

ORIGINAL ARTICLE

Two new leafhopper genera of the *Alebroides* genus group (Hemiptera: Cicadellidae: Typhlocybae) from China, with a key to genera of the group

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Abstract

Two new microleafhopper genera in the *Alebroides* genus group, *Nulliata* Lu, Xu & Qin, **gen. nov.**, based on the type species *N. rubrostriata* Lu, Xu & Qin, **sp. nov.**, and *Inflatopina* Lu, Dietrich & Qin, **gen. nov.**, based on the type species *I. intonsa* Lu, Dietrich & Qin, **sp. nov.**, are described from southwest China. Five known species in the *Alebroides sohii* species group are transferred to *Inflatopina* as new combinations. Keys to genera of the *Alebroides* genus group and species of *Inflatopina* are given.

Key words: Auchenorrhyncha, microleafhopper, morphology, taxonomy.

INTRODUCTION

The microleafhopper tribe Empoascini comprises more than 1,000 species in 85 previously described genera from throughout the world. It can be distinguished from other tribes of Typhlocybae as follows: ocelli usually well developed; forewing without appendix; hind wing submarginal vein extended between apices of veins MP' or RP+MP' and MP''+CuA'; male anal tube usually with pair of processes at base; male paramere without preapical lobe; male subgenital plate usually with numerous macrosetae (Qin *et al.* 2014). Genera of this tribe have been divided into two informal groups, the *Alebroides* group and the *Empoasca* complex (Young 1952; Xu *et al.* 2016). Members of the *Alebroides* group have hind wing vein CuA branched, while members of the *Empoasca* complex have this vein unbranched. The taxonomy of the *Empoasca* complex seems rather complicated and the status or diagnoses of many known taxa need reclarification (especially in

the cosmopolitan genus *Empoasca* Walsh, 1862). In contrast, the *Alebroides* group appears more stable in classification, comprising 156 species in 25 genera so far, widely distributed in the Oriental, Palaearctic, Afrotropical and Australian Regions but absent from the New World (Xu *et al.* 2016).

In China, the *Alebroides* group includes 14 genera and 58 species known to date (see checklist). Our recent research suggests that the Chinese fauna remains inadequately surveyed. This paper adds two new genera and two new species, based on our recent examination of material from Yunnan (southwest China), and provides a key to the genera of the *Alebroides* generic group from the world.

MATERIALS AND METHODS

The specimens studied here are deposited in the Entomological Museum, Northwest A&F University, Yangling, Shaanxi, China (NWFU) and Insect Collections, China Agricultural University (CAU). The entire male abdomens of the examined specimens were removed, cleared in 10% NaOH and stored in glycerin. Figures of the male genitalia were made using a light microscope (PM-10 AD; Olympus, Tokyo, Japan). Photographs were taken using a Scientific Digital micrography system equipped with an auto-montage imaging system attached to a QIMAGING Retiga

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2000R digital camera (CCD) (QImaging, Surrey, BC, Canada). The male genitalia were drawn using an Olympus PM-10 AD and wings were drawn using a Leica MZ-125 microscope (Leica, Sloms, Germany). Photographs were edited using Adobe Photoshop CS7.0 (Adobe Systems, San Jose, CA, USA).

The methods and terminology used in this work follow Zhang (1990) with the following exceptions: wing venation terminology after Dworakowska (1993), chaetotaxy of the subgenital plate after Southern (1982), and leg chaetotaxy after Dietrich (2005).

RESULTS

Nulliata Lu, Xu & Qin, gen. nov.

Type species

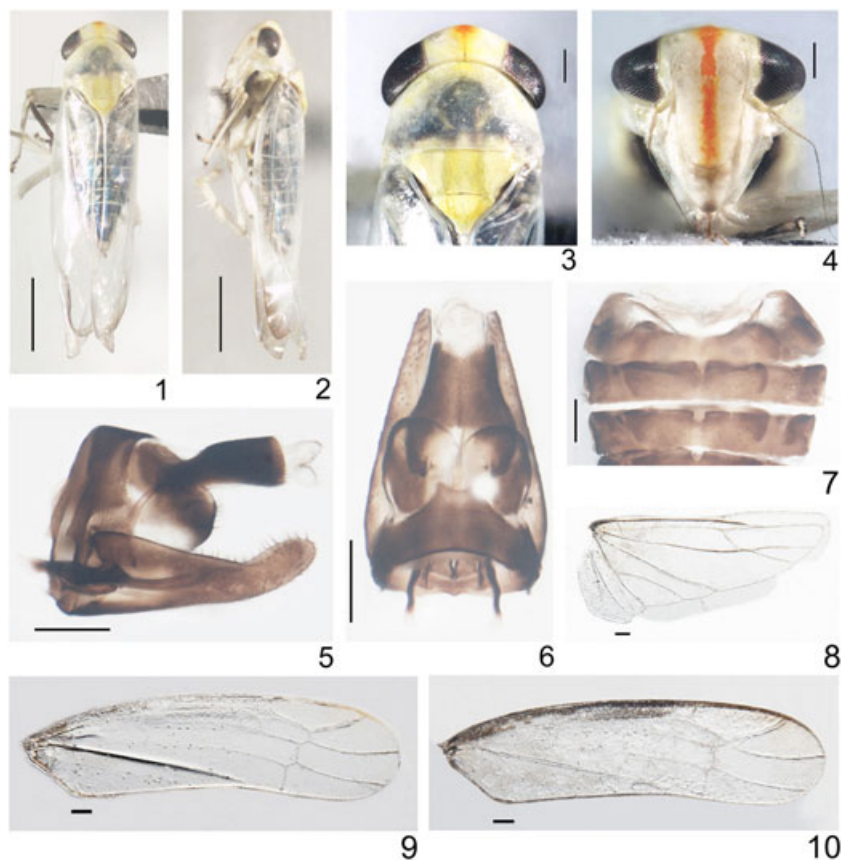
Nulliata rubrostriata Lu, Xu & Qin, sp. nov., here designated.

