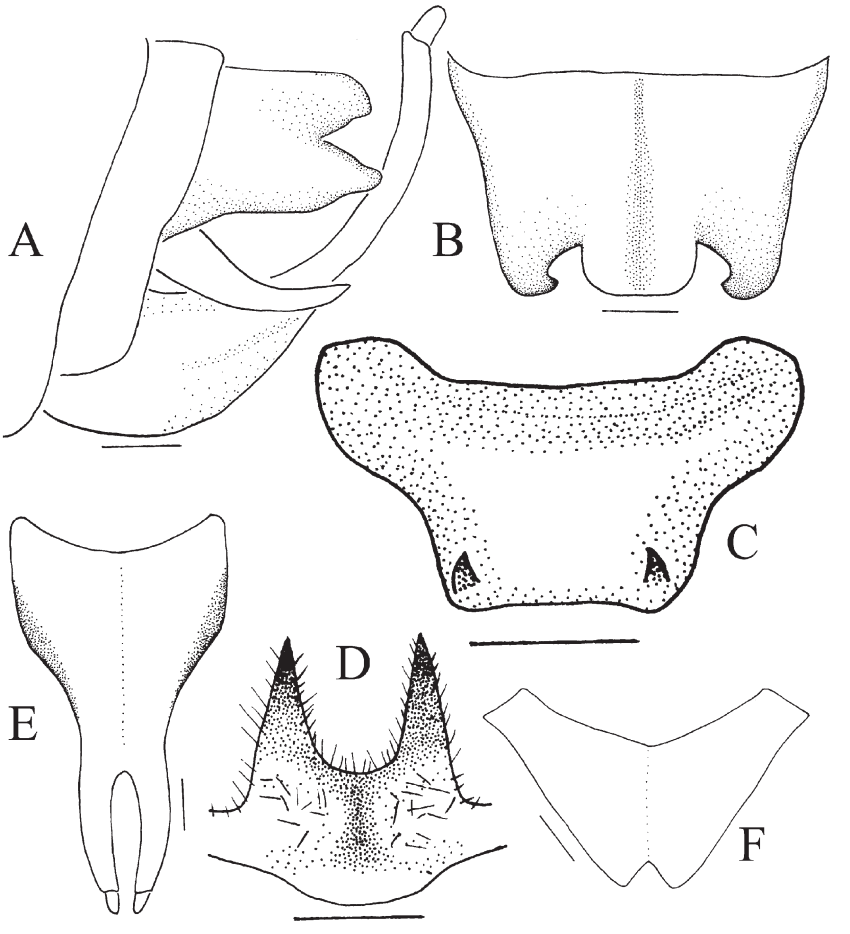


Figure 7. *Sinochlora longifissa*. (A) Male abdominal apex, lateral view; (B) male tenth abdominal tergum, dorsal view; (C) male epiproct, dorsal view; (D) male epiproct, ventro-apical view; (E) male subgenital plate, ventral view; (F) female subgenital plate, ventral view. Scale bars: 1 mm.

epiproct short, triangular, thickened, with a spine recurved upward at apex (Figure 10G). Female subgenital plate large, base wider than the apex, closely quadrangular with a deeper triangular notch on posterior margin. Guizhou Province, China (Figure 10H) . . . . *Sinochlora stylosa* Shi and Chang, 2004

– Distal part of central process of male tenth abdominal tergum somewhat deflexed with apical margin emarginate to different extent (Figure 4A, B, G, H); male epiproct various with two spines at apex (Figure 4E, M) 4

4. Male tenth abdominal tergum with apical halves not deflexed and with apical margin distinctly notched (Figure 4A, B). Male epiproct approximately triangular, longer than wider, with basal margin widest, then abruptly constricted; apical third very narrow, with both lateral margins subparallel and armed with a pair of very small spine-like processes which are projected dorsad only at apex, notch between triangular (Figure 4C, D). Female subgenital plate quadrangular with a large

