



A new genus in the family Flatidae with one new combination and three new species (Hemiptera: Fulgoromorpha)

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Abstract

Herbiflata **gen. nov.**, the second genus in the tribe Nephesini from China, is erected with *Hilavrita xizangensis* Chou et Lu, 1981 as its type species—*Herbiflata xizangensis* (Chou et Lu, 1981) **comb. nov.** This new genus resembles *Hilavrita* Distant, 1906 but can be differentiated by the following characters: vertex obtusely pointed; tegmen not spotted, with orange margin; apical angle of tegmen broadly rounded; Vein ScP+R arising from one stem. Three new species, *H. chromata* **sp. nov.**, *H. sacra* **sp. nov.** and *H. saxeta* **sp. nov.**, are described and illustrated. A key to four species in this genus is provided.

Key words: Planthoppers, new genus, Fulgoroidea, Nephesini, China

Introduction

The family Flatidae Spinola, 1839 is cosmopolitan in distribution with their highest diversity in the tropics and warm temperate areas. Some species are very colorful and large, including members of Nephesini. The Nephesini Melichar, 1923 is the largest tribe in Flatidae, currently comprising 56 genera throughout the world (Melichar 1923; Metcalf 1957; Medler 1991, 1999, 2001a, b; Zhang *et al.* 2011).

We recently examined several specimens from Hainan, Yunnan and Sichuan provinces which are externally similar to *Hilavrita xizangensis* Chou et Lu, 1981. However, we discovered that *Hilavrita xizangensis* differs from the genus *Hilavrita* Distant, 1906 as defined by Distant (1906) and Medler (2006). Based on these differences, we propose removing *Hilavrita xizangensis* from the genus *Hilavrita*.

In this paper, a new genus of Nephesini from China, *Herbiflata* **gen. nov.**, is erected with *Hilavrita xizangensis* Chou et Lu as type species. Three additional species *H. chromata* **sp. nov.**, *H. sacra* **sp. nov.** and *H. saxeta* **sp. nov.** are described and illustrated.

Material and methods

Dry preserved specimens were used for the descriptions and illustrations. The venation terminology follows Bourgoin *et al.* (2015), male genitalia terminology follows Bourgoin and Huang (1990), and female genitalia terminology follows Bourgoin (1993). All measurements are in millimeters (mm). The external morphology was observed under Leica MZ 12.5 stereomicroscope and measurements were made with an ocular micrometer. The genital segments of the examined specimens were macerated in 10% NaOH and subsequently transferred into glycerin for illustration using a Leica MZ 12.5 stereomicroscope. Photographs of the specimens were made using a Nikon SMZ 1500 stereomicroscope with a Q-image CCD camera. Images were produced using the software Automontage (Synoptics, U.K.).

Abbreviations for collections mentioned in the text are as follows: CAU: China Agricultural University, Beijing, China; IZCAS: Institute of Zoology, Chinese Academy of Sciences, Beijing, China; NWAUFU: Entomological Museum, Northwest Agricultural & Forestry University, Yangling, China; and TMNH: Tianjing Museum of Natural History, Tianjin, China.

Taxonomy

Family Flatidae Spinola, 1839

Subfamily Flatinae Spinola, 1839

Tribe Naphesini Melichar, 1923

Herbiflata gen. nov.

Type species. *Hilavrita xizangensis* Chou et Lu, 1981; by present designation.

Etymology. The generic name is from Latin word “Herba” (feminine) meaning vegetation or plant.

Diagnosis. The genus *Herbiflata*, differs from the genus *Hilavrita* Distant, 1906 by the following external characters: vertex obtusely pointed, (vertex truncate in *Hilavrita*); tegmen not spotted, with orange margin (tegmen with black smooth round spots in *Hilavrita*); apical angle broadly rounded, (apical angle acute in *Hilavrita*); vein ScP+R arising from one stem (vein ScP, R and MP arising separately from base in *Hilavrita*). Zhang *et al.* (2011) reviewed the Oriental species of Nephesini with a key to 11 genera. Only one genus, *Lecopia* Medler, 1991 bears two metatibial lateral spines. *Herbiflata* also bears two metatibial lateral spines but can be distinguished from *Lecopia* by the tegmina with ScP+R arising as common stem from basal cell; the tegmen of *Lecopia* has ScP and R arising separately from the basal cell.

Description. General colour of body light green or pale grey, some specimens with tegminal margin orange; body size of specimens around 9 mm, body oval to elongate oval in lateral view.

Head. Head with anterior margin obtusely pointed; evenly and broadly rounded down to base of frons in lateral view. Frons convex, wider than long, widest in upper portion, disc with median longitudinal carina; lateral margins of frons carinate and elevated, evenly adjacent to clypeus; frontoclypeal suture obtusely angled. Vertex with anterior margin truncate or concaved and elevated, extremely short medially. Clypeus convex, narrower than frons. Antennae short, antennal segment II not extending beyond anterolateral margin of frons. Ocelli present.

Thorax. Pronotum granular, about one-fifth to one-sixth length of mesonotum in midline; without median carina; postocular eminences small, conical. Mesonotum with three longitudinal carinae, which may be obscure.

Tegmen slightly coriaceous, no more than two times longer than wide; costal margin smoothly convex, apical margin convex, with one subapical line of crossveins, apical cells slightly wider than costal membrane; costal membrane broader than costal cell; apical and sutural angles broadly rounded; veins ScP+R, MP, CuA arising from basal cell, ScP+R forked before bulla, MP forks before one third of tegmen, CuA bifurcated slightly apicad of bulla. Legs long, metatibia with two distinct lateral spines.

Male terminalia. Anal tube elongate, bent down in the middle; anus placed in apical half. Pygofer ring-like, narrowing dorsally. Genital style elongate in lateral view, bearing distinct long and sharp capitulum, ventral posterior angle widely rounded. Phallic complex tube-like, strongly arched, bearing various processes.

Female terminalia. Anal segment longer than wide, usually ovate in dorsal view. Gonoplac bearing several rows of tooth-like setae or small teeth on apical field, posterior margin with a row of well-developed teeth. Gonapophysis IX small. Gonapophysis VIII usually broad basally, tapering apicad.

Distribution. Oriental region (China) (Fig. 1).

Key to species of *Herbiflata* gen. nov.