Description

Body robust. Head including eyes slightly broader than pronotum in dorsal view (Figs 1,3). Crown short,

rounded anteriorly, anterior and posterior margins parallel, middle length distinctly shorter than width between eyes (Figs 1,3), profile of transition to face rounded (Fig. 2); coronal suture distinct, extended nearly to crown apex (Figs 1,3). Ocelli present (Figs 1,3,4). Face broad, convex in profile, longer than wide in anterior view; lateral frontal sutures extended nearly to ocelli; anteclypeus tapered and weakly convex, not expanded (Fig. 4). Pronotum large (Figs 1,3). Forewing narrow, rounded apically, apical cells occupying nearly one-third of total length, c and r cells nearly equal in width, both slightly narrower than m and cua cells; veins RP and MP' dissociated or confluent at their bases, both arising from r cell, MP'' + CuA' arising from m cell; second apical cell with nearly same width as third but slightly broadened apically (Figs 9,10). Hind wing with CuA branched, point of furcation distal of coalescence of CuA with MP'' (Figs 8,11). Fore femur seta AM1 stout, situated near ventral margin; intercalary row with one large basal seta and eight relatively long, fine setae. Hind femur with macrosetal formula 2 + 1 + 1, tibia row AV with six macrosetae near apex.

Male basal abdominal sternal apodemes weakly developed (Fig. 7). Male pygofer short, with rigid



Figures 1–10 *Nulliata rubrostriata* Lu, Xu & Qin, sp. nov. 1 Male adult, dorsal view; 2 male adult, left lateral view; 3 head and thorax, dorsal view; 4 face; 5 male genitalia, left lateral view; 6 male genitalia, dorsal view; 7 abdominal apodemes; 8 hind wing; 9,10 forewing. Scale bars, 1.0 mm (1,2) and 0.2 mm (3–10).

microsetae along posterior margin, pygofer appendage absent (Figs 5,6,12–14), dorsal bridge well developed and distinctly delimited, with mid-dorsal section weakly bilobed posteriorly (Figs 6,13). Anal tube appendage absent, basolateral angles of anal tube weakly angulate (Figs 5,12,21). Subgenital plate far exceeding pygofer side, widest at base and narrowing toward apex, angulate basolateral extension well developed, A-group setae absent, B-group setae small and rigid, C-group setae sharply pointed, roughly in two rows near base and subapically but otherwise uniseriate, D-group setae sparse, no longer than C-group setae, arranged in two to four irregular rows (Figs 5,6,12,20). Paramere slim, longer than pygofer, apophysis weakly curved, bearing prominent dentifer and few slender setae (Figs 5,12,17,19). 5,12,17,19). Connective lamellate, longer than wide, with narrow median anterior lobe (Fig. 18). Aedeagus shaft tubular, tapered, without process(es); preatrium well

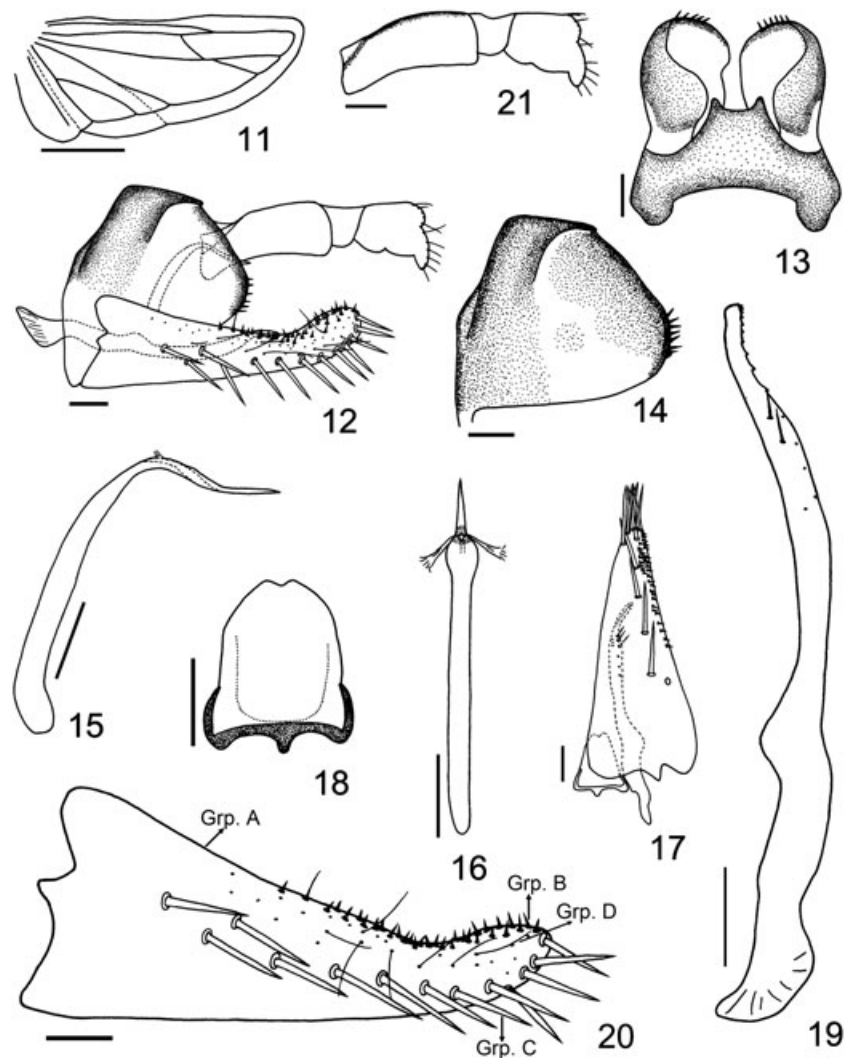
developed, longer than shaft; dorsal apodeme absent; gonopore subapical on ventral side (Figs 5,12,15,16).

