



A new species of *Longtania* Ding from China and redescription of the male genitalia of *Platytibia ferruginea* Ding (Hemiptera: Fulgoromorpha: Delphacidae)

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Abstract

A new species of the planthopper genus *Longtania* Ding (Hemiptera: Fulgoromorpha: Delphacidae), *L. arcuata* n. sp. (central southern China: Hubei) is described and illustrated. A revised diagnosis of *Longtania* and a key to known species is provided. The genus is tentatively placed in the subtribe Delphacina. The genus *Platytibia* is reviewed and is assigned to the subtribe Numatina *sensu* Emeljanov. The male genitalia of the type species, *P. ferruginea* Ding is redescribed and illustrated.

Key words: Delphacini, taxonomy, Auchenorrhyncha, planthopper

Introduction

The Oriental delphacid fauna is extremely rich with 152 genera recognised by Ding (2006). Of these, 60 are monotypic indicating that there may be many species still to be described. In this paper, we describe a second species of *Longtania* Ding previously based only on *L. picea* Ding as the type species. In addition, this discovery of a second species has allowed a more accurate definition of the genus and made it possible to validate the genus.

Another monotypic genus *Platytibia* Ding from China is also reviewed and the male genitalia of the type species, *P. ferruginea* Ding is redescribed and illustrated. The original description by Ding (2006) was inadequate because the diagnosis of the genus, especially the characters of the male genitalia, were not comprehensive, the comparison of this genus with related genera was fairly simple and the illustrations of the type species did not exhibit the particular configurations of the internal genitalia.

Materials and methods

The specimens used in this study are deposited in the Entomological Museum, Northwest A & F University, Yangling, Shaanxi, China (NWAUFU). The body measurements of both macropters and brachypters are from apex of vertex to tip of abdomen. All measurements are in millimeters (mm). The methods and terminology in this paper follow those of Ding (2006).

Results

Longtania Ding

Longtania Ding, 2006: 446–447. Type species. *Longtania picea* Ding, 2006, by original designation.

Diagnosis. Small-sized, brownish delphacids. Head longer and narrower than pronotum (Fig. 1). Vertex longer than wide at base, anterior margin of vertex rounded projecting in front of eyes (Fig. 1), in profile meeting frons at nearly right angle (Fig. 3). Y-shaped carina with stem absent, submedian carinae uniting before apex of vertex (Fig. 1). Median carinae of frons simple (Fig. 2). Lateral carinae of pronotum attaining hind margin (Fig. 1). Calcar foliate, tectiform, with many black-tipped teeth on lateral margin. Male pygofer with diaphragm narrow, dorsal margin produced medially, truncate or emarginate dorsally (Fig. 8); dorsolateral apices of pygofer not expanded (Fig. 7). Parameres broadened distally with convergent apex (Fig. 15). Suspensorium strap-shaped (Fig. 10) and fused with aedeagal base on its dorsal side (Figs 9, 11, 12). Aedeagus tubular, armed with spines (Figs 9, 11, 12). Male anal segment ring-like, without processes (Fig 14).

Remarks. The genus *Longtania* Ding is characterized by its long and apically rounded vertex, by its submedian carinae uniting before apex of vertex (Fig. 1), by its pronotum with lateral carinae attaining hind margin (Fig. 1), and by the characters of the male genitalia: dorsolateral apices of pygofer not expanded (Fig. 7), dorsocaudad directed process of the diaphragm (Fig. 8), aedeagus armed with spines (Figs 9, 11, 12), suspensorium fused with the dorsal base of the aedeagus (Figs 9, 11, 12) and parameres broadened distally with convergent apex (Fig. 15).

