A Key to the Genera of Empoascini (Hemiptera: Cicadellidae: Typhlocybinae) in China, with Descriptions of Two New Genera and Two New Species

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A KEY TO THE GENERA OF EMPOASCINI (HEMIPTERA: CICADELLIDAE: TYPHLOCYBINAE) IN CHINA, WITH DESCRIPTIONS OF TWO NEW GENERA AND TWO NEW SPECIES

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ABSTRACT

Two new microleafhopper genera, Keumiata Qin & Dietrich gen. nov. and Flaviata Lu & Qin gen. nov. are described based on 2 new species, K. orientalis Qin & Dietrich sp. nov. and F. variata Lu & Qin sp. nov. from southwest China and Thailand. Both new genera are assigned to the typhlocybine tribe Empoascini. A key to the known genera of the tribe from China is provided and the differences between each new genus and closely related genera are discussed.

Key Words: Auchenorrhyncha, leafhopper, new taxa, taxonomy, key

RESUMEN

Se describen dos nuevos géneros de microsaltahojas, Keumiata Qin & Dietrich gen. nov. y Flaviata Lu & Qin gen. nov. en base a 2 especies nuevas, K. orientalis Qin & Dietrich sp. nov. y F. variata Lu & Qin sp. nov. del suroeste de China y Tailandia, los dos nuevos géneros se asignan a la tribu typhlocybine de Empoascini. Se incluye una clave de los géneros conocidos en China de esta tribu y se discuten las diferencias entre cada nuevo género y otros géneros estrechamente relacionados.

Palabras Clave: Auchenorrhynch, saltahojas, nuevos taxones, taxonomía, clave

The microleafhopper tribe Empoascini is a large group of the subfamily Typhlocybinae (Hemiptera: Cicadellidae). It was established by Distant (1908) to include the genera Homa Distant, Empoasca Walsh and Heliona Melichar, but various subsequent authors have disagreed over its status and composition (see McAtee 1934; Oman 1949; Young 1952, 1965; Metcalf 1964; Mahmood 1967; Mahmood & Ahmed 1968; Dworakowska 1979; Ahmed 1983). In his comprehensive review of New World Typhlocybinae, Young (1952) treated Empoascini as a junior synonym of Typhlocybini but Mahmood & Ahmed (1968) included the genera of Empoasca complex in the tribe Empoascini, and Dworakowska (1979) further refined the definition of Empoascini to accommodate genera lacking an appendix of the forewing and having the submarginal vein in the hind wing reaching but not exceeding the vein RP+MP’ or RP (Dworakowska 1979). Dietrich (2013a) recognized 2 new genera of Typhlocybinae with hind wing venation identical to that of Empoasca but included these genera in Dikraneurini based on characters of the head and male genitalia. Additional features distinguishing Empoascini from Dikraneurini include the presence of well-developed ocelli (vestigial or absent in Dikraneurini), presence of a pair of lobes or processes at the base of the male anal tube (absent in Dikraneurini), absence of a well-developed preapical lobe on the male paramere (present in Dikraneurini), and presence of numerous macrosetae on the subgenital plate (few or none in Dikraneurini).

Because the tribal classification has undergone a great deal of addition and revision over the past 100 years, the tribal placements of some described genera in the subfamily remain unresolved and need to be reconsidered. Recently, Catalano et al. (2014) reviewed 2 Neotropical genera,
Paulomanus and Beamerana, both described by Young (1952) and placed in the tribe Typhlocybini (sensu lato). Catalano et al. placed Paulomanus and Beamerana in the tribe Empoascini because their hind wing venation is nearly identical to that of Empoasca (i.e., with a single large, closed apical cell). A similar situation occurs in some described genera in the Oriental Region, including Dapitana Mahmood (1967), Pemoasca Mahmood (1967), Rabiana Mahmood (1967), Serratulus Mahmood (1967), Mindanaoa Mahmood (1967) and Mahmoodia Dworakowska (1970a), which were originally included in Typhlocybini (sensu lato), but also have the hind wing submarginal vein present and connecting the apices of veins RP+MP'. Therefore, it is appropriate to include them in Empoascini. Thus, the tribe Empoascini now comprises 81 previously described genera, 64 of which are known in the Oriental Region and 34 genera have been reported in China (Lu & Qin 2014a, b; Liu et al. 2014). This paper adds 2 new genera and 2 new species based on our recent examination of materials collected from southern China and Thailand with a key to the known genera of the tribe from China.

