

# Studies on the Oriental and Pacific Clusiidae (Diptera)

## Part 7. Oriental species of the genus *Allometopon* Kertész

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**Abstract** : Oriental species of a small genus *Allometopon* are revised. Eight new species: *Allometopon antennalis*, *macrophallus* and *megastylis* from Philippines, *A. dicrostylis* from Thailand, *A. grypostylis* from Laos, *A. hybos* from Laos, Malaysia and Philippines, *A. thrinacos* from Philippines and Malaysia, and *A. trimaculosus* from Laos and Thailand. Key to Oriental species is given, and the treatment of two subgenera, *Allometopon* s. str. and *Calometopon*, is discussed. Male of *A. sensitivum* Sasakawa is recorded for the first time.

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**Key words** : Diptera, Clusiidae, *Allometopon*, Oriental region, new species.

### Introduction

*Allometopon* is a small genus distributed in the Oriental and Australasian regions. Only eight species, *A. atro-maculatum* (Hennig), *hirsutiseta* Frey, *malayensis* Sasakawa, *nobile* Frey, *palpalis* Frey, *pulcher* Sasakawa, *punctulatum* Sasak., and *sensitivum* Sasak., have hitherto been known from Oriental region (Frey, 1928, 1960; Hennig, 1938; Sasakawa, 1993). Frey (1960) described a new subgenus *Calometopon* (type-species, *A. nobile*) based on absence of the interfrontal bristles. In this paper, the treatment of the subgenera is discussed, and eight new species from Philippines, Laos, Thailand and Malaysia in the collection of the Bernice P. Bishop Museum are described. Also, additional notes are given for two known species.

### Materials and Methods

Materials are dried specimens collected by staffs of the Bernice P. Bishop Museum, Honolulu, Hawaii, U.S.A. All the type specimens of eight new species are deposited in the collection of Diptera, Bishop Museum (BPBM).

Descriptive terminology follows Sasakawa (1998). The male genitalia were preserved in a short polyethylene tubule with glycerine after standard treatment, and each tubule was kept on the same pin as the rest of the body.

Abbreviations used as follows: T1–6, first to sixth abdominal tergite(s); acr, acrostichal setae; asc, apical scutellar bristle(s); bsc, basal scutellar(s); dc, dorso-central bristles; dsc, discal scutellar(s); if, interfrontal bristles; ipa, inner post-alar bristle; opa, outer post-alar bristle; or, fronto-orbital bristles; prsc, prescutellar bristle(s); pvt, post-vertical bristles; sa, supra-alar bristle.

### Genus *Allometopon* Kertész

*Allometopon* Kertész, 1906, *Annls hist.-nat. Mus. natn. hung.* 4: 320. Type-species, *fumipenne* Kertész, by monotypy.

**Diagnosis.** Slender flies, with wing length 2–4 mm, yellow to black, sometimes with dark markings in various shapes on first antennal flagellomere, mesoscutum and scutellum. Chaetotaxy: head- 2–4 pairs of fronto-orbital bristles, interfrontal bristles present or absent, post-vertical bristles short or absent; mesoscutum- 0 + 2 or 0 + 3 dorso-central bristles; scutellum- two (bsc and asc) or three (bsc, dsc, and asc) pairs of scutellar bristles; legs- preapical dorsal bristles on tibiae absent. Male genitalia: surstylus well developed, variable in shape; hypandrium circular

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to U-shaped; pregonite membranous; postgonite weakly chitinized, rather long, with several setae; basiphallus short, distiphallus membranous in ventral side, hypophallus long, curved, and minutely spinulose.

**Distribution.** Oriental, Australasian, and Palaearctic regions.

**Remarks.** In this genus, subgenus *Calometopon* Frey, 1960 (type-species, *A. nobile* Frey, from Burma, by original designation), was characterized by the absence of the interfrontal bristles, differing from the subgenus *Allometopon* s. str. with if. Also, Soós (1964) added the presence of three pairs of the scutellars as diagnostic character of subgenus *Calometopon* in the key to the clusiid genera. However, these characters are uncertain, because there are the Oriental species with if and three sc as found in *A. pulcher* Sasakawa, 1993, *sensitivum* Sasakawa, 1993, and *hybos* sp. nov. with if and two sc in *A. megastylis*, without if and three sc in *A. nobile* Frey, and without if and two sc in *A. malayensis* Sasakawa, 1993, *dicrostylis* sp. nov., and *thrinacos* sp. nov. These characters do, therefore, not apply to the difference between two subgenera, so that the distinction of these two subgenera are neglected to do in this paper.