Longtania belongs to a group of taxa including *Harmalia* Fennah (1969) and *Wuyia* Ding (1991), all characterized by the presence of short submedian carinae on the vertex. However, it differs from these genera mainly in the structures of the male genitalia: in *Longtania* the male pygofer lacks strongly produced dorsolateral angles; the suspensorium is rectangular, strap-shaped and fused with the base of the aedeagus (ring-like in *Harmalia* and rope-shaped in *Wuyia* and not fused with the aedeagus in either of these genera); diaphragm with mediadorsal process truncate or emarginate dorsally, without median longitudinal carina (roundly or angulately produced in these other genera and, in *Wuyia*, with median longitudinal carina dorsoventrally). *Longtania* also differs from *Wuyia* in having the parameres converging distally.

At present only the subtribe Numatina Emeljanov (1993) has been formally defined within the Delphacini. All the other genera of Delphacini are held within the nominal subtribe Delphacina. Based on the fusion of the suspensorium to the dorsal base of the aedeagus, *Longtania* is here excluded from the subtribe Numatina in which the suspensorium is articulated with the base of aedeagus. It is therefore retained within the Delphacina. However, until the Chinese fauna is more comprehensively known and a more satisfactory subtribal classification is available, the subtribal placement of *Longtania* remains problematic.

Distribution. The species of *Longtania* are currently known only from China (Yunnan and Hubei Provinces).

Key to species of *Longtania* (male)

- 1 Aedeagus nearly straight in lateral view, with reflexed spine subapically, medially with 3 spines; outer angle of paramere triangularly produced laterad in caudal view..... *L. picea* Ding
- Aedeagus curved dorsad in lateral view (Figs 9, 11, 12), lacking reflexed spine subapically, submedially with 4 spines (Fig. 11); outer angle of paramere roundly produced laterad in caudal view (Fig. 15)..... *L. arcuata* **sp.nov.**

***Longtania arcuata* n. sp.**

(Figs. 1–15)

Description. Body length: male (macropterous, N=4) 2.45–2.52 mm, (brachypterous, N=1) 2.49 mm; female (macropterous, N=2) 2.90–3.05 mm, (brachypterous, N=1) 2.72 mm.

Colour. General color brown. Vertex and antennae yellowish brown, submedian carinae of vertex bordered by blackish brown laterally. Frons and clypeus yellowish brown to tawny brown, in some specimens frons sordid white medially. Pronotum blackish brown laterally. Tegmina hyaline and lustrous, macropterous forewings speckled with dark brown flecks, apex of clavus with dark spot (Fig. 4); in brachypterous form with apical margin and apex of clavus black (Fig. 5). Dorsum and venter of abdomen with irregular sordid patches laterally on each segment. Legs yellowish brown to tawny brown except fore- and midcoxae black. Male pygofer with parameres and anal segment blackish brown. Ovipositor brown to sordid yellow.

Head. Including eyes narrower than pronotum (0.74–0.77:1). Vertex elongate, longer medially than wide at base about 1.4: 1, anterior margin rounded, submedian carinae uniting before apex of vertex, lateral carinae sinuate, slightly converging anteriorly, posterior margin nearly straight or concave medially (Fig. 1), in lateral view meeting lateral carinae of frons with approximately right angle at fastigium, submedian carinae slightly raised above level of lateral carinae until just beyond fastigium (Fig. 3). Frons in midline longer than maximum width about 2.6:1, widest at level of ocelli, lateral carinae subparallel below ocelli (Fig. 2). Postclypeus and anteclypeus with distinct median carinae, together approximately 0.75x length of frons, in profile shallowly convex (Fig. 3). Postclypeus slightly wider than frons at apex (Fig. 2). Antennae cylindrical, reaching frontoclypeal suture, segment I about as long as wide, shorter than segment II about 1: 2.0 (Fig. 2).