Etymology

The name is derived from the Latin word “*nullus*” (none), combined with the feminine suffix “-a”, which refers to the weakly developed abdominal apodemes, ventral pygofer appendage and anal tube appendage of the new species.

Discussion

This new genus is placed in the *Alebroides* group, based on the hind wing venation (vein CuA of hind wing branched). It superficially resembles *Alebrasca* Hayashi & Okada, 1994, *Circinans* Qin & Lu, 2014, *Flaviata* Lu & Qin, 2014, *Luodianasca* Qin & Zhang, 2008, *Membranacea* Qin & Zhang, 2011, *Nikkotettix* Matsumura, 1931,



Figures 11–21 *Nulliata rubrostriata* Lu, Xu & Qin, sp. nov. 11 Hind wing; 12 male genitalia, left lateral view; 13 pygofer side, dorsal view; 14 pygofer side, left lateral view; 15 aedeagus, left lateral view; 16 aedeagus, dorsal view; 17 subgenital plate, paramere and connective, ventral view; 18 connective; 19 paramere; 20 subgenital plate; 21 anal tube appendage, left lateral view. Scale bars, 1.0 mm (11) and 0.1 mm (12–21).

Rubiparvus Xu, Dietrich & Qin, 2016, *Schizandrasca* Anufriev, 1972 and *Szara* Dworakowska, 1995 in having the crown short (middle length distinctly shorter than width between eyes), the pronotum relatively large, veins RP and MP' of the forewing arising from the r cell and in lacking a pygofer appendage (ventral appendage present or absent in *Nikkotettix*). However, the new genus differs from *Alebrasca*, *Flaviata*, *Schizandrasca*, *Membranacea*, *Nikkotettix*, *Rubiparvus*, *Schizandrasca* and *Szara* in having the abdominal apodemes weakly developed (not reaching posterior margin of segment III), from *Circinans*, *Flaviata*, *Luodianasca*, *Nikkotettix*, *Rubiparvus*, *Schizandrasca* and *Szara* in lacking an anal tube appendage, and from *Alebrasca*, *Circinans*, *Membranacea* and *Schizandrasca* in the absence of A-group setae on the plate. This new genus also differs from *Flaviata*, *Rubiparvus* and *Szara* in having the paramere with distinct teeth apically and from *Flaviata* in having the branching point of hind wing CuA distal of the coalescence of CuA with MP".

Distribution

China (Yunnan).

Nulliata rubrostriata Lu, Xu & Qin, sp. nov.

Type materials

Holotype. ♂ (NWAFU), China, Yunnan, Mengla, Longmen, 15 May 2013, coll. Qingquan Xue, by light trap. **Paratypes.** 1♂ (NWAFU), same data as holotype; 7♂ (NWAFU), China, Yunnan, Jizu Mountain, 30 July 2014, coll. Meirong Liang, by light trap.

Description

Body length: Male 4.1–4.6 mm.

General color of body greyish. Eyes dark brown (Figs 1–4). Coronal suture bordered with longitudinal yellow streak, with longitudinal red stripe extending from apex of crown to apex of frontoclypeus, rest of frontoclypeus beige; anteclypeus brownish at base and at apex, remaining area and genae greyish (Figs 1,2,4). Pronotum mostly black medially, margins yellow with irregular creamy patches (Figs 1,3). Mesonotum yellow, basolateral angles and area caudal of scutoscuteellar sulcus with creamy patches (Figs 1,3). Forewing and hind wing hyaline (Figs 1,2). Abdomen dark brown (Figs 1,2). Legs greyish with few brown patches (Fig. 2).

Basal sternal abdominal apodemes not extending to end of segment III (Fig. 7). Male pygofer in profile with apex rounded, bearing five to seven rigid microsetae along posterior margin (Figs 12–14), dorsal bridge occupying nearly 2/5 length of pygofer in dorsal aspect, shallowly emarginate caudo-medially (Fig. 13). Subgenital plate in

lateral view with apical 1/4 curved dorsad, B-group setae (30–33) occupying nearly half length of dorsal margin, arranged in three irregular rows preapically, C-group setae (12–13) starting near base of plate and extending to apex, D-group setae (35–40) starting caudally of C-group setae in irregular two to four rows (Figs 5,12,20). Paramere weakly sinuate in caudal part, dentifer bearing eight to ten teeth and two to three short setae and few sensory pits near apex (Fig. 19). Connective with small caudal lobes, apically narrowed and notched medially (Figs 17,18). Aedeagus with preatrium elongate, in profile occupying nearly 2/3 length of aedeagus, shaft oriented posteriad at right angle to preatrium, curved caudoventrad to level of gonopore, area distal of gonopore acuminate and curved slightly dorsad; in ventral view aedeagus broadened subapically with slender, acuminate apex (Figs 15,16).

Female. Unknown.

Distribution. China (Yunnan).

Etymology. The specific epithet is derived from the Latin words “*rubra*” (red) and “*striatus*” (stripe), referring to the longitudinal red stripe on the face.

