# TWO NEW SPECIES OF THE SUBGENUS *PEDIOPSOIDES* (*CELOPSIS*) (HEMIPTERA: CICADELLIDAE: MACROPSINAE) FROM SOUTHERN CHINA

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ABSTRACT

Two new leafhopper species, *Pediopsoides* (*Celopsis*) *rhombica* **sp. nov.** from Guizhou Province, and *P.* (*C.*) *trifurcata* **sp. nov.** from Hainan Province of China, are described and illustrated. The type specimens examined here are deposited in the Institute of Entomology, Guizhou University, Guiyang, China (GUGC).

Key Words: leafhopper, morphology, distribution, China

RESUMEN

Dos nuevas especies de chicharritas, *Pediopsoides* (*Celopsis*) *rhombica* Li, Dai y Li **sp. nov.** de la provincia de Guizhou, *P.* (*C.*) *trifurcata* Li, Dai y Li **sp. nov.** de la provincia de Guizhou de China, se ha descrito e ilustrado en el presente documento. Los especímenes tipo examinados aquí son depositados en el Instituto de Entomología de la Universidad de Guizhou, Guiyang, China (GUGC).

Palabras Clave: Auchenorrhyncha, taxonomía, distribución, China

Hamilton (1980) established a new leafhopper subgenus *Pediopsoides* (*Celopsis*), belonging to the subfamily Macropsinae (Hemiptera: Cicadellidae), for a single species *Macropsis dapitana* Merino, 1936 from the Philippine Islands. Subsequently, Viraktamath (1996), Zhang (2010) and Li et al. (2011) respectively placed 1 new species in this subgenus and brought the total number of species of the subgenus to 4. This subgenus can be differentiated largely from other subgenera by the characteristics of the dorsal connective fused to segment X and the straight style.

This paper deals with a fifth and sixth new species *Pediopsoides* (*Celopsis*) *rhombica* Lia, Dai & Li **sp. nov.** from Guizhou Province, Southern China, and *P.* (*C.*) *trifurcata* Li, Dai & Li **sp. nov.** from Hainan Province, Southern China, which are described and illustrated.

## MATERIAL AND METHODS

Morphological terminology followed is after Hamilton (1980), and of the rows of setae on the legs follows Rakitov (1998).

The type-specimens examined here are deposited in the Institute of Entomology, Guizhou University, Guiyang, China (GUGC). Color photos of the adult habitus of the *Pediopsis* species are shown in the supplementary material online in Florida Entomologist 96(3) (2013) at http://purl.fcla.edu/fcla/entomologist/browse.

