Taxonomic notes on Oriental Tachinidae (Insecta, Diptera)(II) : Genus Thecocarcelia Townsend

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Taxonomic notes on Oriental Tachinidae
(Insecta: Diptera)

II: Genus *Thecocarcelia* Townsend¹²

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Abstract: Oriental species of the genus *Thecocarcelia* Townsend are revised, and include the following seven species: *T. nigrapex* sp. n., *T. parnarae* Chao, *T. oculata* (Baranov), *T. ochracea* sp. n., *T. sumatrana* (Baranov), *T. hainanensis* Chao, and *T. linearifrons* (Wulp). *Thecocarcelia thrix* (Townsend) and *T. laticornis* Chao are recognized as junior synonyms of *T. sumatrana* (Baranov). The generic definition of *Thecocarcelia* is reviewed and a key to Oriental species is provided.

1. Introduction

*Thecocarcelia* Townsend is a small genus known from warm temperate to tropical areas of the Old World. Crosskey (1976) characterized this genus and recorded four species from the Oriental Region, but no detailed study has been made on these morphologically similar species. I report here seven species, including two new species, of the genus from the Region as a result of my recent examination of Oriental tachinid material including type specimens.

The genus is sometimes treated in a broad sense, including species of hesperiid parasitoids of the genus *Argyrophyllax* Brauer et Bergenstamm, 1891 (Mesnil, 1975; Herting, 1983; Herting & Dely-Draskovits, 1993). In this paper I follow Crosskey (l.c.) in the treatment of the genus, because there appears to remain some problems with the generic definition of the genus as discussed below. Most Oriental species of the genus *Argyrophyllax* were revised in detail by Crosskey (1963) and there is no difficulty to identify them in practice, even though some of *Argyrophyllax* might be transferred to *Thecocarcelia*. In recent years some species were described from southern China as belonging to *Thecocarcelia* (Liang & Chao, 1990; Sun et al., 1992), but most of them do not fall into *Thecocarcelia* as defined here.

2. Materials and methods

Material has been studied from the following collections:

- Biosystematics Laboratory, Graduate School of Social and Cultural Studies, Kyushu University (BLKU)
- Department of Entomology, The Natural History Museum, London (BMNH)
- Department of Natural Sciences, Bishop Museum, Honolulu (BPBM)
- Instituut voor Systematiek en Populatiebiologie, Zoologisch Museum, Universiteit van Amsterdam, Amsterdam (ZMA)
- Kunming Institute of Zoology, Academia Sinica, Kunming (KIZ)
- National Science Museum, Natural History, Tokyo (NSM)
- Projekt Gruppe Entomologie, Deutsches Entomologisches Institut, Eberswalde (DEI)

Terminology and measurements follow those cited in the first paper of this series (Shima, 1997).

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3. A Revision of Oriental species of the genus *Thecocarcelia* Townsend

3.1. Genus *Thecocarcelia* Townsend


*Thelycarcelia* Townsend, 1933: 475. Type species: *Thelycarcelia thrix* Townsend, 1933 (= *Masicera sumatrensis* Baranov, 1932) by original designation.

Male & female. Head: Usually with dense, whitish pollinosity; antenna black; arista dark brown; palpus reddish yellow or dark brown. Vertex about 1/3 of head width; frontal vitta narrower than fronto-orbital plate at middle; parafacial narrowed below; gena very narrow, usually less than 1/10 of eye height, or rarely wider; lower margin of face only weakly warped forward. Inner vertical setae strong, parallel to each other; outer vertical seta well developed, about 1/2 as long as inner seta; 2 postvertical setae; 2 postocular setae; ocellar seta developed, rarely very small; 2 reclinate orbital setae, anterior seta stronger than posterior seta; strong procline orbital setae always present in female, sometimes present in male; 5-6 frontal setae; vibrissa strong, nearly level with lower margin of face; occiput without black hairs behind a row of postocular setae. Eye very large, bare. Antenna long and wide, almost reaching to lower margin of face. Arista with 2nd aristomere sometimes slightly

![Diagrams](image-url)

