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Revision of the Oriental spittlebug genera *Baibarana* Matsumura and *Telgmometopius* Jacobi (Hemiptera: Cercopidae: Rhinaulacini)

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Revision of the Oriental spittlebug genera *Baibarana* Matsumura and *Teligmometopius* Jacobi (Hemiptera: Cercopidae: Rhinaulacini)

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Abstract

The Oriental spittlebug genera, *Baibarana* Matsumura and *Teligmometopius* Jacobi (Hemiptera: Auchenorrhyncha: Cercopidae), previously included in Cosmoscirtini and Bandusiini, respectively, are transferred to Rhinaulacini and revised to include five and nine species, respectively. The species recognized are: *Baibarana bicolor* sp. nov. (Vietnam), *B. longispina* sp. nov. (Laos and Thailand), *B. rufofasciata* sp. nov. (Vietnam), *B. sinuata* sp. nov. (Vietnam), *B. uchidai* Matsumura (Taiwan), *Teligmometopius angulatus* sp. nov. (Malaysia: northern Borneo), *T. bicarinatus* sp. nov. (northeastern India), *T. bifasciatus* sp. nov. (Malaysia: northern Borneo), *T. carinilabrat* (Chou and Wu) (from *Baibarana* Matsumura), comb. nov. (southwestern China: Yunnan; Tibet), *T. himalayensis* sp. nov. (northeastern India: east Himalayas, southwestern China: Tibet), *T. obsoletus* Jacobi, 1921 (southern and central China: Hubei, Gansu, Sichuan, Guizhou, ?Jiangxi), *T. rangoonensis* sp. nov. (Burma), *T. sabahensis* sp. nov. (Malaysia: Sabah), and *T. sarawakensis* sp. nov. (Malaysia: Sarawak). Descriptions and keys to genera and species are provided together with structural illustrations. Scanning electron micrographs of the antennal sensilla, rostral apex, and male genitalia of the two genera, are provided for the first time. A lectotype is designated for *Teligmometopius obsoletus* Jacobi.

Keywords: *Antennal sensilla*, *Baibarana*, *Cercopidae*, *morphology*, *new combination*, *new species*, *Oriental Region*, *rostral sensilla*, *SEM*, *Teligmometopius*

Introduction

Cercopid spittlebugs (Hemiptera: Auchenorrhyncha) form the largest group of plant xylem sap-feeding insects in the world. Although the New World fauna has been recently revised (Carvalho and Webb 2006), the cercopid family Cercopidae (*sensu* Metcalf, 1961) in the Old World remains one of the most neglected Auchenorrhyncha groups at all levels. Descriptions of species and higher taxa are scattered in the older taxonomic literature and generally lack illustrations of the diagnostic male genitalia, and therefore often make species

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identification difficult or impossible. No single apomorphy supports the monophyly of Cercopidae but the following usually exist in various combinations: (1) eyes globose; (2) pronotum with fore and/or hind borders straight or weakly convex; (3) hind wing with second vein (SP) sinuate at crossvein s-m; (4) segment X (base of anal tube) membranous or reduced to a slender, transverse band (A. Hamilton, personal communication). Although most members of the group also exhibit bright colour patterns, these are absent in the Old World tribe Rhinaulacini. The Oriental genera of this tribe were revised by Liang and Webb (2002) and two other Oriental genera, *Baibarana* Matsumura and *Telogrammetopus* Jacobi, are included here. The former genus resembles another spittlebug family, Aphrophoridae (*sensu* Metcalf, 1962), in general appearance and in having the head and eyes broad (Figure 1) so its placement in Rhinaulacini is based more on the similarity of its male genitalia to more “typical” Cercopidae of the tribe. In the current work *Baibarana* and *Telogrammetopus* are redescribed and descriptions and figures are given of their included species, totalling five (four new) and nine (seven new) species, respectively, and keys provided for their separation. In addition, the ultrastructure of the antennal sensilla and rostral apex of the latter genus are shown for the first time in order to assist future studies on these structures that may be of phylogenetic significance.

Materials and methods

Depositories

The specimens studied in the course of this work are deposited in the following institutions, abbreviated in the text as follows: BMNH, Natural History Museum (formerly British Museum (Natural History)), London, UK; BPBM, Bernice P. Bishop Museum, Honolulu, Hawaii, USA; CAS, California Academy of Sciences, San Francisco, California, USA; CAUIC, China Agricultural University Insect Collection, Beijing, China; HU, Laboratory of Systematic Entomology, Hokkaido University, Sapporo, Japan; IZCAS, Institute of Zoology, Chinese Academy of Sciences, Beijing, China; NCSU, Department of Entomology Insect Collection, North Carolina State University, Raleigh, North Carolina, USA; NWAU, Entomological Museum, Northwestern Agricultural University, Shaanxi, China; SIE, Shanghai Institute of Entomology, Chinese Academy of Sciences, Shanghai, China; SMTD, Staatliches Museum für Tierkunde, Dresden, Germany; UASB, University of Agricultural Science, Bangalore, India; USNM, (US National Museum) National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.

Terminology

The morphological terminology followed is that of Lallemand (1949), Evans (1966) (wing venation), and Metcalf and Horton (1934) and Liang and Webb (2002) for genitalia.

SEM preparation

For scanning electron microscope (SEM) study, dry, pinned museum specimens were examined. The antennae, rostrum, and the genitalic segments were removed from the body, cleaned with a fine brush soaked with 10% KOH, washed in distilled water, then mounted on aluminium stubs with double-sided adhesive tape, air-dried at room temperature, and coated with gold–palladium using a sputter coater. Observations were

Figures 1–8. *Baibarana* and *Telgmometopius* species. (1) *Baibarana rufofasciata*, dorsal habitus. (2) *Telgmometopius carinilabratus*, dorsal habitus. (3) *B. uchidai*, head, ventral view. (4) *T. carinilabratus* (China: Yunnan), head, ventral view. (5) *B. uchidai*, head and pronotum, lateral view. (6) *T. obsoletus*, head and pronotum, lateral view. (7, 8) *T. carinilabratus* (China: Yunnan): (7) fore wing; (8) hind wing.

made with a JEOL JSM-6301F (Japanese Electronic and Optical Ltd, Tokyo, Japan) scanning electron microscope, operated at accelerating voltages of 15 kV.

