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TRIBE CALLIPHORINI FROM AUSTRALIAN AND ORIENTAL REGIONS

V. *Onesia*-group: Genus *Tainanina* (Diptera: Calliphoridae)¹

By Hiromu Kurahashi²

Abstract: The genus *Tainanina* Villeneuve, in the Australian and Oriental Regions, is reviewed, and a new species, *T. javanica*, from Java, Indonesia, is described.

The representatives of the genus *Tainanina* show common characteristics such as the very broad frons in the male and the very long 3rd antennal segment. The gray-dusted body and the development of the male postabdomen are also characteristic of the genus. These features resemble those of a sarcophagid fly, thus one species has been named *Tainanina sarcophagoides*. The development of proclinate fronto-orbital bristles in the male of *Tainanina pilisquama* (Sen.-White) is unique within the *Onesia*-group. An additional character, which James (1966) discovered, is the flange-like projection on each femur to receive the respective tibia. The aedeagus is slender, except for that of *Tainanina javanica*, n. sp., and has broad harpes which are sometimes less sclerotized.

Tainanina pilisquama (Sen.-White) and *T. sarcophagoides* (Malloch) have hitherto been known in the Indo-Australian area. *T. javanica*, n. sp. was collected from Java during the Tokyo Medical and Dental University Overseas Scientific Research Project in 1973 and is described in the present paper. The present study is based mainly on the collection material from Bishop Museum (BISHOP); a few additional records are from material belonging to the British Museum (Nat. Hist.) (BMNH), Zoological Museum, Copenhagen (ZMC), Tokyo Medical and Dental University (TMDU), and my own collection.

GENUS *Tainanina* Villeneuve

Tainanina Villeneuve, 1926, Bull. Ann. Soc. Ent. Belge. **66**: 217. Type-species: *T. grisella* Vill., 1926 [= *T. pilisquama* (Sen.-White, 1925)].

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Distinguished from other Oriental and Australian genera of Calliphorini by the following characteristics:

Diagnosis: Thoracic squama with a small patch of setulae, usually only on basal 1/2, sometimes with only a few setulae; subcostal sclerite usually tawny pubescent, without distinct black setulae; eyes bare, dichoptic (in ♂ and ♀); presutural *ac* 2; presutural *ia* absent; facial carina absent; abdomen blackish, covered with gray or yellowish gray dusting; hypopygium usually well developed, but without any remarkable modification; aedeagus with rather primitive harpes, which are broad, and distinctly separated from one another, but not strongly sclerotized; vesicae well developed; ovipositor moderate in length, similar to that of *Onesia*; ♀ internal genitalia of *Onesia*-type, uterovaginal tube straight with a pair of incubatory pouches or lateral sacs on dorsolateral sides.

Within the genus group, *T. pilisquama* (Sen.-White) is unique in having a pair of well-developed proclinate fronto-orbital bristles in both sexes, whereas *T. sarcophagoides* and *javanica*, n. sp. closely resemble the genus *Onesia* except for the broad frons in the ♂♂. So far as is known, the ♀♀ of *Tainanina* can be distinguished from those of *Onesia* only by association with the ♂♂. From my experience the slender 3rd antennal segment of *Tainanina* can be distinguished from that of *Onesia* even in ♀♀.

BIONOMICS: Viviparous.

GEOGRAPHICAL DISTRIBUTION: Throughout the Oriental region, and partly invading the Australian region as far as New Guinea, the Bismarck Archipelago and the Solomon Islands.

KEY TO SPECIES OF *Tainanina*

1. External *ph* usually developed; presutural *dc* 2-4; hairs on thoracic squama usually yellow; squamae and bases of wings yellowish; larger species, more than 6.5 mm in length ***javanica***, n. sp.
External *ph* absent; presutural *dc* usually 2; hairs on thoracic squama fuscous brown or whitish; wings hyaline; smaller species, less than 6.5 mm in length 2
- 2(1). One proclinate and 1 reclinate fronto-orbital bristle developed in ♂ & ♀ ***pilisquama***
No fronto-orbital bristle in ♂, 2 proclinate and 1 reclinate fronto-orbital bristles developed in ♀ ***sarcophagoides***

Tainanina pilisquama (Sen.-White)

FIG. 1 a-d

Pollenia pilisquama Sen.-White, 1925. Rec. Ind. Mus. 27: 84.

Tainanina pilisquama: Sen.-White et al., 1940. Fauna Brit. India, Dipt. 6: 109.—James, 1966. Ent. Meddel. 34: 465.