Figs. 1-7. Female genitalia. Fig. 1. *Thecocarcelia acutangulata*, lateral view; Fig. 2, same, 6th abdominal tergum in dorsal view; Fig. 3. same, 6th abdominal sternum in ventral view. Fig. 4. "Thecocarcelia" apta, lateral view. Fig. 5. *Argyrophylax cinerella*, lateral view. Fig. 6. "Thecocarcelia" nigro tibialis, lateral view; Fig. 7. same, ventral view. Scales 1 mm for Figs. 1-3, 0.5 mm for Figs. 4-7.
Thorrocks, nigoroculata, linearifrons “T.” the Oriental and Australasian species of Crosskey (1963) noted that the species could be assigned to two groups on the basis of their host specificity and morphology: (1) black hairs on the occiput and parasitize pyralid moth larvae; (2) lack black hairs on the occiput and parasitize hesperiids (or zygaenids). However, he did not adopt these characters in the generic definition of Argyrophylax or suggest division into two separate genera, because the type species (Argyrohypylax albinicina (Wiedemann, 1830)) does not fall into either of these groups. Its host is pyralids, but the occupant lacks black hairs. Later Crosskey (1976) maintained the Oriental species apta and nigrotibialis, both of which have hesperiid hosts, in Argyrophylax and treated four species (thrix, oculata, linearifrons and sumatran) as Thecocarcelia.

The generic definition of Thecocarcelia was revised by Mesnil (1975), who adopted Crosskey’s grouping of host specificity and morphological features. Argyrophylax apta and A. nigrotibialis were transferred to Thecocarcelia, making this genus host specific to Hesperiidae. In Mesnil’s keys to Palearctic and Oriental species of Thecocarcelia, this genus is characterized in the erycine genera by the bare eye, narrow gena (narrower than profrons), and strong and horizontally crossed apical scutellar setae and 4 or 3 katepisternal setae. Mesnil also moved the Japanese species atricauda, of which host was unknown, from Argyrophylax to Thecocarcelia probably based on its similar morphology.

Although “Thecocarcelia” apta and “T.” nigrotibialis have the same host specificity as species of Thecocarcelia sensu Crosskey (1976), their female genitalia are fairly different. In Thecocarcelia sensu Crosskey the female genitalia are very elongate, the distal portion of the 6th abdominal sternum is free from the intersegmental membrane, with a small but distinct incision on the posterior margin, and the free apical portion of the 7th sternum is rounded (Figs. 1, 3). In contrast, “Thecocarcelia” apta has short female genitalia and the 6th and 7th abdominal sterna are not modified (Fig. 4). It is rather similar to the structure in Argyrophylax cinerella Mesnil (Fig. 5), which has pyralid hosts, and “Thecocarcelia” atricauda, of which the host is unknown. The female genitalia of “Thecocarcelia” nigrotibialis are rather elongate, but the 6th and 7th sterna lack the modifications (Figs. 6, 7) in Thecocarcelia sensu Crosskey. The characteristics of the female genitalia appear to suggest that the parasitizing habits of apta, nigrotibialis and other Thecocarcelia species differ from each other.

Moreover, the egg of apta are rather small and its chorion hard with a reticulate structure (Fig. 8). The egg of species of Thecocarcelia sensu Crosskey is large and its chorion is very thin and membranous (Fig. 9). The egg of “Thecocarcelia” nigrotibialis resembles that of species of Thecocarcelia sensu Crosskey in size and its chorion, but the mouthhook of its 1st instar larva is strongly curved at the apex (Fig. 11) compar-
ed to the straight and very sharp mouthhook in *Thecocarcelia* species (Fig. 10).

On the basis of the differences discussed above, it appears difficult to view *apta* and *nigrotilialis* as congeneric with *Thecocarcelia* sensu Crosskey, as they seem to have fairly different parasitic strategies as illustrated in their morphology. At present the data on the host specificity, immature stages and parasitizing habits of these flies are limited. Detailed morphological structure of the male genitalia has also not been studied on these species. In addition, *Argyrophyllax albincisa*, the type species of *Argyrophyllax*, is from the West Indies and New World species of *Argyrophyllax* appear to differ significantly from Oriental species (c.f. Thompson, 1963). It is possible that all Oriental species now placed in *Argyrophyllax*, including *apta*, *nigrotilialis* and *atricauda*, must be placed in another genus (or genera) when more detailed data are obtained. I retain the genus *Thecocarcelia* in the sense of Crosskey until the species of *Argyrophyllax* and *Thecocarcelia* can be studied in more detail.