Key to the genera of Rhinaulacini from southern Asia

(revised from Liang and Webb 2002, females in part and males)

- 1. Postclypeus carinate or keel-like medially, at least on upper part or if not (in some females) then postclypeus slightly laterally compressed and evenly rounded in profile (Figure 5) 2
 - Postclypeus sulcate medially (Liang and Webb 2002) or if not (in some females) then postclypeus bulbous and angularly rounded in profile (Figure 6) 3
- 2. Head relatively broad with posterior margin of vertex concave (Figure 1); postclypeus medially carinate or keel-like only on upper part *Baibarana* Matsumura
 - Head relatively narrow with posterior margin of vertex straight (Figure 9); postclypeus medially carinate or keel-like throughout length (Figures 10, 11) *Telgmometopius* Jacobi
- 3. Hind wing with Rs and M reduced, united with R near mid-length of wing, i.e. with two closed apical cells; subgenital plates with strongly incurved apical process (Liang 1996) *Eoscarta* Breddin
 - Hind wing with Rs and M extending independently to apex of wing, united only by a cross-vein near mid-length of wing, i.e. with four apical cells (Figure 8); subgenital plate with or without a strongly incurved apical process. 4
- 4. Hind wing with cross vein m-cu meeting Cu1a after the Cu1a/Cu1b bifurcation. Basal half of Cu1b strongly arched against Cu2 (Liang 1993); aedeagal shaft robust (Liang and Webb, 2002); subgenital plates with a strongly incurved apical process (Liang 1993) *Paracercopis* Schmidt
 - Hind wing with cross vein m-cu meeting Cu1a before the Cu1a/Cu1b bifurcation. Basal half of Cu1b straight and remote from Cu2 (Figure 8); aedeagal shaft elongate, or, if robust, subgenital plates without a strongly incurved apical process 5
- 5. Hind wing with bifurcation of Cu1a/Cu1b near m-cu cross vein; aedeagal shaft robust (Liang 1994a) *Paracercopoides* Liang
 - Hind wing with bifurcation of Cu1a/Cu1b distal of m-cu cross vein (Figure 8); aedeagal shaft elongate 6
- 6. Fore wings with Rs branched apically; aedeagal shaft very elongate with filiform distal half (Liang and Webb 2002) *Circulocercopis* Liang and Webb
 - Fore wings with Rs not branched apically (Liang and Webb 2002); aedeagal shaft not as above 7
- 7. Aedeagal shaft with a pair of long apical, needle-like spines (Liang 1994b; Liang and Webb 2002) *Asiacercopis* Liang
 - Aedeagal shaft without apical spines 8
- 8. Male pygofer long; subgenital plates lanceolate, caliper-like, basally narrow with membranous outer margin (Liang and Webb 2002) *Kanozata* Matsumura
 - Male genitalia not as above *Sounama* Distant

Figures 9–16. *Telogmometopius obsoletus*, scanning electron micrographs: (9) vertex and pronotum, dorsal view; (10) head, ventral view; (11) head, frontoventral view; (12) apical part of pedicel and expanded flagellar base of antenna, showing one basiconic sensillum and smooth surface of expanded flagellar base; (13) expanded flagellar base of antenna, showing one basiconic sensillum and coeloconic sensilla; (14) male genital capsule, ventral view, showing male genitalia with basal, posteriorly directed aedeagal shaft not being protruding ventrally, not being separated by subgenital plates and being invisible from ventral view; (15) apical part of abdomen, lateral view, showing male genital capsule; (16) male genital capsule, lateral view, showing male genitalia with aedeagal base directed posteriorly and then anteriorly recurved and not protruded ventrally between subgenital plates.

***Baibarana* Matsumura**

Baibarana Matsumura 1940, p 41; 1942, p 101; Neave 1950, p 29; Metcalf 1961, p 430.

Type species: *Baibarana uchidai* Matsumura, 1940, by original designation and monotypy.

Description

Small, finely pubescent spittlebugs, length (from apex of vertex to tip of fore wings): 3.8–5.0 mm.

General colour grey to brown, vertex and pronotum usually olivaceous yellow; fore wings sometimes with pale granules.

Head relatively broad; roundly or angularly produced anteriorly, narrow in profile. Vertex flat, sloping forward, posterior margin concave; ocelli very close to each other, situated halfway between anterior and posterior margins. Antennae with pedicel distinctly longer than scape, flagellar base expanded and subglobose, with one peg-like basiconic sensillum on apical part; ultrastructure not examined. Postclypeus weakly convex, in males upper half variably compressed laterally and longitudinally keel-like medially; lateral areas with distinct muscle impressions (striations) dorsally. Females with postclypeus more bulbous with lateral areas weakly compressed and medial longitudinal region flatter and smoother and muscle impressions fainter. Rostrum extending slightly beyond middle coxae. Pronotum hexagonal, broader than long, centrally and posteriorly convex, sloping to depressed vertex; anterior margin broadly arched anteriorly, anterior lateral margins relatively short, nearly half to one-third of posterior lateral margin, posterior margin mesially arched anteriorly. Scutellum as long as broad at base, disc shallowly depressed, apex sloping downward caudally. Fore wings about 2.5 times as long as broad, surface sometimes with numerous granules, some of them confluent, forming ridges; Rs branched apically; veins indistinct or sometimes distinct on apical area resulting in obscure or prominent apical cells, respectively. Hind wings with four elongate, closed, apical cells, Cu1 branched, Cu1a and Cu1b on relatively long stalk, cross vein m-cu meeting Cu1a well before branch of Cu1a/Cu1b. Hind tibiae with one lateral spur slightly distad of mid-length. Male pregenital segment very short, much shorter than pygofer in ventral view.

Male genitalia with pygofer in lateral view protruding anteriorly on upper half and posteriorly on lower half, wider dorsally than ventrally, anterior margin somewhat S-shaped, posterior margin sinuate and slightly angular submesially. Anal segments and anal style short and small. Subgenital plates not fused to pygofer, comprising an expanded basal part with an apical spine-like process. Lateral plates usually very elongate and large in lateral view, distinctly protruding posterodorsally above subgenital plates and nearly as long as the upper genital styles in lateral view. Styles relatively elongate, positioned above lateral plates in lateral view; produced dorsally slightly distad of mid-length or club-like (in *sinuata*); pilose over apical half. Aedeagal shaft in lateral view very elongate, cylindrical, extreme basal part produced ventrally between subgenital plates then curved posterodorsally and strongly anterodorsally, subapically expanded with extreme apex usually with a fine, posteroventrally directed hook; gonopore subapical on dorsal surface.

Female genitalic segment strongly upturned, ovipositor somewhat protruding beyond apex of pygofer.

Remarks

Baibarana was placed in the tribe Cosmoscartini Schmidt by Metcalf (1961). Cosmoscartini is characterized by the strongly bulbous frons, hind tibiae with two lateral spurs, and male genitalia with subgenital plates short, without an apical spine-like process, without lateral plates, and aedeagal shaft short and not strongly curved. We here transfer *Baibarana* to the tribe Rhinaulacini based on the following characters: postclypeus weakly bulbous; hind tibiae with one lateral spur; subgenital plates with an expanded basal region and a spine-like apical process; lateral plates present; and aedeagal shaft elongate, cylindrical, and strongly curved.