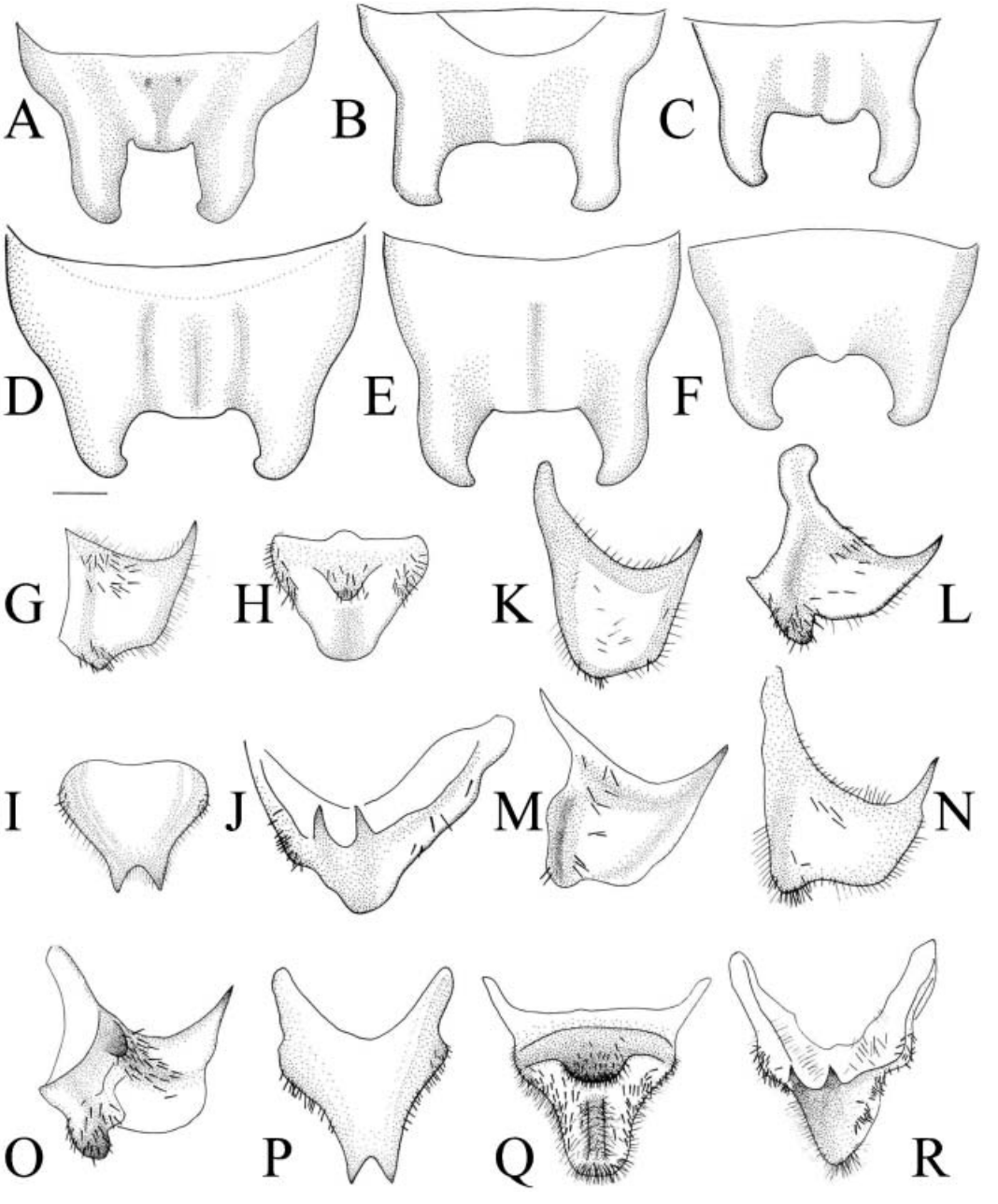


Figure 8. Transition of characters in different population of *Sinochlora szechwanensis*. (A, G–J) From Sichuan Prov.; (B, K) from Hunan Prov.; (C, L) from Hubei Prov.; (D, M) from Jiangxi Prov.; (E, N) from Henan Prov.; (F, O–R) from Zhejiang Prov. (A–F) Male tenth abdominal tergum, dorsal view; (G, K–N) male epiproct, lateral view; (H, Q) male epiproct, ventral view; (I, P) male epiproct, dorsal view; (J, R) male epiproct, dorso-apical view. Scale bar: 1 mm.

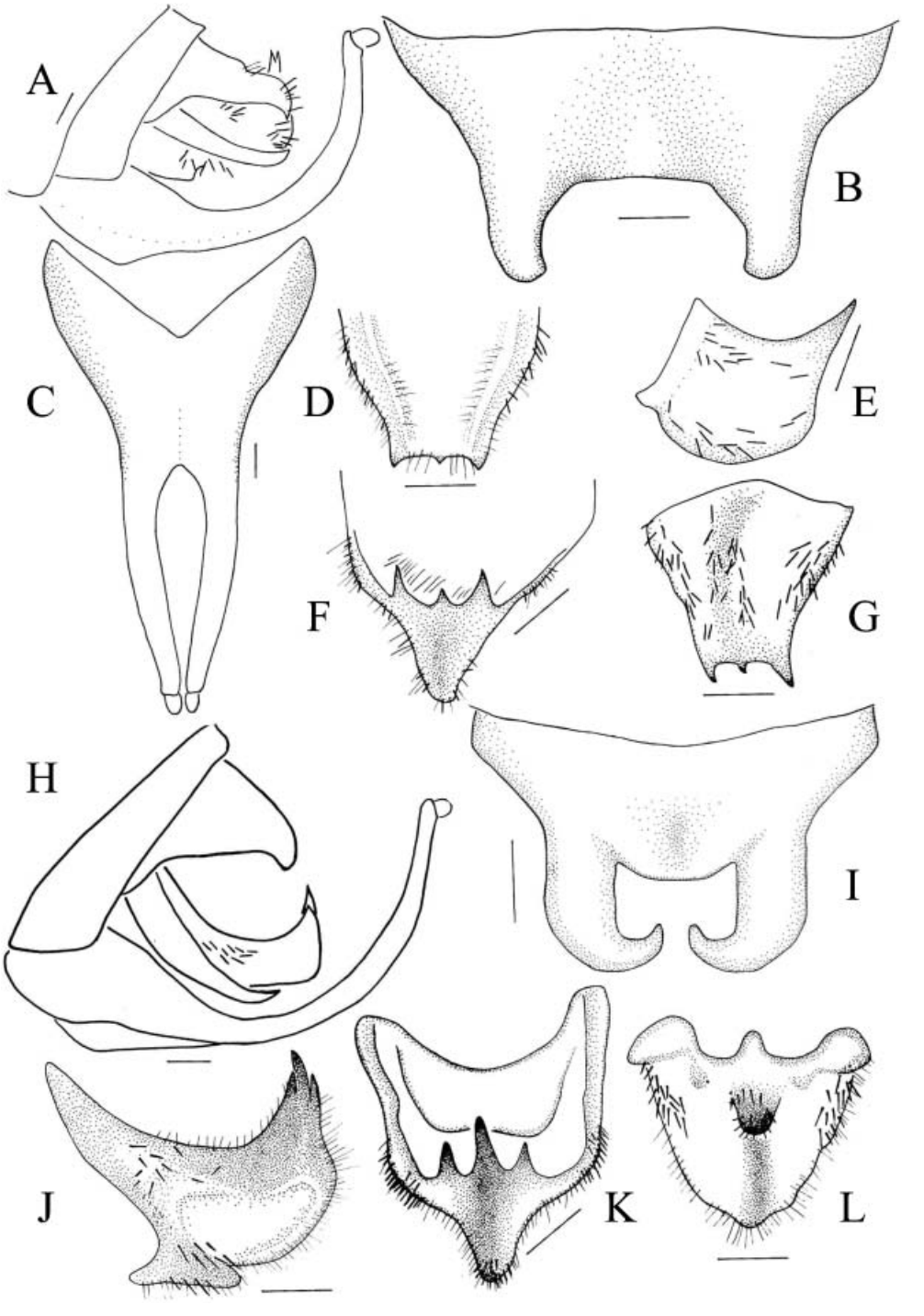


Figure 9. (A–G) *Sinochlora mesominora* sp. n.; (H–L) *S. trispinosa*. (A, H) Male abdominal apex, lateral view; (B, I) male tenth abdominal tergum, dorsal view; (C) male subgenital plate, ventral view; (D) male epiproct, dorsal view; (E, J) male epiproct, lateral view; (F, K) male epiproct, dorso-apical view; (G, L) male epiproct, ventral view. Scale bars: 1 mm.