Tainanina grisella Villeneuve, 1926. Bull. Ann. Soc. Ent. Belg. 66: 272.—Hennig, 1941. Ent. Beih. 8: 187.

Type-locality: Ceylon [Sri Lanka]; type in BMNH.

Length: 4.5-6.0 mm.

SPECIMENS EXAMINED. TAIWAN: Type ♂ of *T. grisella*, Tainan, ? .III.1909, H. Sauter (DEI); 2 ♂♂, Chu-ch'i, 120 m, Chia-i Hsien, 13.IV.1965, R. Kano (TMDU). S CHINA: 1 ♀, Macao, 4.XI.1908, Terry (BISHOP). PHILIPPINES: Palawan: 6 ♂♂, 6 ♀♀, Pinigsan,

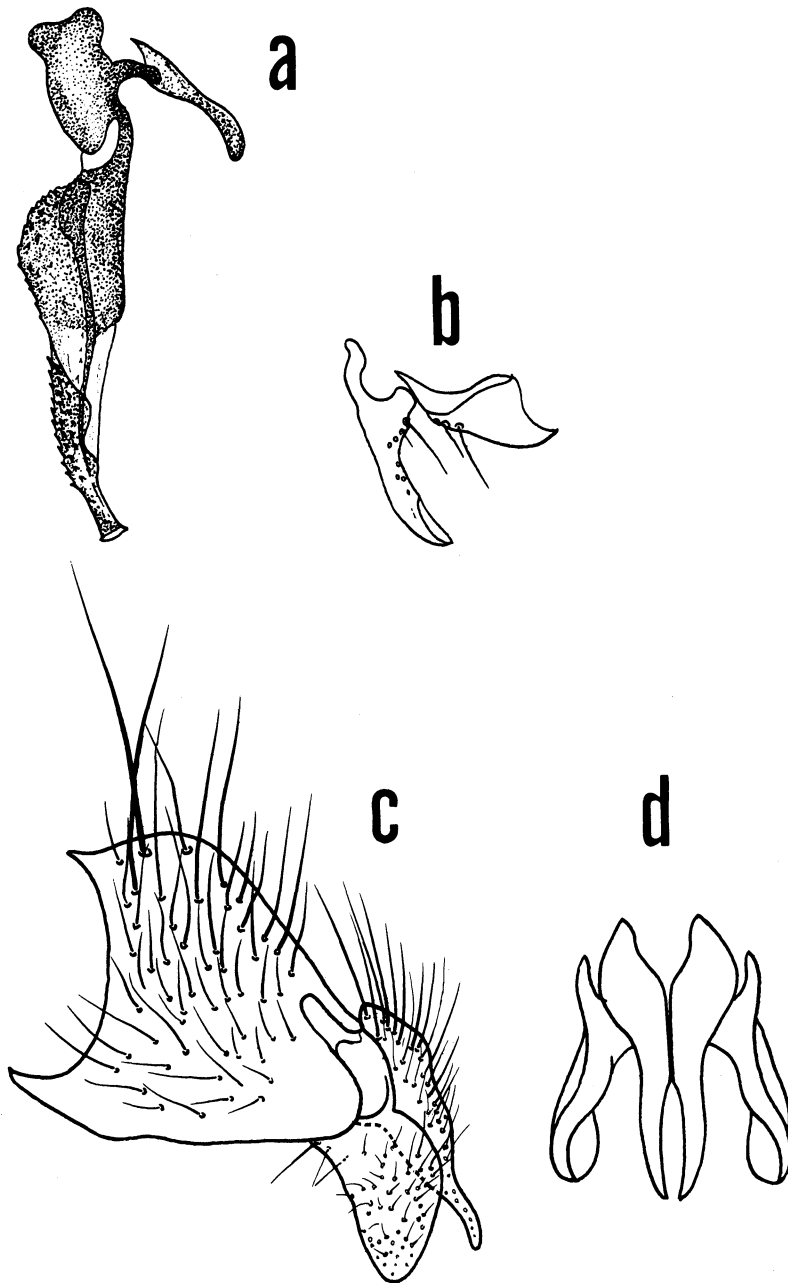


FIG. 1. *Tainanina pilisquama* (Sen.-White), ♂ genitalia: a, aedeagus, lateral view; b, anterior and posterior parameres, lateral view; c, cerci and paralobi, lateral view; d, cerci and paralobi, caudal view (material from Philippines).