Baibarana can be distinguished by its relatively broad head (Figure 1) and from most other Rhinaulacini (especially those from the Oriental and Australian Regions) by the postclypeus with its upper part usually keel-like medially and its lower part relatively broad, flat and smooth. In other genera the postclypeus is medially sulcate, or keel-like throughout length in *Telgmometopius*. In the male genitalia *Baibarana* is very similar to *Sounama* (see Liang and Webb 2002, Figures 58–94).

In common with most spittlebug groups, currently no biological data are available for *Baibarana* species. Collecting data show that adults can be collected in almost all seasons and certain species, e.g. *B. longispina*, can be attracted and collected at light (see collecting data below).

Distribution

Oriental Region, including Taiwan, Vietnam, Laos, and Thailand.

Key to the species of *Baibarana*

1. Vertex and pronotum (Figures 1, 27) each with two rufous transverse bands; subgenital plates (Figure 64) with expanded basal region relatively large and elongate with apical process very short; aedeagal shaft (Figure 68) with expanded subapical region elongate; Vietnam *rufofasciata* sp. nov.
- Vertex and pronotum without transverse bands; male genitalia not as above 2
2. Vertex and pronotum uniformly olivaceous yellow. Subgenital plates (Figures 40, 42) with expanded basal region broad in ventral view, with apical spine-like process short and stout, directed anterodorsally 3
- Vertex and pronotum not uniformly olivaceous yellow. Subgenital plates (Figures 51, 56) with expanded basal region small and narrow in ventral view, with apical spine-like process elongate, directed medially or posteriorly 4
3. Small species, length ♂ 4.0–4.2 mm; Vietnam (northern part) *bicolor* sp. nov.
- Relatively large species, length ♂ 4.8–5.0 mm, ♀ 4.6–5.0 mm; Taiwan
. *uchidai* Matsumura
4. Subgenital plates (Figures 56, 57) with apical spine-like process elongate, more or less straight, each plate lying nearly parallel to each other and well separated; Laos and Thailand *longispina* sp. nov.
- Subgenital plates (Figures 51, 53) with apical spine-like process moderately long, directed medially and sinuate in lateral view, plates overlaid apically in ventral view; Vietnam *sinuata* sp. nov.

Figures 17–24. *Telogmometopius* and *Baibarana* species, scanning electron micrographs. (17–21) *T. carinilabratus*: (17) rostral tip, showing peg-like (basiconic) sensilla; (18) lateral peg-like (basiconic) sensilla on rostral tip; (19) male genital capsule, ventral view, showing male genitalia with elongate, posteriorly directed, basal aedeagal shaft; (20) apical part of abdomen, lateral view, showing male genitalia with elongate, posteriorly directed, basal aedeagal shaft; (21) genital style, lateral view. (22–24) *B. rufofasciata*: (22) male genital capsule, ventral view, showing male genitalia with strongly arched aedeagal shaft; (23) male genital capsule, left lateral view, showing large lateral plate and strongly arched aedeagal shaft; (24) male genital capsule, lateral view, showing male genitalia with strongly arched aedeagal shaft.

Figures 25–39. *Baibarana* and *Telgmometopius* species, dorsal habitus. (25) *B. bicolor*, holotype ♂. (26) *B. longispina* sp. nov., paratype ♂, Laos. (27) *B. rufofasciata*, paratype ♀, Vietnam: Fyan. (28) *B. sinuata* sp. nov., holotype ♂. (29) *B. uchidai*, ♀, Taiwan: Taichung. (30) *T. angulatus*, paratype ♀, northern Borneo: Mt Kinabalu. (31) *T. bicarinatus*, paratype ♀. (32) *T. bifaciatus*, holotype ♂. (33) *T. rangoonensis* sp. nov., holotype ♂. (34) *T. carinilabratu*s, ♀, China: Tibet. (35) *T. himalayensis*, holotype ♂. (36) *T. obsoletus*, ♂, China: Hubei. (37) *T. sabahensis*, paratype ♀. (38, 39) *T. sarawakensis* sp. nov., holotype ♂ and paratype ♀, respectively.

***Baibarana bicolor* sp. nov.**

(Figures 25, 40–44)

Description

Length ♂ 4.0–4.2 mm.

Vertex and pronotum olivaceous yellow; face and sternum, scutellum and abdomen brown; ocelli reddish; frons with central area yellowish brown; fore wings brown with ochraceous granules.

Fore wings densely granulate; veins indistinct.

Figures 40–55. *Baibarana* species, male genitalia, left lateral view except where indicated. (40–44) *B. bicolor*: (40) male genital capsule, ventral view; (41) male genital capsule; (42) subgenital plate; (43) genital style; (44) aedeagus. (45–50) *B. uchidai*: (45) male genital capsule, ventral view; (46) subgenital plate; (47) male genital capsule; (48) apex of pygofer, ventral view; (49) genital style; (50) aedeagus. (51–55) *B. sinuata*: (51) male genital capsule, ventral view; (52) male genital capsule; (53) subgenital plate; (54) lateral plate; (55) genital style.

Male genitalia with subgenital plates (Figures 40–42) with expanded basal region broad in ventral view, apical spine-like process short and stout, directed anterodorsally. Lateral plates (Figure 41) with apical margin broad in lateral view, moderately protruding beyond pygofer. Styles (Figure 43) with a dorsal subapical process and a ridge extending ventrally from near base of process. Aedeagus as in Figure 44.

Female: unknown.

Distribution

Vietnam.

Material examined

Holotype: ♂, Vietnam: Tam Dao, 950 m, 15–30 September 1989 (V. Novotny) (IZCAS). Paratype: Vietnam: 1♂, same data as holotype (BMNH).

Remarks

This species can be distinguished by its contrasting colour pattern and its basally broad subgenital plates with short apical process. It differs from the very similar *B. uchidai* from Taiwan, by its smaller size and narrower subgenital plates basally and shorter aedeagal shaft with more weakly arched basal part.

***Baibarana longispina* sp. nov.** (Figures 26, 56–62)

Description

Small species, length: ♂ 3.8–4.0 mm, ♀ 4.0 mm.

Vertex and pronotum pale ochraceous; ocelli reddish; callous areas near posterior margins of vertex and on anterior area of pronotum suffused with brown, sometimes posterior half of pronotum suffused with brown; scutellum and fore wings dark brown or pale fuscous; head and thorax ventrally, basal segment of rostrum, fore and middle femora basally and abdomen, brown; apical segment of rostrum, apex of fore and middle femora, fore and middle tibiae and tarsi, hind legs, metapleura, metasterna, and veins on apical area of fore wings ochraceous.

Fore wings with distinct apical cells.

Male genitalia with subgenital plates (Figures 56–58) with expanded basal region short and narrow, apical spine-like process very elongate, greater than 2.5 times length of expanded basal region, directed posterodorsally in lateral view. Lateral plates (Figures 58, 61) large, broadly rounded apically. Styles (Figures 59, 60) terminating in a small, dorsally directed bifurcate process. Aedeagus as in Figure 62.