## TAXONOMY

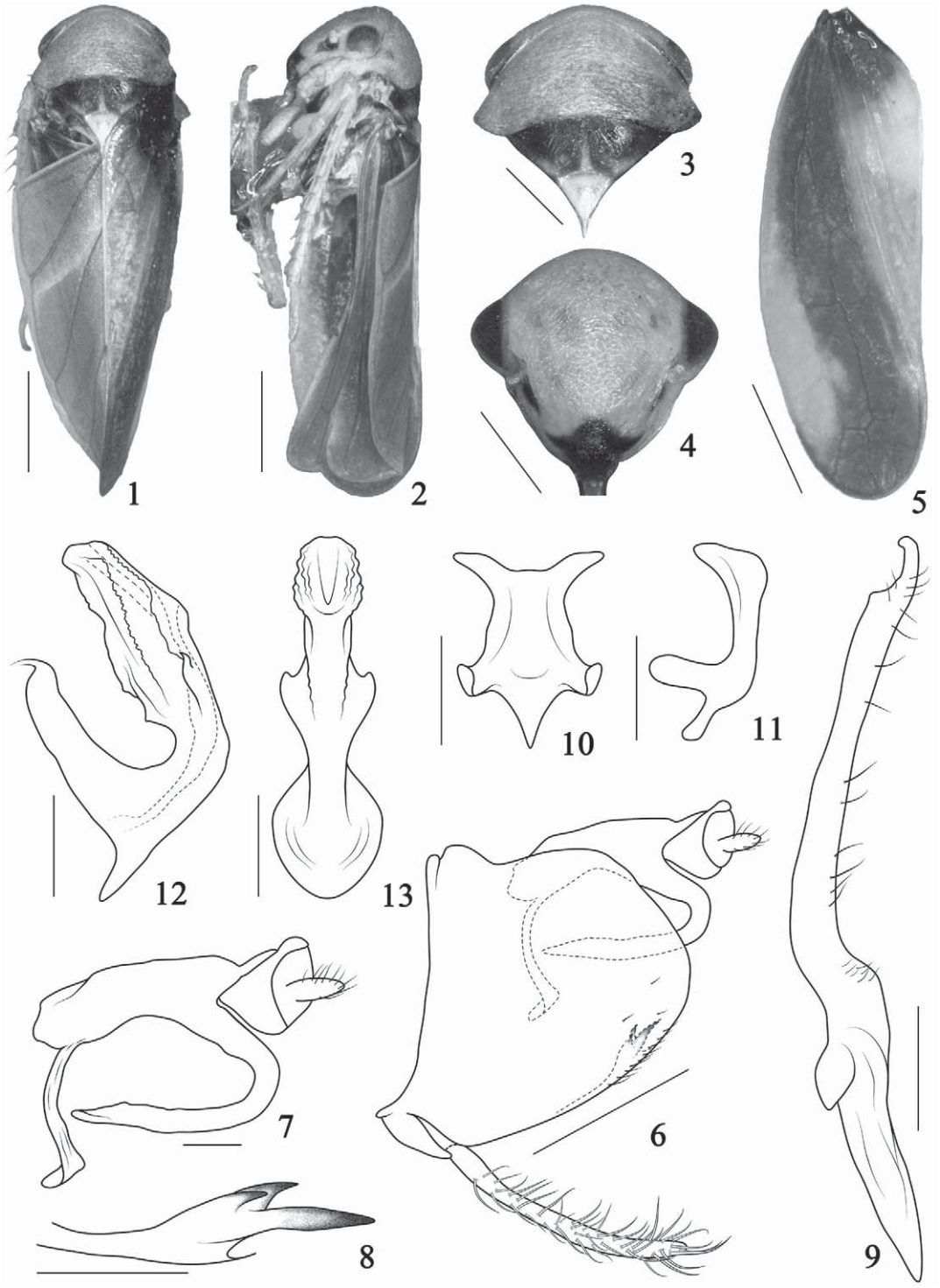
Subfamily Macropsinae Evans
Genus *Pediopsoides* Matsumura
Subgenus *Pediopsoides* (*Celopsis*) Hamilton

*Pediopsoides* (*Celopsis*) Hamilton, 1980: 896; Li et al. 2011: 71.

Type species: *Macropsis dapitana* Merino, 1936, by original designation.

*Pediopsoides* (*Celopsis*) *rhombica* Li, Dai & Li **sp. nov.** (Figs. 1-13)

Type Locality




Figs. 1-13. *Pediopsoides* (*Celopsis*) *rhombica* Li, Dai & Li **sp. nov.** 1. Habitus, dorsal view; 2. Habitus, lateral view; 3. Cephalothorax, dorsal view; 4. Face; 5. Fore wing; 6. Pygofer, subgenital plate and segment X, lateral view; 7. Anal tube and dorsal connective, lateral view; 8. Pygofer ventral process, inner lateral view; 9. Style, dorsal view; 10. Connective, dorsal view; 11. Connective, lateral view; 12. Aedeagus, lateral view; 13. Aedeagus, ventral view. Scale bars for 1-2, 5 = 1.0 mm, for 3-4, 6 = 0.5 mm, for 7-13 = 0.2 mm. Note : This plate is show in color in Suppl. Figs. 1-13 online in Florida Entomologist 96(3) (2013) at http://purl.fcla.edu/fcla/entomologistl/browse.

CHINA: Guizhou Province, Fanjing Mt.

Measurements

Body length including tegmina, ♂, 4.5 mm.

Description

Male. Background color (Figs. 1-4) yellowish-brown with greenish tinge, striations on surface of head, face, and pronotum share same color with surrounding's. Head and face luminous yellow permeated slight green tint. Eyes dark brown; ocelli pale brown; below antennal fossa with large black spots; distal margins of frontoclypeus, lora and anteclypeus clearly black. Pronotum (Figs. 1 and 3) gradually changes from greenish brown at the posterior margin to yellowish-brown at the anterior margin, hind part marked with few black maculae. Scutellum (Figs. 1 and 3) bilateral corners fully black with basal part connected with each other, distal half area bright yellow. Forewing (Figs. 1 and 3) pale, medially widened and "S" shaped longitudinal brown band from base to end. Legs yellowish brown.