### 3.3. Key to the Oriental species of *Thecocarcelia*

1. Mid tibia with only 1 ad seta; male without proclinate orbital setae
   - Mid tibia with 2–4 ad setae; male with 1 or 2 proclinate orbital setae
   
2. Ocellar seta very fine hair-like, inserted slightly anterior to midway between anterior and posterior ocelli; gena rather wide, at least 1.5 times as wide as fore tibia; lower margin of face well produced forward, slightly extending beyond vibrissal base; antenna with 1st flagellomere about 4.5 times as long as pedicel in male, 4 times in female; male claws and pulvilli distinctly shorter than 5th tarsomere; frontal vitta about 1/2 as wide as fronto-orbital plate at middle
   - Ocellar seta strong, as long as anterior reclinate orbital seta, inserted just behind anterior ocellus; gena subequal in width to fore tibia; face only slightly warped forward at lower margin; 1st flagellomere about 6.5 times as long as pedicel in male; male claws and pulvilli rather long, at least subequal in length to 5th tarsomere; frontal vitta about 5/8 as wide as fronto-orbital plate at middle
      - *linearifrons* (Wulp)
      - *hainanensis* Chao

3. Palpus dark brown, at most narrowly paler on ventrodistal portion; ocellar seta inserted level with anterior ocellus or slightly posterior to level of its middle
   - Palpus reddish yellow, darkened at basal 1/2; ocellar seta inserted just behind anterior ocellus
      - *linearifrons* (Wulp)

4. Dorsum of 3rd abdominal tergum with thin, whitish pollinosity on anterior 1/3, 4th on 3/5, 5th with very thin, whitish pollinosity on narrow anterior margin and appearing mostly black; gena rather wide, about 6/7 as wide as 1st flagellomere
   - 3rd abdominal tergum with rather dense, grayish-white pollinosity on anterior 2/3, 4th on 4/5 and 5th on 1/2; gena about 1/2 as wide as 1st flagellomere
      - *nigrapex* sp. n.

5. Male with 2 proclinate orbital setae; female 6th abdominal sternum with a rather wide U-
shaped incision on posterior margin···············
...........................................oculata (Baranov)
- Male with only 1 proclinate orbital seta; female
  with a shallow and rather wide V-shaped inci-
  sion on posterior margin of 6th abdominal ster-
  num ...........................................parnarae Chao
  6. Wing distinctly tinged with pale brown between
costa and vein R₄₊₅; lower calypter pale brown-
ish; fronto-orbital plate and thoracic dorsum
with yellowish-white pollinosity; abdominal
dorsum with pale, yellowish-white pollinosity
on anterior 2/5 of 3rd tergum, 1/2 of 4th and
2/5 of 5th ...................................ochracea sp. n.
- Wing hyaline, only slightly and evenly tinged
with pale yellow; lower calypter white; head
with dense, whitish pollinosity, or at most with
pale yellowish-white pollinosity near vertex;
abdomen with whitish or pale yellowish-white
pollinosity on anterior 3/4-4/5 of 3rd and 4th
terga and 1/2-2/3 of 5th .....................sumatrana (Baranov)

Thecocarcelia nigrapex sp. nov.
(Figs. 12–15)
Holotype male, THAILAND: Kanchana Buri, Sai
Yok, 9. ix. 1975, R. Kano (BLKU).
- Male. Head with dense, whitish pollinosity,
  fronto-orbital plate grayish on posterior 1/2; genal
dilation pale grayish; palpus dark brown, apex nar-
rowly pale brown. Vertex about 0.33 of head width;
frontal vitta weakly widened anteriorly, only slightly
narrower than fronto-orbital plate at middle; par-
afacial narrowed below, about 4/5 as wide as 1st
flagellomere at middle height; gena about 0.12 of eye
height; lower margin of face weakly warped forward,
nearly level with vibrissal angle; face nearly as long as
frons in profile. Ocellar seta inserted just behind
anterior ocellus, 1.5 times as long as outer vertical
seta and subequal in length to anterior reclinate
orbital seta; proclinate orbital seta slightly longer
than anterior reclinate orbital seta; lowest frontal seta
nearly level with apex of pedicel; fronto-orbital plate
with dense fine hairs which descend to level of lowest
frontal seta in 1-2 lines; parafacial with row of fine
hairs on lower 1/3 close to anterior eye margin.
Antenna with 1st flagellomere about 6 times as long
as pedicel. Arista with 2nd aristomere about 2 times
as long as wide, 3rd aristomere thickened on basal
1/2. Palpus about 2/3 as long as 1st flagellomere.

Thorax shining black in ground color, with rather
thin, grayish-white, to somewhat bluish pollinosity,
with 4 narrow and marginally diffusing longitudinal
vittae on dorsum. Distance between bases of
subapical scutellar setae subequal to distance between

Figs. 12–15. Male genitalia of *T. nigrapex* sp. n. Fig. 12. Epandrium, cerci and surstylus in
dorsal view; Fig. 13, same in lateral view; Fig. 14. hypandrium, gonopod,
paramere and aedeagus in lateral view; Fig. 15. 5th abdominal sternum in
ventral view. Scales 0.5 mm.
basal and subapical setae of corresponding side.

