

## New record of the leafhopper genus *Busoniomimus* Maldonado-Capriles from China (Hemiptera, Cicadomorpha, Cicadellidae) with description of a new species

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**Abstract:** The idiocerine leafhopper genus *Busoniomimus* Maldonado-Capriles, 1977 is recorded for the first time in China, and a new species, *B. hainanensis* sp. nov., is described and illustrated from Hainan Province, China. A key to species of the genus *Busoniomimus* is given, and a checklist of all known species of the genus *Busoniomimus* is also provided.

**Key words:** Homoptera, Idiocerinae, morphology, taxonomy, China

### Introduction

The subfamily Idiocerinae is the largest group of arboreal leafhoppers of the family Cicadellidae, which consists of 2 tribes and 99 genera with approximately 750 described species (Zhang and Viraktamath, 2009; Wei et al., 2010) distributed in all the zoogeographic regions. The subfamily in China has been well studied during the past 50 years and is represented by a total of 65 species of 16 genera from 2 tribes (Zhang and Li, 2010).

The genus *Busoniomimus* was described by Maldonado-Capriles in 1977 with *Idiocerus minor* Bierman as the type species. Currently, the genus consists of only 7 species that occur both in the Oriental and Australian regions. Among these, 2 species are from Australia (Webb, 1983), 2 species are from India (Viraktamath and Murphy, 1980;

Viraktamath and Viraktamath, 1985), 1 species is from Indonesia and the Philippines (Maldonado-Capriles, 1977), and 1 species is from Singapore (Viraktamath and Murphy, 1980).

In the present study, a new species, *Busoniomimus hainanensis* sp. nov., is described and illustrated from Hainan Province, China. This represents the first record of *Busoniomimus* from China. A key to species of the genus *Busoniomimus* is given, and a checklist of all known species of the genus *Busoniomimus* is also provided.

### Material and methods

The specimens examined were collected from shrubs of montane forests in Hainan Province, China in July 2007 using a sweeping net. Morphological terminology mainly follows Dietrich (2005).

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Techniques for the preparation of genital structures follow Oman (1949). The type specimens are deposited in the College of Life Sciences and Technology, Inner Mongolia Normal University, China (IMNU).

## Results and discussion

### Taxonomy

#### Subfamily Idiocerinae Baker

#### Tribe Idiocerini Baker

#### Genus *Busoniomimus* Maldonado-Capriles

*Busoniomimus* Maldonado-Capriles, 1977. *Pacific Insects*, 17: 491; Viraktamath and Murphy, 1980. *J. Ent. Res.*, 4: 87; Webb, 1983. *Aust. J. Zool. Suppl. Ser.*, 92: 85; Viraktamath and Viraktamath, 1985. *Entomon.* 10: 305.

**Type species:** *Idiocerus minor* Bierman, 1908 (according to original designation).

**Distribution:** Australia; China; India; Indonesia; the Philippines; Singapore.

**Remarks.** Webb (1983) discussed the relationship among the members of *Busoniomimus* and proposed that they should belong to different genera on account of external differences. However, the authors think that they should be part of the genus *Busoniomimus* because of the very similar male genitalia. Externally this genus resembles *Idioscopus* Baker, but differs in possessing a ventroposterior triangulate lobe of pygofer, connective with stem elongate, aedeagus with well developed dorsal apodeme and preatrium, and aedeagal shaft with microscopic tubercles.

#### Key to species of the genus *Busoniomimus* Maldonado-Capriles (males only).

1. Vertex and thorax with dark maculae or markings; lateral frontal suture distinct.....2
  - Vertex and thorax without such markings; lateral frontal suture indistinct.....7
2. Male pygofer with internal process.....3
  - Male pygofer without internal process.....  
.....*B. annulatus* Webb
3. Male pygofer process elongate and straight, arising basal or subbasal portion.....4

- Male pygofer process short and curved, arising posterior or caudal portion.....6
- 4. Aedeagus with pair of basal processes near basal shaft.....*B. manjunathi* Viraktamath
  - Aedeagus without such processes.....5
- 5. Anal collar process narrow and elongate with apex trifurcate; styles with subapical portion concave ventrally.....*B. hainanensis* sp. nov.
  - Anal collar process with apex bifurcate; styles with subapical portion almost straight .....  
.....*B. mudigerensis* (Viraktamath)
- 6. Posterodorsal margin of aedeagus excavated, gonopore median.....*B. setulistylus* Viraktamath
  - Posterodorsal of aedeagus not excavated, gonopore subapical.....*B. polydoros* (Kirkaldy)
- 7. Posterodorsal margin of aedeagus slightly excavated, aedeagal preatrium large, in lateral view quadrate.....*B. mindanaensis* (Baker)
  - Posterodorsal margin of aedeagus deeply excavated, aedeagal preatrium small, in lateral view near trapezoidal.....*B. minor* (Bierman)

#### *Busoniomimus hainanensis* Zhang and Li sp. nov.

(Figures 1-12)

**Type materials.** Holotype, ♂, CHINA: Hainan Prov., Datian, 130-140 m, 9 July 2007, Zhang Bin; paratype, 1♂, same data as holotype.