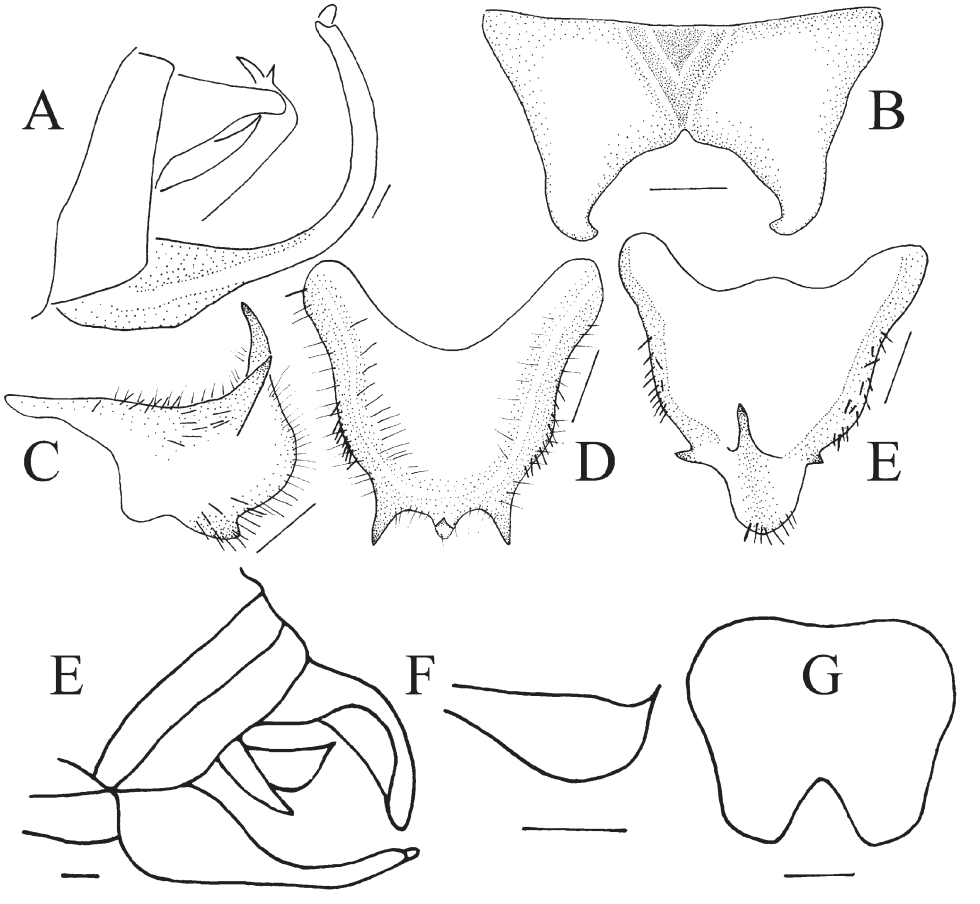


Figure 10. (A–E) *Sinochlora retrolateralis* sp. n.; (F–G) *S. stylosa*. (A, F) Male abdominal apex, lateral view; (B) male tenth abdominal tergum, dorsal view; (C) male epiproct, lateral view; (D) male epiproct, dorsal view; (E) male epiproct, dorso-apical view; (G) female subgenital plate, ventral view. (F–G) After Shi and Chang (2004, p 337, Figures 2, 4, 5). Scale bars: 1 mm.

triangular notch in the apical third (Figure 4F). Widespread in the Oriental region of China . . . . . *Sinochlora sinensis* Tinkham, 1945

– Central process of male tenth abdominal tergum possessing distal half strongly deflexed with apical margin slightly emarginated (Figure 4G–I). Male epiproct approximately trapeziform, slightly wider than long, with basal margin broadly concave, lateral margin gradually constricted towards the apex, and each posterior lateral corner extending into an upcurved sharp spine-like process (Figure 4K–L). Female unknown. Guangxi Povince, China . . . *Sinochlora trapezialis* sp. n.

5. Size small (length of male: tegmina 42.0 mm, posterior femora 27.0 mm). Male tenth abdominal tergum with small lateral lobes (Figure 5A, B). Male subgenital plate split from about apical third, with lateral margins slightly convex after the basal constriction (Figure 5D). Female unknown. Guangxi Province, China . . . . . *Sinochlora nonspinosa* sp. n.

– Size much larger (length of male: tegmina 56.0 mm, posterior femora 34.0 mm) (Carl 1914). Male tenth abdominal tergum with lateral lobe rather big (Figure 5E). Male subgenital plate split from about basal third, with lateral margins strongly convex after the basal constriction (Figure 5F). North Vietnam . . . . . *Sinochlora voluptaria* (Carl, 1914) comb. n.

6. Male tenth abdominal tergum with each lateral lobe rather long and strongly inclined downwards, the median process large, gradually constricted toward both swollen lateral apices (Figure 11D). Male epiproct smaller, and just bearing three small round lobes at apex, among which the middle one is distinctly smaller than both the lateral ones (Figure 11F). Female subgenital plate large, widely triangular, lateral margins approximately straight, and with a small broad shallow triangular notch at the apex (Figure 5I). Tibet, China . . . . . *Sinochlora tibetensis* sp. n.
– Male tenth abdominal tergum, epiproct and female subgenital plate various, not as above 7

7. Male tenth abdominal tergum with distal quarter deflexed and split into two approximately triangular strongly diverging lateral lobes (Figure 6A, B). Male epiproct approximately trapezoid, much longer than wide, and with each posterior lateral corner extending into a long upcurved sharp spine (Figure 6C, D). Female subgenital plate large, broadly triangular, with strongly convex lateral margins and with an acute triangularly incised apex (Figure 6H). Hainan Island, China . . . . . *Sinochlora hainanensis* Tinkham, 1945
– Lateral lobes of male tenth abdominal tergum not strongly diverging as above. Male epiproct and female subgenital plate not as above 8

8. Central process of male tenth abdominal tergum large and elevated with its posterior margin approximating the apices of the lateral arms (Figure 7A, B). Male epiproct smaller, slightly wider than long, and bearing a pair of relatively short spine-like lateral processes at apex, which are projected dorsad, notch between trapezoid (Figure 7C, D). Female subgenital plate short and very broadly triangular, with a broad shallow triangular notch at the apex (Figure 7F). China, Korea, Japan . . . . . *Sinochlora longifissa* (Matsumura and Shiraki, 1908)
– Male epiproct not as above. Female subgenital plate triangular, longer than wide 9

9. Male epiproct equilaterally triangular, dorsally concave towards the inside, with a pair of black sharp spines directing dorso-caudad, between which is triangular (Figure 8G–R). Widespread in Oriental region of China . . . . . *Sinochlora szechwanensis* Tinkham, 1945
– Male epiproct equilaterally triangular, dorsally concave towards the inside, with three spines at apex 10

10. Male epiproct possessing three spines at apex, among which the middle one is as long as or longer than two lateral ones 11
– Male epiproct possessing three prongs at apex, among which the middle one is shorter than two lateral ones (Figure 9D–G). Female unknown. Hunan Province, China . . . . . *Sinochlora mesominora* sp. n.

11. Male epiproct possessing three spines at apex, among which the middle one is as long as two lateral ones (Figure 11K, L) . . . . . *Sinochlora aequalis* sp. n.

– Male epiproct possessing three spines at apex, among which the middle one is as long as or longer than two lateral ones 12

12. Male epiproct bearing three spines consistently directing dorso-caudad at apex (Figure 9J–L). Guangxi Province, China *Sinochlora trispinosa* Shi and Chang, 2004
– Male epriproct possessing three spines at apex, among which the longest middle one is directing caudad at the base and curved craniad apically, both lateral ones symmetrically smaller, directing caudad and diverging forth (Figure 10C–E). Female unknown. Fujian Province, China . . . . *Sinochlora retrolateralis* sp. n.

Sinochlora sinensis Tinkham

(Figures 1A, B, 3A, 4A–F)

Sinochlora sinensis Tinkham 1945, p 235–246; Eades et al. 2006.

