

***Bifurcus*, a new leafhopper genus of the *Alebroides* group (Hemiptera: Cicadellidae: Typhlocybinae) from China**

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Abstract: *Bifurcus flavidus* **gen. et sp. nov.** is described based on specimens from Yunnan, China. Habitus photos and illustrations of the male genitalia of this new species are given and differences between the new genus with closely related genera are discussed.

Key words: Auchenorrhyncha; taxonomy; new taxa

长柄叶蝉属群中国一新属二歧叶蝉属（半翅目：叶蝉科：小叶蝉亚科）

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摘要: 记述来自中国云南的 1 新属新种：二歧叶蝉属黄二歧叶蝉 *Bifurcus flavidus* **gen. et sp. nov.**。文中讨论了该新属与其近缘属的区别，并提供了新种的外部及雄性外生殖器特征图。

关键词: 头喙亚目；分类；新单元

Introduction

The microleafhopper tribe Empoascini comprises more than 1100 species in 106 genera from throughout the world (Xu *et al.* 2021). The tribe includes two informal species groups, the *Alebroides* group and the *Empoasca* group, recognized, based on the presence or absence of a branched vein CuA in the hind wing. The *Alebroides* group, which has hind wing vein CuA branched, is confined to the Oriental, Palaearctic, Afrotropical and Australian Regions but apparently absent in the New World. The Chinese fauna has the most diverse fauna of the *Alebroides* group worldwide, with 17 genera and 66 species known so far (Xu *et al.* 2017a; Yu *et al.* 2020). The taxonomy of the *Alebroides* group has been reviewed in previous work (Xu *et al.*, 2016, 2017a, b). This paper adds a new genus with one new species based on material from Yunnan (southwest China).

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Material and Methods

The specimens studied are deposited in the insect collections of the Entomological Museum, Northwest A&F University, Yangling, Shaanxi, China (NWAUFU). Morphological terminology used in this work follows Xu *et al.* (2021).

Taxonomy

Bifurcus gen. nov.

Type species: *Bifurcus flavidus* sp. nov., here designated.

Description. Body relatively large. Head including eye distinctly wider than maximum width of pronotum (Figs 1, 3). Crown short, depressed, longer medially than next to eye and shorter than width between eyes (Figs 1, 3). Coronal suture long, almost reaching the tip of crown (Figs 1, 3). Ocelli on crown margin well separated from eyes (Figs 3, 4). Lateral frontal suture present (Fig. 4). Anteclypeus narrowed and slightly convex basally (Fig. 4), not sexually dimorphic. Lorum conspicuous, delimited by suture (Fig. 4). Forewing narrow, rounded apically, apical cells occupying less than one-fourth total length, all apical cell with separate, quadrate bases, c cell narrower than r cell, both narrower than m and cua cells; vein R2 and RM arise from r cell and MCu from m cell (Fig. 8). Hindwing with bifurcation point of CuA basad of coalescence of CuA with MP (Fig. 9). 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. Front femur with dorsoapical pair of macrosetae, AM1 enlarged and situated on ventral margin, intercalary row with 1–2 large basal setae and 7–11 smaller setae more distad. Hind femur macrosetae 2+1+1, tibia row AV with 6 macrosetae near apex.

Male 2S abdominal apodemes well developed (Fig. 7). Male pygofer short, with few rigid microsetae on each side of lobe, ventral appendage well developed, bifurcate, separated from pygofer lobe near base; dorsal bridge short, weakly bilobed (Figs 5, 6, 10–13). Subgenital plate far surpassing pygofer lobe, well expanded basally, narrowing apically; basal setae slim encompassing mid-length of plate, marginal setae well defined, limited to distal part of plate margin, macrosetae uniseriate except row somewhat doubled near middle portion, reaching apex of plate, feeble microsetae present but shorter than macrosetae (Figs 5, 10, 14). Style broadened at base, sinuate in ventral and lateral views, apex tapered and smooth, with preapical setae (Fig. 15). Aedeagus shaft tubular, preatrium short, dorsoatrium well developed, gonopore apical on ventral surface (Figs 5, 10, 16, 17). Connective subtrapezoidal, caudal margin notched medially (Fig. 18). Anal tube processes smooth, poorly developed (Figs 5, 10, 19).