1. Overall color bluish green (Fig. 2D); genital style elongate and narrow (Fig. 3D) *H. xizangensis* (Chou et Lu) **comb. nov.**
- Overall color pale grey or slightly green (Figs 2A–C); genital style broad, triangular or semicircular (Figs 4E, 5D, 6E) 2

2. Mesonotum not carinated (Figs 2F, 5A); base portion of periandrium with one large dorsal lobe, ventral apex of periandrium bearing a long sinuate process (Fig. 5E) *H. sacra* **sp. nov.**
- Mesonotum carinated (Figs 2E, 2G); dorsal lobe on base of periandrium absent, ventral apical process curved, not sinuate (Figs 4G, 6G) 3
3. Ventral margin of male anal tube inflated, apically fin-like (Fig. 4E); apical lateral portion of aedeagus with an ear-like lobe (LL) (Fig. 4F) *H. chromata* **sp. nov.**
- Ventral margin of male anal tube roundly produced ventrad (Fig. 6E); apex of aedeagus without lobe (Fig. 6F) *H. saxeta* **sp. nov.**

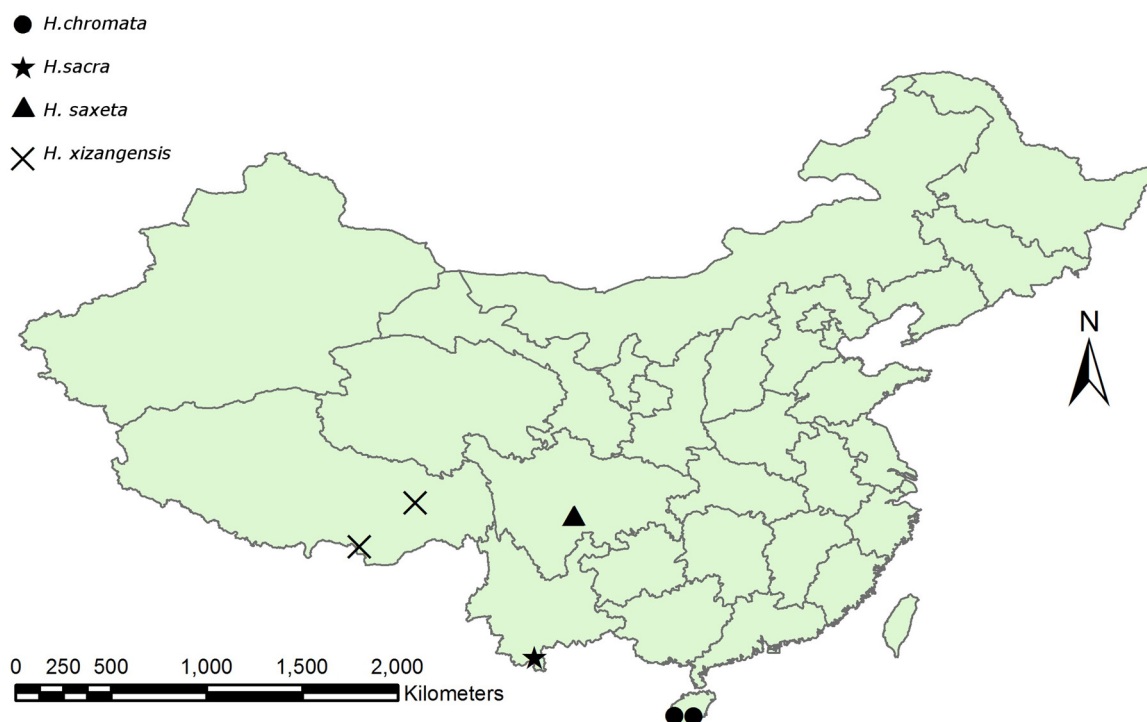


FIGURE 1. Geographical distribution of *Herbiflata* species in China.

***Herbiflata xizangensis* (Chou et Lu, 1981) comb. nov.**

(Figs 2D, H, L, P; 3A–H)

Hilavrita xizangensis Chou et Lu, 1981: 221

Diagnostic characters. This species differs from other members of the genus by the following characters: coloration—body greenish blue, tegminal margins orange; male terminalia—genital style more slender and elongate than in other species; aedeagus with cephaloventrad process positioned at apical fifth.

Description. Size. Body length 8.3–8.9 mm.

Coloration. Head green blue, with lateral margins slightly yellow; eyes black; ocelli white; apex of antennal segment II yellowish brown; clypeus yellowish brown; thorax greenish blue or faded; legs light brown; tegmina greenish blue, with postclaval, apical and costal margins orange.

Head. Short in dorsal view, about 3.7 times broader than long, narrower than pronotum, anterior margin pointed, lateral margins ridged (Figs 2H, 3A). Vertex (Figs 2H, 3A) very short, partly concealed beneath anterior margin of pronotum. Frons (Figs 2L, 3C) convex, 1.3 times wider than long, lateral margin convex, sinuate near frontoclypeal suture, moderately raised, median longitudinal carina almost full length of frons. Clypeus (Figs 2L, 3C) narrower than frons, frontoclypeal suture (Fig. 3C) angulated, about 125°. Rostrum long, extending to meso-trochanter. Antennal segment I ring-like, segment II about four times longer than segment I.

Thorax. Thorax (Figs 2H, P, 3B) moderately humped. Pronotum (Figs 2H, 3A): anterior margin truncate, posterior margin concaved, lateral carinae extending ventrally, near to postocular eminences. Mesonotum (Figs 2H, 3A): anterior margin convex, three longitudinal carinae slightly elevated. Metatibia with six or seven spines apically, basal metatarsal segment with six or seven spines apically.

Tegmen (Fig. 2D): length about 7.2–7.5 mm, width between costal margin and apex of clavus 3.7–4.2 mm; reticulate apical 2/3; costal margin convex, apical margin rounded to apex of clavus; postclaval sutural margin straight, one subapical line, apical cell slightly longer than costal membrane; costal cell with several transverse veinlets; costal membrane about 1.4 times wider than costal cell at the level of bulla. ScP+R stem short, forked before bulla, RA forked once near midlength of tegmen, branch RP forked slightly apicad of RA fork; MP forked at bulla, branch MP₁₊₂ forked after bulla, MP₁ forked near midlength of tegmen, MP₂ forked after fork of MP₁, MP₃₊₄ forked slightly apicad of branch MP₁₊₂ forking; CuA₁ and CuA₂ not forked and subparallel, CuP about 2/3 length of tegmen, Pcu and A₁ fused in apical portion of clavus.