Specific differences lie in the coloration of body, especially markings on the mesoscutum, chaetotaxy, and male genitalia. Descriptions of species in this work emphasize points of difference from the generic diagnosis.

### Key to Oriental species of *Allometopon*

1. Interfrontal bristles present ..... 2
- Interfrontals absent ..... 7
2. Mesoscutum with dark markings; scutellum with two or three pairs of scutellars ..... 3
- Mesoscutum without markings; scutellum with bsc, dsc and asc ..... 6
3. Scutellum with bsc, dsc and asc; palpus yellow but brown on apical 1/3 ..... 4
- Scutellum with bsc and asc; palpus entirely yellow ..... 5
4. Mesoscutum with blackish median stripe, postpronotal lobe dorsally and notopleuron entirely brown; or four; first antennal flagellomere brownish black; surstylus with tip slightly hooked posteriorly [Singapore, Malaysia (Peninsular, Sabah)] ..... *pulcher* Sasakawa, 1993
- Mesoscutum with median stripe only, lateral side yellow; or two ( $\delta$  unknown; Philippines) ..... *palpalis* Frey, 1928
5. Mesoscutum with blackish median and lateral stripes; scutellum and anepisternum black ( $\delta$  unknown; Philippines) ..... *hirsutiseta* Frey, 1928
- Mesoscutum with a pair of dark brown sublateral (between dc- and sa-rows) stripes extending to lateral margins of yellow scutellum, and brown anterior marginal marking extending to notopleuron; anepisternum yellow; surstylus large lobate. (Philippines) ..... *megastylis* sp. nov.
6. Palpus black on apical half; or three; surstylus T-shaped [Malaysia (Sabah)] ..... *sensitivum* Sasakawa, 1993
- Palpus entirely yellow; or four; epandrium with strong spines at inner antero-ventral corners, surstylus quadrate with hump at inner postero-dorsal corner [Laos, Malaysia (Sabah), Philippines] ..... *hybos* sp. nov.
7. Thorax and abdomen largely black ..... 8
- Thorax yellow to brownish yellow, abdomen yellow to yellowish brown or brown to black ..... 11
8. Thorax black except for postpronotal lobe and notopleuron yellow; scutellum with bsc, dsc and asc ..... *nobile* Frey, 1960
- Thorax with mesoscutum largely blackish brown; scutellum and anepisternum blackish brown, ventral pleura yellow; scutellum with bsc and asc ..... 9
9. Mesoscutum with dark area separated by yellow transverse band ..... 10
- Mesoscutum with dark area separated by yellow central longitudinal stripe ( $\delta$  unknown; Malaysia Peninsular) ..... *malayensis* Sasakawa, 1993
10. Mesoscutum with yellow transverse band narrowly just before transverse suture; surstylus claw-like, with tip projected anteriorly (Laos) ..... *grypostylis* sp. nov.
- Mesoscutum with yellow transverse band broad (Taiwan) ..... *atromaculatum* (Hennig, 1938)
11. Mesoscutum with dark markings ..... 12
- Mesoscutum without markings ..... 14

12. First antennal flagellomere with blackish spot dorsally; mesoscutum with dark stripes ..... 13  
 - First antennal flagellomere entirely yellow; mesoscutum with brown semicircular spot on anterior margin and oval spots on sublateral sides between sa-base and scuto-scutellar suture; abdomen yellowish brown to dark brown (Laos, Thailand) ..... *trimaculosus* sp. nov.
13. Mesoscutum with median stripe not extending to anterior margin, sublateral stripes short; anepisternum yellow, anatergite brown (Philippines) ..... *antennalis* sp. nov.  
 - Mesoscutum with median stripe extending to anterior margin, sublateral stripes extending anteriorly to transverse suture; anepisternum to anatergite brown [Philippines, Malaysia (Sabah)] ..... *thrinacos* sp. nov.
14. Anepisternum with brown spot at middle; abdomen brownish yellow ..... 15  
 - Anepisternum with pale brown oblique stripe; abdomen largely brownish black; surstylus as high as epandrium; phallus as long as phallapodeme (Philippines) ..... *macrophallus* sp. nov.
15. Frons narrower than eye; epandrium yellow in dorsal side but browned ventrally; surstylus large, higher than epandrium, shortly setose [Malaysia (Sarawak)] ..... *punctulatus* Sasakawa, 1993  
 - Frons wider than eye; epandrium black in dorsal half but yellow in ventral; surstylus with two processes, bearing long setae on anterior process (Thailand) ..... *dicrostylis* sp. nov.