Material examined

Holotype: ♂, Laos: Vientiane Province, Ban Van Eue, 15 December 1965 (Rondon, native collector, Bishop Museum collection) (BPBM). Paratypes: Laos: 1♂, same data as holotype except Malaise trap (IZCAS); 1♀, same data as holotype, except 31 December 1965, Malaise trap (BPBM). [Thailand]: 2♂♂, Peninsular Siam, Nakon Sri Tamarat, Khao

Figures 56–68. *Baibarana* species, male genitalia, left lateral view except where indicated. (56–62) *B. longispina*: (56) apex of male genital capsule, ventral view, showing subgenital plates; (57) subgenital plate, ventral view; (58) genital capsule; (59, 60) genital style; (61) lateral plate; (62) aedeagus. (63–68). *B. rufofasciata*: (63) male genital capsule, ventral view; (64) subgenital plate, ventrolateral view; (65) male genital capsule; (66) lateral plate; (67) genital style; (68) aedeagus.

Luang, 2000 ft, at light, 21 March 1922 (H. M. Pendlebury) (BMNH, Lallemant Coll. B. M. 1955–832) (BMNH).

Distribution

Laos (Vientiane Province), Thailand.

Remarks

This species can be distinguished by its elongate apical process of the subgenital plate and bifurcate apical process of the style.

***Baibarana rufofasciata* sp. nov.**

(Figures 1, 22–24, 27, 63–68)

Description

Small species, length: ♂ 3.8–4.0 mm, ♀ 3.8–4.2 mm.

Vertex ochraceous with two transverse fasciae, one along the anterior margin (or restricted to tylus) and the other crossing ocelli between eyes near posterior margin, rufous (Figures 1, 27); pronotum ochraceous with a narrow transverse fascia bordering anterior margin and a broad, transverse fascia crossing humeral angles, rufous (Figures 1, 27); scutellum brown, apex ochraceous; fore wings brown with basal costal region and veins on apical area, ochraceous.

Fore wings with distinct apical cells.

Male genitalia with subgenital plates (Figures 22–24, 63–65) with expanded basal region elongate, with apical process very short. Lateral plates (Figures 23, 65, 66) elongate, broad basally and tapered over distal one-third into a narrowly rounded apex. Styles (Figures 65, 67) with a dorsal subapical, somewhat outwardly directed, laminate process. Aedeagus as in Figures 22–24, 68.

Distribution

Vietnam.

Material examined

Holotype: ♂, Vietnam: 17 km E Phan Thiet, Djiring, 1300 m, 7 October 1960 (BPBM). Paratypes: Vietnam: 1♂, 8♀♀, Fyan, 900–1000 m, 11 July to 9 August [19]61 (N. R. Spencer); 4♂♂, 1♀, Blao (Balao), 500 m, 14–21 October 1960 (C. M. Yoshimoto); 1♀, same locality, date, and collector but 600 m; 1♀, Dalat, 1500 m, 29 April to 4 May 1960 (L. W. Quate and S. Quate); 2♀♀, Mt Lang Bian, 1500–2000 m, 19 May to 8 June 1961 (N. R. Spencer) (BPBM, BMNH, IZCAS).

Remarks

This species can be very easily distinguished by the two transverse rufous fasciae on the vertex and pronotum, ochraceous apical veins of the fore wings and by the male genitalia, particularly by the short apical process of the subgenital plates.

***Baibarana sinuata* sp. nov.**

(Figures 28, 51–55)

Description

Length ♂ 3.8 mm.

Vertex and pronotum olivaceous yellow, posterior half of pronotum with pale brown suffusion; face and sternum, apical segment of rostrum, scutellum, leg, fore wings and abdomen brown; basal segment of rostrum, apical veins of fore wings, metapleura, metasterna, apex of fore and middle femora, fore and middle tibiae and tarsi and hind legs, ochraceous.

Fore wings with distinct apical cells.

Male genitalia with subgenital plates (Figures 51–53) with expanded basal region elongate, apical spine-like process moderately long, directed medially and somewhat sinuate in lateral view, overlaid apically in ventral view. Lateral plates (Figures 52, 54) broad basally, apical part narrow. Styles (Figures 52, 55) expanded, club-like subapically, thereafter strongly constricted, neck-like and expanded apically. Aedeagus as in Figure 52.

Female: unknown.

Distribution

Vietnam.

Material examined

Holotype: ♂, Vietnam: Plateau G., 63 km NE of Kontum, 1170 m, 11–12 June 1960 (R. E. Leech) (BPBM).

Remarks

This species can be distinguished by the shape of its subgenital plates and styles.

***Baibarana uchidai* Matsumura**

(Figures 3, 5, 29, 45–50)

Baibarana uchidai Matsumura 1940, p 42, Plate ii, Figure 4; Metcalf 1961, p 430.

Lectotype ♂, designated by Komatsu and Hayashi 1998, p 170, Taiwan (HU) [examined].

Description

Length: ♂ 4.8–5.0 mm, ♀ 4.6–5.0 mm.

Vertex and pronotum olivaceous yellow; ocelli red. Face ochraceous with antennal sockets, antennal pedicel and upper region of frons brown, the latter sometimes with a narrow, transverse brown or fuscous fascia; scutellum, thorax beneath, and legs ochraceous, sometimes with brown suffusion. Fore wings brown, sometimes with costal and apical area and subapical transverse band, ochraceous. Abdomen brown.

Fore wings densely granulate, some granules confluent forming ridges; veins indistinct.

Male genitalia with subgenital plates (Figures 45–47) with expanded basal region nearly triangular in lateroventral view; apical spine-like process very short and stout, directed anterodorsally, with a laminate, finger-like process along basal half of inner margin. Lateral plates (Figure 47) short and broad in lateral view, moderately posteriorly protruded beyond posterior margin of pygofer. Styles (Figures 46, 47) with bifurcate apex, outer fork smaller, laminate, strongly sclerotized and hook-shaped and inner fork larger, somewhat papilliform. Aedeagus as in Figure 50.

Distribution

Taiwan (Formosa).

Material examined

Lectotype: ♂, Taiwan: “Baibara, 23 July [19]25, T. Uchida, Type Matsumura; *Baibarana uchidai* Mats.; *Takptyelus uchidai* Mats., designated by Komatsu and Hayashi (1998)” (HU). Taiwan: 1♂, Baron (Formosa), 10 August 1941 (H. Hasegawa leg.) (HU); 3♂♂, 4♀♀, Formosa, Matsumura (HU); 1♂, Mt Rara (Formosa), 8 August 1941 (H. Hasegawa leg.) (IZCAS); 1♀, [Taiwan]: Musha (Wuse) to Banda, Talohung District, 1000 m, 24 August 1947 (J. L. Gressitt) (IZCAS).

Remarks

This species is very similar to *B. bicolor* but can be distinguished from the latter by its distinctly larger size and in the male genitalia by their broader subgenital plates and more elongate aedeagal shaft with a more broadly arched basal part.

