

Taxonomic study of the genus *Busoniomimus* (Hemiptera: Cicadellidae: Eurymelinae: Idiocerini) with descriptions of seven new species

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Abstract: The leafhopper genus *Busoniomimus* Maldonado-Capriles, 1977 is reviewed with a key to species. Seven new species, *Busoniomimus arciformus* sp. nov., *B. curvipenis* sp. nov., *B. elongatus* sp. nov., *B. margprominus* sp. nov., *B. tergeginus* sp. nov., *B. transversus* sp. nov., and *B. turgidus* sp. nov., are described and illustrated. Additionally, *B. mindanaensis* is redescribed and illustrated.

Key words: Auchenorrhyncha; leafhopper; taxonomy; key

长索叶蝉属分类研究暨 7 新种(半翅目: 叶蝉科: 阔角叶蝉亚科: 片角叶蝉族)

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摘要: 对长索叶蝉属 *Busoniomimus* Maldonado-Capriles, 1977 进行了修订, 编制了分种检索表, 并记述 7 个新种: 弓纹长索叶蝉 *Busoniomimus arciformus* sp. nov., 曲茎长索叶蝉 *B. curvipenis* sp. nov., 硕突长索叶蝉 *B. elongatus* sp. nov., 瓣突长索叶蝉 *B. margprominus* sp. nov., 星颜长索叶蝉 *B. tergeginus* sp. nov., 乌缘长索叶蝉 *B. transversus* sp. nov. 和异突长索叶蝉 *B. turgidus* sp. nov.。还对娇婉长索叶蝉 *B. mindanaensis* (Baker, 1915) 进行了再描记。

关键词: 头喙亚目; 叶蝉; 分类; 检索表

Introduction

The idiocerine genus *Busoniomimus* Maldonado-Capriles is distributed in the Oriental and Australian regions. Currently, nine species of *Busoniomimus* are known (Kirkaldy 1906; Bierman 1908; Baker 1915; Viraktamath 1976; Maldonado-Capriles 1977; Viraktamath & Murphy 1980; Viraktamath & Viraktamath 1985; Zhang & Li 2012; Xue & Zhang 2015).

In this paper, seven new species are described and illustrated from Australia, Malaysia, New Caledonia, and Singapore, and *B. mindanaensis* (Baker) is redescribed. A key to species of *Busoniomimus* is provided.

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Material and methods

The material used in this study is deposited in the Illinois Natural History Survey, Champaign, USA (INHS), the National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (USNM), University of Agricultural Sciences, Bengaluru, India (UASB), Queensland Museum, Brisbane, Australia (QM) and Entomological Museum, Northwest A&F University, Yangling, China (NWAUFU).

Morphological terminology mainly follows Zhang (1990) and Dietrich (2005).

Taxonomy

Busoniomimus Maldonado-Capriles

Busoniomimus Maldonado-Capriles, 1977: 491. Type species: *Idiocerus minor* Bierman, by original designation.

Body yellow to brown. Crown with or without a spot on each side of midline close eyes. Mesoscutum with basal triangles brownish to black.

Crown transversely rugose (shagreen in *B. hainanensis* and *B. mudigerensis*). Face wider than long; lateral frontal sutures indistinct (including *B. elongatus* **sp. nov.**, *B. margprominus* **sp. nov.**, *B. mindanaensis*, *B. minor* and *B. tergeminus* **sp. nov.**) or distinct; frontoclypeus oval; lateral margin of anteclypeus straight, slightly convergent in basal 0.75 then divergent, apex wider than base. Pronotum shagreen, anterior margin convex, posterior margin slightly concave. Fore femur with AD and PD setae irregularly arranged and short; few short setae on AV and PV. Fore tibia with stout setae 9-10 on apical half of AD and PD. Hind femur with 2+1 apical setae. Hind tibial macrosetae PD 14-17, AD 4-6, AV 8-10. Hind basitarsus with 3 platellae. Fore-wing with m-cu1 and r-m1 crossveins, clavus with 2 veins, appendix broad, bordering two inner apical cells.

Male pygofer with ventro-posterior triangular lobe on each side near base; ventral margin with an inner process (except *B. annulatus*). Segment X fused to pygofer, with internal process. Subgenital plate shorter than pygofer, with fine setae on dorsal and ventral margin. Style elongate, curved dorsally, usually with fine or strong setae on dorsal margin. Connective stem slender and long, with medial longitudinal keel. Aedeagus cylindrical, surface pustulate, without process (except *B. manjunathi* and *B. tergeminus* **sp. nov.**); dorsal apodeme well developed; gonopore subapical or at midlength on ventral surface.

Female genitalia with seventh sternite wider than long, caudal margin produced, usually slightly concave in middle. First valvulae slender, usually curved dorsally, with sculpture strigate dorsolaterally. Second valvulae curved dorsally, with 5–20 irregular dorsad teeth on apical half.

Distribution. Australia; China; India; Indonesia; Malaysia; New Caledonia; Singapore; the Philippines.

Key to species of *Busoniomimus* (♂)

1. Aedeagus with one pair of dorsally directed thin basal processes arising on preatrium (Viraktamath & Yeshwanth 2024: fig. 15h) *B. manjunathi* Viraktamath & Viraktamath
- . Aedeagus without such process:..... 2

2. Pygofer ventral margin with inner process (Fig. 3A) 3
 -. Pygofer ventral margin without inner process (Webb 1983: fig. 636)..... *B. annulatus* Webb
3. Pygofer lateral lobe with inner process (Fig. 18A) 4
 -. Pygofer lateral lobe without inner process 6
4. Style apex sinuate (Fig. 18F)..... *B. turgidus* **sp. nov.**
 -. Style apex curved slightly (Fig. 16F) 5
5. Aedeagal shaft with a patch of dense nodules basally (Fig. 16D) *B. transversus* **sp. nov.**
 -. Aedeagal shaft without nodules basally *B. arciformus* **sp. nov.**
6. Crown with dark brown or black spot on each side of midline (Fig. 4C) 7
 -. Crown without dark brown or black spot 13
7. Style with preapical lobe (Fig. 14F)..... 8
 -. Style without preapical lobe 9
8. Aedeagal shaft with a pair of angular expansions in middle (Figs 14D, 14E) *B. tergeminus* **sp. nov.**
 -. Aedeagal shaft without angular expansions *B. elongatus* **sp. nov.**
9. Crown shagreen 10
 -. Crown transversely rugose 11
10. Segment X with trifurcate inner process (Zhang & Li 2012: fig. 7) *B. hainanensis* Zhang & Li
 -. Segment X with forked inner process (Viraktamath 1976: fig. 9) *B. mudigerensis* (Viraktamath)
11. Pronotum with pair of brown triangular markings adjacent to anterior margin (Fig. 12C)
 *B. polydoros* (Kirkaldy)
 -. Pronotum without such markings 12
12. Anteclypeus and lorum black *B. setulistylus* Viraktamath & Murphy
 -. Anteclypeus and lorum brown *B. curvipenis* **sp. nov.**
13. Lateral frontal suture distinct (Xue & Zhang 2015: fig. 1d) *B. umbellatus* Xue & Zhang
 -. Lateral frontal suture indistinct (Fig. 8D) 14
14. Pygofer lateral lobe inner surface with a triangular process near apex (Fig. 9A)..... *B. margprominus* **sp. nov.**
 -. Pygofer lateral lobe without such process 15
15. Aedeagus deeply excavated on ventral margin at base of shaft (Fig. 11D) *B. mindanaensis* (Baker)
 -. Aedeagus slightly excavated on ventral margin at base of shaft (Maldonado-Capriles 1977: fig. 1)
 *B. minor* (Bierman)

1. *Busoniomimus annulatus* Webb, 1983 (Fig. 1)

Busoniomimus annulatus Webb, 1983: 87, figs 632–637.

Body brown. Crown yellowish, with one black spot on each side of midline (Figs 1A–C). Face black basally, with a yellow line in middle; frontoclypeus black with rhomboid-shaped yellow markings; gena mainly gray; antennal pits and base of gena black; anteclypeus and lorum yellow-brown (Fig. 1D). Pygofer ventral margin without inner process. Segment X with a pair of elongate basolateral processes, apical half curved dorsad. Style broadened subapically in lateral view, tapered distally. Aedeagal shaft curved dorsad in lateral view; dorsal apodeme broad in lateral and ventral view; gonopore subapical.

Specimen examined. 1♂ (INHS), **Australia**, 09–18-XII-2011.

Distribution. **Australia**.

Remarks. Webb (1983) adequately described and illustrated the species. This species can be readily distinguished from other species of *Busoniomimus* by the pygofer lacking an inner process on the ventral margin.

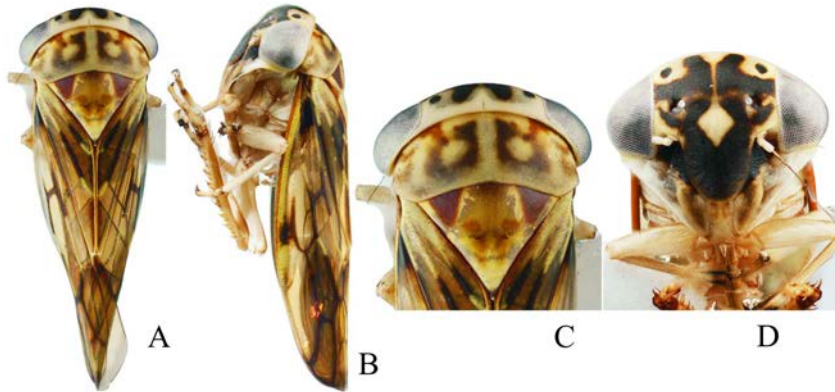


Figure 1. *Busoniomimus annulatus* Webb. A, B. Habitus, dorsal and lateral views; C. Head and thorax, dorsal view; D. Face.