**MATERIAL AND METHODS**

The specimens examined in this study are deposited in the Entomological Museum, Northwest A & F University, Yangling, Shaanxi, China (NWAFU) and the insect collection of the Illinois Natural History Survey, Champaign, Illinois (INHS) as indicated under each species. The methods and terminology used in this work follow Zhang (1990) with the following exceptions: wing venation follows Dworakowska (1993), groups of setae on the subgenital plate follow Southern (1982), leg chaetotaxy follows Rakitov (1998).

**KEY TO THE GENERA OF CHINESE EMPOASCINI (MALES)**

1. Hind wing with CuA branched (Figs. 1-4) .................................................. 2  
   —. Hind wing with CuA unbranched (Figs. 5-9) ......................................... 14

2. Coronal suture long, extended onto face and terminating at level of antennal bases (Figs. 28, 29)  
   —. Coronal suture short, at most reaching anterior margin of crown (Figs. 30, 31, 32, 115, 135, 137) . . 3

3. Anal tube appendage absent (Figs. 40, 41) ............................................ 4

   —. Anal tube appendage present (Figs. 42-45, 118, 123, 134, 144, 145, 155) .... 5

4. Crown-face transition with dark patch medially; forewing with veins MP' and RP separate, connected by crossvein (Fig. 10); male pygofer in profile strongly emarginate dorsally (Fig. 40) ....  
   —. Crown-face transition without dark patch medially; forewing with veins MP' and RP confluent preapically (Fig. 11); male pygofer in profile not emarginate dorsally (Fig. 41) ........  
   ........................................................ Membranacea Qin & Zhang

   —. Crown produced, anterior and posterior margins not parallel (Fig. 30); upper pygofer appendage absent (Fig. 42); paramere serrated apically (Fig. 103) ........  
   —. Crown not produced, anterior and posterior margins parallel (Figs. 135, 137); upper pygofer appendage present (Figs. 139, 140, 144-148); paramere smooth, not serrated apically (Fig. 154)  
   ........................................................ Flaviata Lu & Qin gen. nov.

5. Hind wing with bifurcation point of CuA at or basad of coalescence of CuA with MP' (Figs. 1, 143) .................................................. 6

   —. Hind wing with bifurcation point of CuA drawn apicad (Figs. 2-4, 122) .......... 7

6. Crown produced, anterior and posterior margins not parallel (Fig. 30); upper pygofer appendage absent (Fig. 42); paramere serrated apically (Fig. 103) ........  
   —. Crown not produced, anterior and posterior margins parallel (Figs. 135, 137); upper pygofer appendage present (Figs. 139, 140, 144-148); paramere smooth, not serrated apically (Fig. 154) ....  
   ........................................................ Flaviata Lu & Qin gen. nov.

7. Setal group A present on subgenital plate (Figs. 58, 59, 123, 131) ..................... 8

   —. Setal group A absent on subgenital plate (Figs. 60, 61) ............................. 12

8. Male pygofer with ventral appendage (Figs. 43, 44) .................................. 9

   —. Male pygofer without ventral appendage (Figs. 45, 118, 123, 125) ............ 10
9. Vertex about twice as long as basal width between eyes; anal tube appendage branched apically (Figs. 43, 108) .................................................... *Alafrasca* Lu & Qin

—. Vertex about as long as basal width between eyes; anal tube appendage unbranched apically (Figs. 44, 109) ........................................................ *Lumicella* Lu & Qin

10. Aedeagus hook-shaped in profile and without preatrium (Fig. 90) ......... *Schizandrasca* Anufriev

—. Aedeagus not hook-shaped in profile and with preatrium (Figs. 91, 126-128) ...............11

11. Anal tube appendage extended caudad (Figs. 45, 110); setal group C arranged in 2 rows near base and subapically, but uniseriate medially (Fig. 62); abdominal apodemes not reaching end of segment 3 .................................................... *Circinans* Qin & Lu
— Anal tube appendage extended ventroanteriorly (Figs. 118, 123, 134); setal group C uniseriate throughout length of plate (Figs. 118, 123, 131); abdominal apodemes reaching anterior margin of segment 5 (Fig. 120) ........................................ Keumiata Qin & Dietrich gen. nov.