Thorax. Pronotum in dorsal view approximately 0.63x length of vertex, posterior margin deeply cleft, lateral carinae reaching posterior margin, converging apically (Fig. 1), pronotum width 0.72–0.83, length 0.18–0.22. Mesonotum in macropterous form 0.54–0.58 mm long, in brachypterous form 0.36 mm long, lateral carinae extending to posterior margin, median carina obscure apically (Fig. 1). Tegmina in macropterous form 2.8–3.2 mm long, surpassing tip of abdomen by nearly one third of its total length, in brachypterous form attaining or surpassing end of 4th abdominal segment, widest at middle portion, rounded apically (Fig. 5). Legs with tibia normal (not expanded), metatibia 0.76–0.84 mm long, metabasitarsus (0.36–0.42) nearly as long as tarsomere 2 (0.14–0.18) + 3 (0.24–0.30) combined, calcar (0.33–0.34) slightly shorter than metabasitarsus, thick foliaceous, tectiform, with 15–17 small, black-tipped marginal teeth.

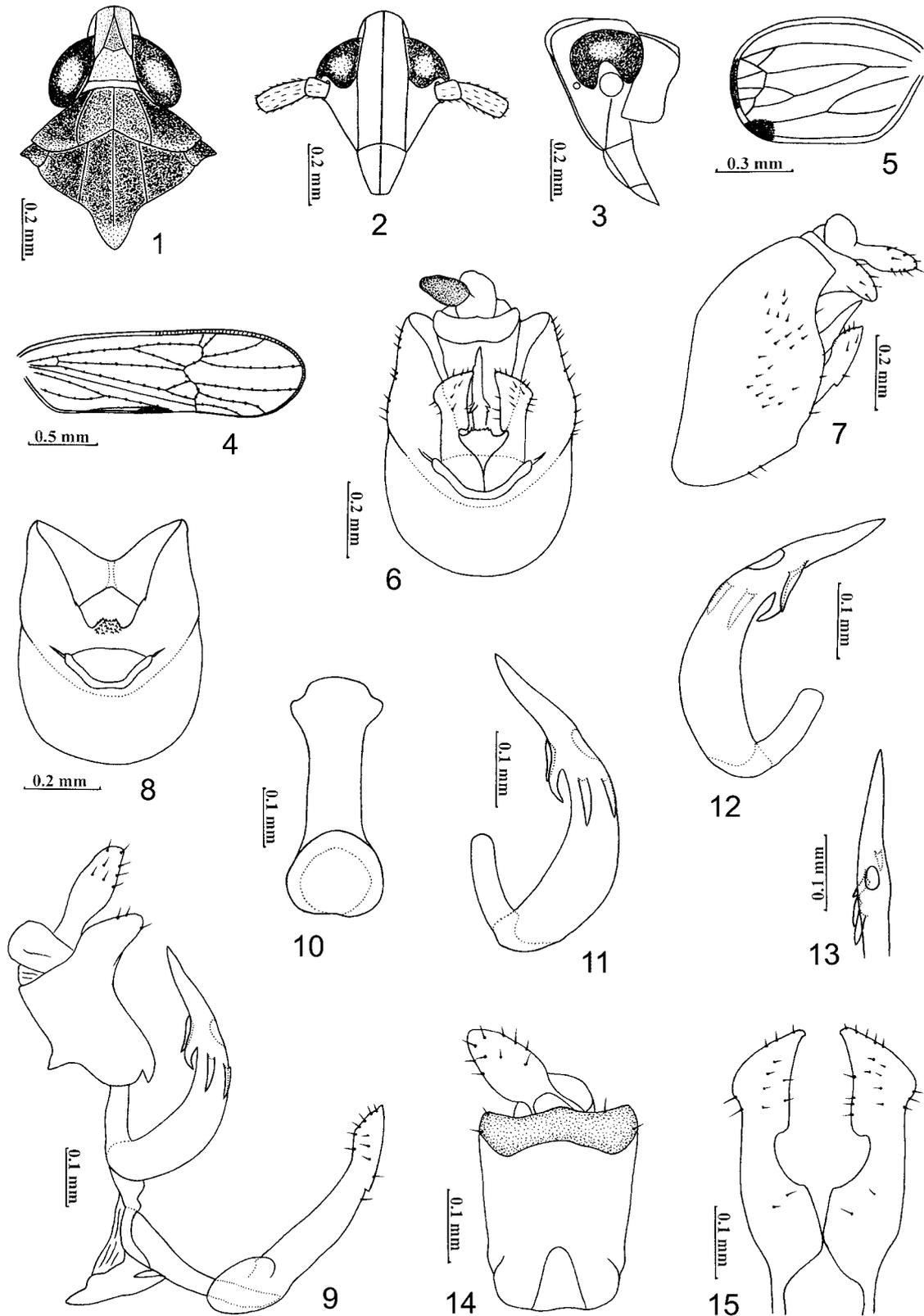
Abdomen (except genitalia). Male drumming organ with 2 elongate apodemes directed dorsocaudad, nearly attaining tergite.