Mantalingajan, 600 m, 4-23.IX.1961, Noona Dan Exp. '61-62; 1 ♀, Uring Uring, Brookes Point, 23.VIII.1961, Noona Dan Exp. '61-62 (ZMC); Negros Or: 1 ♀, L. Balinsasayao, 1-7.X.1959, C. M. Yoshimoto (BISHOP). BORNEO (SABAH): 1 ♀, Tawau, Quoin Hill, 8-14.VII.1962, H. Holtmann (BISHOP); 1 ♀, Forest Camp, 19 km N of Kalabakan, 15.X.1962, K. J. Kuncheria (BISHOP). INDONESIA: Java: 1 ♂, Bogor, 10.XI.1973, H. Shima; Bali: 1 ♀, Mt Batukau, 600 m, 15.XII.1973, H. Kurahashi.

BIONOMICS. Nothing is known.

GEOGRAPHICAL DISTRIBUTION. India (Assam: Sen.-White et al., 1940), Ceylon [Sri Lanka] (Sen.-White et al., 1940), Java, Bali, Borneo, S China, Philippines and Taiwan.

Tainanina sarcophagoides (Malloch) FIG. 2 a-d

Calliphora sarcophagoides Malloch, 1931, Ann. Mag. Nat. Hist. (10) 7: 192.

Tainanina sarcophagoides: Sen.-White et al., 1940, Fauna Brit. India, Dipt. 6: 110.— James, 1966. Ent. Meddel. 34: 466.

Type-locality: Pahang, Federated Malay States; type in BMNH.

Length: 3.0-6.5 mm.

SPECIMENS EXAMINED. TAIWAN: 1 ♀, Kuantsuling, Tainan Hsien, 8.VI.1970, H. Kurahashi; 1 ♀, Kenting, Pingtung Hsien, 11.VI.1970, Kurahashi. PHILIPPINES: Palawan: 1 ♂, Pinigsan, Mantalingajan, 600 m, 10.IX.1961, Noona Dan Exp. '61-62 (ZMC); Tawi Tawi: 1 ♂, N of Batu Batu, Tarawakan, 2.XI.1961, Noona Dan Exp. '61-62 (ZMC); Negros Or.: 1 ♂, Valencia, 3050 m, 12.VI.1961, N. M. Torre Villas (BISHOP); 1 ♀, L. Balinsasayao, 1-7.X.1959, Yoshimoto (BISHOP); Mindanao: 1 ♂, L. Mainit, Surigao, 23.XI-1.XII.1959, Yoshimoto (BISHOP). VIETNAM: 1 ♂, 6 km SW of Dalat, 1550 m, 11.IX.1960, J. L. Gressitt (BISHOP); 1 ♂, 22 km S of Nha Trang, 20-26.XI.1960, Yoshimoto (BISHOP); 1 ♀, Mt Lang Bian, 1500-2000 m, 19.V-8.VI.1961, N. R. Spencer (BISHOP); 1 ♂, 1 ♀, Dalat, 1500 m, 26-27.IX.1960, Gressitt (BISHOP). THAILAND: 1 ♀, Chiangmai, Fang, 500 m, 15.IV.1958, T. C. Maa (BISHOP). BORNEO (SABAH): 1 ♂, 2 ♀♀, Tenompok, 48 km E of Jesselton, 1460 m, 17-21.X.1958, 26-31.I.1959, L. W. Quate & Maa (BISHOP); 1 ♀, Penampang, SE of Jesselton, 17.IX.1958, Quate (BISHOP); 1 ♀, Tukan, Bundu, 18.II.1959, Maa (BISHOP); 1 ♀, Bembangan River, Mt Kinabalu, 5000 ft (1524 m), 20.II-5.III.1964, S Kueh (BMNH); 1 ♀, Mesilau, Mt Kinabalu, 14.II.1964, J. Smart (BMNH). BORNEO (SARAWAK): 1 ♂, 1 ♀, Kuching, Santubong, 797-1500 m, 18-30.VI.1958, Maa (BISHOP); 1 ♂, Tapuh, Sadong, Kampong, 300-450 m, 10.VII.1958, Maa (BISHOP); 2 ♀♀, Nanga Pelagus nr Kapit, 180-585 m, 7-14.VIII.1958, Maa (BISHOP). INDONESIA: Lombok: 2 ♀♀, Sesaot, 100 m, 18.XII.1973, S. Shinonaga. IRIAN: New Guinea (NW): 2 ♂♂, 2 ♀♀, Wamena, 1700 m, 10-25.II.1960, Maa (BISHOP); 1 ♂, 2 ♀♀, W Sentani, Hollandia area, Cyclops Mts, 150-250 m, 16-17.VI.1959, Maa (BISHOP); 1 ♂, 1 ♀, Karubaka, Swart Val., 1450 m, 8-12.XI.1958, Gressitt (BISHOP); 2 ♂♂, Wisselmeren,