Telgmometopius Jacobi

Telgmometopius Jacobi 1921, p 43; Wu 1935, p 48; Schulze, Kükenthal and Heider 1938, p 3406; Neave 1940, p 417; Lallemand 1949, p 56, 57; Metcalf 1961, p 327. Type species: *Telgmometopius obsoletus* Jacobi, 1921, by original designation and monotypy.

Description

Small to medium-sized, slender, finely pubescent spittlebugs, length (from apex of vertex to tip of fore wings): ♂ 5.0–8.4 mm, ♀ 5.3–8.5 mm.

General colour grey brown or brown; vertex and pronotum usually ochraceous, probably olivaceous yellow in life.

External features as in *Baibarana* with the following differences. Head (Figures 2, 9) relatively narrow, broad in profile; posterior margin of vertex more or less straight; ocelli situated slightly basad of mid-distance from anterior to posterior margin of vertex; postclypeus (Figures 4, 10, 11) strongly compressed laterally and medially longitudinally keel-like. Ultrastructure of antennal pedicel: very sparsely setose and sculptured with scale-like pattern, apex hollowed with inner surface strongly spiralled (Figure 12); flagellum base nearly smooth, sensory organs in subglobose base including one long blunt, peg-like, basiconic sensillum located in a broad, shallow pit adjacent to a group of about five, small, coeloconic sensilla on rim (Figures 12, 13). Rostrum tip (Figures 17, 18) consisting of two lateral lobes separated by a dorsal stylet groove, each lateral lobe with about 12 peg sensilla, numerous short cuticular teeth and some divided acanthae near inner edge. Fore wings with relatively distinct venation. Male pregenital segment very short, much shorter than pygofer in ventral view.

Male genitalia as in *Baibarana* with the following differences. Lateral plates very small. Styles strongly expanded over distal half in lateral aspect with apex excavate with two lobes, outer lobe with two small, dorsally directed teeth on outer dorsal edge. Aedeagal shaft with basal part horizontal, thereafter strongly and narrowly curved anteriorly, with an apical or dorsal subapical, anteriorly directed, sinuate or coiled, filamentous process.

Biology

In common with most spittlebug genera, no biological data are currently available for species of *Telogmometopius*. Species of the genus may be associated with bamboos (see collecting data under *T. sabahensis*). Collecting data show that adults can be collected in all seasons and certain species, e.g. *T. obsoletus* and *T. himalayensis*, can be attracted and collected at light (see collecting data below).

Distribution

Oriental Region, including southern China (Tibet, Yunnan, Guizhou, Sichuan, Hubei, Gansu, and ?Jiangxi), Burma, Vietnam, Laos, Thailand, and northern Borneo. The identity of one female specimen from Vietnam (Tam Dao, 950 m, 15–30 September 1989, V. Novotny, IZCAS), cannot be verified due to the absence of associated males.

Remarks

The monobasic genus *Telogmometopius* Jacobi was placed by Lallemand (1949) and Metcalf (1961) in the Afrotropical tribe Bandusiini Lallemand, together with the Afrotropical genus *Bandusia* Stål. We here transfer *Telogmometopius* to the tribe Rhinaulacini based on the following characters: postclypeus weakly bulbous; hind tibiae with one lateral spur; subgenital plates with an expanded basal region and a spine-like apical process; lateral plates present; aedeagal shaft elongate, cylindrical, and strongly curved; distribution and type of antennal sensilla (see Liang 2001; Liang and Jiang 2001; Liang and Fletcher 2002; Liang and Webb 2002; A.-P. Liang, unpublished data).

Telogmometopius can be distinguished from other Oriental cercopid genera by its strongly laterally compressed postclypeus, with a median carina, keel-like in ventral view (Figures 10, 11) and in the male genitalia by the small lateral plates and very elongate aedeagus with the basal part horizontal and strongly and narrowly curved anteriorly with an apical or subapical filamentous process.

Key to the species of *Telogmometopius*

1. Aedeagal shaft (Figures 75, 81) elongate and slender in lateral view, not expanded apically, with basal part greatly extended beyond subgenital plates 2
- Aedeagal shaft (Figures 87, 92) relatively short and broad in lateral view, with basal part moderately extended beyond subgenital plates or if not as above then shaft expanded apically (Figure 85) 4
2. Postclypeus with lower two-thirds of median keel distinctly dilated laterally resulting in a diamond-shaped, flattened, median area; subgenital plates (Figure 71) with apical spine-like process distinctly longer than expanded basal region; India *bicarinatus* sp. nov.
- Postclypeus (Figures 10, 11) with median keel fully sharp throughout length; subgenital plates with apical spine-like process distinctly shorter than expanded basal region 3

Figures 69–82. *Telogmometopius* species, male genitalia, left lateral view except where indicated. (69–73) *T. bicarinatus*: (69) male genital capsule, ventral view; (70) male genital capsule; (71) subgenital plate, ventrolateral view; (72) left genital style; (73) left genital style, inner side view. (74–79) *T. carinilabratus*: (74) male genital capsule, ventral view; (75) male genital capsule; (76) subgenital plate, ventral view; (77) lateral plate; (78) genital style; (79) aedeagus. (80–82) *T. himalayensis*: (80) male genital capsule, ventral view; (81) male genital capsule; (82) subgenital plate, ventral view.

Figures 83–93. *Telogmometopius* species, male genitalia, left lateral view except where indicated. (83–85) *T. bifasciatus*: (83) male genital capsule; (84) subgenital plate, ventrolateral view; (85) aedeagus. (86–90) *T. rangoonensis*: (86) male genital capsule, ventral view; (87) male genital capsule; (88) subgenital plate, ventrolateral view; (89) lateral plate; (90) genital style. (91–93) *T. angulatus*: (91) male genital capsule, ventral view; (92) male genital capsule; (93) subgenital plate.