Male genitalia. Pygofer in lateral view with laterodorsal angle angulately produced caudad, wider ventrally than dorsally, laterocaudal margins sinuate (Fig. 7). Diaphragm narrow, mediodorsal process strongly sclerotised and concave medially, directed dorsocaudad, ornamented with numerous tiny teeth (Fig. 8). Parameres broad, long, tips converging laterally basad, tip expanded (Fig. 15). Aedeagus laterally compressed, curved dorsad, gradually narrowing towards pointed apex, submedially with 4 distally acuminate spine-like processes, 3 on the left side and 1 to the right on dorsal side, gonopore subapical on ventral surface (Figs 9, 11, 12). Suspensorium rectangular, strap-like (Fig. 10), fused with the dorsal base of the aedeagus (Figs 9, 11, 12). Opening for parameres large, dorsal margin arched upward, medially nearly straight, lateral margins slightly sinuate, ventral margin concave (Fig. 8).

Type material. **Holotype** male (macropterous), **China:** Hubei Province, Wufeng County, Houhe Nature Reserve, Duling, 11.VII.2005, coll. Lin Lv (NWAUFU). **Paratypes.** **China:** 4 males, 2 females (macropterous); 1 male, 1 female (brachypterous), same data as holotype (NWAUFU).

Etymology. The name is derived from the Latin word “arcuatus” (curved) which refers to the curved aedeagus.

Distribution. Known only from the type locality in central southern China (Hubei Province).



FIGURES 1–15. *Longtania arcuata* n. sp., 1, head and thorax, dorsal view; 2, frons and postclypeus; 3, head and pronotum, left lateral view; 4, right tegmen, macropterous male; 5, left tegmen, brachypterous male; 6, male genitalia, caudal view; 7, same, left lateral view; 8, pygofer, caudal view, anal segment, aedeagus and parameres removed; 9, anal segment, suspensorium, aedeagus and parameres, left lateral view; 10, suspensorium, dorsobasal view; 11, aedeagus, left lateral view; 12, same, right lateral view; 13, apex of aedeagus, ventrocaudal view; 14, anal segment, caudal view; 15, parameres, caudal view.

Remarks. This species can be differentiated from *L. picea* by the characters used in the key. Furthermore, the distributions are distinct (*L. arcuata* in central southern China while *L. picea* is in southern China).

***Platytibia* Ding**

Platytibia Ding, 2006: 333. Type species. *Platytibia ferruginea* Ding, 2006, by monotypy.

Description. Medium-sized, reddish brown to dark brown delphacids. Vertex apically rounded, about as long as wide at base, submedian carinae of vertex in apical half and median carina of frons obsolete, fastigium obtusely rounded. Fore and middle tibia foliaceous. Calcar tectiform, with distinct and compact teeth on inner margin. Male pygofer with plate-like process at each side of lateroventral margin (Figs 16, 18). Parameres contiguous at basal half, convergent distally (Figs 16, 25). Aedeagus tubular, reflected cephalad at subapex with broad flag-like process (Fig. 20). Genital diaphragm narrow, with a caudally directed armature (Fig. 19). Suspensorium Y-shaped (Fig. 21), articulated with aedeagus (Fig. 20). Male anal segment ring-like, laterodistal angles produced into two well separated processes (Fig. 24).