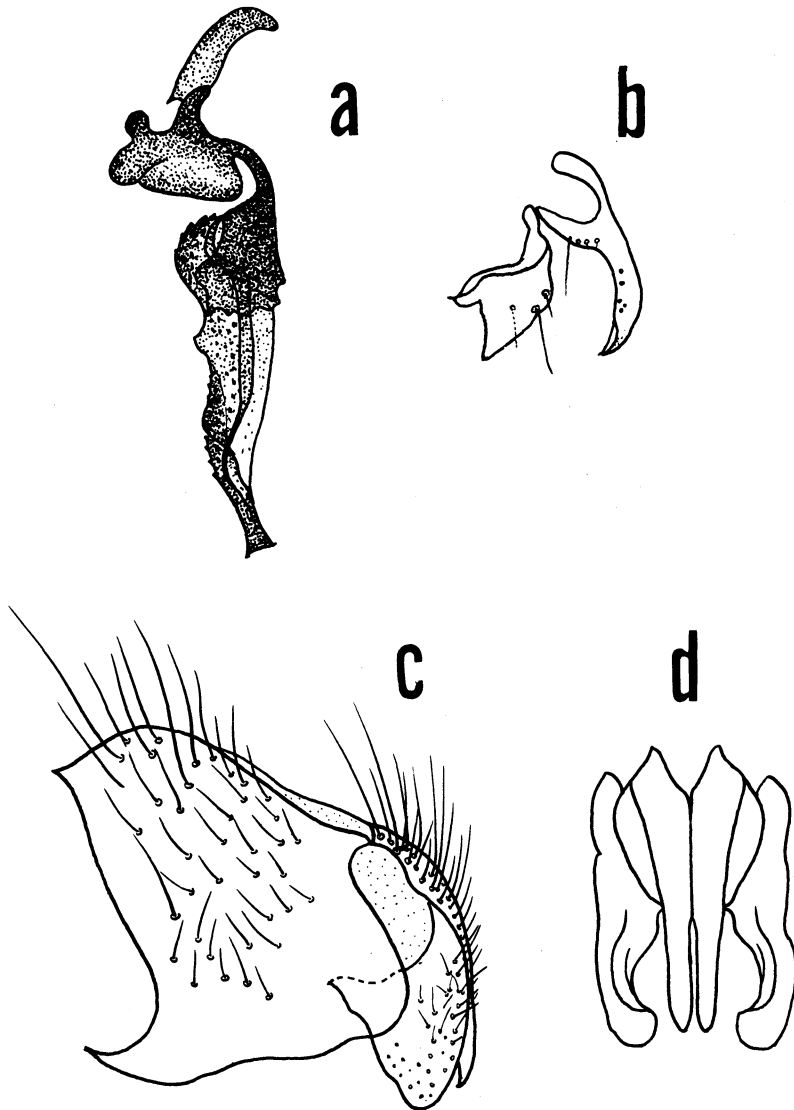


FIG. 2. *Tainanina sarcophagoides* (Malloch), ♂ genitalia: a, aedeagus, lateral view; b, anterior and posterior parameres, lateral view; c, cerci and paralobi, lateral view; d, cerci and paralobi, caudal view (material from Philippines).

Enarotadi, 1850 m, 12.VI-4.VIII.1962, J. Sedlacek (BISHOP); 1 ♀, Sentani, 90+m, 16.VI.1959, Maa (BISHOP). PNG: New Guinea (NE): 1 ♂, 16 km NW of Banz, 1700 m, 29.VI.1963, M. Sedlacek (BISHOP); 1 ♀, Sinofi, 30 km S of Kainantu, 1590 m, 1-6.X.1959, Maa (BISHOP); 1 ♀, Western Highlands nr Minj, 1840 m, 21.V.1966, Gressitt (BISHOP); 3 ♂♂, 1 ♀, Morobe Distr., Wau, 980-1250 m, 30.I.1963, 14.VIII.1964, 4.V.1965,