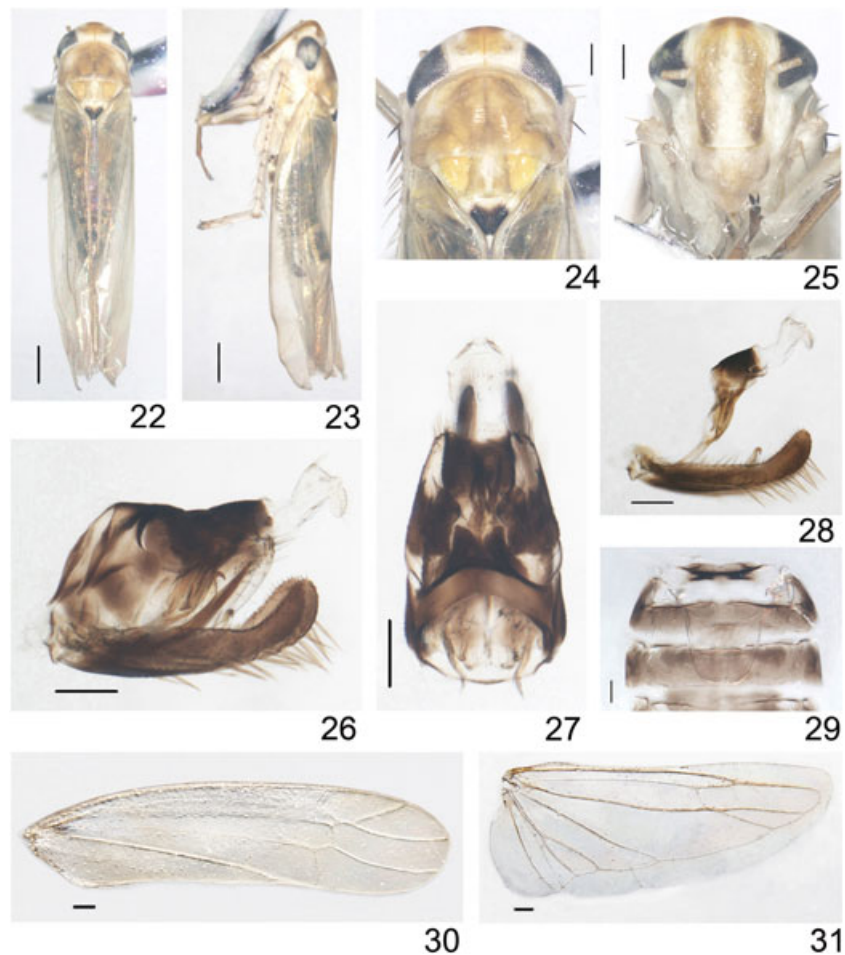
Inflatopina Lu, Dietrich & Qin, gen. nov.

Type species

Inflatopina intonsa Lu, Dietrich & Qin, sp. nov., here designated.

Description

Body robust. Head including eyes as wide as pronotum (Figs 22,24,45,54). Crown short, middle length distinctly shorter than width between eyes (Figs 22,24), profile of transition to face rounded (Figs 23,44,53). Coronal suture distinct, extended nearly to anterior margin of crown (Figs 22,24,43,45,52,54). Ocelli present (Figs 24,25,45,46,54,55). Face broad, distinctly convex, longer than wide in anterior view; lateral frontal sutures extended nearly to ocelli; anteclypeus inflated and much broader in male than in female (Figs 23,25,44,46,53,55). Pronotum large (Figs 22,24,43,45,52,54). Forewing narrow, rounded apically, apical cells occupying nearly one-third of total length, third apical cell stalked, c and r cells nearly equal in width, both narrower than m and cua cells; veins RP and MP' arising from r cell and MP" + CuA' from m cell, MP' and MP" + CuA' almost parallel throughout their length (Figs 30,50,56). Hind wing with CuA branched, branching point distal of coalescence of CuA with MP" (Figs 31,51,57). Front femur seta AM1 stout, situated near ventral margin; intercalary row with one large basal seta and seven smaller setae more distal, evenly spaced along distal three-fourths.



Figures 22–31 *Inflatopina intonsa* Lu, Dietrich & Qin, sp. nov. 22 Male adult, dorsal view; 23 male adult, left lateral view; 24 head and thorax, dorsal view; 25 face; 26 male genitalia, left lateral view; 27 male genitalia, dorsal view; 28 anal tube appendage, aedeagus, connective, parameres and subgenital plates, left lateral view; 29 abdominal apodemes; 30 forewing; 31 hind wing. Scale bars, 0.5 mm (22,23), 0.2 mm (24–28,30,31) and 0.1 mm (29).

Hind femur with macrosetal formula 2 + 1 + 1. Hind-tibia row AV with eight preapical macrosetae.

Male basal abdominal apodemes developed, parallel-sided (Fig. 29). Male pygofer elongate, caudally with macrosetae, ventral appendage present (Figs 26,32–34), dorsal bridge well delimited, short (Figs 27,33). Anal tube process well developed, emarginate apically (Figs 26,28,32,42,47). Subgenital plate exceeding pygofer side, all categories of setae present, A-group setae near base of plate, B-group setae occupying nearly half length of anterior margin, C-group numerous, arranged in two rows basally and merged into single row distally, reaching apex of plate (Figs 26,32,41). Paramere distinctly widened preapically, terminating in a strongly arcuate and abruptly narrowed apical part, dentifer short with one to few small teeth, several setae present on broadened part and sensory pits situated more cephalad (Figs 37,39,40). Connective short, broad, approximately as long as wide, without median anterior lobe (Fig. 38). Aedeagal shaft tubular, with paired or unpaired ventrobasal process(es), dorsoatrium absent, atrium broad in posterior view,