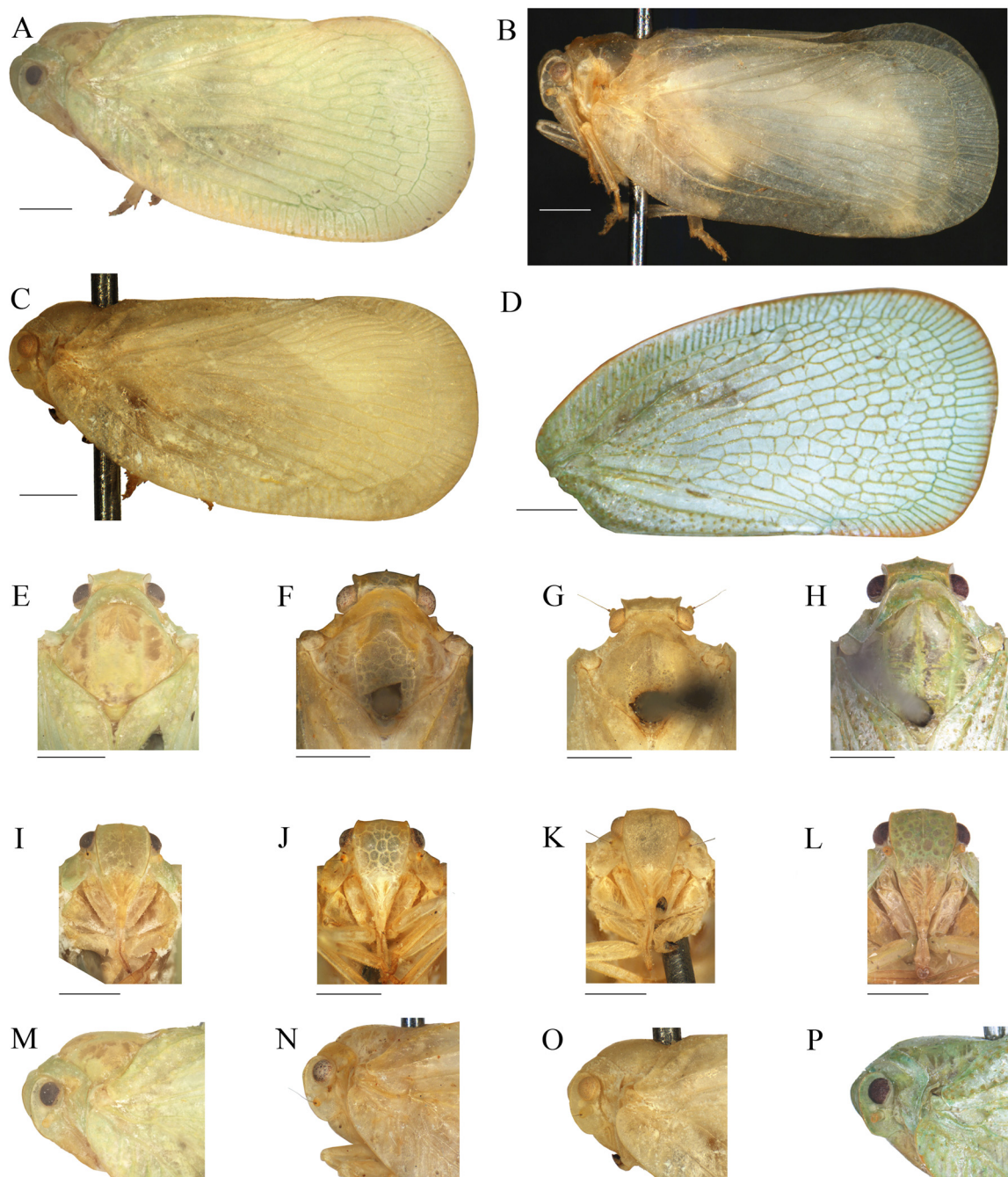


FIGURE 2. *Herbiflata* species. (A–C) left lateral view; (D) tegmen; (E–H) head and thorax, dorsal view; (I–L) head, frontal view; (M–P) head and thorax, left lateral view; (A, E, I, M) *H. chromata* **sp. nov.**; (B, F, J, N) *H. sacra* **sp. nov.**; (C, G, K, O) *H. saxeta* **sp. nov.**; (D, H, L, P) *H. xizangensis*. Scale bars: 1mm.