### Descriptions

#### 1. *Allometopon antennalis* sp. nov. (Figs. 1-4)

**Material examined.** Holotype ♂ (BPBM 17191), Philippines, Luzon, Nueva Vizcaya, Dalton Pass, 915 m, 9–10 Apr. 1968, D.E. Hardy.

**Diagnosis.** This yellowish species has a black dorsal spot on the first antennal flagellomere, three dark stripes on the mesoscutum, black abdomen, large triangular surstylus, and short distiphallus.

**Description.** *Male.* Head including antenna and palpus yellow; frontalia faintly brown tinged; ocellar triangle black between ocelli; parafacialia whitish pruinose; first antennal flagellomere with brownish black spot on outer and inner sides above level of base of arista, arista brown. Thorax yellow; mesoscutum faintly brown tinged, with black median stripe between dc-rows, not extending to anterior margin but posteriorly extending to basal 2/3 of scutellum, and with pale brownish stripe between sa-base and pa-base; anatergite and mediotergite brown. Wing very faintly brown tinged; calypter yellowish, with fringe yellow; halter yellow. Legs yellow. Abdomen including epandrium shiny black. Bristles on head and thorax yellow but those on abdomen brown to black.

Frons slightly wider than eye, slightly diverging ventrally; or three, equal in length, reclinate; if and pvt absent; gena about 1/5 as high as eye; pm eight, short; first antennal flagellomere with white pile as long as pubescence on arista.

Mesoscutum with 0 + 2 dc, 4–6 rows of acr; prsc absent; scutellum with bsc 1/4 as long as asc. Wing 3.0 mm; costa with three sections in proportion of 55 : 20 : 8, r-m slightly beyond middle level of discal cell (15 : 12), ultimate section of  $M_1$  nearly four times as long as penultimate, ultimate section of  $CuA_1$  3/5 as long as penultimate. Mid tibia with a long spur.

Genitalia: Epandrium with surstylus almost as high as epandrium, narrowing distally, bearing ten minute spinules along inner ventral margin before apex. Hypandrium 230  $\mu$ m long, semicircular, with bridge at ends of sidepieces and two setae on ventral lobe; pregonite and postgonite almost membranous, setose. Phallapodeme 690  $\mu$ m long, with ventral projection at basal one-third. Phallus 310  $\mu$ m long, basiphallus slightly longer than distiphallus; distiphallus 100  $\mu$ m long, tubular but narrowing distally; hypophallus long.

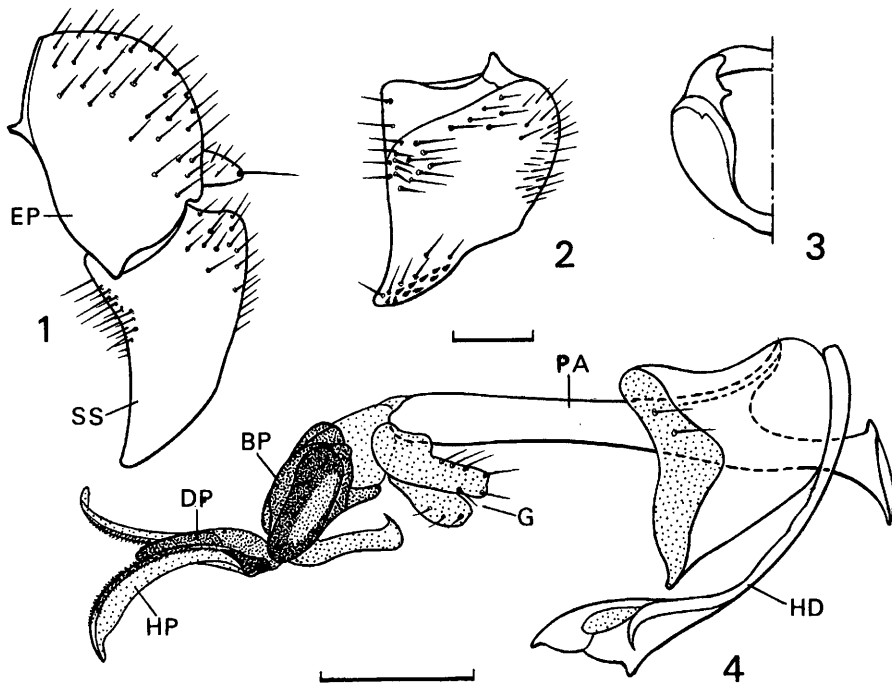
Body length 2.8 mm.