2. *Busoniomimus arciformus* sp. nov. (Figs 2, 3)

Measurement. Length of male 4.8 mm.

Body dark brown. Crown with median infuscation (Fig. 2C). Face gray, with dark brown longitudinal stripe from crown to anteclypeus between ocelli; gena with inner margin bordered by dark brown stripe below antennal base and extending to apex of anteclypeus (Fig. 2D). Pronotum brown with a dark brown narrow transverse stripe in anterior half. Mesoscutum with pair of dark brown basal triangles, and an inverted T-shaped dark brown marking in middle (Fig. 2C). Fore wing brown, veins dark brown (Figs 2A, 2B).

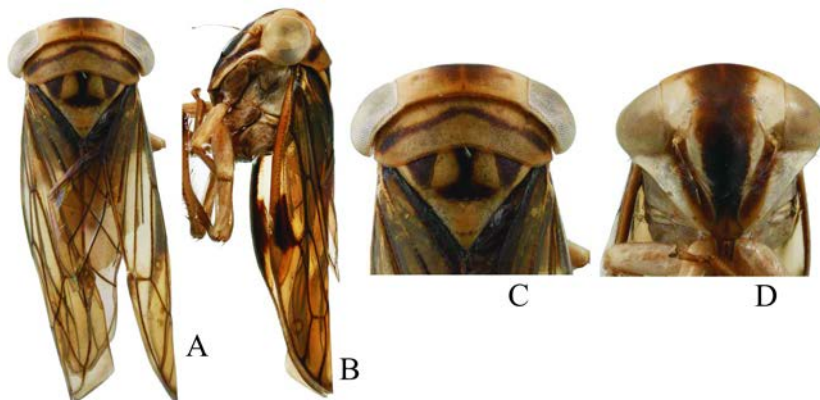


Figure 2. *Busoniomimus arciformus* sp. nov. A, B. Habitus, dorsal and lateral views; C. Head and thorax, dorsal view; D. Face.

Male pygofer ventral margin with inner process surpassing caudal margin, and lateral lobe with inner process near dorsal margin. Segment X dorsal margin with a digitate projection in anterior half and posterior margin produced ventrally into an elongated process on either side. Subgenital plate with several long hair-like setae on dorsal margin and distal one-third of ventral margin (Fig. 3A). Style apical process curved dorsally, apex rounded; dorsal margin with a row of short and fine setae near apex (Fig. 3F). Aedeagal shaft pustulate

beyond base of gonopore except apical region; dorsal apodeme well-developed, almost as long as shaft in lateral view; gonopore midventral (Figs 3D, 3E).

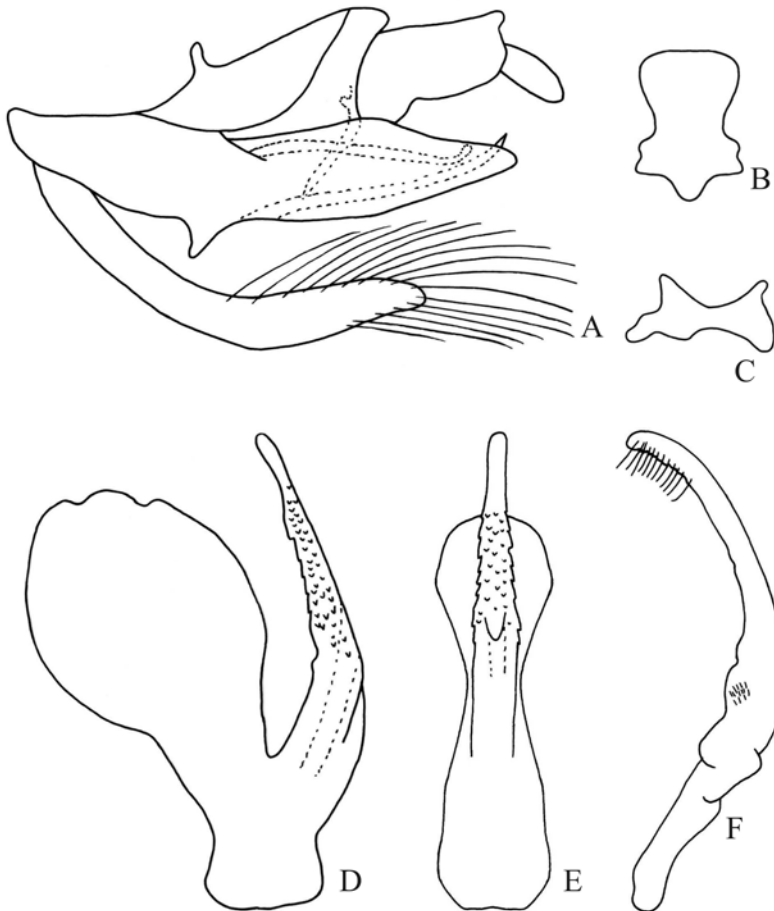


Figure 3. *Busoniomimus arciformus* **sp. nov.** A. Male genital capsule, lateral view; B, C. Connective, ventral and lateral views; D, E. Aedeagus, lateral and ventral views; F. Style, lateral view.

Holotype. ♂ (INHS), **New Caledonia**, Province Sud, 21.585°S, 165.819°E, Reserve Col d' Amieu, 7.5 km NW Sarramea, 303 m, 2–6 m Malaise traps, 30-X-04-XI-2000, coll. D.W. WEBB & E.I. SCHLINGER.

Etymology. The specific epithet Latin “arciformus” (arched), refers to the pronotal transverse arched stripe.

Remarks. *B. arciformus* **sp. nov.** is similar to *B. turgidus* **sp. nov.** in coloration of the pronotum, but differs from the latter as follows: 1) anteclypeus and lorum dark brown, 2) style apex rounded.

3. *Busoniomimus curvipenis* **sp. nov.** (Figs 4, 5)

Measurement. Length of male 4.7 mm, female 5.0 mm.

Body ochraceous. Head fore margin with one large black spot on each side of midline,

closer to eyes than to each other (Figs 4A–C). Face yellowish to light brown, frontoclypeus reddish brown (Fig. 4D). Scutellum with dark brown basal triangles (Fig. 4C). Fore wing brown, basal part of costa yellow (Fig. 4B). Female color similar to male (Figs 4E–H).

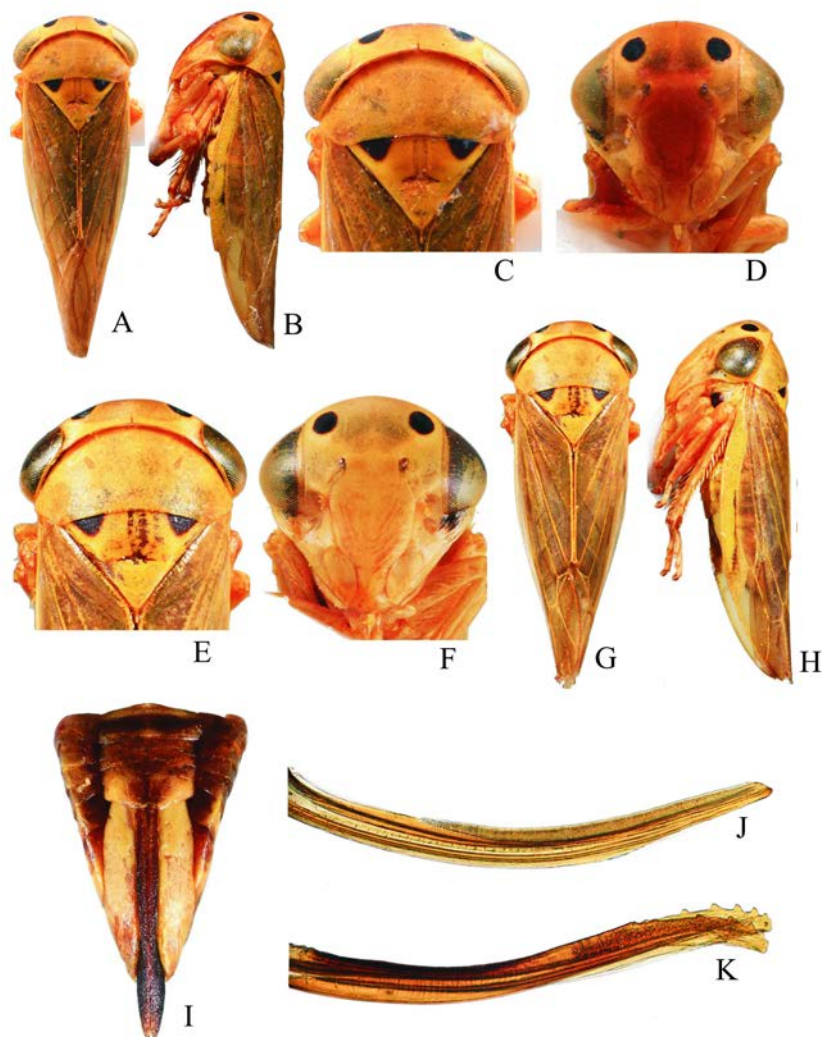


Figure 4. *Busoniomimus curvipenis* **sp. nov.** A, B. Habitus of male, dorsal and lateral views; C. Head and thorax of male, dorsal view; D. Face of male; E. Head and thorax of female, dorsal view; F. Face of female; G, H. Habitus of female, dorsal and lateral views; I. Female genitalia, ventral view; J. First valvulae; K. Second valvulae.