14.X.1965, J. & M. Sedlacek (BISHOP); 1 ♀, Schrader Range, Simbai, 1800 m, 28.V.1966, Gressitt (BISHOP); 1 ♀, Asaro V., 1800 m, Miramar, 27.VI.1955, Gressitt (BISHOP); New Guinea (SE): 1 ♀, Oriomo Govt. Sta., W District, 26-28.X.1960, Gressitt (BISHOP); Bismarck Arch: Mussau I: 1 ♂, Talumalaus, 23.VII.1962, Noona Dan Exp. '61-62 (ZMC); New Britain: 1 ♂, Keravat, 135 m, 20-25.XI.1959, Maa (BISHOP). SOLOMON IS: San Cristobal: 1 ♂, 2 ♀♀, Kira-Kira, 0-50 m, 10.XI.1964, R. Straatman (BISHOP); Santa Ysabel: 1 ♂, Kolotuve, 20.VI.1960, C. W. O'Brien (BISHOP); Vella Lavella: 1 ♂, 1 ♀, Ulo Crater, 10 m, and Kow, 30 m, 28.XI.1963, P. Shanahan (BISHOP); Guadalcanal: 1 ♂, 35 km E of Honiara, Roroni, 10 m, 14.V.1964, R. Straatman (BISHOP); 1 ♀, Paripao, 22.V.1960, O'Brien (BISHOP). PNG: SOLOMON IS: Bougainville: 1 ♀, Kokure, 690 m, 16.VI.1956, E. J. Ford (BISHOP).

BIONOMICS. Nothing is known.

GEOGRAPHICAL DISTRIBUTION. Taiwan, Philippines, Vietnam, Thailand, Borneo, Malay Peninsula (Sen.-White et al., 1940), Lombok, New Guinea, Bismarck Archipelago and Solomon Is.

***Tainanina javanica* Kurahashi, new species**

FIG. 3 a-e

♂. *Head:* Eyes virtually bare, with sparse minute hairs under high magnification, widely separated; frontal index 0.16-0.18; frontal stripe black, broad, slightly narrowed at middle of frons, the width about 4 × one of parafrontalia at narrowest point; parafrontalia and parafacialia dark yellowish gray dusted, setulose, the hairs fine, black; no proclinate *ors* developed; face black, densely gray-dusted, without median carina; facialia fuscous brown, densely gray-dusted, with black setulae on lower 1/3; vibrissaria narrow, dark brown, with a few fine setulae; vibrissae well developed; medianae blackish, thinly covered with gray dusting; jowls black, gray-dusted, with yellowish tinge anteriorly, clothed with black hairs; post-jowls with yellow hairs; occiput concolorous with jowls, with yellowish hairs on central and lower parts; antennae black, slightly more than 4 × as long as 2nd; arista dark brown, blackish basally, long-plumose, the lower plumose hairs relatively short, about 1/2 length of upper ones at most; palpi dark brown, blackish at base. *Thorax:* Black, dark gray-dusted, with 2-3 median and 2 lateral longitudinal stripes which are usually indistinct on prescutum; 1 obscure longitudinal stripe present along dorso-central line; scutellum concolorous with thoracic dorsum; prosternum and propleura blackish hairy, remainder of pleura also with black hairs; supraspiracular convexity pubescent; pleurotergite with black hairs; post-alar declivity with tuft of black hairs in center; anterior parasquamal tuft consists of several yellow hairs; tympanic tuft absent; thoracic spiracles blackish. Chaetotaxy: *ac* 2-3+3, *dc* 2-4+3, *ia* 0+3, *h* 3, *ph* 3, *prs* 1, *sa* 3, *pa* 2, *n* 2, *sc* 3+1-2, 1 additional fine lateral scutellar present at base of scutellum and between 2nd laterals and apicals, respectively, *st* 2+1, propleural and prostigmatic bristles well developed. *Wings:* Hyaline, slightly yellowish brown at base; epaulet black; basicosta light brown; veins brown; subcostal sclerite brown, pubescent; node of 2nd and 3rd longitudinal veins with several black setulae above and below; 4th veins bending forward at obtuse angle; squamae yellowish brown, thoracic one with a small patch of yellow hairs on basal 1/2 of upper surface, the hairs are rarely dark brown. Halteres yellowish brown. *Legs:* Black, with black hairs; front tibia with 1 *p* and a row of 4-6 *ad*; mid tibia with 1 *ad*, 1 *pd* and 2 *p*, without *v*; hind tibia with 3 *ad*, 3 *av* and 2 *pd*, also with a row of short *ad*. *Abdomen:* Bronzy, densely gray-dusted, with yellowish tinge, median dark longitudinal stripe more or less conspicuous on tergite 3; typical marginal row of bristles developed on 4th and 5th tergites; 1 pair of median marginal bristles strongly developed on 3rd tergite; tergite 1+2 and 3 with several erect marginals on lateral sides of abdomen. Hypopygium smaller than those of 2 preceding species, genitalia as shown in FIG. 3 a-e.