Wing hyaline, slightly tinged with pale yellow; lower calypter pale yellowish-white. Relative lengths of costal sectors 2nd, 3rd and 4th approximately as 1:2:1; vein M from dm-cu crossvein to its bend about 2 times as long as distance between the bend and wing margin.

Mid tibia with 3 ad setae, upper one short; hind tibia with a closely set row of ad setae. Claws and pulvilli very short.

Abdomen shining black, with rather thin, whitish pollinosity on anterior 1/2 of 3rd tergum and anterior 3/5 of 4th; 5th tergum only with slightly and narrowly grayish-white pollinosity on anterior margin and appearing almost shining black; pollinosity diffusing and becoming thinner posteriorly on 3rd and 4th terga; mid dorsal longitudinal vitta weakly visible on 3rd and 4th terga. Hairs on dorsum very dense, fine and suberect, strong and erect on 5th; 5th tergum with irregular row of strong marginal setae, discal setae indistinct among strong, erect hairs.

Male genitalia. Cerci in dorsal view broadly separated on basal 2/5, in lateral view wide, tapered at apical 2/3; surstylus about 2/3 as long as cercus, with rather dense fine hairs on ventral and apical portion.

Female. Unknown.

Body length, ca. 7.6 mm; wing length, ca. 6 mm.

Host. Unknown.

Distribution. Thailand.

Remarks. This species is distinct in its shining black thorax and abdomen and broad frontal vitta, parafacial and gena. The holotype specimen has 1-2 rows of several fine hairs on lower portion of the parafacial, but it is possibly an aberrant in the specimen.

Thecocarcelia parnarae Chao
(Figs. 16, 17, 29-31)

Thecocarcelia parnarae Chao, 1976: 335 - Herting, 1983: 60


Male. Head with dense, silvery-white pollinosity, upper fronto-orbital plate narrowly grayish; antenna with apex of pedicel narrowly reddish; palpus dark brown, apex sometimes narrowly pale brown. Vertex 0.3-0.32 of head width; frontal vitta nearly parallel-sided, about 1/2 as wide as fronto-orbital plate at middle; parafacial well narrowed below, about 2/3 as wide as 1st flagellomere at middle height; gena 0.75-0.8 of eye height; lower margin of face only weakly warped forward, not over vibrissal angle; face longer than frons in profile (6:5). Ocellar seta inserted at level of anterior ocellus or slightly posterior to level of its middle, subequal in length to anterior reclinable orbital seta; 1 procline orbital seta, subequal in length to anterior reclinable orbital seta; lowest frontal seta nearly level with base of arista; fronto-orbital plate with fine short and rather sparse hairs which do not descend below base of antenna. Antenna with 1st flagellomere 6.5-7 times as long as pedicel. Arista with 2nd aristomere as long as wide, 3rd aristomere thickened on basal 1/2-2/5. Palpus about 1/2 as long as 1st flagellomere.

Thorax black in ground color, with dense, grayish-white pollinosity, dorsum sometimes with pale yellowish-white pollinosity, and 4 narrow, distinct longitudinal vittae; scutellum slightly paler at apex. Distance between bases of subapical scutellar setae subequal to distance between basal and subapical setae of corresponding side.

Wing hyaline, slightly and evenly tinged with pale yellow; lower calypter white. Relative lengths of costal sectors 2nd, 3rd and 4th approximately as 3:5:2:5; vein M from dm-cu crossvein to its bend about 1.5 times as long as distance between the bend and wing margin.

Mid tibia with 2 long ad setae; hind tibia with regular row of separated ad setae. Claws and pulvilli very short.

Abdomen with rather thin, whitish pollinosity on anterior 1/2-3/5 of 3rd tergum, 2/3-3/4 of 4th and 1/2 of 5th, pollinosity diffusing and becoming thinner posteriorly on each tergum and with weakly tessellate appearance; mid dorsal longitudinal vitta indistinct. Fifth tergum with irregular rows of strong discal and weak marginal setae mixed with rather long erect hairs.

Male genitalia. Cerci in dorsal view close to each other on apical 4/5 portion, in lateral view rather slender, evenly tapered to apex; surstylus about 4/5 as long as cerci, with dense long hairs.