12. Abdominal apodemes weakly developed, not reaching middle of 3rd segment (Fig. 78) ................................................................. Luodianasca Qin & Zhang
— Abdominal apodemes well developed, reaching 5th or 6th segment (Figs. 79, 80) ......................................................... 13

13. Aedeagus shaft longer than preatrium; basoventrally bearing one or paired appendage(s) (Fig. 92); anal tube appendage smooth, without denticuli apically (Fig. 111) .... Nikkotettix Matsumura
— Aedeagus shaft distinctly shorter than preatrium; basoventrally not bearing appendage (Fig. 93); anal tube appendage denticulate apically (Fig. 112) .......................... Ghauriana Thapa

14. Subgenital plates fused basally (Figs. 63, 64) ......................................................... 15
— Subgenital plates separate (Figs. 65-77) ...................................................... 16

15. Coronal suture absent (Fig. 33) ................................................................... Ishiharella Dworakowska
— Coronal suture present (Fig. 34) ................................................................. Dialecticopteryx Kirkaldy

16. Connective fused with base of aedeagus (Figs. 94-100) ........................................ 17
— Connective not fused with base of aedeagus (Figs. 101, 102) ........................................ 23

17. Forewing with all apical veins arising from m cell (Figs. 12-15) ......................... 18
— Forewing with apical veins MP"+CuA' and MP' arising from m cell, RP from r cell (Figs. 16-18) ............................................... 21

18. Ventral pygofer appendage present (Figs. 46, 47) .......................................................... Treufalka Qin & Zhang
— Ventral pygofer appendage absent (Figs. 48, 49) .................................................. 20

19. Subgenital plate with C-group setae multiseriate and densely grouped apically (Fig. 65) ......................................................... Baguoidea Mahmood
— Subgenital plate with C-group setae uniseriate and sparse apically (Fig. 66) ........ Dayus Mahmood

20 Forewing with veins RP and MP' separate and connected by crossvein preapically (Fig. 14); abdominal apodemes weakly developed, tips not divergent posteriorly (Fig. 81) .... Homa Distant
— Forewing with veins RP and MP' confluent preapically (Fig. 15); abdominal apodemes well developed, tips widely divergent posteriorly (Fig. 82) .......................... Goifa Dworakowska

21. Transverse veins in forewing not situated at same level (Fig. 16); subgenital plate distinctly long and narrow (Fig. 67) .......... Treufalka Qin & Zhang
— Transverse veins in forewing situated at almost same level (Figs. 17, 18); subgenital plate rather broad at base narrowing apicad (Fig. 68) ............................................. 22

22. Aedeagus with processes (Fig. 99) ............................................................... Usharia Dworakowska
— Aedeagus without processes (Fig. 100) ....................................................... Ifugoa Dworakowska & Pawar

23. Forewing with all apical veins arising from longitudinal m cell (Figs. 19-21) .............. 24
— Forewing not as above (Figs. 22-27) ......................................................... 27

24. Subgenital plate with A-group setae absent, C-group setae uniseriate (Figs. 69, 70) .................... 25
— Subgenital plate with A-group setae present, C-group setae arranged in 2 rows at least subbasally (Fig. 71) .. 26

25. Pronotum antero-laterally with oblique transverse depression on each side (Fig. 35); hind wing with aa cell normal (Fig. 6); paramere semicircular apically (Fig. 104) ........ Velu Ghauri
Fig. 58. Alafrasca sticta Lu & Qin; 59. Schizandrasca ussurica (Vilbaste); 60. Luodianasca recurvata Qin & Zhang; 61. Nikkotettix cuspidata Qin & Zhang; 62. Circinans striata Qin & Lu; 63. Ishiharella hastata Qin & Zhang; 64. Dialecticoptery (Akotettix) akonis (Matsumura) (after Dworakowska, 1974); 65. Baguoides yunnanensis Qin & Zhang; 66. Dayus membranaceus Qin & Zhang; 67. Treufalka lamellata Qin & Zhang; 68. Ifugoa mikra Dworakowska & Pawar; 69. Velu furcatum Zhang & Qin; 70. Radicafurcus breviprocessus Qin & Zhang; 71. Austroasca sagittata (Jacobi) (after Dworakowska, 1971); 72. Faiga dropia Dworakowska (after Dworakowska, 1980); 73. Kybos smaragdula (Fall.) (after Dworakowska, 1976); 74. Heliona constricta Melichar (after Dworakowska, 1984a); 75. Helionides exsultans (McAtee) (after Dworakowska, 1981a); 76. Asymmetrasca dahaituoensis Liu & Zhang; 77. Empoasca (Matsumurasca) clypealata Qin & Zhang. 58-77. subgenital plate.
26. Forewing with small blackish spot at apex of cu cell (Fig. 20); abdominal apodemes well developed on most tergites (Fig. 83) ...........................................  