Material examined

One male, one female, China: Guangxi Prov.: Baishou, 29 June 1952 (collector unknown) (IZAS); two males, four females, China: Guangxi Prov.: Mt. Maoershan, 1080–1200 m, 25 August 1982, coll. Yang Jikun (ICAU); two males, one female, China: Sichuan Prov.: Mt. O'meishan, Qingyinge, 800–1000 m, 19 November 1957, coll. Huang Keren and Lu Youcai (IZAS); one male, China: Guizhou Prov.: Jiangkou, Mt. Fanjingshan, 530 m, 13 July 1988, coll. Wang Shuyong (IZAS); one male, one female, China: Fujian Prov.: Chong'anxingcun, Sangang, 740–840 m, 27 July 1960, coll. Ma Chenglin (IZAS); one male, China: Fujian Prov.: Chong'anxingcun, Longdu, 580–650 m, 12 July 1960, coll. Ma Chenglin (IZAS); one male, China: Zhejiang Prov.: Taishun, 29 August 1987, coll. Liu Zuyao and Jin Gentao (MSIE); one female, China: Zhejiang Prov.: Qingyuan, 650 m, collecting data and collector unknown (MSIE); one female, China: one female, Fujian Prov.: Shaowu, 13 August 1957, coll. Fan Zide and Wang Mingshi (MSIE); one male, China: Fujian Prov.: Hexi, collecting data and collector unknown (MSIE); one female, China: Sichuan Prov.: Qingchengshan Mt., 870 m, 10 September 1985, coll. Jin Gentao (MSIE); one male, China: Sichuan Prov.: Chongqing, Cuiweishan Mt., 4 August 1992, coll. Wang Tianqi (MSIE); two females, China: Guizhou Prov.: Jiangkou, Fanjingshan Mt. (MSIE), 22 September 1988, coll. Liu Xianwei (MSIE); one female, China: Guizhou Prov.: Shiqian County, 23 July 1988, coll. Liu Zuyao (MSIE).

Redescription

Male. Stridulatory file on underside of left tegmen with about 50 teeth (Figure 3A). Epiproct approximately long triangular, dorsally concave towards the inside, without long black heavy bristles in the ventral surface; basal half area semicircular, then abruptly narrowed; apical third very narrow, subparallel-sided, and armed with a pair of very small spine-like processes projected dorsad only at apex, notch between triangular (Figure 4C, D).

Color. Deep foliage-green. Costal vein white and black, and each tegmen with a black spot at the base of the green subcostal vein.

Measurements (mm)

Length of body: male 30.0–31.0, female 30.0; length to apex of ovipositor 34.0; length to tip of wing: male 58.0–59.0, female 59.0; length of pronotum: male 6.0–6.1, female 6.0;

length of tegmen: male 45.5–48.0, female 48.0; widest width of tegmen: male 9.0–9.5, female 9.2; length of hind wing: male 51.0–53.5, female 58.2; length of anterior femur: male 8.5, female 8.5; length of median femur: male 13.0, female 12.5; length of posterior femur: male 27.0–30.0, female 29.0; length of ovipositor 9.0–10.0.

Distribution

China.

Sinochlora trapezialis sp. n.
(Figures 1C, D, 3B, 4G–M)

Type material

Holotype: male, China: Guangxi Prov.: Long'an, Longhushan Mt., 29 August to 1 September 1995, coll. Liu Xianwei, Jin Xingbao, and Zhang Weinian (MSIE).

Description

Male (holotype). Form and size moderate for the genus (length of male: tegmina 43.5 mm, posterior femora 29.0 mm). Stridulatory file on underside of left tegmen with about 65 teeth (Figure 3B). Male tenth abdominal tergum with central process strongly produced, distal half strongly deflexed, apical margin emarginated, and lateral processes indistinct (Figure 4G–I). Male epiproct approximately trapeziform, slightly wider than long, with dorsal surface strongly concave towards the inside symmetrically, without long black heavy bristles in the ventral surface; basal margin broadly concave, lateral margin gradually constricted towards the apex, and each posterior lateral corner extending into an upcurved sharp spine. Male cerci rather long, incurved, and conical (Figure 4J–L). Male subgenital plate slightly upcurved, split from apical half, and with small styli (Figure 4M).

Color. Deep foliage-green. Costal vein white and black, and each tegmen with a black spot at the base of the green subcostal vein.

Female. Unknown.

Measurements of male (mm)

Length of body 29.0, length to tip of wing 55.5, length of pronotum 6.3, length of tegmen 43.5, largest width of tegmen 8.5, length of hind wing 48.5, length of anterior femur 8.5, length of median femur 11.0, length of posterior femur 29.0.

Remarks

In having elongated deflexed central process and indistinct lateral lobes of male tenth abdominal tergum, the new species closely resembles *S. stylosa* from Guizhou Province in southwestern China. It differs from *S. stylosa* by the male epiproct being trapezoid with each lateral apex formed into an upcurved spine (not triangular with apex formed into a spine).

Distribution

China.

Sinochlora nonspinosa sp. n.
(Figures 1E, F, 3C, 5A–D)

Type material

Holotype: male, China: Guangxi Prov.: Napo, Defu, 1300 m, 16 August 1998, coll. Huang Fusheng (IZAS).

Description

Male (holotype). Form and size smaller for the genus (length of male: tegmina 42.0 mm, posterior femora 27.0 mm). Stridulatory file on underside of left tegmen transversely split from the middle, with about 70 teeth (Figure 3C). Male tenth abdominal tergum with central process produced, gradually narrowed, apical margin rounded, and each lateral one distinctly present as a small round lobe (Figure 5A, B). Male epiproct triangular, dorsally strongly concaved entad, and with long black heavy bristles in apical part of ventral surface, and apical part upcurved, gradually tapering into an obtuse finger-shaped process at apex. Male cerci rather long, incurved, and conical (Figure 5C). Male subgenital plate strongly upcurved, split from apical third, and with small styli (Figure 5D).

Color. Deep foliage-green. Costal vein white and black, each tegmen with a black spot at the base of the green subcostal vein.

Female. Unknown.

Measurements of male (mm)

Length of body 25.0, length to tip of wing 52.0, length of pronotum 5.5, length of tegmen 42.0, largest width of tegmen 7.5, length of hind wing 47.0, length of anterior femur 7.0, length of median femur 10.5, length of posterior femur 27.0.

Remarks

The new species closely resembles *S. voluptaria* in male tenth abdominal tergum with central process strongly produced far beyond the somewhat distinct lateral lobes, but distinctly distinguished from the latter in the small size, the shape of the male subgenital plate and male epiproct triangular with apex obtuse and upcurved.

Distribution

China.

Sinochlora tibetensis sp. n.
(Figures 3I, J, 5I, J, 11A, C–H)

Type material

Holotype: female, China: Tibet: Motuo, 1550 m, 30 October 1982, coll. Han Yinheng (IZAS). Paratypes: one female, same data as in holotype but coll. Lin Zai (IZAS); China:

Tibet: Motuo, one female, Miri, 800 m, 16 November 1998, coll. Yao Jian (IZAS); one female, Zhucun, 16 November 1998, coll. Yao Jian (IZAS); five males, at light, China: Tibet: Motuo, Aniqiao, 1080 m, 29.32874°N, 95.14866°E, 13 August to 1 September 2006, coll. Liu Chunxiang (IZAS).