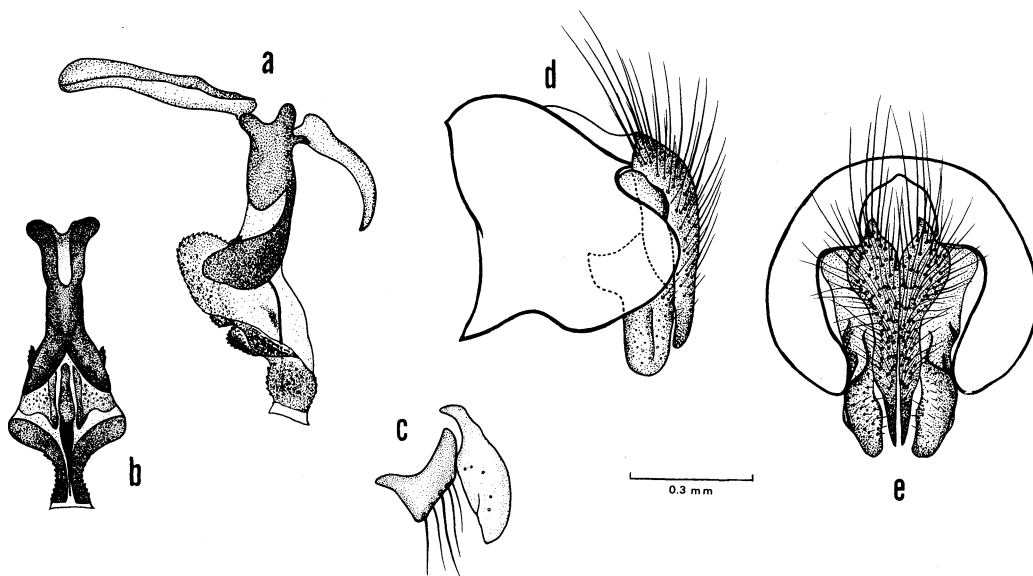


FIG. 3. *Tainanina javanica*, n. sp., ♂ genitalia: a, aedeagus, lateral view; b, aedeagus, posterior view; c, anterior and posterior parameres, lateral view; d, cerci and paralobi, lateral view; e, cerci and paralobi, caudal view.

♀. *Head*: Eyes widely separated at vertex; frontal index 0.29–0.31; frontal stripe dark red, broad, almost parallel-sided, slightly narrowed posteriorly, index 9:8, the width about 5 × one of parafrontalia just in front of anterior ocellus; parafrontalia provided with ca 7 pairs of *ori*; *ors* 2+1; *oc* developed; *ov* and *iv* well developed; *poc* parallel, sometimes convergent; 1–2 occipital hairs present. *Thorax*: 2 additional bristles of presutural *dc* more or less strongly developed preceding 2 regular presutural *dc* (namely *dc* 2–4+3). *Legs*: Mid tibia with 2 *ad*, 1 *pd*, 2 *p* and 1 *v*; hind tibia with 3 *ad*, 3 *av* and 2 *pd*, also with incomplete row of short *ad*; ovipositor brownish. Otherwise as described for ♂ except for genitalia.

Length: 6.5–7.5 mm in ♂, 8.0–8.5 mm in ♀.

Holotype ♂, INDONESIA: Java: Puncak, 1300 m, 14–15.XI.1973, H. Kurahashi (to be deposited in the Museum Zoologicum Bogoriense, Bogor, Java, but temporarily preserved in the National Science Museum, Tokyo). Paratypes: 27 ♂♂, 17 ♀♀, same data as holotype (Mus. Zool. Bogoriense, Natl. Sci. Mus., Tokyo, BISHOP).

OTHER SPECIMENS EXAMINED. INDONESIA: Java: 1 ♀, Cirebon, Mt Tijemere, 400–1400 m, 19–25.XI.1973, S. Shinonaga; 1 ♀, Cibodas, 1300 m, 15.XI.1973, Shinonaga.

This species is closest to *T. sarcophagoides* (Malloch), which is widely distributed in the Indo-Australian area, but easily distinguished from it by the shape of male genitalia and external characters given in the key.

BIONOMICS. Females and males were found on trees in tea plantation along margins of native forest.

DISTRIBUTION. Java.

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