**Diagnosis.** *Busoniomimus hainanensis* sp. nov. closely resembles *B. minor* (Bierman) and *B. mindanaensis* (Baker) in the shape of aedeagus but differs in possessing vertex and thorax with pair of black maculae, distinct lateral frontal suture, forewings with 2 subapical cells, trifurcate apex of anal collar process. This species can be distinguished from others by the anal collar process in lateral view; narrow and thin and apex trifurcate (for detailed distinction see key).

**Description.** Ground color yellowish brown with dark markings. Vertex (Figures 1, 2) pale brown with 2 round spots close to adjacent eyes, 2 triangular pale brown maculae on either side of median line originating from posterior margin contiguous to facial macula. Face (Figure 3) with several dark maculae: 1 V-shaped dark stripe at base, 1 pair of transverse maculae close to adjacent eyes, 1 pair of



Figures 1-3. *Busoniomimus hainanensis* sp. nov. 1: habitus, dorsal view; 2: habitus, dorsolateral view; 3: face.

black elliptical maculae between inner margin of ocelli, another large black macula occupying most of frontoclypeus and anteclypeus. Lorae and genae pale brown (Figure 3). Ocelli yellowish brown, eyes dark brown. Pronotum (Figures 1, 2) light fulvous with 4 irregular black maculae, 1 large pair on median area and another small pair near lateral margins; median area with 2 irregular pale brown maculae; posterior area whitish. Mesonotum (Figure 3) with pair of laterobasal triangular black maculae, 1 pair of small rounded spots on either side of median line. Mesoscutellum (Figure 3) with pair of blurry dark maculae. Forewings (Figures 1, 2) brown with veins prevalently dark brown; apex of claval veins (i.e. 1A, 2A), claval suture, and middle part of subapical cells whitish.

Lateral frontal suture (Figure 3) distinct, pointing to under ocellus. Forewings (Figure 2) with 2 subapical cells, inner subapical cell open, outer subapical cell closed; appendix large.

Male abdomen (Figure 4) with 1 pair of lobe-like basal apodemes on the 3rd sternite. Male eighth sternite (Figure 5) wider than long, both basal angles spine-like; caudal margin slightly produced medially.

**Male genitalia.** Male pygofer (Figure 6) in lateral view elongate, triangular; small triangulate lobe near base of ventral margin; internal process almost straight, shorter than pygofer, and arising near the

triangulate lobe. Anal collar process (Figures 6, 7) in lateral view, narrow and thin and apex trifurcate. Subgenital plates (Figure 6) shorter than pygofer, slightly curved dorsad, in its distal portion ventrad, with numerous small setae covering surface, and hair-like setae along dorsal margin. Styles (Figure 8) with median portion curved dorsally, subapical portion concave ventrally, and a row of spinal setae along dorsoapical margin. Connective (Figures 9, 10) with stem slightly curved dorsally. Aedeagus (Figures 11, 12) in lateral view, h-shaped with well developed dorsal apodeme and preatrium; deeply excavated on dorsal margin of preatrium; aedeagal shaft curved dorsally with microscopic tubercles on apical half; gonopore situated in basal third of the posterior surface of shaft.