Kyboasca Zachvatkin

27. Male pygofer without ventral appendage (Fig. 50) ...........................................  

Australasca Lower

28. Pronotum antero-laterally without depression on each side; hind wing with aa cell very small (Fig. 7); paramere curved but not semicircular apically (Fig. 105)  

Radicafurcus Qin & Zhang

29. Forewing without small blackish spot at apex of cu cell (Fig. 21); abdominal apodemes not well developed or developed only on basal segment (Figs. 84)  

Australasca Lower

30. abdominal apodemes.
—. Male pygofer with ventral appendage (Figs. 51-57) .................................... 28

28. Forewing with vein MP' arising from m cell (Figs. 22, 23) ........................................ 29

—. Forewing with vein MP' arising from r cell (Figs. 24-27) ........................................... 30

29. Paramere apophysis strongly curved in apical part (Fig. 106); ventral pygofer appendage branched at tip (Fig. 51) ............................................. *Jacobiasca* Dworakowska

—. Paramere apophysis slightly curved in apical part (Fig. 107); ventral pygofer appendage unbranched at tip (Fig. 52) ............................................. *Amrasca* Ghauri

30. Tips of abdominal apodemes widely divergent posteriorly (Fig. 85); posterodorsal margin of male pygofer lobe distinctly margined (Fig. 53) .................. *Sikkimasca* Dworakowska
—. Tips of abdominal apodemes not divergent posteriorly (Figs. 86-89); posterodorsal margin of male pygofer not emarginated (Figs. 54-57). ................................................................. 31

31. Subgenital plate spoon-shaped or twisted laterad apically (Figs. 72, 73) ......................... 32
—. Subgenital plate not as above (Figs. 74-77). ................................................................. 33

32. Body delicate; crown produced anteriorly, anterior and posterior margins unparallel (Fig. 36); abdomen with one pair of apodemes (Fig. 86); subgenital plate spoon-shaped (Fig. 72) .............. .................................................. Faiga Dworakowska
—. Body robust; crown rounded anteriorly, anterior and posterior margins parallel (Fig. 37); abdomen

33. Subgenital plate with A-group setae hairlike distally (Fig. 74); base of ventral pygofer appendage usually shifted caudad (Fig. 55). .............................................. Keumiata Qin & Dietrich
d—. Subgenital plate with A-group setae absent, if present, then not hairlike distally (Fig. 55); base of ventral pygofer appendage usually normal (Figs. 56, 57) .........................

34. Body usually with distinct markings; face usually more than 1.5 times longer than maximum width (Fig. 38); forewing with veins MP'+CuA' and MP' sinuate (Fig. 26); hind wing with area enclosed by anal veins quite short (Fig. 8) ......................... Helionides Matsumura
d—. Body usually yellow or green with no distinct markings, but occasionally marked with red, orange, blue, or white; face usually less than 1.5 times longer than maximum width (Fig. 39); forewing with veins MP'+CuA' and MP' and hind wing with the area enclosed by anal veins normal (Figs. 9, 27) .............................................

35. Subgenital plate lacking angulate basolateral projection, A-group setae arising far from the base (Fig. 76); anal tube appendage usually with small apical denticuli (Fig. 113); aedeagal shaft usually much longer than the preatrium and a single long asymmetrical process arising at the apex and extended basolaterad (Fig. 101) ........................................... Asymmetrasca Dlabola
d—. Subgenital plate with angulate basolateral process, A-group setae arising near the base (Fig. 77); anal tube appendage simple (Fig. 114); aedeagal shaft much shorter than preatrium and lacking asymmetrical apical process (Fig. 102) ........................................... Empoasca Walsh

Keumiata Qin & Dietrich gen. nov.

Type species: Keumiata orientalis Qin & Dietrich sp. nov. here designated.