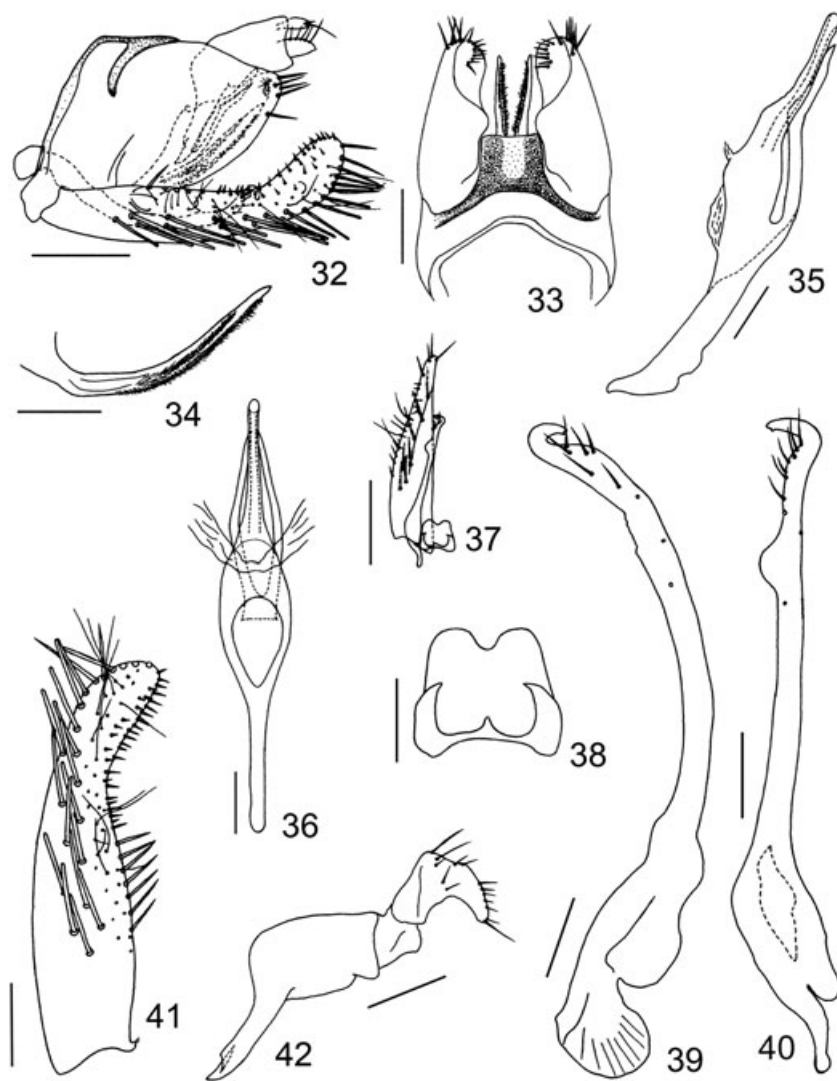
preatrium well developed but shorter than shaft; gonopore apical (Figs 28,35,36,48,49).

Etymology

The generic name is derived from the Latin word “*inflatus*”, referring to the inflated anteclypeus in males of this genus. Gender: feminine.

Discussion

This genus corresponds to the “*Alebroides sobii* species group” recognized by Dworakowska (1997), based on its distinctive coloration and the structure of the anal tube process and aedeagus. The genus is similar to *Alafrasca* Lu & Qin, 2014 in having the male anteclypeus strongly inflated, forewing veins RP and MP’ arising from cell r, the branching point of hind wing vein CuA distal of the coalescence of CuA with MP” and the male pygofer having ventral appendage. However, the new genus differs from *Alafrasca* in having the aedeagal shaft with a pair of ventrobasal processes, the preatrium not trough-like and



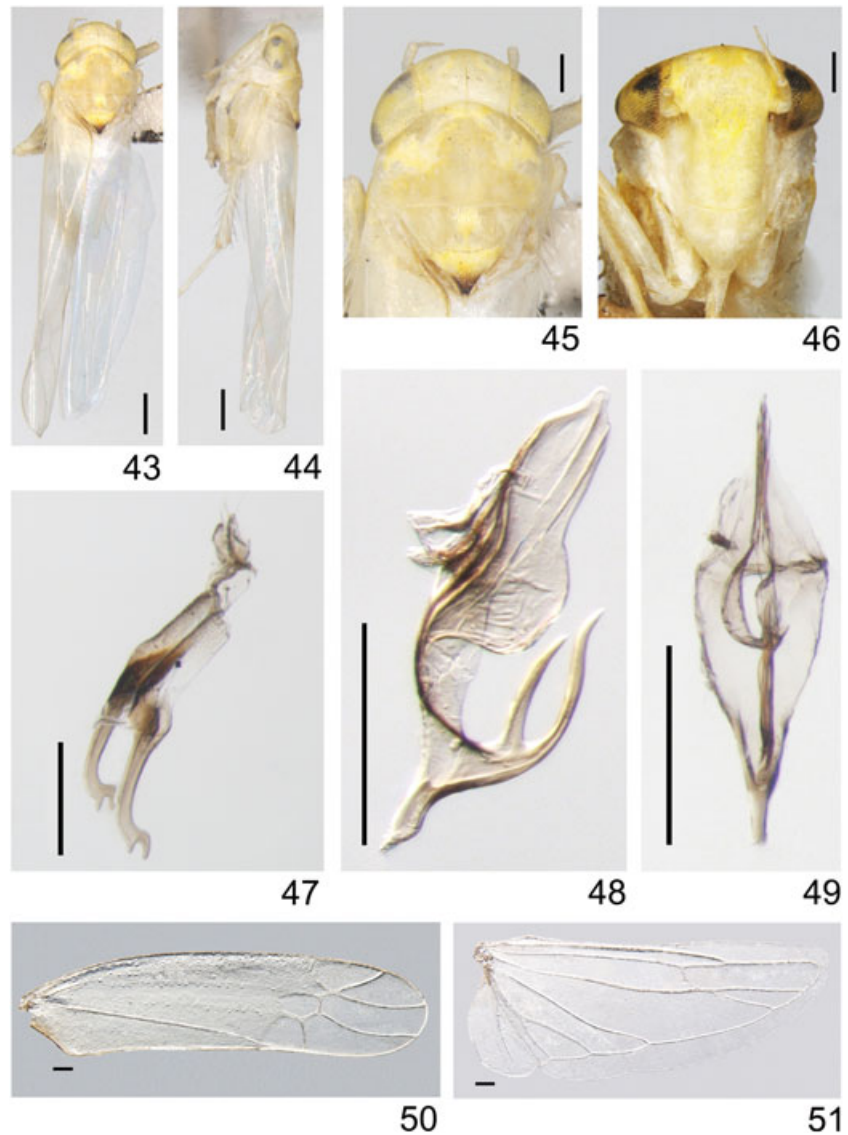
Figures 32–42 *Inflatopina intonsa* Lu, Dietrich & Qin, *sp. nov.* 32 Male genitalia, left lateral view; 33 pygofer side and ventral pygofer appendage, dorsal view; 34 ventral pygofer appendage, left lateral view; 35 aedeagus, left lateral view; 36 aedeagus, dorsal view; 37 subgenital plate, paramere and connective, dorsal view; 38 connective; 39,40 paramere; 41 subgenital plate; 42 anal tube appendage, left lateral view. Scale bars, 0.2 mm (32–34,41), 0.1 mm (35,36,38–40,42) and 0.25 mm (37).