Male pygofer ventral margin with inner process nearly reaching caudal margin; ventral margin with dense hair-like setae basad of ventroposterior triangulate lobe. Segment X with forked inner process, dorsal part slender and curved ventrally, ventral part broader structure with marginal angular expansions at midlength. Subgenital plate with dense long hair-like

setae on dorsal margin and base of ventral margin, few fine setae on distal one-third of ventral margin (Fig. 5A). Style tapering apically in lateral view, apex slender, dorsal margin with a row of fine setae on apical half, a short row of smaller setae in basal half and another row of small setae on ventral surface in middle region (Fig. 5F). Aedeagal shaft tapering apically, apex slender and curved anteriorly in lateral view, pustulate at middle surface; dorsal apodeme short in lateral view; preatrium elongate; gonopore in middle (Figs 5D, 5E).

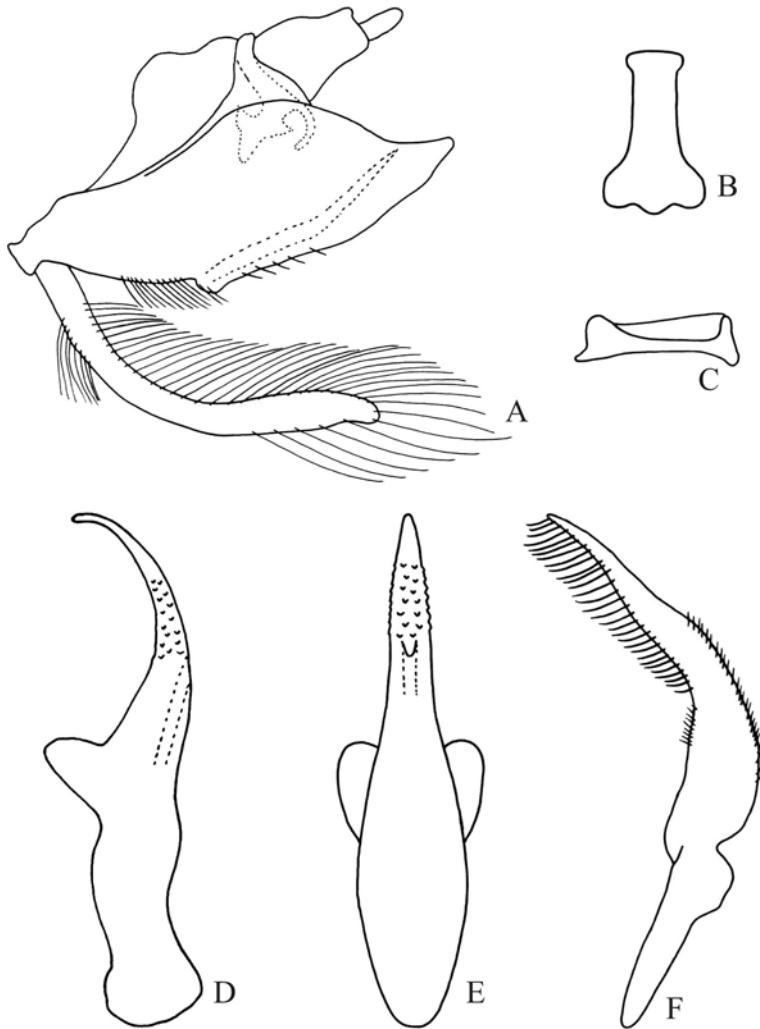


Figure 5. *Busoniomimus curvipenis* sp. nov. A. Male genital capsule, lateral view; B, C. Connective, ventral and lateral view; D, E. Aedeagus, lateral and ventral views; F. Style, lateral view.

Female genitalia. First valvulae apex rounded (Fig. 4J). Second valvulae with 5 irregular teeth on dorsal margin (Fig. 4K).

Holotype. ♂ (USNM), **Singapore**, coll. BAKER. **Paratypes.** 1♂1♀ (USNM), same data as holotype.

Etymology. The specific epithet refers to the curved aedeagal shaft.

Remarks. *B. curvipenis* **sp. nov.** is similar to *B. umbellatus* in style shaft, but differs from the latter as follows: 1) crown with a pair of dark brown spots, 2) aedeagal shaft curved dorsally, 3) preatrium elongate.

4. *Busoniomimus elongatus* **sp. nov.** (Figs 6, 7)

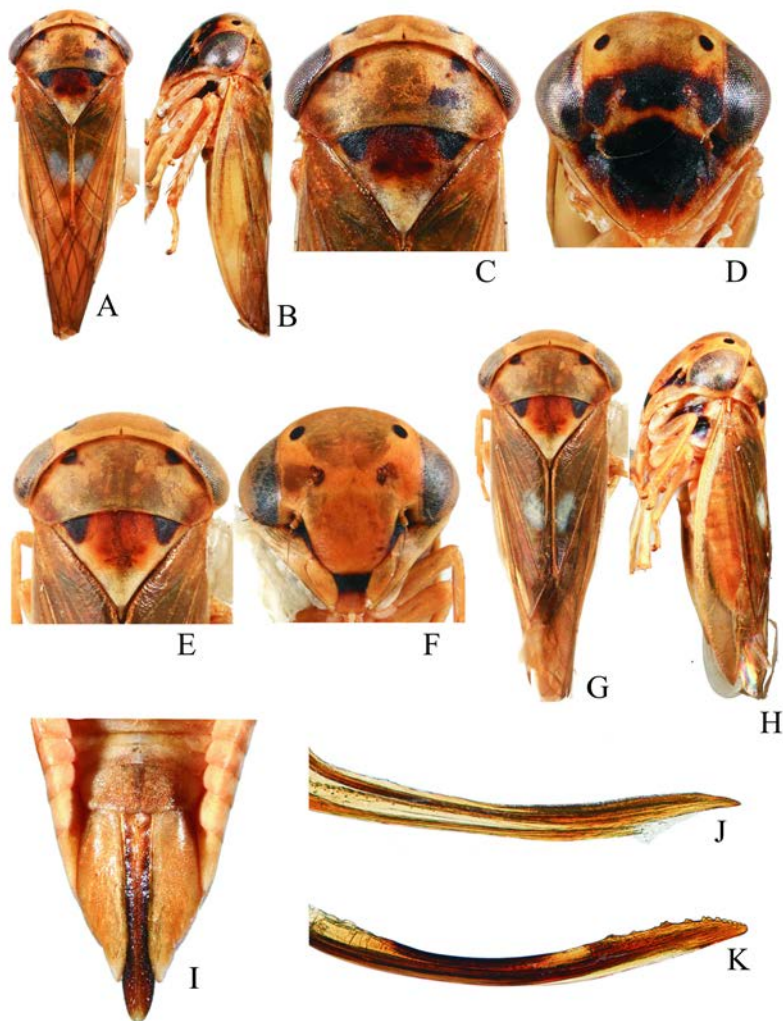


Figure 6. *Busoniomimus elongatus* **sp. nov.** A, B. Habitus of male, dorsal and lateral views; C. Head and thorax of male, dorsal view; D. Face of male; E. Head and thorax of female, dorsal view; F. Face of female; G, H. Habitus of female, dorsal and lateral views; I. Female genitalia, ventral view; J. First valvulae; K. Second valvulae.

Measurement. Length of male 3.4–3.8 mm, female 3.9–4.0 mm.

Body brown. Head anterior margin with dark brown spot on each side of midline. Sexually dimorphic in facial coloration. Male frontoclypeus and lora black, female frontoclypeus and lora brown; male gena mainly black except outer margin, female gena

brown except inner margin; male with black markings between eyes, female brown between eyes (Figs 6D, 6F). Male and female anteclypeus apical half brownish and basal half black, antennal pits black. Pronotum with 2 triangular brown markings on anterior margin (Fig. 6C). Mesoscutum with basal triangles dark brown. Scutellum yellowish. Fore wing brown, basal part of costa yellowish brown, apex of clavus whitish (Figs 6A, 6B).

Lateral frontal suture indistinct (Fig. 6D).

Male pygofer elongate, ventral margin inner process broadened apically, apical margin serrate. Segment X with inner process fork-shaped. Subgenital plate with hair-like setae on dorsal and ventral margin apically (Fig. 7A). Style with elongate apical process, curved dorsally, apex rounded, dorsal margin with a few setae; with rounded preapical lobe, surface with dense short setae (Fig. 7F). Aedeagal shaft cylindrical, curved dorsally, apex curved ventrally, surface pustulate except apical and basal regions; gonopore in middle (Figs 7D, 7E).