Remarks. The monotypic genus *Platytibia* was established by Ding (2006) within the tribe Delphacini, to accommodate his new species *Platytibia ferruginea* collected from Hainan, the southernmost province in China. Based on features of the male genitalia of the type species, *Platytibia* is here placed in the subtribe Numatina. Presence of an articulated suspensorium is indicative of this subtribe based on the definition of Emeljanov (1993).

The genus *Platytibia* belongs to a large group of taxa around *Platypareia* Muir (1934), *Peliades* Jacobi (1928), *Phyllodinus* Van Duzee (1897) and *Asiracina* Melichar (1912), all of which have foliately expanded femora and tibia of the fore- and midlegs. However, *Platytibia* differs from these genera by having a rounded apex of the head, lacking a submedian carinae of the vertex in apical half, lacking a median carina of the frons and lacking the median process on the midventral margin of the pygofer (Figs 16, 18). It also differs from *Platypareia* and *Peliades* by the distally convergent parameres (Figs 16, 25) and from *Platypareia* by the strongly produced processes of the anal segment (Fig. 24).

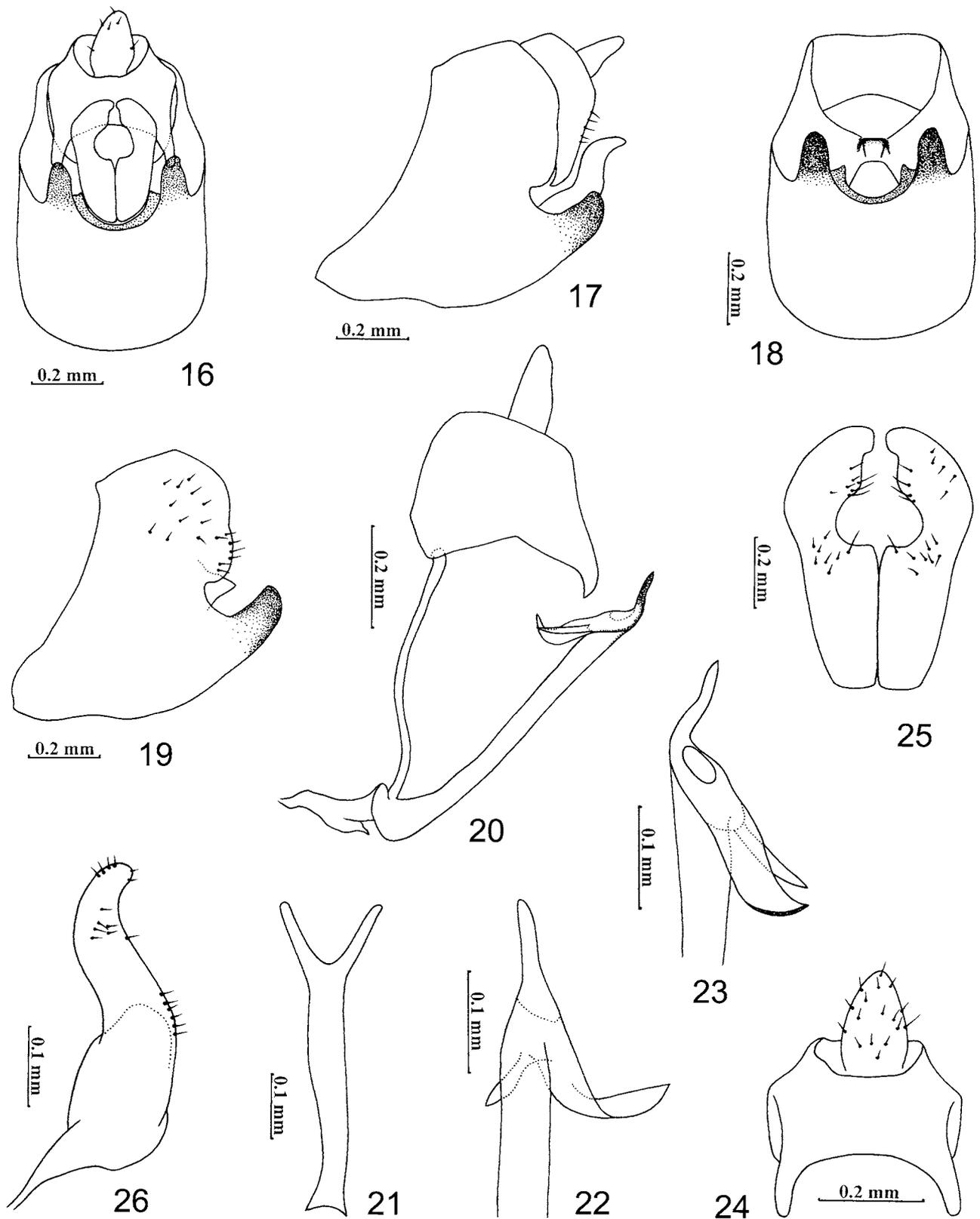
Distribution. Species of *Platytibia* are currently known only from southern China (Hainan Province).