Description

Female (holotype). Size larger for the genus (length of tegmen: male 55 mm, female 56.0–57.0 mm; length of posterior femur: male 33.5 mm, female 36.0 mm). Form, coloration, fastigum verticis, and pronotum also similar to the congenera. Tegmen with Rs bifurcate and given off slightly after the middle, and R stem also with three other lateral branches.

Female tenth abdominal tergum approximately trapeziform, with apical margin slightly obtuse. Cerci short, conical, suddenly sharpened into a spine at apex. Subgenital plate triangular, wider than long, with slightly convex lateral margin and obtuse emarginated apical margin (Figure 5I). Ovipositor similar to other congener (Figure 5J).

Male. Stridulatory file on underside of left tegmen with about 74 stridulatory teeth (Figure 11A). Tenth abdominal tergum with each lateral lobe rather long and strongly inclined downwards, the median process large, declined from base to center on the dorsal surface, gradually constricted toward both swollen lateral apices, and extending beyond the apices of the lateral lobes (Figure 11C, D). Epiproct smaller, approximately trapezoid, slightly wider than long, dorsally concave entad, with numerous black bristles in the ventral surface, and just bearing three small round lobes at apex, among which the middle one is distinctly smaller than both the lateral ones (Figure 11F, G). Male subgenital plate with apical two-fifths incised, and the forked processes gently recurved (Figure 11H).

Color. Deep foliage-green. Costal vein white and black, each tegmen with a black spot at the base of the green subcostal vein. Apical half lateral lobes of male tenth abdominal tergum black. Male epiproct marginalized black lateral stripes, and also with black half apical part.

Measurements (mm)

Length of body: male 32.0, female 35.0; length of pronotum: male 6.2, female 7.0; length to apex of ovipositor: 34.5–39.0; length to tip of wing: male 66.0, female 66.5–70.0; length of tegmen: male 55, female 56.0–57.0; largest width of tegmen: male 7.0, female 12.0; length of hind wing: male 60.0, female 62.0–63.0; length of anterior femur: male 7.5, female 10.0–10.5; length of median femur: male 13.5, female 14.0–15.0; length of posterior femur: male 33.5, female 36.0; length of ovipositor 12.0.

Remarks

The new species differs from other *Sinochlora* species by the larger size, structure of male tenth abdominal tergum, male epiproct, and female widely triangular subgenital plate. It slightly resembles *S. longifissa* in the shape of female subgenital plate, but differs by the larger size, male abdominal apex and the female subgenital plate with obtuse emarginated apical margin (not angular emarginated). It resembles *S. hainanensis* in size but differs by the male abdominal apex and the shape of female subgenital plate.

Distribution

China.

Sinochlora hainanensis Tinkham
(Figures 1G–H, 3D, 6A–H)

Sinochlora hainanensis Tinkham 1945, p 241; Eades et al. 2006.

Material examined

Two females, China: Hainan Island: Jianfengling, 9 July 1981, coll. Liu Yuanfu (IZAS); three males, one female, same data as above, but deposited in MSIE; 10 males, at light, China: Hainan Island: Baisa County: Yingeling Nature Reserve, 1100 m, 27 August to 4 September 2005, coll. Liu Chunxiang (IZAS).

First description of male (nov.)

Form and size large for the genus (male length of tegmen: male 48.5 mm; length of posterior femur: male 31.5 mm). Stridulatory file on underside of left tegmen with about 55 teeth (Figure 3D). Male tenth abdominal tergum strongly produced, distal quarter deflexed, split into two approximately triangular strongly diverging lateral lobes (Figure 6A, B). Male epiproct approximately trapezoid, much longer than wide, dorsal surface strongly concaved symmetrically, and without long black bristles in the ventral surface; basal margin broadly concave, lateral margin strongly constricted towards the apex, and with each posterior lateral corner extending into a long upcurved sharp spine (Figure 6C, D). Male cerci rather long, incurved, and conical. Male subgenital plate slightly upcurved, widest at basal third part, then strongly tapering, split from apical third, and both subparallel lateral lobes with minute styli (Figure 6F).

Color. Deep foliage-green. Costal vein white and black, each tegmen with a black spot at the base of the green subcostal vein.

Measurements (mm)

Length of body: male 30.0, female 35.0; length to apex of ovipositor 40.0–42.5; length to tip of wing: male 61.0, female 67.0–73.0; length of pronotum: male 7.0, female 7.0; length of tegmen: male 48.5, female 56.0–57.0; largest width of tegmen: male 9.6, female 12.0; length of hind wing: male 53.5, female 62.0–63.0; length of anterior femur: male 8.5, female 9.0; length of median femur: male 13.0, female 13.5–14.0; length of posterior femur: male 31.5, female 36.0; ovipositor 12.0.

Variation

One specimen has triangular subgenital plate with straight lateral margin and emaginated apical margin, which is very different from the original description of *Sinochlora hainanensis*.

Remarks

The species is distinctly distinguished by male tenth abdominal tergum strongly produced, distal quarter deflexed, split into two approximately triangular strongly diverging lateral

lobes, and male epiproct approximately conversely trapezoid, much longer than wide, and each posterior lateral corner extending into a long upcurved sharp spine, and without long black bristles in the ventral surface.

Distribution

China.

Sinochlora longifissa (Matsumura and Shiraki)
(Figures 1I, J, 3E, 7A–F)

Holochlora longifissa Matsumura and Shiraki 1908, p 16; Eades et al. 2006.
Sinochlora longifissa: Kang 1987, p 40–41.
Sinochlora kwangtungensis: Tinkham 1945, p 235–246; Kang 1987, p 40–41 (Syn.)