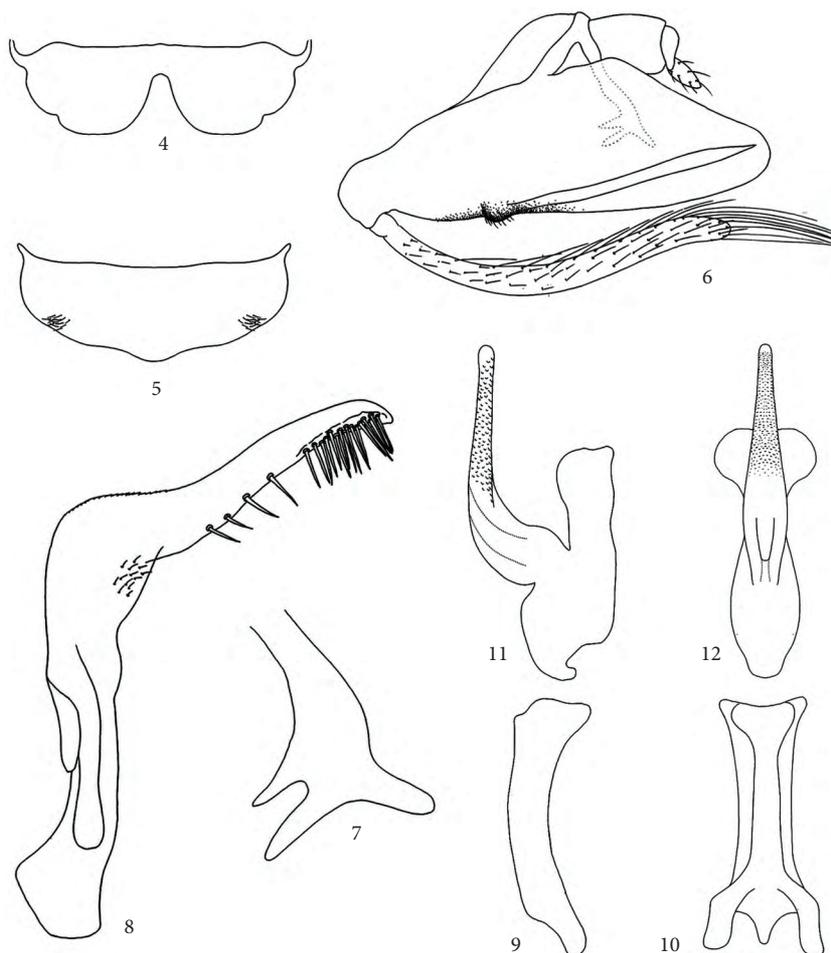
**Measurements.** Male 4.36-4.38 mm long, head 1.67-1.69 mm wide across eyes, pronotum 1.42-1.44 mm wide.

**Female.** Unknown.

**Host plant.** Unidentified shrubs.

**Distribution.** China (Hainan).

**Remarks.** The new species is placed in the genus *Busoniomimus* based on male pygofer with a ventroposterior triangulate lobe and an internal process, connective with stem elongate, aedeagal shaft with microscopic tubercles.



Figures 4-12. *Busoniomimus hainanensis* sp. nov. 4: abdominal apodemes; 5: male eighth sternite; 6: genital capsule, lateral view; 7: apex of anal collar process, lateral view; 8: style, lateral view; 9: connective, lateral view; 10: connective, dorsal view; 11: aedeagus, lateral view; 12: aedeagus, ventral view.

**Etymology.** The species name is derived from type locality, Hainan Province.

**Checklist of the species of *Busoniomimus* Maldonado-Capriles worldwide.**

***Busoniomimus annulatus* Webb**

*Busoniomimus annulatus* Webb, 1983: 87, Figures 632-637.

**Distribution:** Australia (Queensland).

***Busoniomimus hainanensis* sp. nov.**

**Distribution:** China (Hainan).

***Busoniomimus manjunathi* Viraktamath and Viraktamath**

*Busoniomimus manjunathi* Viraktamath and Viraktamath, 1985: 305, Figures 1-15.

**Distribution:** India (Karnataka).

***Busoniomimus mindanaensis* (Baker)**

*Busionia mindanaensis* Baker, 1915: 328, Figure 9.

*Busoniomimus mindanaensis* (Baker): Maldonado-Capriles, 1977: 492, Figures 8-11.

*Busoniomimus minor* (Baker): Viraktamath and Murphy, 1980: 89.

**Distribution:** the Philippines (Mindanao).

*Busoniomimus minor* (Bierman)

*Idiocerus minor* Bierman, 1908: 165.

*Busonia minor* (Bierman): Baker, 1915: 327.

*Busoniomimus minor* (Bierman): Maldonado-Capriles, 1977: 492, Figures 1-7.

*Busoniomimus minor* (Bierman): Viraktamath and Murphy, 1980: 90.

**Distribution:** Indonesia (Java).

*Busoniomimus mudigerensis* (Viraktamath)

*Amritodus mudigerensis* Viraktamath, 1976: 235, Figures 6-14.

*Busoniomimus mudigerensis* (Viraktamath): Viraktamath and Murphy, 1980: 87.

**Distribution:** India (Karnataka).

*Busoniomimus polydoros* (Kirkaldy)

*Pedioscopus polydoros* Kirkaldy, 1906: 349.

*Busoniomimus polydoros* (Kirkaldy): Webb, 1983: 86, Figures 623- 631.

**Distribution:** Australia (Queensland).

*Busoniomimus setulistylus* Viraktamath and Murphy

*Busoniomimus setulistylus* Viraktamath and Murphy, 1980: 88, Figures 21-30.

**Distribution:** Singapore (Bukit Timah).

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