***Platytibia ferruginea* Ding**

(Figs. 16–26)

Platytibia ferruginea Ding, 2006: 333–334, fig. 175A–E.

Male genitalia. Male pygofer subtriangular in lateral view, ventral side sinuate, apparently wider than dorsal, laterodorsal angle not produced, laterocaudal margin broadly expanded caudad in upper half followed by a plate-like process strongly produced at caudoventral angle (Figs 17, 19); in caudal aspect pygofer with a plate-like process at each side of lateroventral margin (Figs 16, 18). Parameres rather broad, surpassing ventral side of anal segment (Fig. 16), contiguous in basal half, apices rounded and converging, laterally basad of apex expanded laterad, apices converging (Fig. 25). Aedeagus slender, slightly compressed laterally, broad at base, shortly distad of base slightly bent dorsad, apex strongly narrowing, subapex with flag-like flagellum reflected laterobasad, distally curved to right side, with basal spinose process curved to left, phallosome subapical on dorsal side at base of flagellum (Figs 20, 22, 23). Genital diaphragm narrow, dorsal margin concave and membranous, medially sclerotized, pigmented, in lateral view with caudally directed process surpassing laterocaudal margin of pygofer (Figs 18, 19). Suspensorium long, articulated with aedeagus (Fig. 20), apparently compressed ventrocaudally, arms short and widely separated, stem nearly 3.0 times as long as arms, basal part narrowed (Fig. 21). Opening for parameres small, ventral margin evenly arched, lateral and anterior margins nearly straight (Fig. 18). Anal segment with two blunt, widely spaced processes (Fig. 24).



FIGURES 16–26. *Platytibia ferruginea* Ding, male genitala. 16, male genitalia, caudal view; 17, same, left lateral view; 18, pygofer, caudal view, anal segment, aedeagus and parameres removed; 19, same, left lateral view; 20, anal segment, suspensorium and aedeagus, left lateral view; 21, suspensorium, caudal view; 22, apex of aedeagus, ventrocaudal view; 23, same, right lateral view; 24, anal segment, caudal view; 25, parameres, caudal view; 26, left paramere, left lateral view.

Material examined. 1 male (macropterous), **China:** Hainan Province, Bawangling, 28.V.1983, coll. Yalin Zhang (NWAUFU).

Remarks. The original description of the genus, especially in the characters of the male genitalia, was rather deficient, the illustrations of the type species not exhibiting these particular configurations of the internal genitalia.

Distribution. Known only from the type locality in southern China (Hainan Province).

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