Head, face, pronotum, and scutellum faintly striated. Head (Figs. 1 and 3), in dorsal view, clearly arcuate anteriorly (with width across eyes much narrower than pronotum), crown distinctly shorter medially than besides eyes. Face (Fig. 4), across eyes slightly wider than long; ocelli between eyes with their distance about 3.5 × than that of ocellus to adjacent eye; lora almost invisible, lacking clear sutures between lora and frontoclypeus. Pronotum (Figs. 1 and 3) 2.2 × as long as wide, anterior margin strongly prominent, posterior margin clearly excavated medially. Scutellum (Figs. 1 and 3) nearly triangular, length 0.85 × as long as pronotum, striations on surface obscure, coalescent suture between mesonotum and scutellum distinct. Forewing (Figs. 1 and 3) semitransparent, with 3 anteapical cells, veins protruding on region of brown band. Hind femoral macrosetae 2+1; hind tibia with 11 macrosetae on AD row, 6 on AV row, 12 on PD row, dense and slender on PV row.

Male genitalia. Pygofer (Fig. 6), in lateral view, without articulated lobe, broad basally, truncate caudally, ventral part with few setae caudally and ventral process with three strong spines apically (Fig. 8). Subgenital plate (Fig. 6), in lateral view, slender, rodlike, with many scattered setae, and shorter than ventral margin of pygofer. Anal tube (Figs. 6 and 7) strongly elongated with a pair of long and slender processes twisted and directed anteriorly. Style (Fig. 9), slender, small trunk-like with marginal setae, nearly angled on basal 0.43, basally broad, gradually tapering, near apex slightly widened, then suddenly narrow down, tip bent inward. Connective (Figs. 10 and 11) "X" shaped, dorsally longer than wide with broad finger-like process in middle, both lateral arms slender and bent dorsally, lateral and hind margins excavated medially. Aedeagus (Figs. 12 and 13) complicated, in lateral view, dorsal apodeme developed, longer than half of aedeagal shaft, shaft robust, widest at middle, dorsal margin sinuated with irregular arcuate prominences, lateral margin with two sheet processes with sinuated margins at median and around gonopore, near middle distinctly with auriform process below gonopore; in ventral view, broad basally, auriform process in middle broad and distinct, around gonopore clearly sinuated, apex rounded, gonopore on ventral margin, apical. Dorsal connective (Figs. 6 and 7) clearly fused to anal tube.

Type Material

HOLOTYPE, ♂, CHINA: Guizhou Province, Fanjingshan National Natural Reserve, Huixiangping, 01. VI. 2002, collected by Li Zi-Zhong (GUGC).

Distribution

Guizhou Prov. (Fanjing Mt.), China.

Etymology

The new species name is derived from the Latin word "*rhombicus*", referring to the shape of the brown bands on forewing in repose.