*Female.* Unknown.

**Distribution.** Philippines.

**Remarks.** This species is distinguished by the characteristics as shown in the key, couplet 13, from *A. thrinacos* sp. nov. The hypandrium of this species is distinctive in having the posterior bridge between the sidepieces.

**Etymology.** The specific name refers to the spotted first antennal flagellomere.



Figs. 1–4. Male genitalia of *Allometopon antennalis* sp. nov. (holotype). 1, epandrium, surstylus and cercus, lateral view; 2, surstylus, inner view; 3, hypandrium, ventral view; 4, hypandrium, phallapodeme and phallus, lateral view. BP, basiphallus; DP, distiphallus; EP, epandrium; G, gonites; HD, hypandrium; HP, hypophallus; PA, phallapodeme; SS, surstylus. Scale = 0.1 mm.

## 2. *Allometopon dicrostylis* sp. nov. (Figs. 5–9)

**Material examined.** Holotype ♂ (BPBM 17192), Thailand, Chiangmai Prov., Fang, 12–19 Apr. 1958, T.C. Maa. Paratype: 1 ♀, Thailand, Chiangmai Prov., Doi Suthep, 1278 m, 29 Mar. – 4 May 1958, Maa.

**Diagnosis.** This yellow species has a dark brown spot on the anepisternum, black epandrium with yellow ventral half, bifurcate surstylus, and a brown spot on dorsal side of the first antennal flagellomere in female.

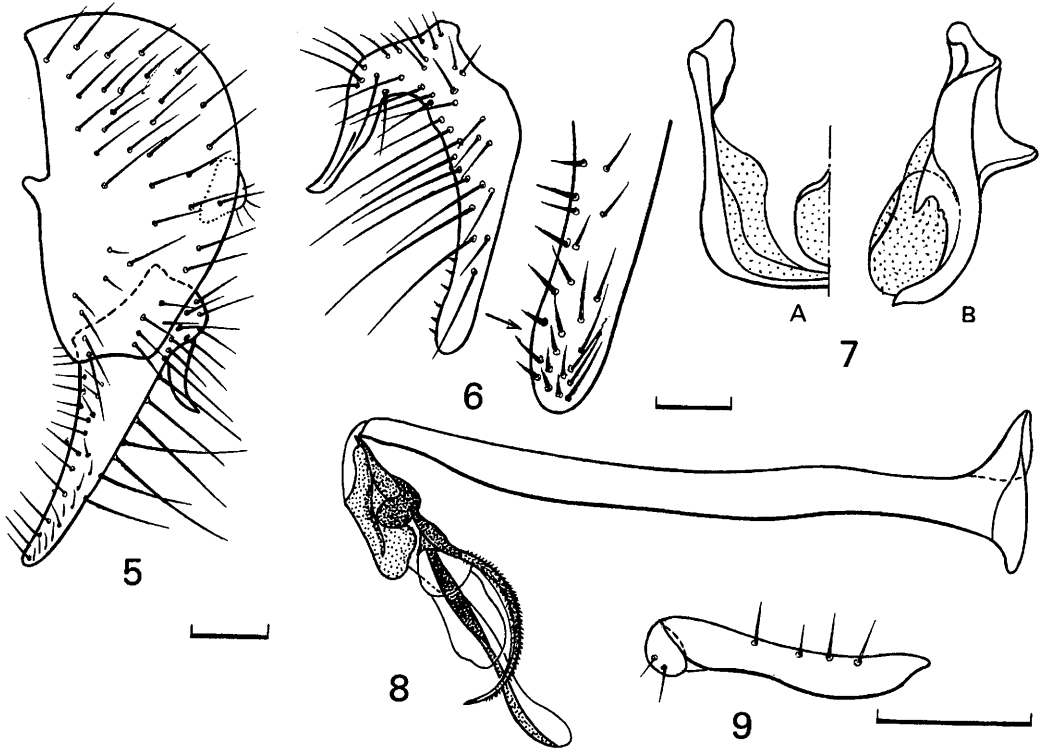
**Description.** *Male.* Yellow; frons shiny; ocellar triangle brown between ocelli; parafacialia ventrally and gena entirely silvery white pruinose; antenna and palpus pale yellow. Thorax shiny yellow, mesoscutum very faintly brown tinged; anepisternum with dark brown circular spot at middle (about 1/2 as high as pleuron height). Wing very faintly brownish yellow tinged anteriorly and apically; calypter yellowish, with fringe yellow; halter yellow. Legs yellow. Abdomen shiny yellow, very faintly brown tinged; epandrium black in dorsal half but yellow ventrally; cercus and surstylus yellow. Bristles yellow to pale brownish yellow.