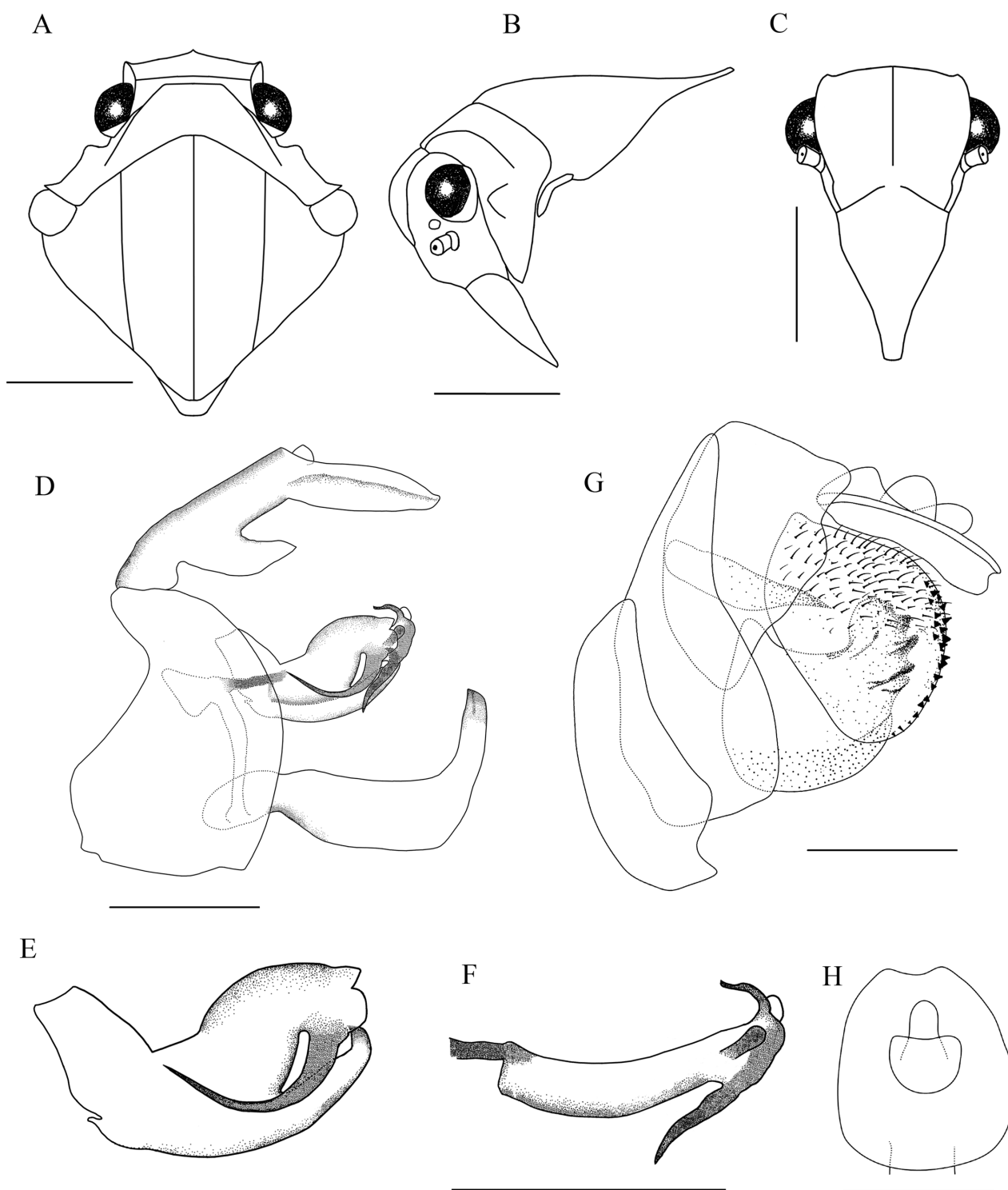


FIGURE 3. *Herbiflata xizangensis* (Chou *et* Lu). (A) head and thorax, dorsal view; (B) head and thorax, left lateral view; (C) head, frontal view; (D) male terminalia, left lateral view; (E) perianthrium, left lateral view; (F) aedeagus, left lateral view; (G) female terminalia, left lateral view; (H) female anal segment, dorsal view. Scale bars: 1mm.

Male terminalia. Male anal tube (Fig. 3D) angulated near midlength, apex acute, basal ventral part with one membranous process produced caudad. Pygofer (Fig. 3D) ring-like, anterior margin strongly S-shaped, dorsal margin rounded into posterior margin. Genital style (Fig. 3D) slender and elongate, apical third bent up. Phallic complex: perianthrium (Fig. 3E) tubular, closed basally, open apically with deep split; dorsal margin convex, dorsal lobe small; ventral lobe with long recurved apical process; apex of ventral part acute. Aedeagus (Fig. 3F) apically

bipartite, dorsal part of apex with small recurved process, lateral part of apex with ear-like lobe, a cephaloventrad process positioned at apical fifth.

Female terminalia (Fig. 3G). Female anal segment (Figs 3G, H) nearly ovate in dorsal view, apical margin distinctly concave at middle; anal pore situated apical half, paraproct short, about 0.3 times as long as anal segment. Gonoploc short with obtuse posterior margin, central and upper part of disc covered with setae, posterior margin bears two rows of well-developed teeth: shorter in upper part and longer alongside the margin. Gonapophysis IX small, apex cuspidal in lateral view. Anterior connective laminae of gonapophysis VIII stout, broad basally, curved dorsally near middle in lateral view, dorsal margin clearly concave medially, ventral margin bearing four large teeth of different sizes. Sternum VII with posterior margin weakly concave.

Material examined. Holotype, ♂, Le, Cuona, Shannan, Xizang Province, China, 2500m, 7.viii.1974, Huang Fusheng (NWAUFU). Other material: 5♂♂, 5♀♀, Yigong, Bomi, Xizang Province, China, 2300 m, 20.vii.1983, Han Yinsheng (IZCAS).

Distribution. China (Xizang) (Fig. 1).

Herbiflata chromata sp. nov.

(Figs 2A, E, I, M; 4A–I)

Etymology. This specific epithet is derived from the Greek word “chrōma”, which means “color”.

Diagnosis. This new species resembles *H. saxeta* sp. nov., but can be differentiated by the following characters: anal tube with ventral margin inflated to fin-like apex (Fig. 4E), larger than *H. saxeta*; aedeagus with an ear-like lateral lobe (LL) near ventral apex (Fig. 4F).

Description. Size. Body length 8–9.5 mm.

Coloration. General color light green to whitish grey; eyes fuscous; ocelli very pale white; clypeus yellow; legs brownish yellow, tibia and tarsus slightly darker; tegminal margin slightly orange.

Head. Head (Figs 2E, 4A) about 3.8 times broader than long, narrower than pronotum, anterior margin obtusely pointed, lateral margins slightly ridged. Vertex (Figs. 2E, 4A) in form of hourglass, anterior margin concaved, partly concealed beneath anterior margin of pronotum. Frons (Figs 2I, 4B) convex, slightly wider than long, lateral margin convex, strongly carinate, with median longitudinal carina almost full length of frons. Clypeus (Figs 2I, 4B) without carina. Rostrum long, extending to meta-trochanter. Antennal segment I ring-like, segment II about three times longer than segment I (Fig. 4C).

Thorax. Pronotum (Figs 2E, 4A, 4C): anterior margin convex, posterior margin concave. Mesonotum (Figs 2E, 4A): anterior margin convex, three longitudinal obscure carinae. Metatibia with six or seven spines apically, basal metatarsal segment with six or seven spines apically.

Tegmen (Figs 2A, 4D) length 7.5–8.5 mm, width between costal margin and apex of clavus 4–4.5 mm; costal margin convex, apical margin rounded to apex of clavus; postclaval sutural margin convex; costal membrane about 1.3 times wider than costal cell at bulla (Fig. 4D); costal cell without transverse veinlets; ScP+R stem short, ScP+RA not forked, RP forked slightly apicad of MP fork; MP forked apicad bulla, branch MP_{1+2} forked near midlength of tegmen, MP_{3+4} forked slightly before MP_{1+2} fork; CuA forked at midlength of CuP, CuA_1 forked apicad of MP_{3+4} fork, CuA_2 not forked, CuP about 0.54 length of tegmen, Pcu and A_1 fused in apical portion of clavus; m-cua present middle of CuP.