Female. Very closely resembling male, and differ-
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Figs. 16-24. Male genitalia. Figs. 16. *T. parnarae*, epandrium, cerci and surstylus in dorsal view; Fig. 17. same, lateral view. Fig. 18. *T. oculata*, epandrium, cerci and surstylus in dorsal view; Fig. 19. same, lateral view. Fig. 20. *T. sumatrana*, epandrium, cerci and surstylus in dorsal view; Fig. 21. same, lateral view; Fig. 22. same, hypandrium, gonopod, paramere and aedeagus in lateral view. Fig. 23. *T. hainanensis*, epandrium, cerci and surstylus in dorsal view; Fig. 24. same, lateral view. Scale 0.5 mm.

ing only as follows: Upper fronto-orbital plate and ocellar triangle sometimes with pale yellowish-white pollinosity; interfrontal area slightly wider, about 5/8 as wide as fronto-orbital plate at middle; 2 subequally long proclinate orbital setae, subequal in length to ocellar and anterior reclinate orbital setae; 1st flagellomere 5-5.5 times as long as pedicel; 3rd aristomere thickened on basal 2/5; mid tibia with 3 ad setae, median seta rather short; abdominal dorsum with more dense and broad pollinosity. Female genitalia:

6th tergum semi-cylindrical, posterior margin truncate; 6th sternum longer than 6th tergum, constricted on anterior 1/5, posterior margin with V-shaped incision, apical portion acute and curved dorsally in lateral view; 6th and 7th spiracles on ventrolateral margin of anterior 1/4 of 6th tergum; 7th tergum not divided into hemitergites, subequal in length to 6th tergum, posterior margin rounded, rather densely haired on posterior portion; 7th sternum narrowed on anterior 2/5 portion, slightly curved ventrally in lat-
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Figs. 25-28. Male genitalia of *T. ochracea* sp. n. Fig. 25. Epandrium, cerci and surstylus in dorsal view; Fig. 26, same in lateral view; Fig. 27. hypandrium, gonopod, paramere and aedeagus in lateral view; Fig. 28. 5th abdominal sternum in ventral view. Scales 0.5 mm.

eral view.

Body length, 5.6-7.3 mm; wing length, 4.6-5.6 mm.

Host. LEPIDOPTERA: Hesperiidae: *Parnara guttata guttata* (Bremer et Grey) (China; Chao, 1976).

Distribution. Nepal, India, Thailand, Vietnam, Indonesia (Java, Lombok), China (Fujiang, Yunnan, Guangxi, Hainan; Zhejiang, Hubei).

Remarks. This species is characterized in the male having only 1 proclinate orbital seta and is easily distinguished from others by this feature. The female of this species is very similar to other species, but differs from them in the shape of the distal incision of the 7th abdominal sternum. It is probable that Liang & Chao (1990) erroneously labelled their illustrations of the male genitalia of *T. parnarae* as *T. hainanensis* (Fig. 2, c, d).

**Thecocarcelia oculata** (Baranov)

(Figs. 9, 10, 18, 19, 32-34)


Type material examined: Holotype female, FORMOSA (TAIWAN), Kankau (Koshun), 7. vii. 1912, H. Sauter (DEI); paratype, 1 male, same locality as holotype, viii.1912 (USNM).

Male. Head with dense, white, somewhat silvery pollinosity, upper fronto-orbital plate grayish; palpus dark brown, apex sometimes narrowly pale brown. Vertex 0.32-0.35 of head width; frontal vitta nearly parallel-sided, about 5/8 as wide as fronto-orbital plate at middle; parafacial well narrowed below, 3/5-4/5 as wide as 1st flagellomere at middle height; gena 0.7-0.75 of eye height; lower margin of face only weakly warped forward, not over vibrissal angle; face only slightly longer than frons in profile. Ocellar seta inserted at level of anterior ocellus or slightly posterior to level of its middle, subequal in length to anterior reclinate orbital seta; proclinate orbital setae slightly shorter than anterior reclinate orbital seta; lowest frontal seta nearly level with apex of pedicel; fronto-orbital plate with fine short and rather sparse hairs which do not descend below base of antenna. Antenna with 1st flagellomere 5.5-5.6 times as long as pedicel. Arista with 2nd aristomere as long as wide, 3rd aristomere thickened on basal 2/5. Palpus slightly less than 2/3 as long as 1st flagellomere.

Thorax black in ground color, with dense, grayish-white pollinosity, dorsum with 2 narrow inner and 2 rather broad outer longitudinal vittae, outer vitta diffusing marginally; scutellum slightly paler at apex. Distance between bases of subapical scutellar setae.
subequal to distance between basal and subapical setae of corresponding side.