the paramere strongly arcuate and without prominent teeth apically.

Key to species of the genus *Inflatopina* Lu, Dietrich & Qin (males)

1. Ventral pygofer appendage pubescent (Fig. 34).....2
 - Ventral pygofer appendage smooth, not pubescent.....3
2. Aedeagus in ventral view with basal processes distinctly broadened near midlength, not extended nearly to shaft apex (Yu & Yang 2014: Fig. 22).....
 -*I. chiasmatica* (Yu & Yang, 2014), **comb. nov.**
 - Aedeagus in ventral view with basal processes narrow throughout length, extended nearly to shaft apex (Fig. 36).....*I. intonsa* Lu, Dietrich & Qin, **sp. nov.**
3. Aedeagus with basal process symmetrical; paramere evenly broadened subapically.....
 -*I. sobii* (Thapa, 1989), **comb. nov.**

- Aedeagus with basal process asymmetrical; paramere dilated subapically.....4
4. Aedeagus in ventral view with lateral lamella smooth, ventrobasal processes parallel to each other and regularly curved.....
 -*I. victor* (Dworakowska, 1994), **comb. nov.**
 - Aedeagus in ventral view with lateral lamella irregular or serrated; ventrobasal processes of aedeagus not as above.....5
 5. Aedeagal shaft in lateral view relatively broad with ventral dilation large (Fig. 48); anterior branch of anal tube process much shorter than posterior branch.....
 -*I. rayi* (Dworakowska, 1997), **comb. nov.**
 - Aedeagal shaft in lateral view relatively and less dilated ventrally; anterior branch of anal tube process nearly as long as posterior branch.....
 -*I. zenkae* (Dworakowska, 1997), **comb. nov.**



Figures 43–51 *Inflatopina rayi* (Dworakowska, 1997). 43 Male adult, dorsal view; 44 male adult, left lateral view; 45 head and thorax, dorsal view; 46 face in male; 47 anal tube appendage, left lateral view; 48 aedeagus, left lateral view; 49 aedeagus, ventral view; 50 forewing; 51 hind wing. Scale bars, 0.5 mm (43,44) and 0.2 mm (45–51).

***Inflatopina intonsa* Lu, Dietrich & Qin, sp. nov.**

Type materials

Holotype. ♂ (NWAUFU), China, Yunnan, Jingdong, Ailaoshan Mountain, 31 May 2013, coll. Qingquan Xue, by light trap. **Paratypes.** 4♂ (NWAUFU), same data as holotype.

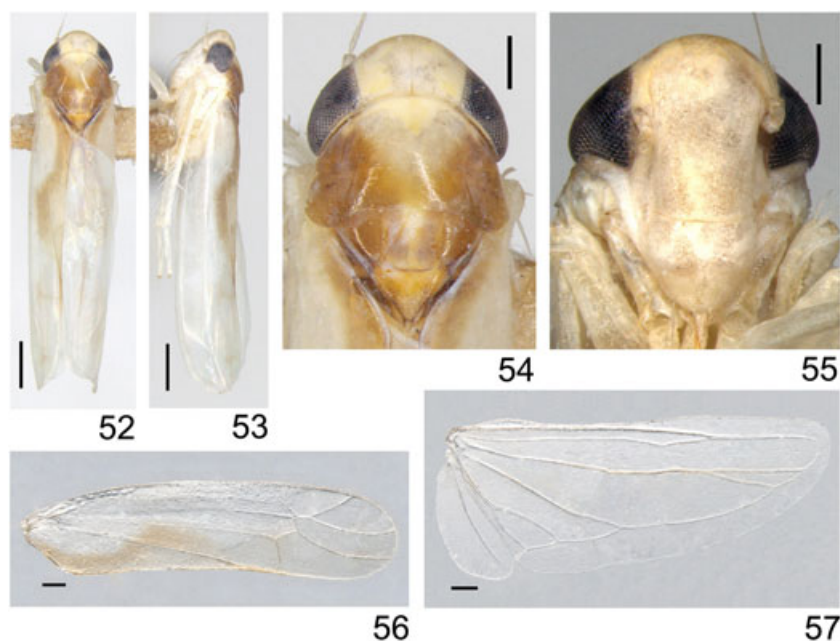
Description

Body length: Male 5.0–5.1 mm.