Male terminalia. Male anal tube (Fig. 4E): ventral margin inflated to fin-like apex, apical margin truncate, anus placed near apex of anal tube. Pygofer (Fig. 4E) ring-like, slightly higher than wide, anterior margin concave, posterior margin straight, ventral margin much longer than dorsal margin. Genital style (Fig. 4E) elongate, posterior margin projected upward. Phallic complex (Fig. 4E) arched, periandrium (Fig. 4G) closed basally, open apically, dorsally with membranous lobe; ventral part with an apical pointed process; lateral lobe with one long process ventrad, lateral emargination deeply concave. Aedeagus (Fig. 4F) bipartite, dorsal part of apex with a wide cephalad process and lateral portion with sharply raised carina, small hooked process (HP) beneath wide process, ventral part of apex pointed, with dorsal lobe (DL) and ear-like lateral lobe (LL).

Female terminalia. Female anal segment (Figs 4H–I) ovate in dorsal view, apical margin obtusely convex; anal pore situated near middle, paraproct very short, about 0.2 times as long as anal segment. Gonoploc, in lateral view, narrowly rounded apically, dorsal margin concave medially; disc flat, bearing small teeth in upper and posterior

part, posterior margin with long seate (Fig. 4H). Gonapophysis IX narrow and small, lateral field flat, membranous near apex (Fig. 4H). Endogonocoxal process narrowly foliate, with apex cuspidal (Fig. 4H). Anterior connective laminae of gonapophysis VIII narrow, tapering apicad, apex saw-like, with three teeth along dorsal margin at apex, and ventral margin with one small tooth near apex (Fig. 4H). Sternum VII with posterior margin distinctly concave at middle.

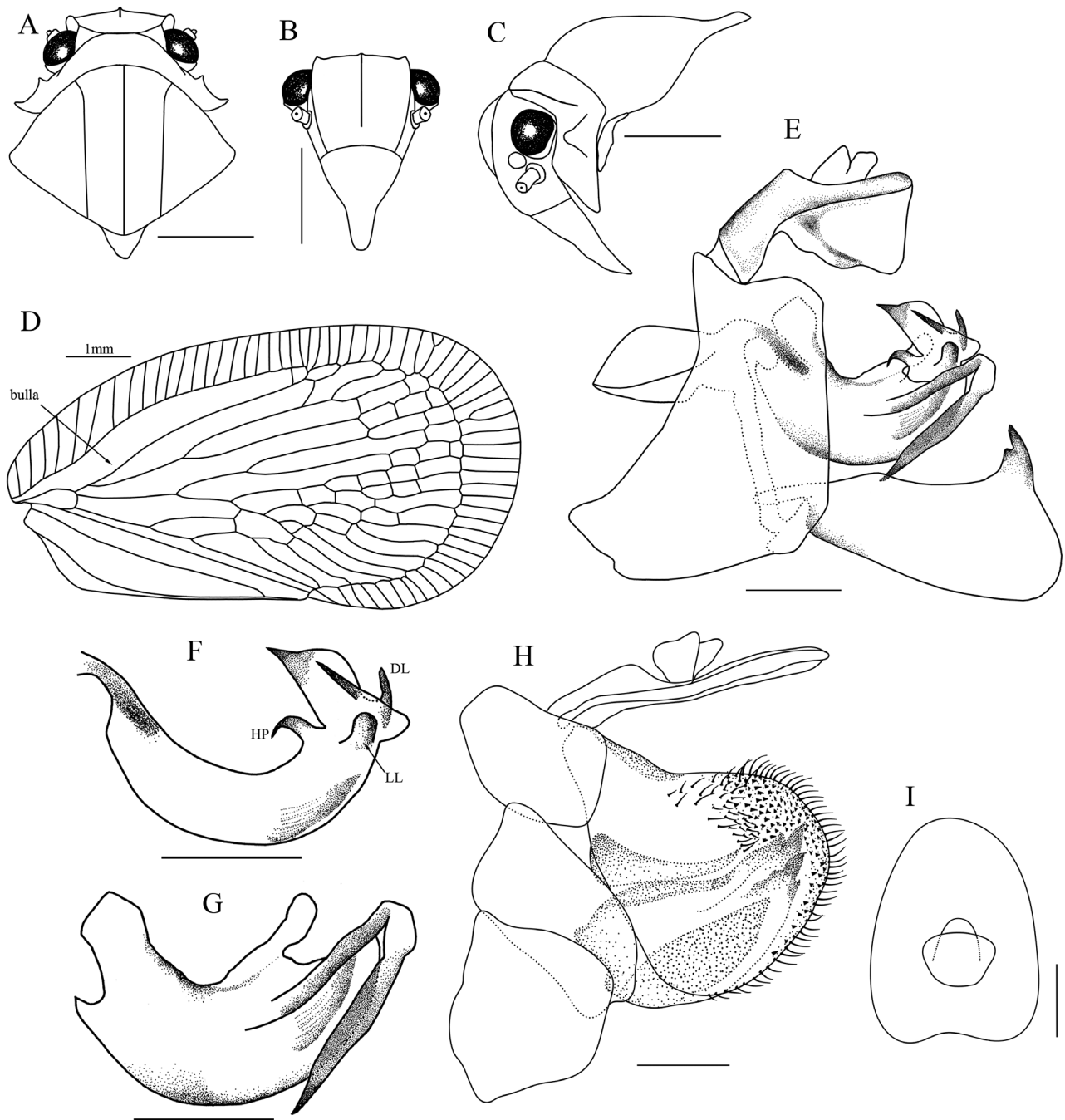


FIGURE 4. *Herbiflata chromata* sp. nov. (A) head and thorax, dorsal view; (B) head, frontal view; (C) head and thorax, left lateral view; (D) tegmen; (E) male terminalia, left lateral view; (F) aedeagus, left lateral view; (G) periandrium, left lateral view; (H) female terminalia, left lateral view; (I) female anal segment, dorsal view. Scale bars: 1mm. Abbreviations: HP—hooked process; DL—dorsal lobe; LL—lateral lobe.