Wing hyaline, slightly and evenly tinged with pale yellow; lower calypter white. Relative lengths of costal sectors 2nd, 3rd and 4th approximately as 1:2:1; vein M from dm-cu crossvein to its bend about 1.5 times as long as distance between the bend and wing margin.

Mid tibia with 2 long ad setae; hind tibia with regular row of separated ad setae. Claws and pulvilli very short.

Abdomen with rather thin, whitish pollinosity on anterior 2/3 of 3rd tergum, with rather dense pollinosity on anterior 3/4 of 4th and 1/2 of 5th, pollinosity diffuse and becoming thinner posteriorly on 3rd tergum; mid dorsal longitudinal vitta indistinct. Fifth tergum with irregular rows of strong discal and weak marginal setae mixed with rather long erect hairs.

Male genitalia. Cerci in dorsal view close to each other on apical 2/3, in lateral view rather evenly tapered to apex; surstylus about 2/3 as long as cercus, rather densely haired.

Female. Very closely resembling male, and differing only as follows: Parafacial only slightly narrower than 1st flagellomere at middle height; gena about 0.08 of eye height; facial length subequal to frontal one in profile; 1st flagellomere 4-4.5 times as long as pedicel; abdominal pollinosity dense; 5th abdominal tergum rather conical, about 1.2 times as long as 4th tergum. Female genitalia: 6th tergum semi-cylindrical, posterior margin truncate; 6th sternum narrow, posterior margin with rather wide U-shaped incision; 6th and 7th spiracles situated on ventrolateral margin of anterior 1/7 and 2/7 of 6th tergum, respectively; 7th tergum not separated into hemitergites, about as long as 6th tergum; 7th sternum narrow and long, rather densely haired on posterior portion, posterior margin broadly rounded.

Body length, 7.3-7.9 mm; wing length, 5.6-6 mm.

Hosts. LEPIDOPTERA: Hesperiidae: Borbo zelleri Lederer (Java; Crosskey, 1976); Parnara guttata (Bremer et Grey) (Japan); Pelopidas mathias (Fabricius) (India, Malaysia; Crosskey, 1976).

Distribution. India, Malaysia, Indonesia (Java) China (Taiwan); Japan (Honshu, Kyushu).

Remarks. This species is sometimes treated as a synonym of T. thrix (Townsend) (= T. sumatrana), but their male and female genitalia are fairly different from each other. This species seems to be more closely allied to T. parnarae rather than to T. sumatrana, because of the resemblance of many morphological features.

Thecocarcelia ochracea sp. nov.

(Figs. 25-28)
Female. Unknown.
Body length, ca. 8 mm; wing length, ca. 6.6 mm.
Host. Unknown.
Distribution. Malaysia (Sabah).

Remarks. This species is distinct in its pale yellowish pollinose body and pale brownish lower calypter. The ocellar setae are short in this species compared to those of other species of this genus, except for *T. linearifrons*.

**Thecocerelia sumatrana** (Baranov)
(Figs. 20-22, 35-37)

*Thelycerelia thrix* Townsend, 1933: 475. syn. nov.


Type material examined: Holotype female of *Sturnia sumatrana* Baranov, INDONESIA, N. O. Sumatra, Medan, iv.1928, J. C. v. d. Meer Mohr (USNM); holotype male of *Thelycerelia thrix* Townsend (genitalia dissected, in vial), FORMOSA (TAINAN), Kankau, ix. 1912, H. Sauter (DEI).

Other material examined: INDIA: 3 females,

Male. Head with dense, white, somewhat silvery pollinosity, upper fronto-orbital plate slightly pale yellowish-gray; antenna with apex of pedicel sometimes narrowly reddish; palpus reddish-yellow, rather weakly darkened at basal 1/2-1/3. Vertex 0.3-0.32 of head width; frontal vitta nearly parallel-sided, 1/2-5/8 as wide as fronto-orbital plate at middle; parafacial well narrowed below, about 1/2 as wide as 1st flagellomere at middle height; gena about 0.08-0.09 of eye height; lower margin of face only weakly warped below base of antenna. Antenna with 1st flagellomere short and rather sparse hairs which do not descend below base of antenna; antenna with 1st flagellomere 6-6.5 times as long as pedicel. Arista with 2nd aristomere slightly longer than 1st flagellomere.