Material examined

One male, Japan: Mie, Misagi, September 1994, coll. Professor Kihari L. X. (MSIE); two males, three females (paratypes), China: Jiangxi Prov.: Guling (date and collector unknown) (Museum Heude) (IZAS); four males, two females, China: Guangxi Prov.: Maoershan, 1080–1200 m, 25 August 1982, coll. Yang Jikun (ICAU); one male, China: Jiangxi Prov.: Mt. Jiulianshan, Xiagongtang, 580 m, 24–30 July 2000, coll. Yuan Decheng (IZAS); one male, China: Fujian Prov.: Chong'anxingcun, Xianfengling, 850–1170 m, 6 April 1960, coll. Zuo Yong (IZAS); one male, China: Anhui Prov.: Huangshan Mt., Yungusi, 800 m, 29 August 1964, coll. Jin Gentao (MSIE); one male, China: Anhui Prov.: Huangshan Mt., 850 m, 22 August 1964, coll. Jin Gentao (MSIE); three males, one female, China: Fujian Prov.: Wuyishan Mt., Sangang, 27 August to 3 September 1994, coll. Jin Xingbao and Yin Haisheng (MSIE); one male, China: Henan Prov.: Shangcheng, Huangbaimushan Mt., 600–700 m, 18 July 1985, coll. Sun Hongquan (MSIE); one male, two females, China: Henan Prov.: Shangcheng, Changzhuyuan, 20 July 1985, coll. Sun Hongquan (MSIE); two males, China: Anhui Prov.: Jiuhuashan Mt., 16–18 August 1985, coll. Liu Zuyao (MSIE); one male, China: Zhejiang Prov.: Yinxian, Tiantong, 29 July 1986, coll. Liu Zuyao (MSIE); one male, one female, China: Anhui Prov.: Huangshan Mt., Wenquan, 20–23 October 1985, coll. Liu Xianwei (MSIE); one male, one female, China: Anhui Prov.: Huangshan Mt., 21 October 1985, coll. Liu Xianwei (MSIE); two males, China: Anhui Prov.: Huangshan Mt.: Wenquan, 27 August to 1 September 1983, coll. Bi, He, and He (MSIE); three males, China: Hunan Prov.: Cili, Suoxiyu, 3 September 1988, coll. Liu Xianwei (MSIE); one male, China: Zhejiang Prov.: Tianmushan Mt., 29 August 1989, coll. Liu Xianwei (MSIE); six males, China: Zhejiang Prov.: Tianmutian Mt., 29 August 1989, coll. Liu Xianwei (MSIE); six males, six females, China: Guangxi Prov.: Xing'an, Maoershan Mt., 900–1500 m, 22–23 August 1992, coll. Liu Xianwei and Yin Haisheng (MSIE).

Redescription

Male. Stridulatory file on underside of left tegmen with about 10 undeveloped teeth in the basal part, and 36 normal teeth in the other part (Figure 3E). Tenth abdominal tergum with each lateral lobe short and forcipate, the median process large, elevated, and with its posterior margin approximating the apices of the lateral lobes (Figure 7A, B). Epiproct

smaller, slightly wider than long, dorsally concave entad, without black bristles in the ventral surface, and bearing a pair of relatively short spine-like lateral processes at apex, which are projected dorsad, notch between trapezoid (Figure 7C, D). Male subgenital plate with apical fourth incised, and the forked processes gently recurved (Figure 7E).

Female. Subgenital plate short, triangular, wider than long, and with a shallow broad triangular notch at the apex (Figure 7F).

Color. Deep foliage-green. Costal vein white and black, each tegmen with a black spot at the base of the green subcostal vein.

Measurements (mm)

Length of body: male 24.0–28.0, female 29.0–30.0; length to apex of ovipositor 36.0; length to tip of wing: male 53.0–53.5, female 59.0; length of pronotum: male 5.5, female 6.0; length of tegmen: male 40.0–43.0, female 47.0; largest width of tegmen: male 8.0, female 9.0; length of hind wing: male 46.5–48.5, female 52.5; length of anterior femur: male 6.5, female 8.5; length of median femur: male 10.5, female 12.5; length of posterior femur: male 23.5, female 31.5; length of ovipositor 10.0.

Distribution

China, Korea, Japan.

Sinochlora szechwanensis Tinkham
(Figures 2A, B, 3F, J–M, 8A–R)

Sinochlora szechwanensis Tinkham 1945, p 235–246; Eades et al. 2006.
Sinochlora kiangsuensis Tinkham 1945, p 235–246; Eades et al. 2006. Syn. n.
Sinochlora gracilisulcula Shi and Zheng 1996, p 180–181; Eades et al. 2006. **Syn. n.**

Material examined

Three males, two females, China: Sichuan Prov.: Mt. O'meishan, Qingyinge, 800–1000 m, 17 September to November 1957, coll. Huang Keren, Lu Youcai, and Zhu Fuxing (IZAS); one male, China: Jiangxi Prov.: Jiulianshan, Xiagongtang, 580 m, 24–30 July 2000, coll. Yuan Decheng (IZAS); one male, China: Zhejiang Prov.: Mt. Tianmushan, 29 August 1947 (collector unknown); one male, China: Guangxi Prov.: Mt. Maoershan, 1200–1080 m, 25 August 1982, coll. Yang Jikun (ICAU); four males, three females, China: Sichuan Prov.: O'Mei Mt., 1 October 1991, coll. Liu Zuyao, Wang Tianqi, and Yin Haisheng (MSIE); one male, China: Anhui Prov.: Huangshan Mt., Wenquan, 9 October 1980 (MSIE); one female, same data as in above but 1 September 1983, coll. Bi, He, and He (MSIE); one male, one female, China: Anhui Prov., Dongzhi (MSIE); three males, two females, China: Henan Prov.: Neixiang, Getengpa, 700–950 m, 5 August 1985, coll. Zhang Xiujiang (MSIE); three males, one female, China: Henan Prov.: Shangcheng, Huangbaishan Mt., 1000 m, 25 October 1984, coll. Zhang Xiujiang (MSIE); one male, China: Henan Prov., Neixiang, Baoshanman, 1000 m, 14 August 1985, coll. Zhang Xiujiang (MSIE); one male, China: Henan Prov.: Xixia, Huangbaian,

900 m, 20 August 1985, coll. Zhang Xiujiang (MSIE); one male, China: Henan Prov.: Tongbai County, Tongbai Mt., 11 September 2000, coll. Liu Zhang (MSIE); two males, China: Hunan Prov., Dayong, Zhangjiajie, 13 September 1988, coll. Liu Xianwei (MSIE); one male, China: Hubei Prov., Shennongjia, Muyu, 1200 m, 29 August 1983, coll. Jin Gentao, Liu Zuyao, and Zheng Jianzhong (MSIE); one female (paratype of *S. gracilisulcula*), China: Sichuan Prov., Mt. O'meishan, 31 July to 6 August 1992, coll. Shi Fumin (SNUB).

Redescription

Male. Stridulatory file on underside of left tegmen with 10 undeveloped teeth at the basal part and about 64 normal teeth in the remaining part (Figure 3F, J–M). Epiproct bigger, longer, dorsally concave entad, with long black heavy bristles in the ventral surface, and apical area with a pair of relatively longer spine-like lateral processes which are projected dorsad beyond the median tumid area of the tenth abdominal tergum, notch between cambered (Figure 8G–R).

Measurements (mm)

Length of body: male 23.0–32.0, female 32.5–33.0; length to apex of ovipositor 32.5–34.0; length to tip of wing: male 49.0–59.5, female 58.5–59.5; length of pronotum: male 5.7–6.5, female 6.5–6.8; length of tegmen: male 44.0–47.5, female 45.5–48.5; largest width of tegmen: male 8.5–10.0, female 9.0–10.0; length of hind wing: male 48.5–52.0, female 49.5–53.5; length of anterior femur: male 9.0, female 8.0; length of median femur: male 12.0, female 12.5; length of posterior femur: male 27.0–32.0, female 28.6–30.5; length of ovipositor 10.0.