Frons slightly wider than eye, diverging ventrally; or three (detectable by pits); oc short; pvt shorter than oc; eye 1.4 times as long as wide; gena about 1/5 as high as eye; pm six; antenna largely missing; palpus narrow.

Mesoscutum with 0 + 3 dc, six rows of acr (detectable by pits). Wing 2.7 mm long; costa with three sections in proportion of 60 : 20 : 10, r-m in middle level of discal cell; ultimate section of  $M_1$  about 3.5 times as long as penultimate, ultimate section of  $CuA_1$  about 2/3 as long as penultimate.

Genitalia: Surstylus bifurcate, with outer process almost as long as epandrial height, bearing long setae along outer margin and many spine-like setulae on anterior ventral part, inner process short, pointed apically; cercus small. Hypandrium 320  $\mu$ m long, broad U-shaped, with membranous round lobe on ventral base; postgonite weakly sclerotized except for membranous tip, with several setae. Phallapodeme 980  $\mu$ m long; phallus 510  $\mu$ m long, hypophallus shorter than distiphallus.

Body length 3.0 mm.



Figs. 5–9. Male genitalia of *Allometopon dicrostylis* sp. nov. (holotype). 6, surstylus, outer view (left) and apical part of inner side (right); 7, hypandrium, ventral (A) and lateral (B) views; 9, postgonite, lateral view. See Figs. 1–4.

**Female.** Similar to male, but first antennal flagellomere brown on dorsal 1/3, sparsely pilose; arista brown excepting base yellow, minutely pubescent; abdominal T2–5 pale brown, broadly yellow in antero-lateral sides, T1 and T6–7 yellow; wing length 2.6 mm, body length 3.4 mm.

**Distribution.** Thailand.

**Remarks.** This yellow species is distinctive in having a dark brown spot on the anepisternum, bicolored epandrium, and peculiar processes of the surstylus, although the holotype specimen was under the poor external condition. Also, the sexual dimorph seems to be seen in color of the first antennal flagellomere, judging from the present specimens examined. The body color of this species is similar to *Allometopon punctulatus* Sasakawa, but color of the epandrium and shape of the surstylus are quite different from each other, in *punctulatus* the former is yellow dorsally and brown in ventral side, and the latter is lobate, narrowing ventrally, longer than the epandrial height (Sasakawa 1993: Figs. 9, 10).

**Etymology.** The specific name refers to the forked surstylus (Greek: *dikros* + *stylis*).

### 3. *Allometopon grypostylis* sp. nov. (Figs. 10–14)

**Material examined.** Holotype ♂ (BPBM 17193), Laos, Vientiane Prov., Ban Van Eue, 31 Dec. 1965, native collector.

**Diagnosis.** This yellow species has two dark markings anteriorly and posteriorly on the mesoscutum, almost entirely black anepisternum and abdomen, and claw-like surstylus.

**Description. Male.** Head with frons shiny, brownish yellow, parafrothalia pale brown, occiput black extending laterally to postorbital, ocellar triangle black between ocelli; parafacialia ventrally white pruinose; antenna and palpus yellow, arista brown except for yellow base. Thorax shiny yellow; mesoscutum slightly brown tinged, with

dark brown marking at anterior 2/3 of distance between gibbosity and transverse suture, and large brownish black central marking behind transverse suture, extending laterally beyond dc-rows; anepisternum largely black excepting ventral margin, mpl growing on yellow posterior margin; anatergite, katatergite and mediotergite brownish black; scutellum brownish black. Wing very faintly brownish tinged; calypter yellow, with margin pale brown, fringe yellow; halter yellow. Legs yellow. Abdomen shiny, T1–2 pale brown, T3–6 and epandrium black. Bristles on head and thorax yellow to brownish yellow, and those on abdomen dark brown.