Thorax black in ground color, with dense, grayish-white pollinosity, pale yellowish on disc of scutum, dorsum with 4 narrow longitudinal vittae, outer vitta rather wide on presural area; scutellum slightly paler at apex. Distance between bases of subapical scutellar setae slightly less than distance between basal and subapical setae of corresponding side (2:1.8).

Wing hyaline, slightly tinged with pale yellow especially on anterior portion; lower calypter white. Relative lengths of costal sectors 2nd, 3rd and 4th approximately as 3 : 5.5 : 3; vein M from dm-cu crossovein to its bend about 1.5 times as long as distance between the bend and wing margin.

Mid tibia with 2 long ad setae; hind tibia with regular row of separated ad setae. Claws and pulvilli very short.

Abdomen with rather thin, whitish pollinosity on anterior 3/4-4/5 of 3rd tergum, with rather dense pollinosity on 3/4 of 4th and 1/2-3/5 of 5th, pollinosity becoming rather thinner posteriorly on 3rd tergum; mid dorsal longitudinal vitta indistinct. Hairs fine short dense and suberect, strong and erect on 5th tergum; 5th tergum with rather regular rows of strong discal and marginal setae mixed with long erect hairs.

Male genitalia: Cerci in dorsal view widely separated from each other on basal portion, converging at midlength and close to each other on apical 1/2, apical portion weakly expanded, in lateral view broad, nearly straight, apical 1/5 portion tapered to apex; surstylus short, about 2/3 as long as cerci, with rather dense long hairs on apical 1/2.

Female. Very closely resembling male, and differing only as follows: Facial length subequal to frontal length; 1st flagellomere 5-5.5 times as long as pedicel; abdomen dorsum with more dense, whitish pollinosity. Female genitalia: 6th tergum broad, flattened, posterior margin rounded; 6th and 7th abdominal spiracles both situated on anteroventral corner of 6th tergum; 6th sternum broad, weakly curved ventrally, posterior margin with a deep U-shaped incision; 7th tergum long, longer than 6th tergum, narrowly divided into 2 long hemitergites, with dense fine hairs on posterior portion; 7th sternum long, broadly membranous on anterior portion, rounded and weakly curved ventrally on posterior margin.

Body length, 6.2-7.9 mm; wing length, 5.2-6.2 mm. Hosts. LEPIDOPTERA: Hesperiidae: Parnara guttata guttata (Bremer et Grey) (Japan); Potanthis flavus (Murray) (Japan).

Distribution. India, Thailand, Vietnam, Malaysia (Malaya), Indonesia (Sumatra), Philippines (Mindanao), China (Yunnan, Guangxi, Taiwan; Hunan, Zhejiang); Japan (Hokkaido, Honshu, Kyushu).

Remarks. Crosskey (1976) treated both T. sumatrana and T. thrx as distinct species, but many features of the type specimens of these species are almost identical, except a few sexual dimorphic characters. The original description of T. laticornis Chao corresponds well with T. sumatrana and the illustrations of the head and the male and female genitalia of Liang & Chao (1990) of this species exhibit quite well the characteristics of T. sumatrana. The male and female genitalia of this species are very similar to those of the Palaearctic species T. acutangulata (Macquart, 1851).

Thecocarcelia hainanensis Chao

(Figs. 23, 24)

Materials examined: CHINA: 1 male, Yunnan, Xishuangbanna, Xiaomengyang, 4.x.1989, H. Shima (BLKU); 1 male, Xishaugbanna, Mengyang, 6.x.1989, H. Shima (KIZ).

Male. Head with dense, whitish, somewhat silvery pollinosity, upper fronto-orbital plate slightly pale yellowish; palpus reddish-yellow, darkened on basal 1/2. Vertex 0.28–0.29 of head width; frontal vitta nearly parallel-sided, about 5/7 as wide as fronto-orbital plate at middle; parafacial well narrowed below, about 3/5 as wide as 1st flagellomere at middle height; gena about 0.1 of eye height; lower margin of face only slightly warped forward, not over vibrissal angle; face slightly longer than frons in profile (28:25). Ocellar seta inserted just behind anterior ocellus or slightly more posteriorly, slightly longer than anterior reclinate orbital seta; proclinate orbital seta absent; lowest frontal seta nearly level with base of arista; fronto-orbital plate with fine short and rather sparse hairs which do not descend below level of apex of pedicel. Antenna with 1st flagellomere about 6.5 times as long as pedicel. Arista with 2nd aristomere as long as wide, 3rd aristomere thickened on basal 2/5. Palpus slightly less than 3/5 length of 1st flagellomere.