Discussion

The type specimens of *S. gracilisulcula* have been damaged. The original description of *S. gracilisulcula* just differs from that of *S. szechwanensis* in the former having the following apomorphies: small distance between the lateral lobes of male tenth abdominal plate, female subgenital plate slightly broader than long, and with a distinct obtuse-angular notch at the base and basal lateral margins distinctly enlarged. After carefully examining a damaged female paratype and the material from O'Mei Mt., Sichuan Province at hand, we found that these specimens somewhat vary to a different extent regarding male tenth abdominal tergum and shape of female subgenital plate. Thus as concerning male tenth abdominal tergum and female subgenital plate, we consider that there lies much morphological variation within the geographical population in O'Mei Mt., Sichuan Province; and the apomorphies mentioned about *S. gracilisulcula* are just not beyond the variation. So we consider *S. gracilisulcula* just as a junior synonym of *S. szechwanensis*.

When carefully examining specimens from nine different geographical populations: Sichuan Province, Hunan Province, Hubei Province, Henan Province, Anhui Province, Jiangxi Province, Jiangsu Province, Zhejiang Province, and Guangxi Province, we can trace all transitive forms of the different character states—male tenth abdominal tergum dorsally with or without a middle elongate sulcus, and slightly varied female subgenital plate between *S. kiangsuensis* and *S. szechwanensis*. More importantly, male epiprocts of different

geographical populations are nearly similar in structure, differing only by size of protuberance at the base of the ventral surface, of which all transitive forms with different size also can be traced (Figure 8G–R). The other characters including male stridulatory file, male tenth subgenital plate and male cerci are of slight or no difference. Thus we also consider *S. kiangsuensis* as a junior synonym of *S. szechwanensis*.

Distribution

Sinochlora szechwanensis Tinkham is distributed over the Chinese district of the Oriental Region.

Sinochlora mesominora sp. n.
(Figures 1K, L, 3G, 9A–G)

Type material

Holotype: male, China: Hunan Prov.: Dayong, Zhangjiajie, 10 September 1988, coll. Liu Xianwei (MSIE).

Description

Male (holotype). Stridulatory file on the underside of left tegmen with about 68 teeth (Figure 3G). Tenth abdominal tergum produced backwards, basal half triangularly sulcate in the middle, lateral forcipate processes gently decurved in the apical half, and apical margin approximately flat in the middle (Figure 9A, B). Epriproct dorsally concaved, with black bristles in the middle and both lateral sides in ventral surface, basal part widest, gradually constricted and shaped into three upcurved spines at apex, among which the middle one is smaller than the lateral ones, directing caudad at the base, and curved craniad apically, and both lateral symmetrical ones directing caudad (Figure 9D–G). Cerci conical, rather long, slender, and slightly curved. Subgenital plate broad at the base and very deeply cleft at the basal third, and the long arms strongly recurved and terminated with minute apical styli (Figure 9C).

Color. Brownish green. Costal vein white and black, each tegmen with a black spot at the base of the green subcostal vein.

Female. Unknown.

Measurements of male (mm)

Length of body 28.0, length to tip of wing 58.0, length of pronotum 6.5, length of tegmen 46.5, largest width of tegmen 9.0, length of hind wing 51.5, length of anterior femur 8.0, length of median femur 12.0, length of posterior femur 29.0.

Remarks

The new species most closely resembles *S. trispinosa* except that its male epiproct has a smaller middle spine than two lateral ones at apex.

Distribution

China.

Sinochlora trispinosa Shi and Chang
(Figures 2E, F, 3I, 9H–L)

Sinochlora trispinosa Shi and Chang 2004, p 338; Eades et al. 2006.

Material examined

One male, China: Guangxi Prov.: Maoershan [Mt.], 1080–1200 mm, 25 August 1982, coll. Yang Jikun (ICAU); four males, two females, China: Guangxi Prov.: Xing'an, Maoershan Mt., 600–1500 m, 22–23 August 1992, coll. Liu Xianwei and Yin Haisheng (MSIE).

Redescription

Male. Stridulatory file on the underside of left tegmen with about 63 teeth (Figure 3I). Lateral forcipate processes of the tenth abdominal tergum decurved in the apical area, central process slightly produced with a rather broad central groove (Figure 9H, I). Epiproct symmetrical, equilaterally triangular in the whole view, dorsally concave entad, with long black heavy bristles in the basal ventral surface, and apical part with three spines directing dorso-caudad, among which the middle one longer than two lateral ones, notches between triangular (Figure 9J–L).

Color. Green. Costal vein white and black, each tegmen with a black spot at the base of the green subcostal vein.

Measurements of male (mm)

Length of body 29.0, length to tip of wing 58.0, pronotum 6.0, length of tegmen 47.0, largest width of tegmen 9.5, length of hind wing 52.0, length of anterior femur 8.0, length of median femur 11.5, length of posterior femur 27.0.

Remarks

The species is recognized by the male epiproct providing three spines directing dorso-caudad at apex, among which the middle one is longer than the two lateral ones.

Distribution

China.

Sinochlora retrolateralis sp. n.
(Figures 2G, H, 3H, 10A–E)

Type material

Holotype: male, China: Fujian Prov.: Sangang, 27 August to 3 September 1994, coll. Jin Xingbao and Yin Haisheng (MSIE). Paratypes: 10 males, one female, same data as

holotype; one female, China: Fujian Prov.: Wuyishan Mt., Guadun, 1020 m, 20 August 1985, coll. Jin Gentao (MSIE).

Description

Male (holotype). Form and size average for the genus. Stridulatory file on the underside of left tegmen with about 63 teeth (Figure 3H). Dorsal surface of undivided part possessing a converse triangular longitudinal groove in the middle, the lateral forcipate processes decurved in the apical area, and apical margin emarginated in the middle (Figure 10A, B). Cerci longer and coniform. Epiproct symmetrical, equilaterally triangular in the whole view, dorsally concave towards the inside, with long black heavy bristles on the basal ventral surface, and apical area with three prongs at apex, among which the middle longest, both symmetrical lateral shorter and diverging forth, and notches between triangular (Figure 10C–E). Subgenital plate deeply split for over apical one-half, lateral lobes upcurved beyond the tenth abdominal tergum, and with small styli.

Color. Deep foliage-green. Costal vein white and black, each tegmen with a black spot at the base of the green subcostal vein.

Female. Unknown.

Measurements of male (mm)

Length of body 30.0, length to tip of wing 58.0, pronotum 7.0, length of tegmen 47.0, largest width of tegmen 9.5, length of hind wing 52.0, length of anterior femur 7.5, length of median femur 10.0, length of posterior femur 29.5.

Remarks

The new species is similar to *S. szechwanensis*, *S. mesominora*, *S. trispinosa* in the size, form, tegmen, tenth abdominal tergum, and subgenital plate, but differs by apical part of the epiproct shaped into three large spines, among which the larger middle one is straightly produced dorso-caudad, and two lateral ones diverging forth.

Distribution

China.

Sinochlora aequalis sp. n.
(Figures 3K, L, 11B, I–N)

Type material

Holotype: male, China: Jiangxi Prov.: Lushan, 280 m, 10 September 2005, coll. Ding Dongsun (IZAS). Paratypes: five males, one females, same data as in holotype, but 280–1100 m (IZAS).