General color yellowish brown. Crown posteriorly and laterally bordering eyes whitish, with oval beige patch on each side of midline, coronal suture orange brown; crown-face border with two indistinct brown patches medially (Figs 22,24,25). Eyes black (Figs 22–25).

Frontoclypeus laterally yellow brown, centrally with irregular longitudinal stripe medially; anteclypeus beige (Fig. 25). Arcuate area of pronotum behind eyes with irregular greyish patches (Figs 22,24). Center of mesonotum with longitudinal white stripe, basal angles creamy yellow, area caudal of scutoscutellar sulcus milky except heart-shaped black patch medially (Figs 22,24). Forewing and hind wing subhyaline (Figs 22,23). Abdomen mostly black, each tergite with narrow yellowish stripe along posterior margin (Figs 22,23). Legs sordid yellow to brown (Fig. 23).

Abdominal sternal apodemes reaching end of segment IV (Fig. 29). Male pygofer caudally with about 12–13 macrosetae (Figs 26,32,33); ventral appendage slightly curved caudodorsad, gradually narrowed distad, with numerous fine setae distributed from near base to



Figures 52–57 *Inflatopina sobii* (Thapa, 1989). 52 Male adult, dorsal view; 53 male adult, left lateral view; 54 head and thorax, dorsal view; 55 face in male; 56 forewing; 57 hind wing. Scale bars, 0.5 mm (52,53) and 0.2 mm (54–57).

subapex (Figs 26,32–34). Anal tube process straight, exceeding 1/2 height of pygofer, folded and abruptly narrowed terminally (Figs 26,28,32,42). Subgenital plate broad near base, apical 1/3 curved dorsad; A-group setae (5–7) fairly long and sharp tipped; B-group setae (32–33) occupying nearly half length of anterior margin, arranged in irregular three rows preapically; C-group setae (21–22) arising near basal 1/4 of plate, reaching apex; D-group (35–38) parallel to C-group setae, roughly arranged in two to four irregular rows (Figs 26,28,32,41). Paramere broad at base, strongly recurved apex bearing one to two small teeth preceded by *ca.* six setae and a few sensory pits (Figs 39,40). Aedeagal shaft tubular, nearly as long as preatrium, in profile broad at base and thereafter narrowed to rounded apex, ventrobasally provided with pair of sinuate processes shorter than shaft; in dorsal aspect aedeagus strongly expanded medially (Figs 35,36). Connective with caudal margin notched medially (Figs 37,38).

Distribution. China (Yunnan).

Etymology. The specific epithet refers to the setae of the ventral pygofer appendages.

***Inflatopina chiasmatica* (Yu & Yang, 2014),
comb. nov.**

Alebroides chiasmaticus Yu & Yang, 2014: 249, figures 14–25.

Distribution. China (Guangxi).

Remarks. Although Yu and Yang (2014) did not describe or illustrate the hind wing venation of this species, they

mentioned that it is similar to that of *Alebroides sobii* Thapa, 1989 transferred here to *Inflatopina* (see below) and its inflated anteclypeus (Yu & Yang 2014: Fig. 15), strongly recurved paramere without distinct teeth preapically (see Yu & Yang 2014: Fig. 21) and the aedeagal shaft bearing ventrobasal processes (see Yu & Yang 2014: Figs 22,23) all support transferring *A. chiasmaticus* to *Inflatopina*.

***Inflatopina rayi* (Dworakowska, 1997), comb.
nov.**

Alebroides rayi Dworakowska, 1997: 330, figures 932–943.

Specimens examined. 1♂, 1♀ (NWFU), China, Yunnan, Dahanping, 2200 m, 27. Sep. 1999, coll. Irena Dworakowska.

Distribution. China (Yunnan) (new record to China); Myanmar.

Remarks. This species was described, based on a single male from Myanmar with the posterior branch of the aedeagal process broken and missing (Dworakowska 1997). Dworakowska (1997) suggested that the “distal branch [of the aedeagal process is] probably longer and somehow lamellate as in the species described next” (referring to *Alebroides zenkae* Dworakowska, 1997). We found a male agreeing with Dworakowska’s (1997) description of this species from Yunnan, China, and the aedeagal characters of this specimen agree with Dworakowska’s (1997) suggestion. The aedeagus

and anal tube process are photographed here (see Figs 47-49).

***Inflatopina sobii* (Thapa, 1989), comb. nov.**

Alebroides sobii Thapa, 1989: 95, figure 1; Dworakowska, 1997: 329, figures 911–931.

Specimen examined. 1♂ (CAU), China, Hubei, Xingshan Mountain, Longmen River, 13. Sep. 1994, 1,300 m, coll. Fasheng Li.

Distribution. China (Hubei); Nepal.

Remarks. This species was described from Hubei Province in China. A male with genitalia missing was studied. Based on its strongly inflated anteclypeus (Fig. 55) and hind wing venation with the branching point of CuA distal of the coalescence of CuA with MP" (see Fig. 57), it is transferred to *Inflatopina* as a new combination.

***Inflatopina victor* (Dworakowska, 1994), comb. nov.**

Alebroides victor Dworakowska, 1994: 99, figures 66–77; Dworakowska, 1997: 332, figures 14,27, 963–974.

Distribution. India, Nepal.

***Inflatopina zenkae* (Dworakowska, 1997), comb. nov.**

Alebroides zenkae Dworakowska, 1997: 331, figures 901–910,944–962.

Distribution. India.