Remarks

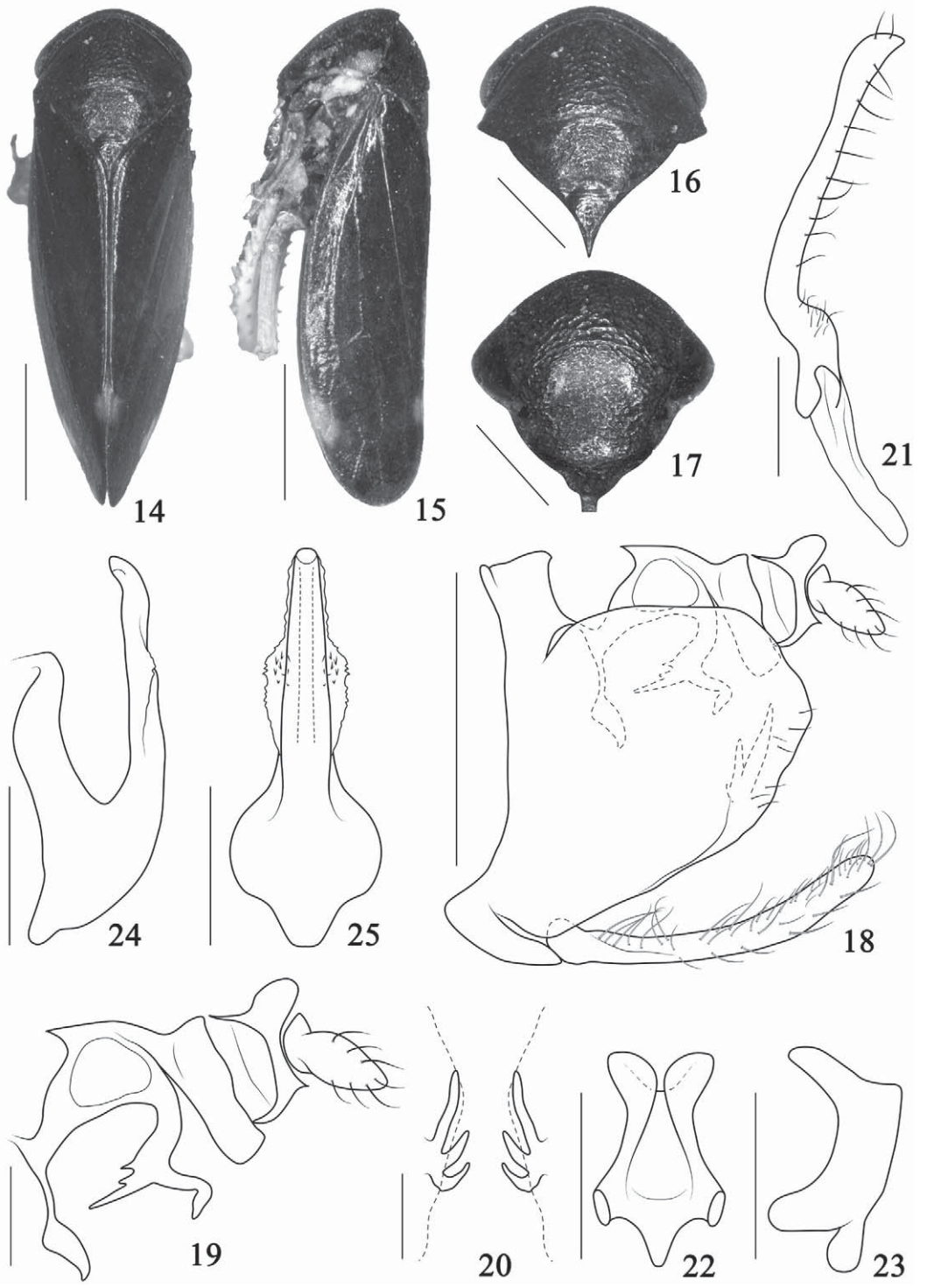
This new species resembles other taxa under subgenus *Pediopsoides* (*Celopsis*) in fusion between dorsal connective and segment X, well developed and complex aedeagus, and obscure reticulate pronotal striations. It resembles *P.* (*C.*) *undata* Li, Dai & Li 2011 but can be easily distinguished from it and other members of the subgenus by the shape of the male pygofer strongly bearing inner large process on ventral margin with three stout spines at end, and of fused segment X produced into a long and slender process directed anteriorly, differently shaped aedeagal shaft and the style also can separated it from others.

*Pediopsoides* (*Celopsis*) *trifurcata* Li, Dai & Li **sp. nov.** (Figs. 14-25)

Type Locality

CHINA: Hainan Province, Jianfengling.

Measurements




Figs. 14-25. *Pediopsoides* (*Celopsis*) *trifurcata* Li, Dai & Li **sp. nov.** 14. Habitus, dorsal view; 15. Habitus, lateral view; 16. Cephalothorax, dorsal view; 17. Face; 18. Pygofer, subgenital plate and segment X, lateral view; 19. Anal tube and dorsal connective, lateral view; 20. Pygofer ventral process, caudoventral view; 21. Style, dorsal view; 22. Connective, dorsal view; 23. Connective, lateral view; 24. Aedeagus, lateral view; 25. Aedeagus, ventral view. Scale bars for 14-15 = 1.0 mm, for 16-18 = 0.5 mm, for 19-25 = 0.2 mm. Note : This plate is show in color in Suppl. Figs. 14-25 online in Florida Entomologist 96(3) (2013) at http://purl.fcla.edu/fcla/entomologistl/browse.

Body length including tegmina, ♂, 3.7 mm; ♀, 3.9 mm.

Description

Male. Color (Figs. 14 and 17) black. Face (Fig. 17) with yellowish green spot with dispersed boundary at central part; eyes somewhat dark brown with dark red tinge; antennal scape yellowish brown; lower parts of eyes and back of eyes yellowish green. Forewing (Figs. 14 and 15) with one small yellowish green spot at end of claval suture, and flavous spot along costal margin of wing. Legs yellowish brown, with somewhat light green tint.