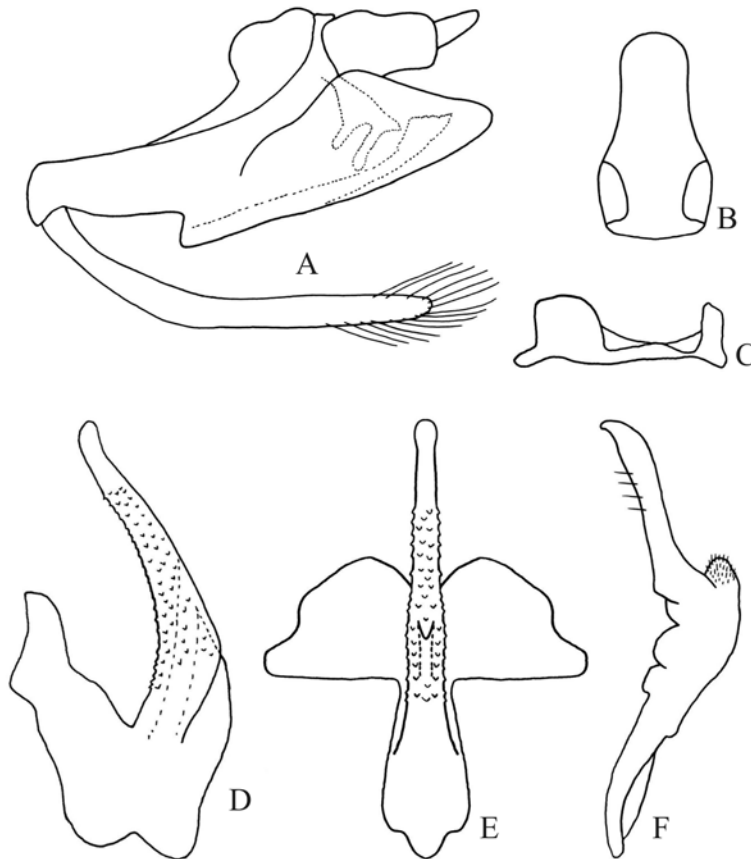


Figure 7. *Busoniomimus elongatus* sp. nov. A. Male genital capsule, lateral view; B, C. Connective, ventral and lateral views; D, E. Aedeagus, lateral and ventral views; F. Style, lateral view.

Female genitalia. First valvulae with pointed apex, sculpture strigate ventrolaterally (Fig. 6J). Second valvulae dorsal margin with 8 irregular teeth on apical half (Fig. 6K).

Holotype. ♂ (USNM), **Malaysia**, Sabah, 7 km NNW Kudat, 19-IX-1983, coll. G.F. & J.F. HEVEL & W.E. STEINER. **Paratypes.** 3♂3♀ (USNM), same data as holotype; 5♂ (USNM), **Malaysia**, Sandakan, Borneo, coll. BAKER.

Etymology. The specific epithet refers to the elongated apical process of style.

Remarks. *B. elongatus* **sp. nov.** is similar to *B. tergeminus* **sp. nov.** in coloration, but differs as follows: 1) male pygofer inner process broad, 2) apical process of style elongated.

5. *Busoniomimus hainanensis* Zhang & Li, 2012

B. hainanensis Zhang & Li, 2012: 513, figs 1–12; Xue & Zhang, 2015: 138, figs 1e–m.

Crown with one small black spot on each side of midline near eyes. Pronotum with four black markings on anterior margin, basal half hoary. Male frontoclypeus black, lateral margin yellow. Female frontoclypeus mainly yellow, with a black longitudinal strip in middle. Segment X with inner process apex trifurcate. Aedeagal shaft straight in lateral view.

Specimens examined. 15♂4♀ (NWFU), **China**, Hainan, Bawangling, 28-V-1983, coll. Yalin ZHANG; 2♂1♀ (NWFU), **China**, Hainan, Bawangling, 27-V-1983, coll. Yalin ZHANG; 1♀ (NWFU), **China**, Hainan, Bawangling, 24-V-1983, coll. Yalin ZHANG; 1♀ (NWFU), **China**, Hainan, Bawangling, 02-V-1983, coll. Yalin ZHANG; 1♂ (NWFU), **China**, Hainan, Yinggeling, 400 m, 05-VIII-2009, coll. Xia GAO; 1♀ (NWFU), **China**, Hainan, Yinggeling, 280 m, at light, 05-VIII-2010, coll. Yang WANG.

Remarks. Zhang & Li (2012) and Xue & Zhang (2015) adequately described and illustrated this species. It is similar to *B. mudigerensis* in coloration, but can be distinguished from the latter by 1) the black anteclypeus, 2) segment X with a trifurcate process.

6. *Busoniomimus manjunathi* Viraktamath & Viraktamath, 1985

B. manjunathi Viraktamath & Viraktamath, 1985: 305, figs 1–15; Viraktamath & Yeshwanth, 2024: 33, figs 15a–h, 59d, 60n, 64m–p.

Crown with one large black rounded marking on each side of midline. Face and pronotum mainly yellow-brown. Mesoscutellum with black basal triangular and two black spots medially. Style broadened subapically in lateral view, tapered distally, with several short and fine setae on dorsal margin. Aedeagus with a pair of basal processes arising on preatrium, directed dorsally.

Specimen examined. 1♂ (UASB), **India**, Kerala, Kozhikode, 20-VIII-2012.

Distribution. India.

Remarks. Viraktamath & Viraktamath (1985) and Viraktamath & Yeshwanth (2024) adequately described and illustrated this species. It can be distinguished from other species of *Busoniomimus* from its aedeagal shaft with a pair of basal processes arising on the preatrium.

7. *Busoniomimus margprominus* **sp. nov.** (Figs 8, 9)

Measurement. Length of male 3.0–3.2 mm, female 3.0–3.3 mm.

Body dark brown. Crown brown in middle, yellow near to eyes. Face yellowish basally; frontoclypeus, anteclypeus, lorum and antennal pits, black; upper area of frontoclypeus, lateral margins of lorum and gena reddish brown (Fig. 8D). Pronotum dark brown on base half, apical half brownish. Mesoscutum brown with basal triangles reddish brown. Scutellum brown, apex yellow (Fig. 8C). Fore wing brown, subapical oval area transparent (Figs 8A, 8B).

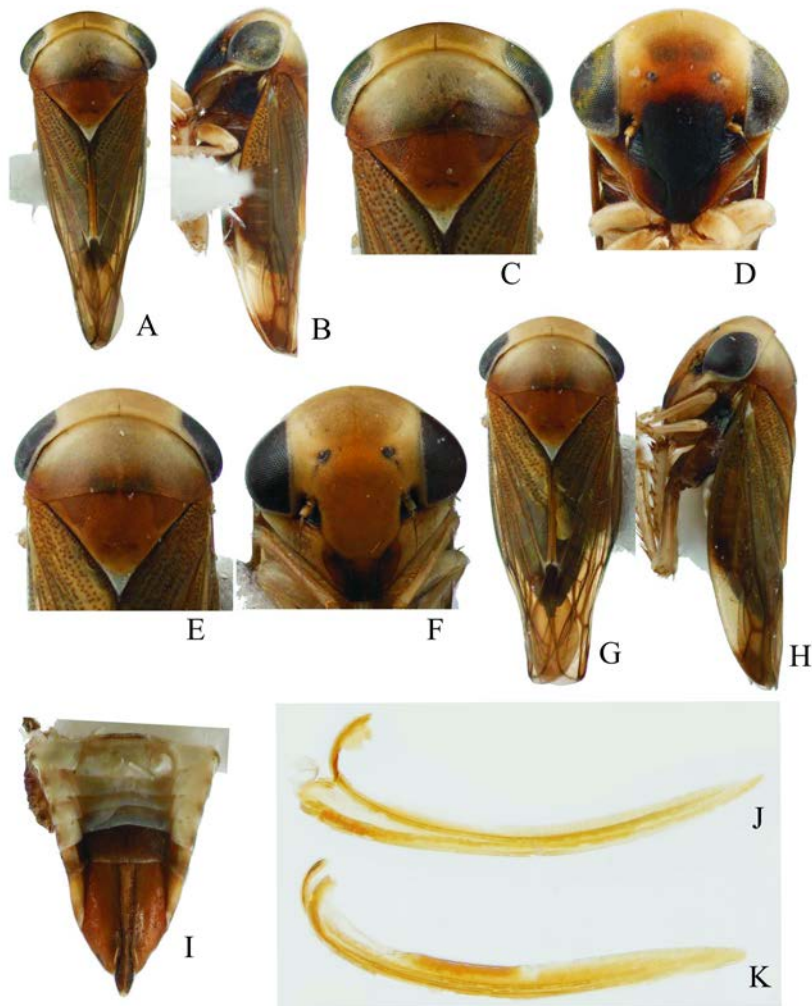


Figure 8. *Busoniomimus margprominus* sp. nov. A, B. Habitus of male, dorsal and lateral views; C. Head and thorax of male, dorsal view; D. Face of male; E. Head and thorax of female, dorsal view; F. Face of female; G, H. Habitus of female, dorsal and lateral views; I. Female genitalia, ventral view; J. First valvulae; K. Second valvulae.

Lateral frontal suture indistinct (Fig. 8D).

Male pygofer ventral margin with inner process surpassing caudal margin; apex of pygofer inner surface with a triangular process. Segment X with forked inner process. Subgenital plate with a few long hair-like setae on apical half of dorsal margin and apex of ventral margin (Fig. 9A). Style apical process curved dorsally, apex rounded and curved; dorsal margin with a few short setae in middle (Fig. 9F). Aedeagal shaft pustulate in middle surface, with basal concavity in ventral view; gonopore in middle (Figs 9D, 9E).

Holotype. ♂ (QM), **Australia**, QLD, Iron Range NP, Lockhart River, 07-III-2015, coll.

K.P. JOHNSON. **Paratypes.** 1♂1♀ (QM), same data as holotype.