Key to the genera of the *Alebroides* group (males)

1. Forewing with apical vein MP' arising from m cell.....2
 - Forewing with apical vein MP' arising from r cell (Fig. 9).....4
2. Pygofer side with hook at posterodorsal angle; subgenital plate pointed at apex, C-group setae not reaching apex of plate....*Unitra* Dworakowska, 1974
 - Pygofer side without hook at posterodorsal angle; subgenital plate rounded at apex, C-group setae reaching apex of plate.....3
3. Connective elongate, more than 2X longer than maximum width; ventral pygofer appendage present.....*Epignoma* Dworakowska, 1972
 - Connective nearly as long as wide, not elongate; ventral pygofer appendage absent.....*Wemba* Dworakowska, 1974
4. Coronal suture long, extended onto face.....5
 - Coronal suture short, at most reaching anterior margin of crown.....6
5. Coronal suture terminating at level of antennal bases; anal tube appendage with mesal extension present.....*Apheliona* Kirkaldy, 1907
 - Coronal suture extending only to the level of ocelli; anal tube appendage without mesal extension.....*Znana* Dworakowska, 1994
6. Anal tube appendage absent.....7
 - Anal tube appendage present.....9
7. Crown-face transition with dark patch medially; male pygofer in profile strongly emarginate dorsally.....*Membranacea* Qin & Zhang, 2011
 - Crown-face transition without dark patch medially; male pygofer in profile not emarginate dorsally....8
8. Aedeagus with preatrium shorter than shaft; abdominal apodemes well developed, reaching V segment.....*Alebrasca* Hayashi & Okada, 1994
 - Aedeagus with preatrium distinctly longer than shaft (Figs 15,16); abdominal apodemes weakly developed, not reaching middle of III segment.....*Nulliata* Lu, Xu & Qin, gen. nov.
9. Hind wing with bifurcation point of CuA at or basad of coalescence of CuA with MP".....10
 - Hind wing with bifurcation point of CuA distal of coalescence of CuA with MP" (Fig. 31).....15
10. Forewing with veins RP and MP' confluent preapically.....11
 - Forewing with veins RP and MP' separate, connected by crossvein.....13
11. Setal group C uniseriate throughout length of plate....*Matsumurama* Thapa, 1989
 - Setal group C biseriate basally, uniseriate only in distal part.....12
12. Vertex with two large black patches on anterior margin; subgenital plate with A-group setae numerous and large; paramere with dentifer prominent.....*Shumka* Dworakowska, 1997
 - Vertex usually without large black patches on anterior margin; subgenital plate with A-group setae normal (*Empoasca* type); paramere with dentifer short and compact.....*Alebroides* Matsumura, 1931
13. Aedeagus with preatrium longer than shaft; subgenital plate with one row of feeble microsetae drawn toward dorsal margin in apical 2/3.....*Szuletaia* Dworakowska, 1995
 - Aedeagus with preatrium shorter than shaft; subgenital plate without distinct row of feeble microsetae drawn toward dorsal margin.....14
14. Male pygofer strongly sclerotized dorsally and terminating in a process; subgenital plate with

- D-group setae numerous, elongate; aedeagal shaft without apical processes.....*Flaviata* Lu & Qin, 2014
- Male pygofer not as above; subgenital plate with D-group setae not numerous, short; aedeagal shaft with a pair of long stout apical processes, each process at the base has a short pointed corniform process.....*Dattasca* Dworakowska, 1979
15. Setal group A absent on subgenital plate (Fig. 41).....16
- Setal group A present on subgenital plate.....20
16. Base of subgenital plate articulated to sternite IX...17
- Base of subgenital plate not articulated to sternite IX.....18
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Checklist of genera of the *Alebroides* group in China

- Alafrasca* Lu & Qin, 2014b: 10. Type species: *Alafrasca sticta* Lu & Qin, 2014
- Alebrasca* Hayashi & Okada, 1994: 267. Type species: *Alebrasca actimidia* Hayashi & Okada, 1994
- Alebroides* Matsumura, 1931: 68. Type species: *Alebroides marginatus* Matsumura, 1931
- Apheliona* Kirkaldy, 1907: 67. Type species: *Heliona bioculata* Melichar, 1903
- Circinans* Qin & Lu in Lu & Qin, 2014a: 86. Type species: *Circinans striata* Qin & Lu, 2014
- Flaviata* Lu & Qin in Qin *et al.*, 2014: 1506. Type species: *Flaviata variata* Lu & Qin, 2014
- Ghauriana* Thapa, 1985: 65. Type species: *Ghauriana pecularia* Thapa, 1985
- Inflatopina* Lu, Dietrich & Qin, **gen. nov.** Type species: *Inflatopina intonsa* Lu, Dietrich & Qin, **sp. nov.**

Keumiata Qin & Dietrich in Qin *et al.*, 2014: 1503.
Type species: *Keumiata orientalis* Qin & Dietrich, 2014

Lumicella Lu & Qin in Lu *et al.*, 2013: 12. Type species:
Lumicella rotundata Lu & Qin, 2013

Luodianasca Qin & Zhang, 2008: 64. Type species:
Luodianasca recurvate Qin & Zhang, 2008

Membranacea Qin & Zhang in Qin *et al.*, 2011: 49.
Type species: *Membranacea spinata* Qin & Zhang, 2011

Nikkotettix Matsumura, 1931: 76. Type species:
Nikkotettix galloisi Matsumura, 1931

Nulliata Lu, Xu & Qin, **gen. nov.** Type species: *Nulliata*
rubrostriata Lu, Xu & Qin, **sp. nov.**

Rubiparvus Xu, Dietrich & Qin in Xu *et al.*, 2016: 584.
Type species: *Rubiparvus bistigma* Xu, Dietrich & Qin, 2016

Schizandrasca Anufriev, 1972: 36. Type species:
Alebroides ussurica Vilbaste, 1968

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