Body (Figs. 14-17) stout; head, face, pronotum, and scutellum weakly striated. Ocelli between eyes with their distance about 4.5 times than that of ocellus to adjacent eye. Pronotum (Figs. 14 and 16) 2.3 × as long as wide. Scutellum (Figs. 14 and 16) length about 1.5 × longer than that of pronotum. Forewing (Figs. 14 and 15) has 2 anteapical cells. Hind femoral macrosetae 2+1; hind tibia with 8 macrosetae on AD row, 5 on AV row, 9-10 on PD row, dense and slender on PV row. Other structural morphology as described in *Pediopsoides* (*Celopsis*) *rhombica* Li, Dai & Li **sp. nov.**

Male genitalia. Pygofer (Fig. 18), in lateral view, broad basally, incised caudally, ventral part caudally with several setae, trifurcated ventral process. Anal tube (Figs. 18 and 19) strongly bearing a complex bifurcated process at middle and front margin with two small teeth apically. Style (Fig. 21), slender, lateral margin with setae, nearly angled on basal 0.48, stem narrower at middle, near apex slightly inflated, then tapered to pointed apex. Connective (Figs. 22 and 23), dorsally longer than broad, with finger-like process medially, both lateral arms bent dorsally, lateral and hind margins excavated medially. Aedeagus (Figs. 24 and 25), in lateral view, dorsal apodeme longer than half of aedeagal shaft, shaft slender, laterally compressed, nearly of equidistant from basally to apically, ventral margin sinuated, subapex concave, lateral margin with sheet process with marginal serrate and occupied 0.8 of shaft; in ventral view, broad basally, sheet process broadened at middle, subapical ventral margin bearing weak protuberances, apex rounded, gonopore apical. Dorsal connective (Figs. 18 and 19) definitely fused to anal tube.

Female

Body coloration and appearance similar to male, but slightly stout. Seventh sternite broad, trapezoidal, hind margin sinuated, "W" shaped, length of midline about 2 times as long as sixth sternite, ovipositor strongly projecting beyond pygofer.

Type Material

HOLOTYPE, ♂, CHINA: Hainan Province, Jianfengling National Natural Reserve, Tianchi, 06. IV. 2013, collected by Long Jian-Kun, Zhang Yu-Bo and Xing Ji-Chun (GUGC); Paratype, 1 ♀, same data as holotype (GUGC).

Distribution

Hainan Province (Jianfengling), China.

Etymology

This new name is derived from the Latin words "*tri-*" and "*furcatis*", indicating the shape of the pygofer's inner process.

Remarks

This new species is similar to *Pediopsoides* (*Celopsis*) *membrana* Zhang, 2010 in black body colour, but the trifurcated pygofer process, laterally compressed aedeagal shaft with a pair of broad and long sheet processes that occupy most part of shaft with serrated lateral margins, and the differently shaped processes on fused segment X and dorsal connective could differentiate the new species from it and others.

KEY TO MALES OF THE LEAFHOPPER SUBGENUS *PEDIOPSOIDES* (*CELOPSIS*)

1. Male pygofer process comb like with 5-9 teeth; aedeagal shaft ornamented with numerous microscopic protuberances on ventral margin . . . . . *P.* (*C.*) *pectinata* Viraktamath, 1996

—. Male pygofer process spine like with less than 3 teeth; aedeagal shaft with few or without protuberances on ventral margin . . . . . 2

2. Male pygofer process with 3 stout spines or trifurcated . . . . . 3

—. Male pygofer process with 2 spines . . . . . 5

3. Male pygofer process with trifurcated apex; aedeagal shaft with one pair of broad membranous processes on lateral margins . . . . . *P.* (*C.*) *trifurcata* **sp. nov**.

—. Male pygofer process with 3 stout spines; aedeagal shaft with more than one pair of membranous processes on lateral margins . . . . . 4

4. Process of segment X slender and long, tip slightly narrowed; style clearly with necked tip, trunk-like . . . . . *P.* (*C.*) *rhombica* **sp. nov.**

—. Process of segment X stout and short, tip laterally expanded; style clearly with slightly inflated tip . . . . . .*P.* (*C.*) *membrana* Zhang, 2010

5. Distal processes beyond apex of aedeagal shaft . . . . . *P.* (*C.*) *undata* Li, Dai & Li 2011

—. Distal processes reaching but not exceeding apex of aedeagal shaft . . . . . *P.* (*C.*) *dapitana* (Merino, 1936)

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