Description. Body small. Head including eyes broader than pronotum in dorsal view (Fig. 115). Crown rounded anteriorly, length slightly shorter than width between eyes, anterior and posterior margins almost parallel, coronal suture distinct, not attaining anterior margin of crown (Fig. 115), transition of crown to face rounded in profile (Fig. 117). Ocelli present (Figs. 115-117). Face broad and convex in profile, anteclypeus narrow and weakly convex (Figs. 116 and 117). Pronotum large (Fig. 115). Forewing narrow, rounded apically, apical cells occupying about one-third of total length, 3rd cell triangular, veins RP, MP arise from r cell and MP'+CuA from m cell, c and r cells nearly equal in width, both narrower than m and cua cells, 2nd apical cell with margins subparallel at base but apparently broadened apicad (Fig. 121). Hind wing with CuA branched near apex, cell cua' very small (Fig. 122). Front femur with dorsoapical pair of macrosetae, AM1 enlarged and situated on ventral margin, intercalary row with 1 large basal setae and 6 smaller setae more distad. Hind femur macrosetae 2+1+1, tibia row AV with 7 macrosetae near apex.

Male basal abdominal apodemes developed, parallel sided (Figs. 120). Male pygofer elongate, terminally bearing rigid microsetae on each side of lobe, ventral appendage absent (Figs. 118, 123-125), dorsal bridge long (Figs. 119 and 124). Subgenital plate extended well beyond pygofer side, all setal groups present, A-group setae arising near base of plate, B-group setae scattered along dorsal margin, C-group setae large, arranged in a single row, D-group setae sparse and short (Figs. 118, 123, 131, 132). Paramere slim, apophysis bearing prominent dentifer and a few slender setae in apical half (Figs. 118, 123, 133). Connective lamellate (Fig. 130). Aedeagal shaft tubular, preatrium and dorsoatrium differentiated into lamellate structure bearing long asymmetrical process ventro-basally, adjacent to shaft with another process arising from lamella on left side (Figs. 118, 123, 126-128). Anal tube appendage broad and curved (Figs. 118, 123, 134).

Remarks

Keumiata is similar to Alebrasca Hayashi & Okada, Luodianasca Qin & Zhang, Membranacea Qin & Zhang, Nikkotettix Matsumura, Schizandrasca Anufriev, Szaa Dworakowska and Flaviata gen. nov. in having forewing veins MP' and RP arising from the r cell, in having hind wing CuA branched and in the absence of a male ventral pygofer appendage (present or absent in Nikkotettix). However, the new genus differs from Luodianasca, Nikkotettix, Szaa and Flaviata in having A-group setae on the plate (A-group undifferentiated in these 4 genera), from Alebrasca and Membranacea in having an anal tube appendage, from Schizandrasca in having subgenital plate C-group setae arranged in one row medially (C-group setae arranged in 2 rows medially in Schizandrasca). The new genus also dif-
fers from *Luodianasca, Membranacea, Schizandra* and *Flaviata* in having the aedeagus with a dorsoatrium, from *Luodianasca* in having the abdominal apodemes well developed (vestigal in *Luodianasca*), and from *Membranacea* in having the male pygofer dorsal margin lacking a dorso-caudal emargination. *Keumiata* also differs from *Flaviata* in having vein CuA" in the hind wing emerging apicad of joining MP" and cell cua' fairly small (CuA in hind wing emerging basad of joining MP" and cell cua' large in *Flaviata*).

Etymology

The generic name is an arbitrary combination of letters, and is regarded as feminine.

Distribution

China (Yunnan Prov.), Thailand.

**Keumiata orientalis** Qin & Dietrich sp. nov.

*(Figs. 115-134)*

Description. Size. Male 3.1-3.5 mm.

Color. General color (holotype) yellow, crown centrally with beige depression on each side of coronal suture, adjacent to eyes with longitudinal, narrow and whitish stripes laterally, anteriorly with orange patch extending to the base of face, anteclypeus and genae pale yellow. Eyes dark. Ocelli grayish. Center of mesonotum with quadrate yellow patch anteriorly, scutellum with median triangular yellow patch and pair of smaller marginal patches, scutoscutellar sulcus black brown. Forewing and hind wing subhyaline, veins of hind wing brownish. Legs yellowish. Specimen from Thailand (Paratype) tan yellowish in general color, with median depression on each side of coronal suture grayish yellow. Eyes greyish black.