Type material. Holotype, ♂, Mt. Diaoluoshan, Lingshui, Hainan Province, China, 900 m, 1.vi.2007, Zhang Xu (CAU). Paratypes: 1♀, Mt. Diaoluoshan, Lingshui, Hainan Province, China, 900 m, 1.vi.2007, Zhang Xu (CAU); 1♂, 3♀♀, Mt. Diaoluoshan, Lingshui, Hainan Province, China, 27.iii.1964, Liu Shengli (TMNH); 1♀, Mt.

Diaoluoshan, Lingshui, Hainan Province, China, 900 m, 2.iv.1980, Xiong Jiang (NWAUFU); 1♂, Mingfenggu, Mt. Jiangfengling, Hainan Province, China, 900 m, 6.vi.2007, Dong Pengzhi (CAU); 1♂, Mt. Diaoluoshan, Lingshui, Hainan Province, China, 18.iii.2008 (NWAUFU).

Distribution. China (Hainan) (Fig. 1).

***Herbiflata sacra* sp. nov.**

(Figs 2B, F, J, N; 5A–H)

Etymology. This specific epithet is derived from the Latin word “sacer” (feminine: sacra), which means “sacred”. Specific epithet refers to the type locality, which means that place is “ideal and magical land”.

Diagnosis. This new species can be distinguished from other species by the following characters: mesonotum without carinae; apex of aedeagus inflated to a triangle, subapical ventral margin bearing a finger-like process.

Description. Size. Body length 8.8–9.5 mm.

Coloration. Overall color pale grey; head, thorax and legs slightly yellow, eyes fuscous; ocelli very pale white; apex of antennal segment II and clypeus yellow; legs brownish yellow, tibia and tarsus slightly darker; tegmina pale grey, translucent.

Head. Head (Figs 2F, 5A) about 3.5 times broader than long, narrower than pronotum, anterior margin obtusely pointed, lateral margins ridged. Vertex (Fig. 5A) very short in the middle, anterior margin truncate, lateral margins carinate. Frons (Figs 2J, N, 5B, C) convex, slightly wider than long, lateral margins convex, strongly carinate, with median longitudinal carina almost full length of frons. Clypeus (Figs 2J, 5B) convex medially. Rostrum long, extending to meta-trochanter. Antennal segment I ring-like, segment II about four times longer than segment I.

Thorax. Thorax (Figs 2N, 5C) highly humped. Pronotum (Figs 2F, 5A): anterior margin convex, posterior margin concave. Mesonotum (Figs 2F, 5A) without carinae. Metatibia with two lateral spines, rarely one, metatibia with seven or eight spines apically, basal metatarsal segment with seven spines apically.

Tegmen (Fig. 2B) length 7.8–8.8 mm, width between costal margin and apex of clavus 3.8–4.2 mm; costal margin convex, apical margin rounded to apex of clavus; postclaval sutural margin convex; costal membrane about 1.7 times wider than costal cell at the level of bulla; costal cell with few transverse veinlets. ScP+R stem very short, ScP+RA not forked, RP forked slightly after bulla; MP forked apicad of RP forking, branch MP_{1+2} short, forked slightly apicad of M forking, MP_{3+4} forked apicad of MP_{1+2} forking; CuA forked slightly basad of 2/3 length of tegmen, CuA_1 forked midlength of tegmen, CuA_2 not forked, CuP about 3/5 length of tegmen, Pcu and A_1 fused in apical portion of clavus; m-cua present middle of CuP.

Male terminalia. Male anal tube (Fig. 5D) bent down in the middle, apex slightly turned up. Pygofer (Fig. 5D) ring-like, anterior margin slightly sinuate, posterior margin evenly convex, ventral margin as long as dorsal margin. Genital style (Fig. 5D) more or less semicircular, longer than wide, bearing distinct long capitulum; posterior margin sinuate. Phallic complex (Fig. 5D) strongly arched. One membrane lobe positioned dorsally at base of periandrium (Fig. 5E); apical half of periandrium bilobate, lobe large and long, apex membranous, dorsolateral emargination deeply and widely concave; ventral part apically bipartite with strongly sinuate process at inner surface of apex. Aedeagus (Fig. 5F) bipartite, apex inflated to triangle, subapical ventral margin with finger-like process.

Female terminalia. Female anal segment (Figs 5G, H) nearly ovate in dorsal view, apical margin emarginate at middle; anal pore situated near middle, paraproct short, about 0.25 times as long as anal segment. Gonoplic, in lateral view, narrowly rounded apically, dorsal margin weakly concave medially; disc flat, bearing several rows of teeth in postero-dorsal and posterior part; posterior margin with well-developed seate (Fig. 5G). Gonapophysis IX small, apex cuspidal in lateral view (Fig. 5G). Endogonocoxal process short and narrowly foliate (Fig. 5G). Anterior connective laminae of gonapophysis VIII broad basally, tapering apicad, with four teeth near apex (Fig. 5G). Sternum VII with posterior margin weakly concave.

Type material. Holotype, ♂, Menglun, XiShuangBanNa, Yunnan Province, China, 640 m, 21/30.iv.1974, Chou Io, Yuan Feng & Hu Yinyue (NWAUFU). Paratypes: 2♂♂, 3♀♀, same data as holotype.

Distribution. China (Yunnan) (Fig. 1).