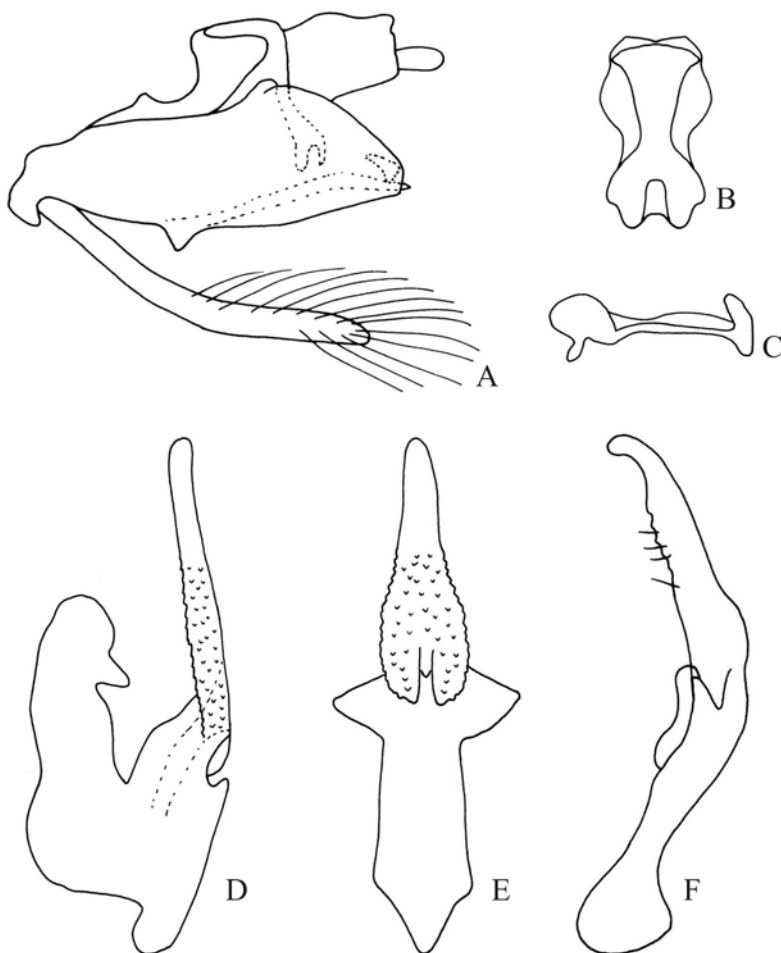


Figure 9. *Busoniomimus margprominus* **sp. nov.** A. Male genital capsule, lateral view; B, C. Connective, ventral and lateral views; D, E. Aedeagus, lateral and ventral views; F. Style, lateral view.

Etymology. The specific epithet refers to the triangular process at apex of pygofer inner surface.

Remarks. This species is similar to *B. mindanaensis* in the form of the aedeagal shaft, but can be distinguished from the latter as follows: 1) frontoclypeus black, 2) style apex rounded, and 3) pygofer inner surface with process.

8. *Busoniomimus mindanaensis* (Baker, 1915) (Figs 10, 11)

Busonia mindanaensis Baker, 1915: 328, fig. 9.

Busoniomimus mindanaensis (Baker): Maldonado-Capriles, 1977: 492, figs 8–11.

Redescription. Measurement. Length of male 3.0 mm, female 3.2–3.3 mm.

Body brown. Face mainly brownish, lorum and apical half of gena reddish brown,

antennal pits and base of gena black (Fig. 10D). Mesoscutum with basal triangles brownish (Fig. 10C). Fore wing basal half of costa dark brown, subapical oval area transparent (Fig. 10B). Female coloration similar to male (Figs 10E–H).

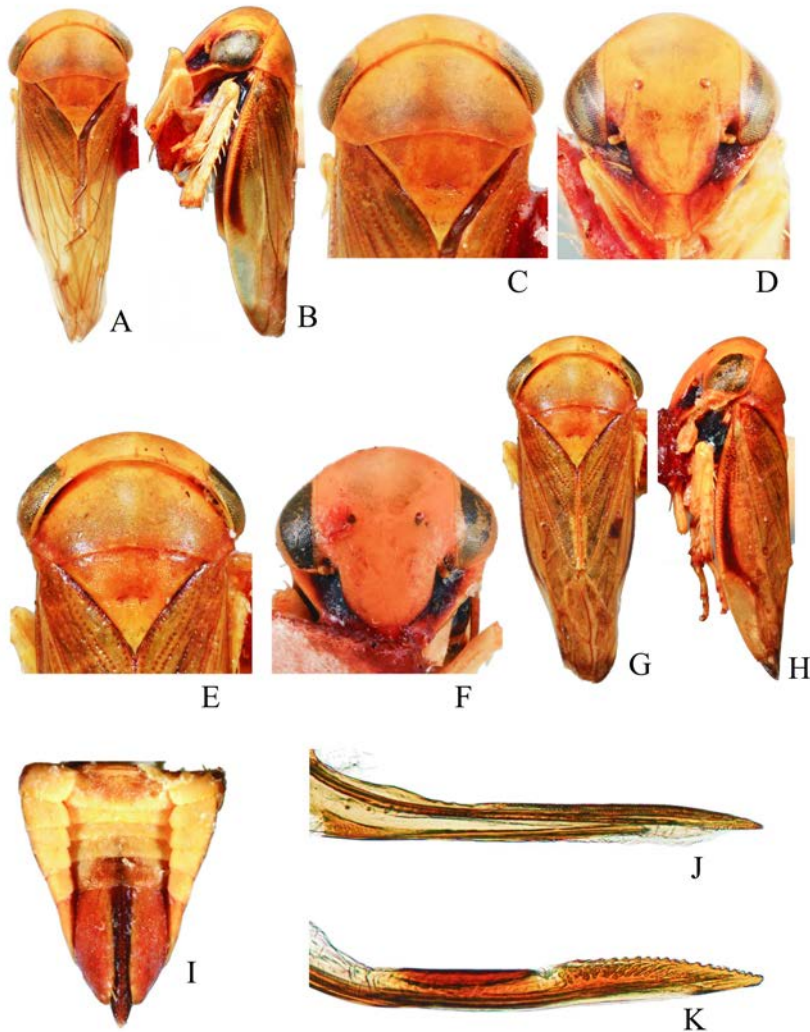


Figure 10. *Busoniomimus mindanaensis* (Baker). A, B. Habitus of male, dorsal and lateral views; C. Head and thorax of male, dorsal view; D. Face of male; E. Head and thorax of female, dorsal view; F. Face of female; G, H. Habitus of female, dorsal and lateral views; I. Female genitalia, ventral view; J. First valvulae; K. Second valvulae.

Male lateral frontal suture indistinct (Fig. 10D).

Male pygofer ventral margin with inner process elongate. Segment X with trifurcate inner process. Subgenital plate dorsal margin with several long hair-like setae, few setae on ventral margin apically (Fig. 11A). Style apex slender and curved dorsally, dorsal margin with

fine setae (Fig. 11F). Aedeagal shaft straight in lateral view, pustulate except apex; ventral margin basally concave; gonopore in middle (Figs 11D, 11E).

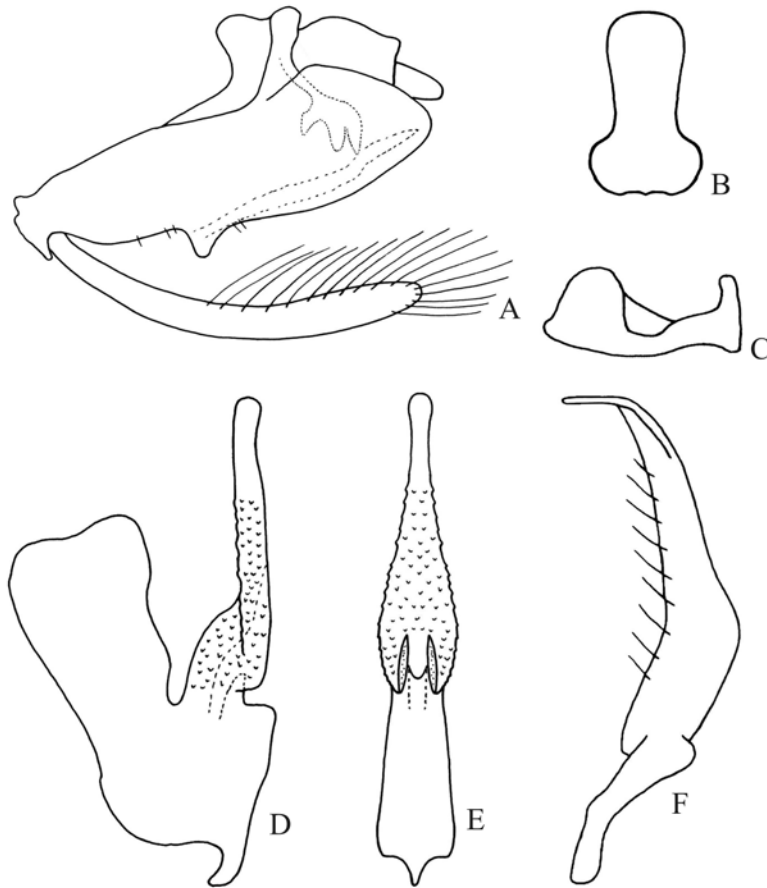


Figure 11. *Busoniomimus mindanaensis* (Baker). A. Male genital capsule, lateral view; B, C. Connective, ventral and lateral views; D, E. Aedeagus, lateral and ventral views; F. Style, lateral view.

Female genitalia. First valvulae similar to *B. elongatus* **sp. nov.** (Fig. 10J). Second valvulae dorsal margin with 16–20 irregular teeth on apical half (Fig. 10K).

Specimens examined. 2♂ (USNM), **the Philippines**, Dapitan, Mindanao, coll. BAKER; 2♀ (USNM), **the Philippines**, Island of Basilan, coll. BAKER.