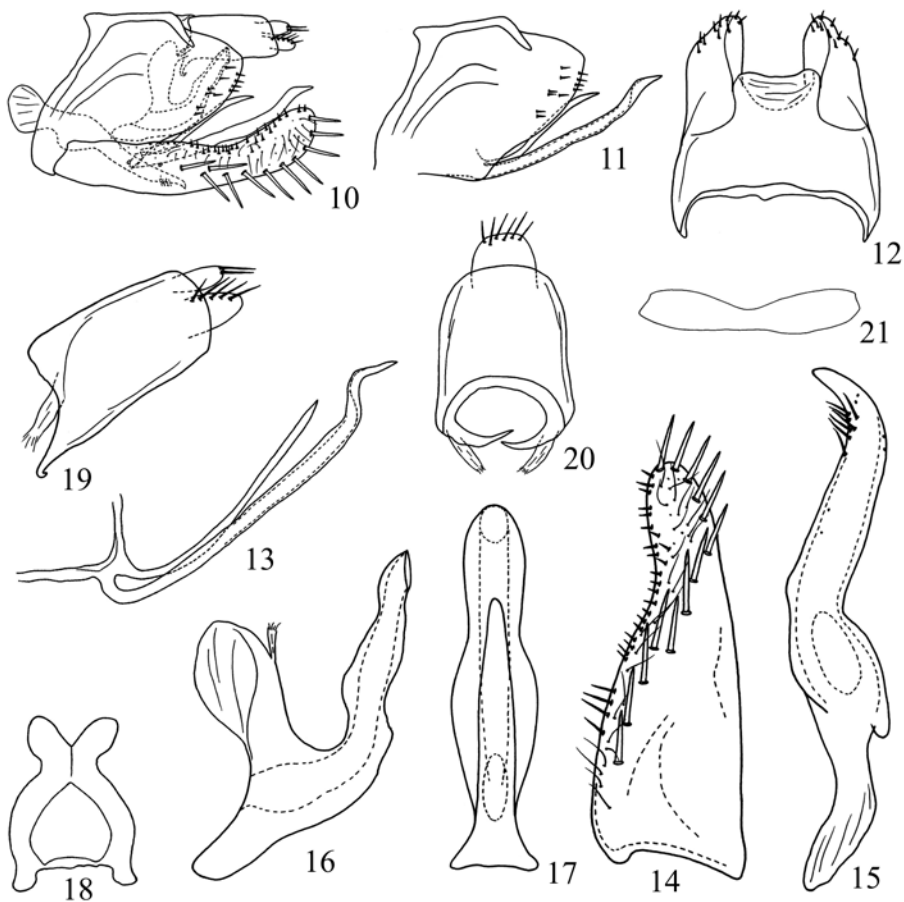
Etymology. The generic name is derived from the Latin word “*bifurcus*” (branch), referring to the bifurcate pygofer ventral appendage.

Remarks. The new genus will run to *Szuletaia* Dworakowska in the generic key of Xu *et al.* (2021) but differs from that genus in lacking black spots on the crown and teeth on the style apex, and in having a well-developed anal tube appendage, elongate fine setae on the subgenital plate, an unbranched ventral pygofer appendage, a posteriorly bifurcate connective, and an elongate aedeagal preatrium. Among other previously described genera of the *Alebroides* group, this new genus is also similar to *Wemba* Dworakowska, 1974 and *Flaviata*