3. Length ♂ 7.5–8.4 mm, ♀ 7.5–8.5 mm; subgenital plates (Figure 74) joined basally in ventral view; aedeagal shaft (Figure 79) with apical process coiled; SW China (Yunnan, Tibet) *carinilabratus* (Chou and Wu)
- Length ♂ 5.4–5.5 mm, ♀ 5.6 mm; subgenital plates (Figure 80) slightly separated in ventral view; aedeagal shaft (Figure 81) with apical process sinuate; NE India (E Himalayas), SW China (Tibet) *himalayensis* sp. nov.
4. Fore wings with two transverse fuscous fasciae: one before middle and the other subapical; subgenital plates (Figure 84) evenly tapered from base to apex with expanded basal region narrow and apical spine-like process relatively stout; aedeagal shaft (Figure 85) relatively elongate; Malaysia (northern Borneo: Sabah) *bifasciatus* sp. nov.
- Fore wings without transverse fuscous fasciae 5
5. Subgenital plates (Figures 91–93) with expanded basal region very elongate and apical spine-like process short, stout, and dorsally directed in lateral view, not visible in ventral view; northern Borneo *angulatus* sp. nov.
- Subgenital plates not as above 6
6. Subgenital plates (Figures 104–106) with expanded basal region and apical spine-like process not abruptly differentiated in ventral view, the latter stout; Malaysia (Sarawak) *sarawakensis* sp. nov.
- Subgenital plates (Figures 88, 95, 100) with expanded basal region and apical spine-like process abruptly differentiated in ventral view; apical spine-like process fine or stout. 7
7. Subgenital plates (Figure 88) with apical spine-like process much longer than expanded basal region; Burma *rangoonensis* sp. nov.
- Subgenital plates (Figures 95, 100) with apical spine-like process shorter than expanded basal region. 8
8. Subgenital plates (Figure 100) with apical spine-like process fine; aedeagal shaft (Figure 103) similar in width distally in lateral view, subapical process relatively short; southern and central China (Hubei, Gansu, Sichuan, Guizhou, ?Jiangxi) *obsoletus* Jacobi
- Subgenital plates (Figure 95) with apical spine-like process stout; aedeagal shaft (Figure 97) expanded apically, subapical spine-like process relatively long; Malaysia (northern Borneo: Sabah) *sabahensis* sp. nov.

***Telogmometopius angulatus* sp. nov.**

(Figures 30, 91–93)

Description

Length: ♂ 5.2–5.4 mm, ♀ 5.3–5.6 mm.

Vertex, pronotum, and scutellum pale stramineous (possibly olivaceous yellow in live specimens); ocelli pale red; ocelli, callous areas on posterior area of vertex and anterior area of pronotum, posterior half of pronotum and middle area of scutellum usually with brown suffusion; head and thorax ventrally ochraceous, basal antennal segments, postclypeus laterally, fore- and mesothorax beneath and legs sometimes suffused with brown; fore wings

grey brown, with an indistinct, oblique, pale white transverse fascia before middle, the costal area behind the pale white fascia fuscous, apical margin fuscous; abdomen dark brown, posterior margin ochraceous.

Postclypeus with medial keel very sharp.

Male genitalia with subgenital plates (Figures 91–93) with expanded basal region elongate and apical spine-like process short and robust, about half length of expanded basal region, directed dorsally at a nearly 90° angle in lateral view. Style as in Figure 92. Aedeagal shaft (Figure 92) laterally compressed, in lateral view relatively short and broad with a very fine, anterodorsally directed filamentous process, arising subapically from dorsal margin of an expanded membranous apex.

Material examined

Holotype: ♂, [Malaysia] northern Borneo [Sabah]: 1♂, Ranau, 22–25 February 1959 (T. C. Maa) (BPBM). Paratypes: [Malaysia] northern Borneo [Sabah]: 3♂♂, same data as holotype (T. C. Maa) (BPBM); 1♂, Mt Kinabalu, Mesilau Camp, 5000 ft, 2–3 April 1964 (Royal Soc. Exped., coll. S. Kueh, B. M. 1964–250); 1♀, Mt Kinabalu, Mesilau Caves Trail, 1 April 1964 (Royal Soc. Exped., coll. S. Kueh, B. M. 1964–250); 1♀, Mt Kinabalu, Mesilau Trail, 5000 ft, 13–15 March 1964 (Royal Soc. Exped., coll. S. Kueh, B. M. 1964–250) (all in BMNH); 1♂, Tenompok, Jesselton, 1460 m, 48 km E., 17–18 October 1958 (T. C. Maa); 1♀, Tenompok, 10–14 February 1959 (T. C. Maa) (both in BPBM).

Distribution

Sabah.

Remarks

This species can be distinguished by its relatively short and stout aedeagal shaft with the apex expanded and with a filamentous process arising subapically from the dorsal margin and by its stout subgenital plates with a dorsally directed apical process.

***Telgmometopius bicarinatus* sp. nov.**

(Figures 31, 69–73)

Description

Small and slender species, length: ♂ 5.4 mm, ♀ 5.3 mm.

Vertex and pronotum pale ochraceous; ocelli suffused with reddish; callous areas on posterior area of vertex and anterior area of pronotum brown; head ventrally brown, median keel of postclypeus (including its lower expanded area), anteclypeus and rostrum ochraceous; antennae with pedicle and expanded flagellar base fuscous; thorax ventrally and legs ochraceous with brown suffusion; fore wings pale stramineous with an indistinct, narrow, obliquely transverse, pale white fascia, before middle; area behind transverse pale white fascia and apical outer margin dark brown; abdomen brown or dark brown with posterior margins ochraceous.

Postclypeus with lower two-thirds of median keel distinctly dilated laterally resulting in a diamond-shaped, flattened, median region, laterally carinate.

Male genitalia with subgenital plates (Figures 69–71) with expanded basal region small and apical spine-like process very long and straight, about three times length of expanded basal region. Style as in Figures 72 and 73. Aedeagal shaft (Figure 70) very elongate with distal third tapered into an apical, sinuate, filamentous process, apex curved posterodorsally.

Material examined

Holotype: ♂, India: Meghalay, Cherrapunji, 1299 m, 5 November 1981 (C. A. Viraktamath) (BMNH). Paratype: India: 1♀, same data as holotype (UASB).

Distribution

Northeastern India.

Remarks

This species can be distinguished externally by its postclypeus with the lower two-thirds of the median keel distinctly dilated laterally, resulting in a diamond-shaped, slightly sulcate, median area bordered laterally with a carina. It can be distinguished in the male genitalia by its subgenital plates having a small expanded basal region and a very elongate apical spine-like process.

***Telogmometopius bifasciatus* sp. nov.**
(Figures 32, 83–85)

Description

Relatively small species, length: ♂ 5.2 mm.

General colour brown; ocelli suffused with red; antennal scape, pedicel, and expanded flagellar base, upper margin of frons, and mesosterna, fuscous; fore wings pale, with two transverse fuscous fasciae: one before middle and the other subapical.

Postclypeus strongly compressed laterally and median keel on postclypeus very fine and sharp.

Male genitalia with pygofer (Figure 83) in lateral view with posterior margin rounded; subgenital plates (Figure 84) with basal expanded region narrow and slender, nearly triangular in ventral view, base broad, tapered from base to apex; apical spine-like process relatively stout, tapered from base to apex, posterodorsally directed in lateral view; genital styles not examined (missing). Aedeagal shaft (Figure 85) very long and slender with an elongate, anteriorly directed filamentous process arising from dorsal margin of an expanded apex, in lateral view.

Material examined

Holotype: ♂, [Malaysia]: northern Borneo [Sabah], Alcock, Lallemand Coll., B. M. 1955–832 (BMNH).

Non-type material examined. One female specimen from Sabah, Mt Kinabalu (BMNH) may belong to this species.

Distribution

Sabah.