Distribution. The Philippines.

Remarks. Baker (1915) described *Busonia mindanaensis* for specimens collected from Mindanao, the Philippines. Thereafter, Maldonado-Capriles (1977) transferred it to the genus *Busoniomimus*.

We examined 2 male and 2 female specimens examined by Baker and found that *B. mindanaensis* has similar aedeagus to that of *B. umbellatus*, but differs from the latter as follows: 1) lateral frontal suture indistinct, 2) style without dense strong setae on dorsal margin.

9. *Busoniomimus minor* (Bierman, 1908)

Idiocerus minor Bierman, 1908: 165, fig. 11a.

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

Busoniomimus minor (Bierman): Maldonado-Capriles, 1977: 492, figs 1–7.

Distribution. Indonesia.

Remarks. Specimens of this species were not available. Bierman (1908) described this species under the genus *Idiocerus*. Thereafter, Baker (1915) transferred this species to *Busonia*. Maldonado-Capriles (1977) examined the only type specimen and illustrated the male genitalia, and transferred it to *Busoniomimus*. This species is similar to *B. mindanaensis* except for the pale brown fore wing and obviously curved style apex.

10. *Busoniomimus mudigerensis* (Viraktamath, 1976)

Amritodus mudigerensis Viraktamath, 1976: 235, figs 6–14.

Busoniomimus mudigerensis (Viraktamath, 1976): Viraktamath & Murphy, 1980: 87; Viraktamath & Yeshwanth, 2024: 36, figs 16a–h, 59e, 60O, 65a–d.

Crown with one black spot on each side of midline. Pronotum with a few black markings on anterior margin. Frontoclypeus black, lateral margin yellow. Segment X with inner process apex bifurcate. Aedeagal shaft straight in lateral view.

Specimens examined. 1♂1♀ (UASB), **India**, Karnataka, Bangalore, Bannerghatta, 916 m, 12-IX-1976, coll. B. MALLIK.

Distribution. India.

Remarks. Viraktamath (1976) and Viraktamath & Yeshwanth (2024) adequately described and illustrated this species. This species is similar to *B. hainanensis* (see above).

11. *Busoniomimus polydoros* (Kirkaldy, 1906) (Fig. 12)

Pedioscopus polydoros Kirkaldy, 1906: 349.

Busoniomimus polydoros (Kirkaldy, 1906): Webb, 1983: 86, figs 623–631.

Crown and pronotum brownish, face yellowish (Figs 12C, 12D). Crown with one large black spot on each side of midline near eyes. Pronotum with a pair of black triangular markings near anterior margin. Pygofer dorsum with inner process apex broadened, with short inner process on ventral margin. Female first valvulae apex pointed, distal half with sculpture strigate (Fig. 12J). Second valvulae dorsal margin with few irregular teeth on apical half (Fig. 12K).

Specimens examined. 1♂1♀ (INHS), **Australia**, QLD, 03-III-2015, Iron Range NP, Lockhart River, coll. K.P. JOHNSON; 1♂1♀ (NWAUFU), **Australia**, QLD, 03-III-2015, Iron Range NP, Lockhart River, coll. K.P. JOHNSON.

Distribution. Australia.

Remarks. This species resembles *B. mudigerensis* and *B. hainanensis* in style shape but differs from them as follows: 1) pygofer dorsal inner process apex not bifurcate, 2) aedeagal shaft curved.

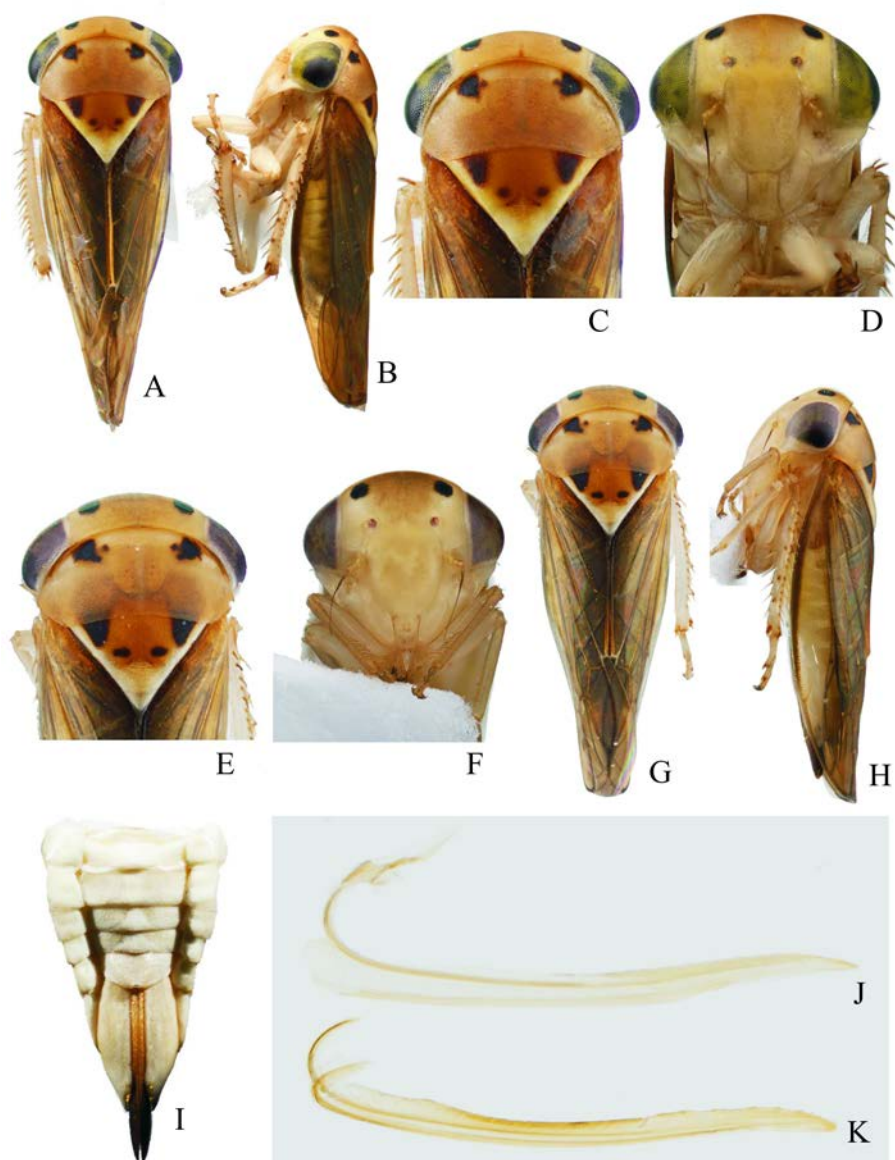


Figure 12. *Busoniomimus polydoros* (Kirkaldy). A, B. Habitus of male, dorsal and lateral views; C. Head and thorax of male, dorsal view; D. Face of male; E. Head and thorax of female, dorsal view; F. Face of female; G, H. Habitus of female, dorsal and lateral views; I. Female genitalia, ventral view; J. First valvulae; K. Second valvulae.

12. *Busoniomimus setulistylus* Viraktamath & Murphy, 1980

B. setulistylus Viraktamath & Murphy, 1980: 88, figs 21–30.

Distribution. Singapore.

Remarks. No specimens of this species were examined. Viraktamath & Murphy (1980) described the species based on specimens collected from Bukit Timah forest (Singapore). This

species is similar to *B. margprominus* **sp. nov.** in facial coloration but differs in crown with a pair of spots and style with dense fine setae on dorsal margin.

13. *Busoniomimus tergeminus* **sp. nov.** (Figs 13, 14)

Measurement. Length of male 4.3 mm.

Body ochraceous. Crown, pronotum and scutellum color similar to *B. elongatus* **sp. nov.** Face mainly yellowish; upper part of face with three pairs of dark brown marks; ocelli brown; antennal bases dark brown; frontoclypeus mostly dark brown (Fig. 13D). Fore wing brownish, basal part of costa and claval area yellowish green (Figs 13A, 13B).

Lateral frontal suture indistinct (Fig. 13D).

Male pygofer ventral margin with inner process reaching caudal margin (Fig. 14A). Segment X with process broader, directed posteriorly with a ventral marginal angular projection and apex forked. Subgenital plate with dense hair-like setae on dorsal and ventral margin. Style apical process curved dorsally, apex pointed in lateral view, subapical broad, with few setae on dorsal margin; with well-developed preapical lobe, rounded, surface with dense short setae (Fig. 14F). Aedeagal shaft elongate, apex broad in ventral view, with pustulate on apical half except apex; aedeagal shaft with a pair of lamellar processes in middle; gonopore in middle (Figs 14D, 14E).

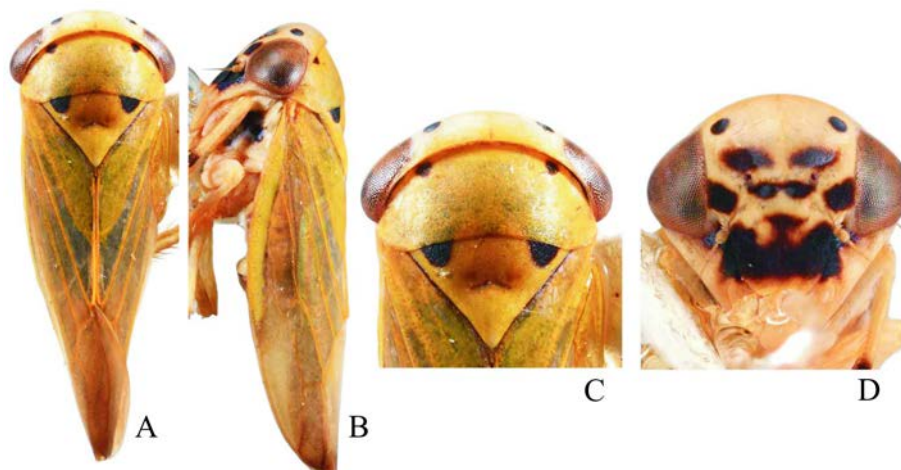


Figure 13. *Busoniomimus tergeminus* **sp. nov.** A, B. Habitus, dorsal and lateral views; C. Head and thorax, dorsal view; D. Face.