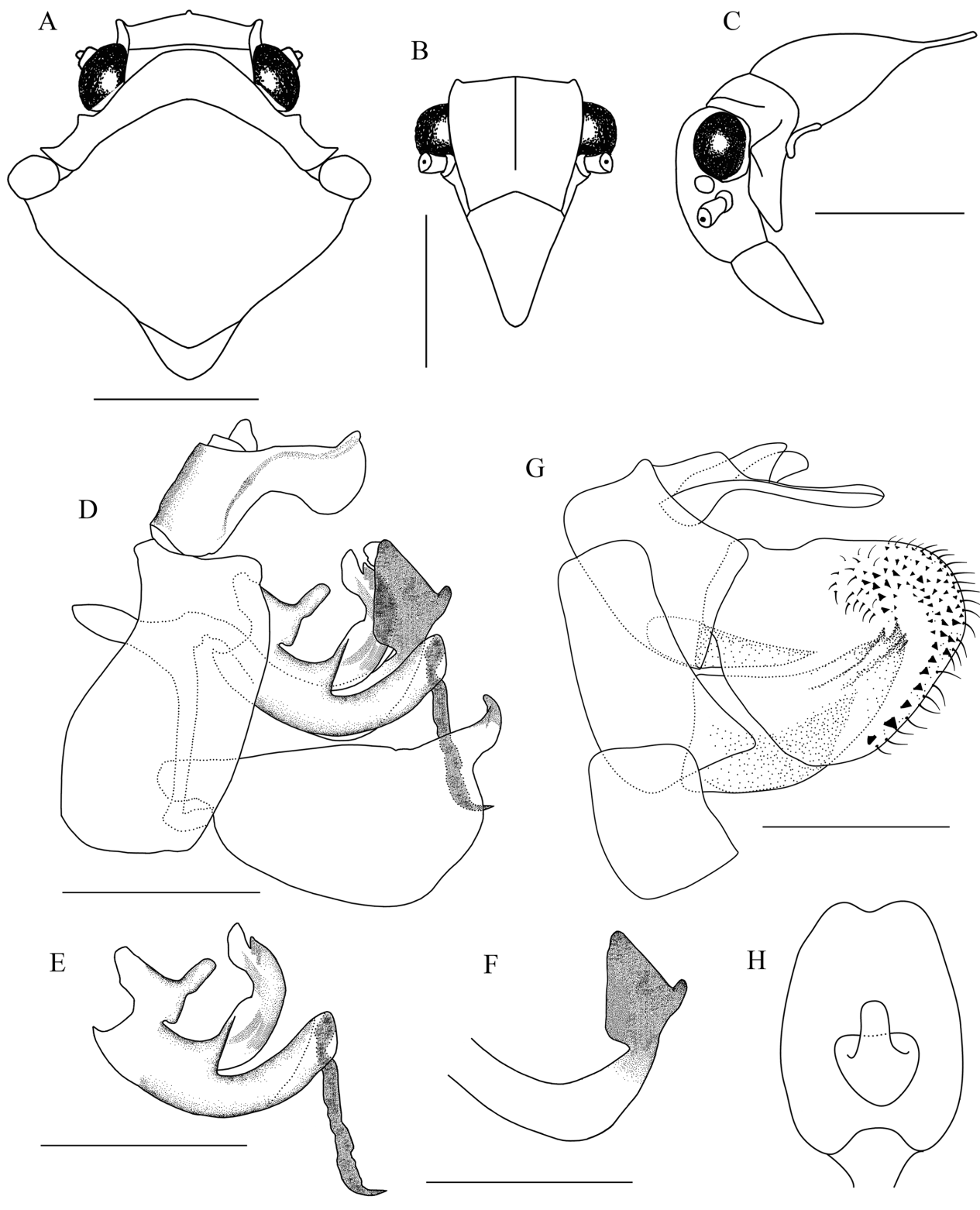


FIGURE 5. *Herbiflata sacra* sp. nov. (A) head and thorax, dorsal view; (B) head, frontal view; (C) head and thorax, left lateral view; (D) male terminalia, left lateral view; (E) perianthrium, left lateral view; (F) aedeagus, left lateral view; (G) female terminalia, left lateral view; (H) female anal segment, dorsal view. Scale bars: 1mm.

***Herbiflata saxeta* sp. nov.**

(Figs 2C, G, K, O; 6A–J)

Etymology. This specific epithet is derived from the Latin word “saxum” (feminine: saxa), which means a rocky place. This name refers to the locality of Mt. Emei, which is a rocky place.

Diagnosis. This new species resembles *H. chromata* sp. nov. but differs by the following characters: anal tube with apex more acute than in *H. chromata* sp. nov.; aedeagus without any ear-like lateral lobe near ventral apex (Fig. 6F).

Description. Size. Body length about 7.9–8.5 mm.

Coloration. Overall color pale grey or pale green (Fig. 2C); eyes fuscous; ocelli very pale white; tibia and tarsus slightly darker; tegmina pale grey.

Head. Head (Figs 2G, 6A) short in dorsal view, about 3.5 times broader than long, anterior margin distinctly obtusely pointed, lateral margins ridged. Vertex (Figs 2G, 6A) very short in the middle, anterior margin truncate, partly concealed beneath anterior margin of pronotum. Frons (Figs 2K, 6B–C) convex, as wide as long, lateral margin convex, strongly carinate, with median longitudinal carina half length of frons or slightly longer. Clypeus (Figs 2K, 6C) convex medially. Rostrum long, extending to meta-trochanter. Antennal segment I ring-like, segment II about four times longer than segment I.

Thorax. Pronotum (Figs 2G, 6A): anterior margin convex, posterior margin concave. Mesonotum (Figs 2G, 6A) with three obscure longitudinal carinae. Metatibia with seven spines apically, basal metatarsal segment with seven spines apically.

Tegmen (Figs 2C, 6D) length about 7.2–7.5 mm, width between costal margin and apex of clavus 3.7–3.8 mm; costal margin convex, apical margin rounded to apex of clavus; postclaval sutural margin convex; costal membrane about 1.3 times wider than costal cell at the level of bulla; costal cell with two veinlets near apical portion; ScP+R stem short, ScP+RA not forked, RP forked slightly after bulla; MP forked apicad of RP forking, branch MP_{1+2} short, forked slightly apicad of MP forking, MP_{3+4} forked apicad of MP_{1+2} forking; CuA forked slightly apicad of M forking, CuA_1 and CuA_2 not forked and subparallel, CuP about 3/5 length of tegmen, Pcu and A_1 fused in apical portion of clavus; m-cua present after branch of CuA.

Male terminalia. Male anal tube (Fig. 6E) slightly bent down, ventral margin inflated medially, apex acute; anus positioned at midlength of anal tube. Pygofer (Fig. 6E) ring-like, anterior margin sinuate, posterior margin slightly convex, ventral margin much longer than dorsal margin, dorsocaudal angle pointed. Genital style (Fig. 6E) elongate, capitulum triangular, ventro-posterior angle widely rounded. Phallic complex (Fig. 6E) arched; perianthrium (Fig. 6G) tubular, dorsal part membranous, dorsolateral emargination narrow; lateral lobe with long process oriented ventrad, lateral emargination deeply concave, apex of ventral part pointed. Aedeagus (Fig. 6F) bipartite, dorsal part of apex with wide cephalad process, lateral portion with sharply raised carina, small hooked process beneath wide process, ventral part of apex not pointed, with process oriented dorsad.