Remarks

This species is similar to *rangoonensis* but has the subgenital plate tapering more gradually and the aedeagal shaft more elongate. The styles and one subgenital plate of the unique type are missing. With respect to the aedeagus its process is now detached and lying within the pygofer (drawn re-associated in Figure 85). In consequence it is not clear if the lightly sclerotized apical part (basad of the process), as figured, is complete. Despite these deficiencies, sufficient critical parts of the male genitalia remain to enable adequate identification.

***Telgmometopius carinilabratus* (Chou and Wu), comb. nov.**

(Figures 2, 4, 7, 8, 17–21, 34, 74–79)

Baibarana carinilabrata Chou and Wu, in Chou et al. 1988, p 137, 139, Figure 5. Holotype ♂, China (Yunnan) (IZCAS) [examined].

Description

Length: ♂ 7.5–8.4 mm, ♀ 7.5–8.5 mm.

Vertex and pronotum ochraceous; callous areas on posterior area of vertex and anterior area of pronotum brown, posterior area (excluding posterior margin) of pronotum brown; scutellum brown with apex and basal lateral angles ochraceous; face brown with median keel of frons and rostrum ochraceous, sometimes rostrum with apical segment suffused with brown; thorax ventrally brown with mesosterna, metapleura, and metasterna ochraceous; legs brown with apex of fore and middle femora and base of fore and middle tibiae, and hind tibiae and tarsi ochraceous; fore wings brown, apical part and costal margin in middle much darker; abdomen brown with segmental posterior margins ochraceous. Sometimes body beneath almost uniformly brown, except metapleura and metasterna of thorax and hind tibiae and tarsi, ochraceous.

Postclypeus with median keel moderately sharp.

Male genitalia with subgenital plates (Figures 74–76) with expanded basal region very elongate, evenly tapered from base to apex, joined basally; apical spine-like process short and fine, half length of expanded basal region. Style as in Figure 78. Aedeagal shaft (Figure 79) extremely elongate, apical part distinctly filamentous and coiled.

Material examined

China, Yunnan: 1♂ (holotype), Weixi, Baijixun, 1780 m, 11 July 1981 (S.-B. Liao) (IZCAS); 1♀ (allotype), same locality as holotype, but 2250 m, 13 July 1981 (S.-Y. Wang) (IZCAS); 2♂♂, Gongshan County, Qiqi Reserve (27°43'N, 98°34'E), 1950 m, Sino-America Exped., 9 July 2000 (H.-B. Liang); 1♂, Gongshan County, No. 12 Bridge (27°12'N, 98°60'E), 2750 m, Sino-America Exped., 15 July 2000 (H.-B. Liang) (all in IZCAS); 1♂, Gaoligong Shan, Nujiang Prefecture, Nujiang State Nature Reserve, No. 12, Bridge Camp area, 16.3 air km W of Gongshan (27°71503'N, 98°50244'E), 2775 m, CEG-CH-2000-20A, malaise trap, 15–19 September 2000 (H.-M. Yan, D. Kavanaugh, C.

Griswold, H.-B. Liang, D. Ubick, and D.-Z. Dong, CAsENT 6000034) (CAS). China, Tibet: 1♂ (paratype), Bomi, Yigong, 2300 m, 15 August 1983 (Y.-H. Han) (NWAU); 1♀, same data (IZCAS); 4♂♂, 6♀♀, same locality, but 15 June and 30, 31 July 1978 (F.-S. Li) (CAUIC).

Distribution

Southwestern China (Yunnan, Tibet).

Remarks

This species is the largest of the genus. Its male genitalia are similar to *T. himalayensis* but the aedeagal shaft is slightly narrower in lateral view.

***Telogmometopius himalayensis* sp. nov.** (Figures 35, 80–82)

Description

Length: ♂ 5.4–5.5 mm, ♀ 5.6 mm.

Vertex and pronotum ochraceous, callous areas on posterior area of vertex and anterior area of pronotum brown; scutellum ochraceous, central foveate area and two callous areas on lateral basal angles brown. Head ventrally brown, postclypeus with median keel and the areas between lateral striate fasciae on lateral compressed areas ochraceous. Thorax ventrally brown, fore- and mesosterna, metapleura, and metasterna ochraceous. Legs brown, fore femora with extreme base ochraceous; posterior tibiae (excluding base) and tarsi of hind legs ochraceous; rostrum ochraceous. Fore wings grey brown, apical area and costal marginal area after middle fuscous. Abdomen brown with posterior segmental margin, pygofer and genitalic segment ochraceous.

Postclypeus with median keel very sharp.

Male genitalia similar to *T. carinilabratus* but aedeagus (Figure 81) slightly more robust with apical filamentous process sinuate rather than coiled.

Material examined

Holotype: ♂, [India]: east Himalayas, Kurseong, alt. 5000 ft, 10–26 September [19]09 (Lynch, c., Ind. Mus.) (BMNH). Paratypes: [India]: 1♂, same data as holotype; 1♀, same data as holotype except 7 September [19]09 (N. A., Ind. Mus.) (both in BMNH).

Non-type material examined. The following specimens may belong to this species. China, Tibet: 3♂♂, 3♀♀ (1♀ collected at light), Mêdog, 1310 m, 13, 23, and 28 September 1979 (G.-T. Jin and J.-Y. Wu) (SIE; IZCAS); 2♀♀, Mêdog, Gelin, 1550–1900 m, 24 May 1983 (Z. Lin) (IZCAS).

Distribution

Northeastern India (east Himalayas), southwestern China (Tibet).

Remarks

This species is very similar externally to *T. carinilabratus* but can be distinguished by its smaller size and small differences of the aedeagus as noted in its description. A series of specimens from China, Tibet (SIE; IZCAS), may be this species but individuals are slightly larger.

Telgmometopius obsoletus Jacobi

(Figures 6, 9–16, 36, 98–103)

Telgmometopius obsoletus Jacobi 1921, p 44; Wu 1935, p 48; Lallemant 1949, p 57; 1952, p 25; Metcalf 1961, p 327. Lectotype ♀, China (SMTD), here designated [examined].

Description

Length: ♂ 5.4–5.6 mm, ♀ 5.6–5.8 mm.

Vertex, pronotum, and scutellum (Figure 36) pale ochraceous; ocelli with red or brown suffusion; callous areas on vertex and pronotum, posterior area of pronotum and central foveate area of scutellum usually with brown suffusion; antennal sockets, basal antennal segments and anterior margin of frons in ventral view brown, forming a distinct, transverse, brown fascia in ventral view; rostrum ochraceous; thorax ventrally ochraceous, mesosterna brown; fore and middle legs brown, extreme base of fore and middle femora ochraceous, hind legs ochraceous; fore wings grey brown, sparkled with ochraceous, with an indistinct, narrow, obliquely transverse, pale white fascia before middle; abdomen brown, posterior segmental margin and genitalic segment ochraceous.