Holotype. ♂ (USNM), **Malaysia**, Besut, Mt. Gunong Tebu, III-1958, 400 ft.

Etymology. The specific epithet refers to the face with three pairs of dark brown marks.

Remarks. *B. tergeminus* **sp. nov.** has the indistinct lateral frontal suture similar to that of *B. mindanaensis* and *B. minor*, but can be distinguished from them as follows: 1) crown and pronotum with a pair of dark brown markings, 2) style with preapical lobe, and 3) aedeagal shaft with process in middle.

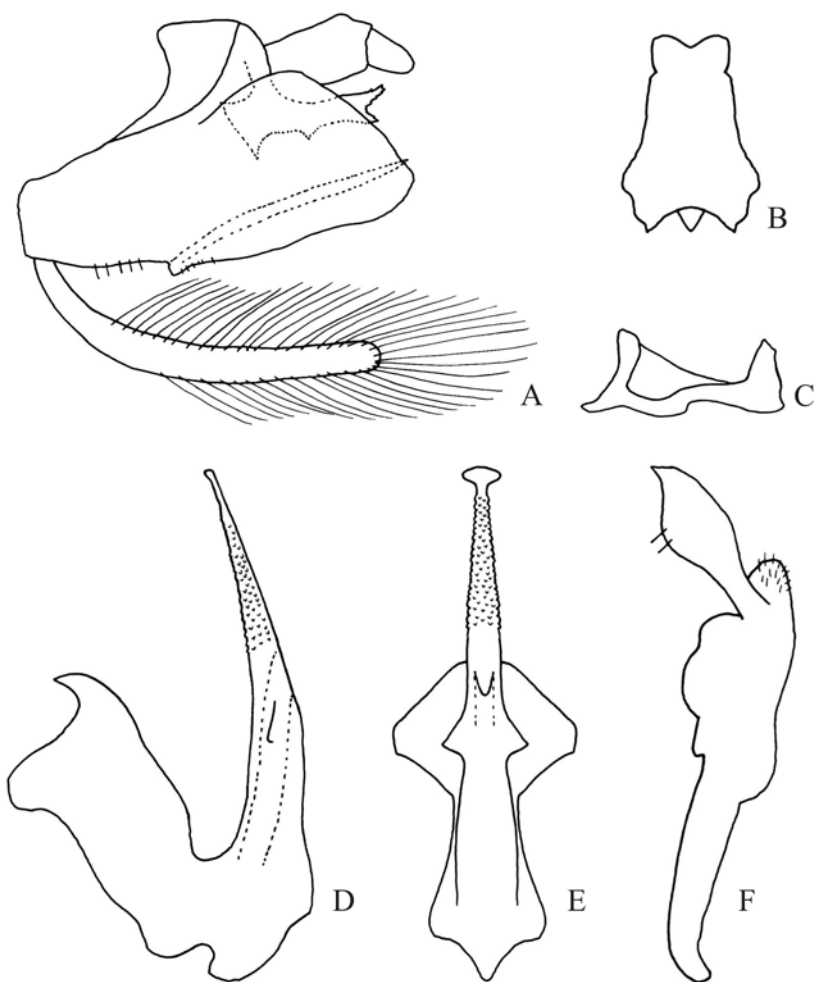


Figure 14. *Busoniomimus tergeminus* sp. nov. A. Male genital capsule, lateral view; B, C. Connective, ventral and lateral views; D, E. Aedeagus, lateral and ventral views; F. Style, lateral view.

14. *Busoniomimus transversus* sp. nov. (Figs 15, 16)

Measurement. Length of male 4.0 mm, female 4.1 mm.

Body brown. Crown ochraceous, with a pair of small brownish spots. Face yellowish; male antennal pits, lorum and inner margin of gena black, in female these characters brownish; anteclypeus lateral margin dark brown; gena outer margin hoary (Figs 15D, 15F). Pronotum in male ochraceous with a transverse median stripe, dark brown, in female this stripe brownish (Figs 15C, 15E). Mesoscutum and scutellum dark brown, margins hoary (Fig. 15C). Forewing brownish, veins dark brown; forewing in male with dark brown markings on costal margin preapically, in female forewing without brown markings (Figs 15A, 15B, 15G, 15H).

Male pygofer ventral margin with inner process elongate, and lateral lobe with inner

process along dorsal margin. Segment X posterior margin produced into a ventrally directed forked process with the caudal fork much longer than anterior fork. Subgenital plate with long hair-like setae on apical half of dorsal and ventral margin (Fig. 16A). Style curved dorsally, dorsal margin with few fine setae (Fig. 16F). Aedeagal shaft cylindrical, surface pustulate except apical and basal regions; a patch of dense nodules present on ventral surface basally; gonopore at midlength of shaft (Figs 16D, 16E).

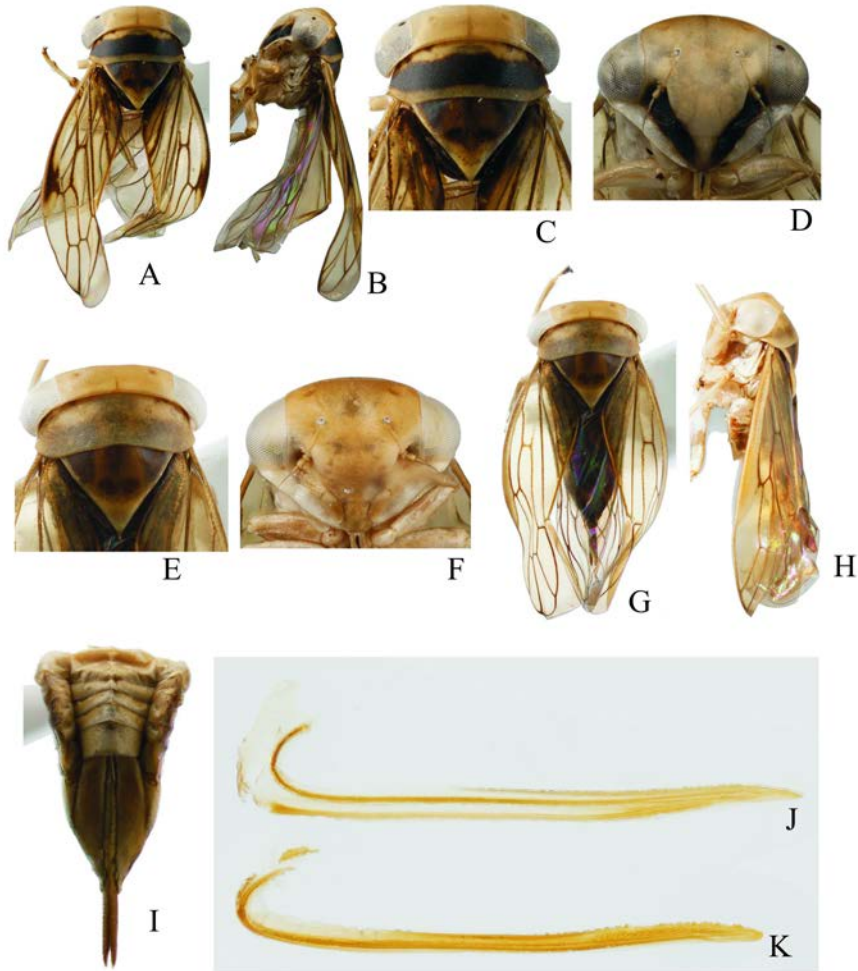


Figure 15. *Busoniomimus transversus* sp. nov. A, B. Habitus of male, dorsal and lateral views; C. Head and thorax of male, dorsal view; D. Face of male; E. Head and thorax of female, dorsal view; F. Face of female; G, H. Habitus of female, dorsal and lateral views; I. Female genitalia, ventral view; J. First valvulae; K. Second valvulae.

Female genitalia. First valvulae apex pointed, distal one-third with sculpture strigate (Fig. 15J). Second valvulae dorsal margin with few irregular teeth on apical half (Fig. 15K).