Thorax black in ground color, with dense, grayish-white pollinosity, weakly pale yellowish on postsutural scutum, and 4 narrow longitudinal vittae; scutellum slightly paler at apex. Distance between bases of subapical scutellar setae slightly shorter than distance between basal and subapical setae of corresponding side (10:13).

Wing hyaline, slightly and evenly tinged with pale yellow; lower calypter white. Relative lengths of costal sectors 2nd, 3rd and 4th approximately as 2.3:5.2:2; vein M from dm-cu crossvein to its bend slightly longer than distance between the bend and wing margin (10:13).

Mid tibia with only 1 long ad seta; hind tibia with regular row of separated ad setae. Claws and pulvilli rather elongate, slightly longer than 5th tarsomere in fore leg.

Abdomen with rather dense, grayish-white, somewhat bluish pollinosity on anterior 3/4 of 3rd tergum, 4/5 of 4th and 1/2 of 5th, pollinosity diffusing and becoming thinner posteriorly on 3rd tergum; mid dorsal longitudinal vitta weakly present on 3rd tergum. Fifth tergum with irregular rows of strong discal and weak marginal setae mixed with rather long, erect hairs.

Male genitalia. Cerci in dorsal view broadly separated from each other from base to basal 1/4, apical 1/3 portion narrowly separated from each other, in lateral view wide, tapered at apical 1/3; surstylus short, with rather fine hairs on apical 1/2.

Female. Not examined.

Body length, 7.1–7.6 mm; wing length, 6–6.2 mm.

Theocarecelia linearifrons (Wulp)


Type material examined: Lectotype female of Masicera linearifrons Wulp, INDONESIA, Java, Piepers (ZMA); 2 male paralectotypes of M. linearifrons, same data as lectotype (ZMA); lectotype female of Erycia bezzi Baranov, MALAYSIA, Kuala Lumpur, Imbi Road, 24.viii.1931, ex Telicota palmarum (BMNH).

Male. Head with dense, white pollinosity, upper fronto-orbital plate near vertex grayish; apical portion of pedicel and base of 1st flagellomere narrowly reddish; palpus reddish yellow, narrowly darkened at base. Vertex about 0.26 of head width; frontal vitta nearly parallel-sided, slightly less than 1/2 of fronto-orbital plate at middle; parafacial well narrowed below, about 2/3 as wide as 1st flagellomere at middle height; gena 0.16–0.17 of eye height; lower margin of face well produced forward, slightly over vibrissal angle; face subequal in length to frons in profile. Ocellar seta fine hair-like, inserted slightly anterior to midway between anterior and posterior ocelli; proclinate orbital seta absent; lowest frontal seta nearly level with apex of pedicel; fronto-orbital plate densely haired on its entire width, the hairs not descending below apex of scape. Antenna falling short of lower margin of face by about 2/3 length of pedicel; 1st flagellomere 4.2–4.6 times as long as anterior 3/4 of 1st tergum; hind tibia with only 1 long ad seta; hind tibia with regular row of separated ad setae. Claws and pulvilli rather elongate, slightly longer than 5th tarsomere in fore leg.

Abdomen with rather dense, grayish-white, somewhat bluish pollinosity on anterior 3/4 of 3rd tergum, 4/5 of 4th and 1/2 of 5th, pollinosity diffusing and becoming thinner posteriorly on 3rd tergum; mid dorsal longitudinal vitta weakly present on 3rd tergum. Fifth tergum with irregular rows of strong discal and weak marginal setae mixed with rather long, erect hairs.

Male genitalia. Cerci in dorsal view broadly separated from each other from base to basal 1/4, apical 1/3 portion narrowly separated from each other, in lateral view wide, tapered at apical 1/3; surstylus short, with rather fine hairs on apical 1/2.

Female. Not examined.

Body length, 7.1–7.6 mm; wing length, 6–6.2 mm.

Hiroshi Shima

Distribution. China (Hainan, Yunnan).

Remarks. In general appearance this species closely resembles the Palearctic species T. acutangulata. This species is, however, different from it in having long claws and pulvilli in the male and only 1 ad seta on the mid tibia. The male genitalia of this species also resemble those of acutangulata, but its cercus is broader in lateral view and surstylus shorter than in acutangulata. The male genitalia illustrated by Liang & Chao (1990) as parnarae (Fig. 3, c, d) correspond well to those of this species. They might have misarranged this illustration.
Taxonomic notes on Oriental Tachinidae II

4. Acknowledgments

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