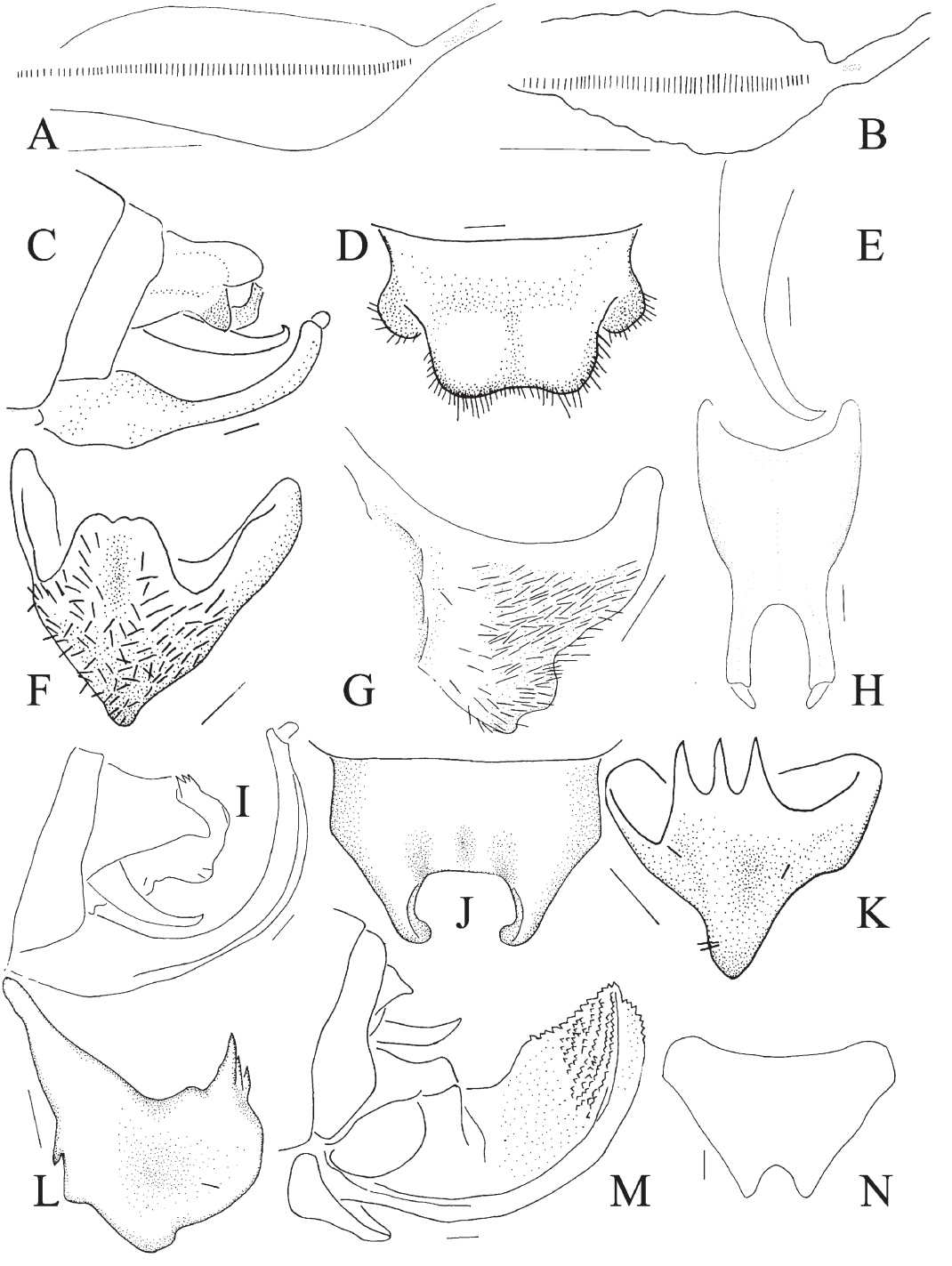


Figure 11. (A, C–H) *Sinochlora tibetensis* sp. n.; (B, I–N) *S. aequalis* sp. n. (A, B) Stridulatory file on underside of left tegmen; (C, I) male abdominal apex, lateral view; (D, J) male tenth abdominal tergum, dorsal view; (E) male cerci, dorsal view; (F, K) male epiproct, dorso-apical view; (G, L) male epiproct, lateral view; (H) male subgenital plate, ventral view; (M) female ovipositor, lateral view; (N) female subgenital plate, ventral view. Scale bars: 1 mm.

Description

Male (holotype). Stridulatory file on the underside of left tegmen with about 51 teeth (Figure 11B). Tenth abdominal tergum produced backwards, apical half elliptically sulcate in the middle, lateral forcipate processes gently decurved in the apical half, and apical margin approximately flat in the middle (Figure 11I, J). Epriproct dorsally concaved, with little bristles in the middle and both lateral sides in ventral surface, basal part widest, gradually constricted and shaped into three upcurved spines at apex, among which the middle one is approximately as long as lateral ones, directing dorsad (Figure 11K, L). Cerci conical, rather long, slender, and slightly curved. Subgenital plate broad at the base and very deeply cleft at the basal third, and the long arms strongly recurved and terminated with minute apical styli.

Female. Subgenital plate short, triangular, wider than long, and with a rather deep broad rounded notch at the apex (Figure 11N).

Color. Green. Costal vein white and black, each tegmen with a black spot at the base of the green subcostal vein. Female ovipositor with apical third brown.

Measurements (mm)

Length of body: male 26.0, female 32.0; length to apex of ovipositor 34.0; length to tip of wing: male 55.0, female 55.0; length of pronotum: male 6.0, female 6.0; length of tegmen: male 45.0, female 45.0; largest width of tegmen: male 9.0, female 9.0; length of hind wing: male 50.0, female 50.0; length of anterior femur: male 8.0, female 8.0; length of median femur: male 11.0, female 12.0; length of posterior femur: male 29.0, female 29.5; length of ovipositor 9.0.

Remarks

The new species is distinguished from other species in the genus by the male epiproct bearing three spines, of which the middle one is approximately as long as the lateral ones, and the female subgenital plate with broad rounded notch at apex.

Distribution

China.

Biogeography

The genus is mostly distributed in the Oriental Region (Map 1). The origin of the genus is uncertain, although the majority of species exist in the tropical region today. There are two possible patterns. The more probable one is that the genus is of a tropical origin, from there it respectively spread over the Himalayan Region towards the northwest and Palaearctic Region (including China, Korea, and Japan) towards the northeast; the other is that the genus is of Palaearctic origin, from which it spread and diversified towards the Oriental Region.

The five species are distributed in the Guangxi Province, southwest of China, adjacent to Vietnam, from where another species, *Sinochlora voluptaria*, was described. The type

species *S. longifissa* is widely distributes in China, Korea, and Japan. *S. sinensis* and *S. szechwanensis* are widely distributed in the south of China. *S. tibetensis* is endemic to Tibet and *S. hainanensis* to Hainan Island.

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