Figs. 115-120. *Keumiata orientalis* Qin & Dietrich sp. nov. 115. head and thorax, dorsal view; 116. face; 117. head and thorax, left lateral view; 118. male genitalia, left lateral view; 119. male genitalia, dorsal view; 120. abdominal apodemes. Scale bars = 0.5 mm (Figs. 115-117); 0.2 mm (Figs. 118-120).
Figs. 121-134. *Keumiata orientalis* Qin & Dietrich sp. nov. 121. forewing; 122. hind wing; 123. male genitalia, left lateral view; 124. male pygofer, dorsal view; 125. male pygofer, left lateral view; 126. aedeagus, left lateral view (NWAFU); 127. aedeagus, left lateral view (INHS); 128. aedeagus, ventral view (NWAFU); 129. apex of ventral-basal process of aedeagus, ventral view (INHS); 130. connective; 131. subgenital plate; 132. subgenital plate and paramere, dorsal view; 133. paramere; 134. anal tube and anal styli, left lateral view.
Male Genitalia. Basal abdominal apodemes surpassing anterior margin of segment 5 (Fig. 120). Male pygofer strongly narrowing in caudal part, bearing 2 separate groups of rigid microsetae, one group (about 6 setae) at apex of lobe, another (about 4-6 setae) close to caudo-ventral margin originating on inner surface, outer surface of the lobe with well developed sensilla field in upper half (Figs. 118, 123, 125), dorsal bridge nearly half total length of pygofer (Figs. 119, 124). Subgenital plate broad at base, gradually narrowing to apex, distal 1/4 slightly curved dorsal, A-group setae (4-5) rigid, B-group setae (11-13) small, roughly uniseriate and scattered along dorsal margin in apical 1/2-3/5, C-group setae (9-11) arising near base of plate, reaching apex, D-group setae starting basad of C-group macrosetae in 2 irregular rows (Figs. 118, 123, 131). Paramere sinuate, bearing about 11 distinct teeth, about 5 fine setae and few sensory pits in apical half (Figs. 118, 123, 133). Aedeagal shaft flat in profile, apical 2/3 curved and gradually narrowing, gonopore subapical on the left side, ventro-basal protrusion of aedeagus much longer than shaft, broad at base, apical half slightly curved dorsal, in ventral aspect apex sinuate and strongly narrowing, slender process adjacent to shaft on left side shorter than shaft (Figs. 118, 123, 126, 128); specimen from Thailand with shaft adorned with numerous tiny teeth ventrally in basal 3/5, ventro-basal protrusion of the aedeagus serrated dorsally and produced ventrally near apex (Figs. 127, 129). Connective trapezoidal, caudal margin emarginate medially (Fig. 130). Anal tube appendage well developed, curved ventroanteriorly and gradually narrowing (Figs. 118, 123, 134).

Female

Unknown.

Host plant

Unknown.

Type Material


Etymology

The specific epithet refers to the distribution of the type specimens (in Oriental Region).

Distribution

China (Yunnan Prov.), Thailand.

Remarks

The differences in the structure of the aedeagus between the two specimens available for study are here considered to represent intraspecific variation. Additional specimens need to be studied in order to determine the extent of variation among and within populations.

FLAVIATA LU & QIN GEN. NOV.

Type species: Flaviata variata Lu & Qin sp. nov. here designated.

Description. Body robust, cylindrical. Head including eyes broader than pronotum in dorsal view (Figs. 135, 137). Crown short, rounded anteriorly, middle length prominently shorter than width between eyes, anterior and posterior margins parallel, coronal suture distinct, not extending to anterior margin (Figs. 135, 137), transition to face rounded in profile (Fig. 136); ocelli present (Figs. 135-138). Face broad and distinctly convex in profile, anteceypeus strongly convex and broad (Figs. 136, 138). Pronotum large (Figs. 135, 137). Forewing narrow, rounded apically, apical cells occupying more than one-third of total length, all quadrate at base, veins RP, MP arise from r cell and MP+CuA from m cell, c and r cells nearly equal in width, narrower than m and cua cells, 2nd apical cell with margins subparallel, slightly broadened at apex (Fig. 142). Hind wing with bifurcation point of CuA basad of coalescence of CuA with MP', cell cu'a fairly big (Fig. 143). Front femur with dorsoapical pair of macrosetae, AM1 enlarged and situated on ventral margin, intercalary row with 2 large basal setae and 8 smaller setae more distad. Hind femur macrosetae 2+1+1, row AV with 9 macrosetae near apex.