Lu & Qin, 2014 (in Qin *et al.* 2014). It differs from both in having a well-developed pygofer ventral appendage (Fig. 13). This new genus is also similar to *Endogena* Xu, Dietrich & Qin, 2017 in external appearance and the forewing with veins R2 and RM arising from the r cell (Fig. 8), but differs from the latter in having the anteclypeus narrowed (Fig. 4) (anteclypeus strongly inflated in *Endogena*) and branching of CuA in the hindwing basad of coalescence of CuA with MP (Fig. 9) (hindwing with CuA bifurcation point distad of coalescence of CuA with MP). Several New World species of *Matsumurasca* (e.g., *M. chelata* DeLong & Davidson, *M. dampfi* (Davidson & DeLong), *M. danielsae* (Southern), *M. papayae* (Oman), *M. williamsae* Southern) have the ventral pygofer appendage bifurcate but the branch is far from the base of the appendage and *Matsumurasca* has hind wing vein CuA unbranched.



Figures 1–9. *Bifurcus flavidus* Xu, Dietrich & 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. Forewing; 9. Hind wing. Scale bars = 0.5 mm.



Figures 10–21. *Bifurcus flavidus* Xu, Dietrich & Qin **sp. nov.** 10. Male genitalia, left lateral view; 11. Pygofer side and ventral pygofer appendage, left lateral view; 12. Pygofer, dorsal view; 13. Ventral pygofer appendage, left lateral view; 14. Subgenital plate; 15. Style; 16. Aedeagus, left lateral view; 17. Aedeagus, dorsal view; 18. Connective; 19. Anal tube, left lateral view; 20. Anal tube process, dorsal view; 21. Sternite IX, dorsal view.

***Bifurcus flavidus* sp. nov.** (Figs 10–21)

Description. General color yellow (Figs 1–4). Crown with pair of irregular dark yellow spots on each side of coronal suture (Figs 1, 3). Eyes dark (Figs 1–4). Ocelli surrounded with irregular creamy patches (Figs 3, 4). Face and basal antennal segments pale yellow (Fig. 4). Pronotum with irregular pale whitish patch on arcuate area behind eyes (Figs 1, 3). Mesonotum centrally with nearly rectangle creamy patch (Figs 1, 3). Forewing and hindwing subhyaline, vein whitish (Figs 1, 2, 8, 9). Abdomen orange (Figs 1, 2). Legs yellowish except 1st, 2nd tibia and hind tarsus sordid white (Fig. 2).

Male 2S abdominal apodemes exceeding half of segment IV (Fig. 7). Male pygofer with 11–12 rigid setae on outer and inner surface of lobe, dorsal bridge extended almost two-third length of lobe; ventral pygofer appendage branched at base, both branches smooth, ventral branch strongly sinuate apically and extended along plate; ventral branch more slender,

extended to base of sinuate portion of dorsal branch (Figs 5, 6, 10–13). Subgenital plate narrow at base, without lateral lamella, somewhat broadened toward middle, apex rounded and divergent from ventral margin of pygofer lobe; basal setae (4–5) uniseriate, slightly longer than marginal setae, marginal setae (23–25) arranged in 1–2 rows occupying nearly half length of dorsal margin, macrosetae (13–14) arising near base of plate, sharply terminated, feeble microsetae (33–36) inconspicuous (Figs 5, 10, 14). Aedeagus robust, without process, preatrium short, dorsoatrium pillar-like, shaft tubular nearly with uniform width, gonopore large, apical on ventral side of shaft (Figs 5, 10, 16, 17). Style S-shaped, smooth and sharp apically, with 7–8 fine setae in one or two rows and a few sensory pits (Fig. 17). Connective longer than wide, not elongate (Fig. 18). Anal tube appendage attenuated, broad at base and gradually narrowing to pointed, posteriorly curved apex (Figs 5, 10, 19, 20). Ninth sternite almost straight, with a pair of lateral lobes, caudal margin sunken in middle (Fig. 21).

Holotype. ♂(NWAFU), China, Yunnan, Mengla, Shangyong, 18–20-IV-2017, Ye XU leg.

Paratypes. 5♂2♀, same data as holotype (NWAFU).

Etymology. The name is the Latin adjective “*flavidus*” (yellowish), referring to the body color of the type specimens.

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