Female terminalia. Female anal segment (Figs 6H, 6J) nearly oblong in dorsal view, lateral margins subparallel, apical margin convex; anal pore situated at middle, paraproct very short, about 0.15 times as long as anal segment. Gonoplac (Fig. 6H) in lateral view rounded apically, dorsal margin angularly concave medially, ventral margin oblique; disc of gonoplac flat, bearing several rows of small teeth in upper part; posterior margin with small teeth in upper part and large, stout teeth in lower part. Gonapophysis IX small, lateral field flat, apex cuspidal in lateral view (Fig. 6H). Endogonocoxal process short and narrowly foliate (Fig. 6H). Anterior connective laminae of gonapophysis VIII broad basally, tapering apicad, with three teeth at apex (Fig. 6H). Sternum VII with posterior margin wholly strongly concave but weakly arcuately convex at middle (Fig. 6I).

Type material. Holotype, ♂, Qingyinge, Mt. Emei, Sichuan Province, China, 800–1000 m, 14.vii.1957, Huang Keren (IZCAS); Paratypes: 1♂, Mt. Emei, Sichuan Province, China, 28.vi.1955, Huang Keren (IZCAS); 1♀, Baoguosi, Mt. Emei, Sichuan Province, China, 550–750 m, 17.vi.1957, Zhu Fuxing (IZCAS); 1♂, Baoguosi, Mt. Emei, Sichuan Province, China, 600 m, 25.vi.1957, Zhu Fuxing (IZCAS); 2♀♀, Jiulaodong, Mt. Leshan, Sichuan Province, China, 3.vii.1957 (NWAUFU); 1♂, 5♀♀, Mt. Emei, Sichuan Province, China, 15.viii.1975 (NWAUFU).

Distribution. China (Sichuan) (Fig. 1).

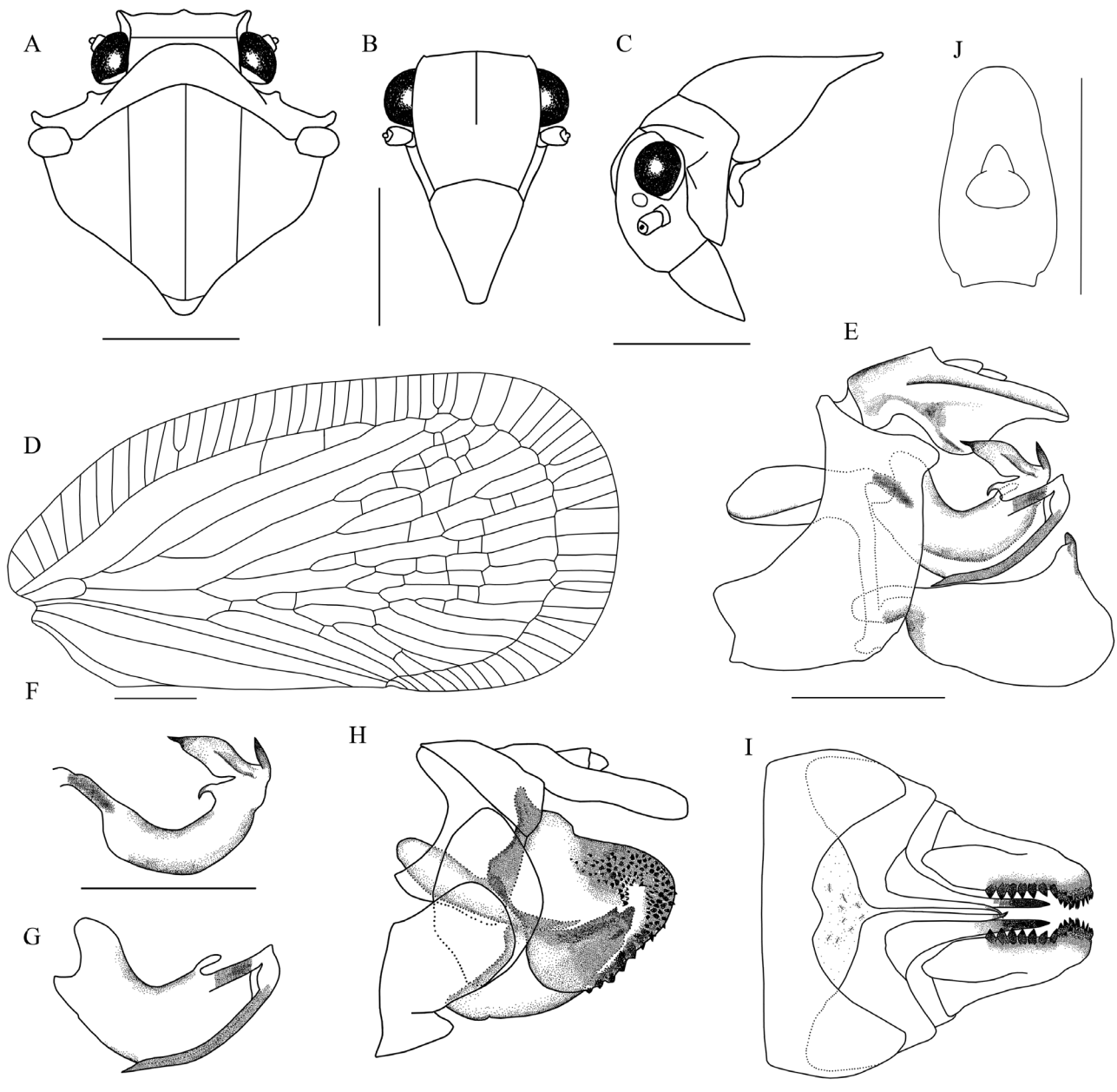


FIGURE 6. *Herbiiflata saxeta* sp. nov. (A) head and thorax, dorsal view; (B) head, frontal view; (C) head and thorax, left lateral view; (D) tegmen; (E) male terminalia, left lateral view; (F) aedeagus, left lateral view; (G) periandrium, left lateral view; (H) female terminalia, left lateral view; (I) female genitalia, ventral view; (J) female anal segment, dorsal view. Scale bars: 1mm.

Acknowledgments

We greatly thank John Richard Schrock (Emporia State University, Emporia, KS, USA) for proofreading the manuscript, and two anonymous reviewers. Our research was supported by the National Natural Science Foundation of China (Grant No. 30870325), the Ministry of Education of China (TS2011XBNL061), and the Pilot Project of Standardized Curation, Data Integration and Resource Sharing of Zoological Collections (2005DKA21402).

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