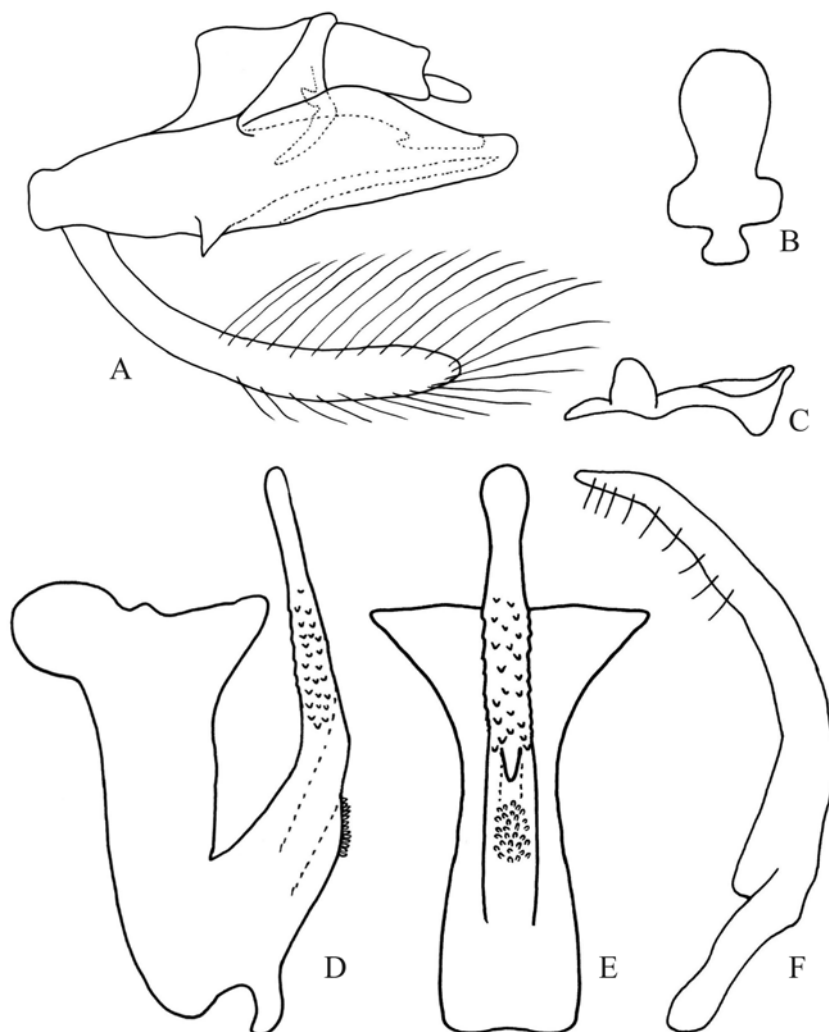


Figure 16. *Busoniomimus transversus* sp. nov. A. Male genital capsule, lateral view; B, C. Connective, ventral and lateral views; D, E. Aedeagus, lateral and ventral views; F. Style, lateral view.

Holotype. ♂ (INHS), **New Caledonia**, Province Sud, 21.585°S, 165.819°E, Reserve Col d' Amieu, 7.5 km NW Sarramea, 303 m, 2–6 m Malaise traps, 30-X-04-XI-2000, coll. D.W. WEBB & E.I. SCHLINGER. **Paratypes.** 1♀ (INHS), same data as holotype; 1♂1♀ (NWAFU), same data as holotype.

Etymology. The specific epithet refers to the male median transverse dark brown stripe on pronotum.

Remarks. The patch of dense nodules on the ventral surface of aedeagal shaft distinguishes this species from other species of *Busoniomimus*.

15. *Busoniomimus turgidus* sp. nov. (Figs 17, 18)

Measurement. Length of male 4.1–4.6 mm.

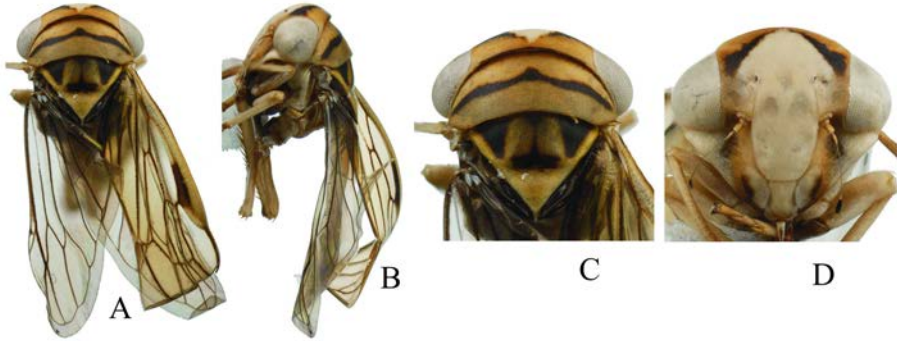


Figure 17. *Busoniomimus turgidus* sp. nov. A, B. Habitus, dorsal and lateral views; C. Head and thorax, dorsal view; D. Face.

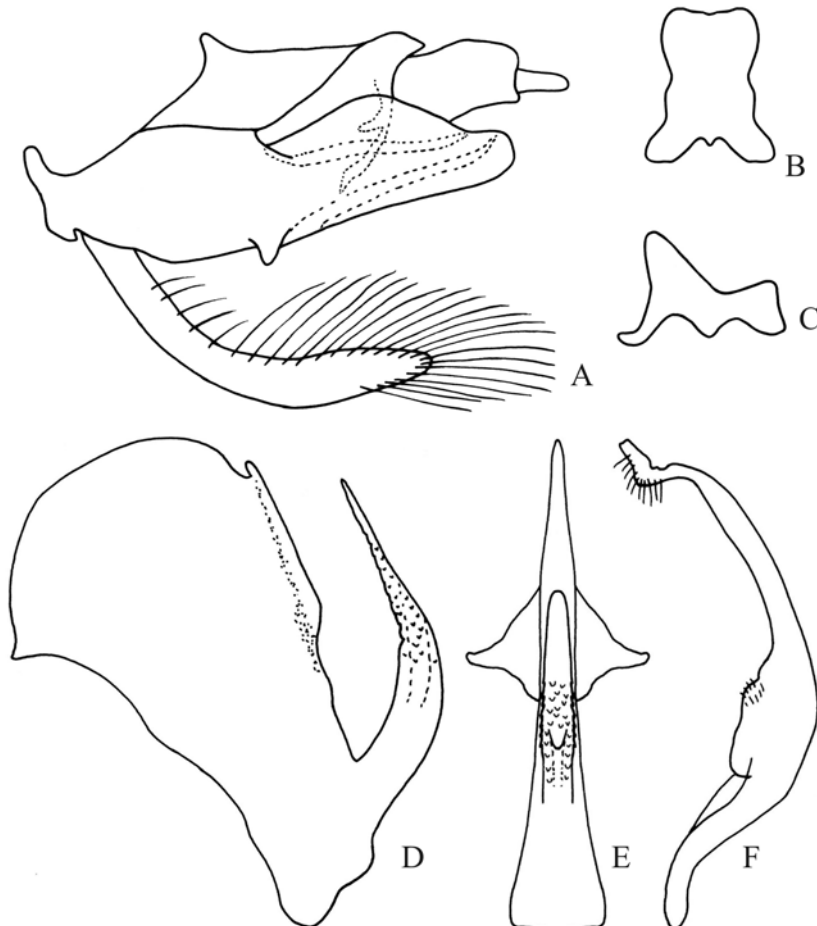


Figure 18. *Busoniomimus turgidus* sp. nov. A. Male genital capsule, lateral view; B, C. Connective, ventral and lateral views; D, E. Aedeagus, lateral and ventral views; F. Style, lateral view.

Body ochraceous with dark brown transverse band on upper part of face and pronotum. Crown ochraceous. Face mainly yellowish; basal area of face with an oblique dark brown stripe on each side of midline extending from inner midlength of eye to midline of crown dorsally; gena inner area yellow, with black markings in middle; lorum lateral margin dark brown (Fig. 17D). Pronotum mainly ochraceous, with a transverse dark brown stripe in middle. Mesoscutum yellow-brown, basal triangles black, with inverted T-shaped dark brown markings in middle. Scutellum yellow-brown (Fig. 17C). Fore wing brownish, veins dark brown except costal veins yellowish brown, costal veins with elongate dark brown markings preapically (Figs 17A, 17B).

Male pygofer ventral margin with inner process reaching caudal margin, and lateral lobe with inner process arising on dorsal margin and directed caudally not reaching caudal pygofer margin. Segment X with a ventrally directed forked process arising from caudoventral margin, posterior fork much longer than anterior fork. Subgenital plate with a row of long fine setae on dorsal margin, with a few setae on apical quarter of ventral margin (Fig. 18A). Style apex strongly sinutely curved, with a few short setae on dorsal margin near apex (Fig. 18F). Aedeagal shaft cylindrical, curved dorsad, tapering apically, surface pustulate except apical and basal regions; dorsal apodeme well developed, broadened in lateral view, longer than shaft; gonopore at midlength of shaft (Figs 18D, 18E).

Holotype. ♂ (INHS), **New Caledonia**, Province Sud, 21.585°S, 165.819°E, Reserve Col d' Amieu, 7.5 km NW Sarramea, 303 m, 2–6 m Malaise traps, 30-X-04-XI-2000, coll. D.W. WEBB & E.I. SCHLINGER. **Paratypes.** 1♂ (INHS), same data as holotype; 1♂ (NWAUFU), same data as holotype.

Etymology. The specific epithet refers to the unusually enlarged dorsal apodeme of the aedeagus.

Remarks. Coloration of the new species is similar to that in *B. arciformus* **sp. nov.** but can be distinguished as follows: 1) oblique dark brown stripes on face extending on to crown posterior margin, 2) frontoclypeus yellowish, and 3) style apex strong sinutely curved.

16. *Busoniomimus umbellatus* Xue & Zhang, 2015

B. umbellatus Xue & Zhang, 2015: 136, figs 1a–d, 2.

Specimen examined. 1♂ (Holotype) (INHS), **Malaysia**, Sarawak (Lambir) Hills Natl Park, S Miri, 4°11'53.9"N, 114°02'31.4"E, 12–23-X-2006, coll. J.R. CRYAN & J.M. URBAN, Hg vapor light.

Distribution. Malaysia.

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