Postclypeus with medial keel moderately sharp.

Male genitalia with subgenital plates (Figures 14–16, 98–100) closely approximated, with expanded basal region moderately long and oval-shaped; apical spine-like process short and fine, distinctly shorter than expanded basal region. Style as in Figure 102. Aedeagal shaft (Figure 103) relatively short and broad in lateral view, compressed laterally, distal two-thirds evenly broad in lateral view; with an anterodorsally directed, membranous, sinuate filamentous process arising subapically from upper margin.

Type material examined

Lectotype: ♀, here designated, China: “[yellow label] China; [yellow label] 1916/2; [red label] Typus; coll. A. JACOBI; [Jacobi’s handwriting] *Telgmometopius obsoletus* JAC. det. A. Jacobi; [red label] LECTOTYPE ♀ *Telgmometopius obsoletus* Jac. desig. A.P. Liang 1990” (SMTD).

Other material examined. China, Hubei: 4♂♂, Xingshan, Longmenhe, 1300 m, 9 September 1994 (J. Yao); 1♂, same data and altitude, but collected at light, 8 September 1994 (J. Chen) (all in IZCAS, BMNH). China, Gansu: 3♂♂, Kang County, Qinghe forest, 1400 m, 8 July 1999 (J. Yao); 1♂, same data but collected by T.-L. He (all in IZCAS, BMNH). China, Sichuan: 1♂, Mt Emei, Jiulaodong, 1800–1900 m, 23 August 1957 (Z.-Y. Wang) (IZCAS). China, Guizhou: 1♀, Guiyang, Qianlingshan, 1500 m, 10 June 1981 (F.-S. Li) (CAUIC).

Distribution

Southern and central China (Hubei, Gansu, Sichuan, Guizhou, ?Jiangxi).

Figures 94–108. *Telgometopius* species, male genitalia, left lateral view except where indicated. (94–97) *T. sabahensis*: (94) subgenital plates, ventral view; (95) left subgenital plates, ventrolateral view; (96) genital style; (97) aedeagus. (98–103) *T. obsoletus*: (98) male genital capsule, ventral view; (99) male genital capsule; (100) subgenital plate, ventrolateral view; (101) lateral plate; (102) genital style; (103) aedeagus. (104–108) *T. sarawakensis*: (104) male genital capsule, ventral view; (105) male genital capsule; (106) subgenital plate, ventrolateral view; (107) lateral plate; (108) genital style.

Remarks

This species is similar to *sabahensis* but can be distinguished by the subgenital plates with the apical spine-like process shorter and finer and the aedeagal shaft slightly more robust in lateral view. We have not been able to verify the distribution of the species from Jiangxi [Kiangsi], China (Wu 1935; Metcalf 1961).

***Telgmometopius rangoonensis* sp. nov.**

(Figures 33, 86–90)

Description

Small species, length: ♂ 5.0 mm.

General colour pale stramineous; ocelli suffused with red; callous areas on posterior area of vertex and anterior area of pronotum pale brown; pronotum with posterior area pale brown; body ventrally ochraceous.

Postclypeus with median keel very sharp. Vertex with a faint, fine, median longitudinal carina.

Male genitalia with subgenital plates (Figures 86–88) with expanded basal region moderately large and apical spine-like process elongate and fine, slightly longer than expanded basal region. Style as in Figure 90. Aedeagal shaft (Figure 87) relatively short and stout, with upper anteriorly directed part slightly arched in lateral view, apex expanded and slightly upturned, with an elongate, anterodorsally directed, sinuate, filamentous process arising from apical upper margin.

Female: unknown.

Material examined

Holotype: ♂, Burma: Churchill Rd, Rangoon, February 1927 (Miss Northup) (USNM).

Distribution

Burma (Myanmar).

Remarks

This species is similar to *bifasciatus* but has the subgenital plates tapering more abruptly and the aedeagal shaft shorter.

***Telgmometopius sabahensis* sp. nov.**

(Figures 37, 94–97)

Description

Relatively small species, length: ♂ 5.5 mm, ♀ 5.7 mm.

Colour as in *obsoletus* (see above) but mesosterna, mesopleura, and abdomen (excluding posterior segmental margins) dark brown; vertex slightly acute anteriorly, frons strongly compressed laterally with median keel sharp.

Male genitalia with subgenital plates (Figures 94, 95) with basal expanded region relatively short and broad, oval-shaped, apical spine-like process short and relatively robust, distinctly shorter than basal expanded region in ventral view. Style as in Figure 96. Aedeagal shaft (Figure 97) relatively short and slender in lateral view, apex slightly expanded, with an elongate, anteriorly directed, filamentous process arising from dorsal margin of expanded apex.

Material examined

Holotype: ♂, [Malaysia, Sabah]: British northern Borneo, Tenompok, Jesselton, 1460 m, 48 km E., 10–19 February 1959 (T. C. Maa) (BPBM). Paratype: [Malaysia, Sabah]: 1♀, British northern Borneo, Tenompok, Jesselton, 1460 m, 30 mi. E., 17–21 October 1958 (Faunula of Bamboo Hut, Lot. #2, T. C. Maa) (BPBM).

Distribution

Malaysia (northern Borneo: Sabah).

Remarks

This species is similar to *obsoletus* but can be distinguished from this species by the more robust apical process of the subgenital plate and narrower aedeagal shaft in lateral view.

***Telogmometopius sarawakensis* sp. nov.**
(Figures 38, 39, 104–108)

Description

Length: ♂ 5.0–5.4 mm.

Colour as in *angulatus* (see above) but frons with upper margin fuscous in ventral view and fore wings with a very indistinct, narrow, obliquely transverse, pale white fascia before mid-length and apical area dark brown or fuscous.

Postclypeus with medial keel very sharp

Male genitalia with subgenital plates (Figures 104–106) caliper-like, overlaid apically with expanded basal part elongate and apical process robust and abruptly differentiated from apical part. Lateral plates (Figures 105, 107) very narrow and slender in lateral view. Style as in Figure 108. Aedeagal shaft (Figure 105) relatively short and robust with a filamentous process arising subapically from dorsal margin, directed anterodorsally then curved posteroventrally with apical part directed anteroventrally.

Female: unknown.

Material examined

Holotype: ♂, [Malaysia]: Sarawak: Gunong Mulu, Nat. Park Mulu, Mulu, camp 4, 1780 m, January 1978, lower montane forest, J. D. Holloway RGS Mulu exped., B. M. 1978–206 (BMNH). Paratypes: [Malaysia]: Sarawak: 4♂♂, Gunong Mulu, Nat. Park Mulu, Mulu, camp 4, 1780 m, January 1978, lower montane forest, [underside] J. D. Holloway RGS Mulu exped., B. M. 1978–206 (BMNH).

Distribution

Malaysia (Sarawak).

Remarks

This species can be distinguished by the caliper-like subgenital plates and looped apical filamentous process of the aedeagus.

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