Male basal abdominal apodemes developed (Fig. 141). Male pygofer strongly sclerotized dorsally and terminating in acuminate process surpassing end of lobe, caudo-ventral margin bearing rigid microsetae, ventral appendage absent, dorsal bridge short (Figs. 139, 140, 144-148). Subgenital plate far exceeding pygofer side, A-group setae absent, B-group setae rigid, C-group setae in single row, sometimes biseriate at basal fourth and near middle, reaching apex of plate, D-group setae numerous, elongate (Figs. 139, 140, 144, 145, 152). Paramere robust, apically curved, without teeth but with few fine setae and sensory pits near middle (Figs. 139, 144, 145, 154). Connective trapezoidal (Fig. 151). Aedeagal shaft tubular, dorso-basally with broad lamella extending to base of anal tube, dorsoatrium absent, preatrium short (Figs. 139, 144, 145, 149, 150). Anal tube membranous, ventro-basally with small process (Figs. 139, 140, 144, 145, 155).
Remarks

*Flaviata* is similar to *Alebrasca* Hayashi & Okada, *Luodianasca* Qin & Zhang, *Membranacea* Qin & Zhang, *Nikkotettix* Matsumura, *Schizandrasca* Anufriev, *Szara* Dworakowska and *Keumiata* gen. nov. in having forewing veins MP' and RP arising from the r cell, in having hind wing CuA branched and in the absence of a male ventral pygofer appendage (absent or present in *Nikkotettix*). However, the new genus differs from all these genera in having the bifurcation point of CuA in the hind wing basad of the coalescence of CuA with MP' and the male pygofer terminated with a process surpassing the end of the lobe. It differs from *Alebrasca*, *Membranacea*, *Schizandrasca* and *Keumiata* in lacking setal group A on the plate, from *Alebrasca* and *Membranacea* in having an anal tube appendage and from *Schizandrasca* in having the aedeagus with a preatrium.

The strongly convex and laterally expanded anteclypeus, when present in Typhlocybinae, usually only occurs in males, with females of the same species having the anteclypeus relatively narrow and flat (Dietrich 2013a). Because females were not available for study it is not possible, at present, to determine whether this feature is sexually dimorphic in *Flaviata*.

**FLAVIATA VARIATA Lu & QIN SP. NOV.**
(Figs. 135-155)

Description. Size. Male 5.0-5.2mm.
Color. General body color orange yellow to tan.
Crown with yellow to brownish depression on
each side of coronal suture, coronal suture brown. Eyes dark. Ocelli whitish. Face with longitudinal yellowish stripe medially, not reaching end of frontoclypeus, remaining area of face yellow to slightly sordid whitish. Pronotum black along posterior margin. Mesonotum centrally with pair

Basal abdominal apodemes exceeding mid-length of segment 5 (Fig. 141). Male pygofer bearing about 24 rigid microsetae along caudo-ventral margin, terminal process on dorsal side narrowed and curved at apex, in dorsal aspect apices slightly to strongly curved mesad (Figs. 139, 140, 144-148). Subgenital plate broad at base, B-group setae (32-36) occupying nearly half length of dorsal margin, C-group setae (19-21) starting near base and reaching apex of plate, D-group setae long, arranged in 4-6 irregular rows (Figs. 139, 144, 145, 152, 153). Paramere narrowed in caudal part, medially bearing about 4 fine setae and few sensory pits (Figs. 139, 144, 145, 153, 154). Aedeagal shaft broad at base and strongly narrowed in basal half, apical half gradually narrowed and curved dorsad, gonopore apical (Figs. 139, 144, 145, 149, 150). Connective broad, caudal margin deeply emarginate medially (Fig. 151). Anal tube appendage short and slender in profile, curved posteromesad (Figs. 139, 140, 144, 145, 155).

Female: Unknown.

Host plant: Unknown.

Type Material


Etymology

The specific epithet refers to the varied body color of the type specimens.

Distribution

China (Sichuan, Zhejiang).

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REFERENCES CITED