Frons 1.2 times as wide as eye, diverging ventrally; or three, reclinate, third or shortest; oc approximately 1/3 as long as first or; if and pvt absent; eye 1.3 times as high as broad; gena 1/5 as high as eye; pm seven, short. First antennal flagellomere with white pile as long as pubescence on arista, arista 1.2 times as long as eye height.

Mesoscutum with 0 + 2 dc (detectable by pits), eight rows of acr, prsc slightly shorter than anterior dc; scutellum with bsc and asc. Wing 2.8 mm long; costa with three sections in proportion of 50 : 20 : 9, r-m beyond middle of discal cell (15 : 10), ultimate section of  $M_1$  five times as long as penultimate, ultimate section of  $CuA_1$  4/5 as long as penultimate.

Genitalia: Surstylus long, with tip curved anteriorly, bearing 15 or 16 minute spinules along ventral margin; cercus small. Hypandrium 200  $\mu$ m long, with dorsal process. Phallapodeme 420  $\mu$ m long; phallus 290  $\mu$ m long, distiphallus short, subequal to hypophallus in length.

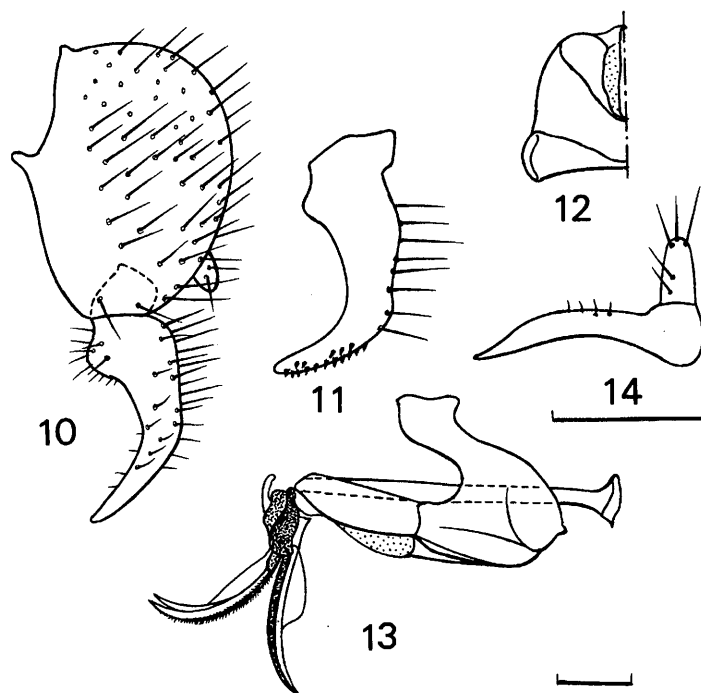
Body length 2.9 mm.

*Female.* Unknown.

**Distribution.** Laos.

**Remarks.** This species is similar to *A. atromaculatum* (Hennig) in having two spotted mesoscutum anteriorly and posteriorly, but the separate width between both spots is quite different from each other. The abdominal T1 and 2 are paler than the posterior black tergites in this species, while in *atromaculatum* only T1 is yellowish.

**Etymology.** The specific name refers to the curved surstylus (Greek: *grypos* + *stylus*).



Figs. 10–14. Male genitalia of *Allometopon grypostylis* sp. nov. (holotype).

#### 4. *Allometopon hybos* sp. nov. (Figs. 15–17)

**Material examined.** Holotype ♂ (BPBM 17194), Laos, Wapikhanthong Prov., Wapi, 15 Dec. 1967, native collector. Paratypes: 1 ♂, Philippines, Mindanao, Misamis Oriental, 21 km W of Gingoog City, Mt. Pomalihi, 800–1000 m, 9 Oct. 1965, H.M. Torrevillas, light trap; 4 ♀, Malaysia (Sabah), 19 km N of Kalabakan, Forest Camp, 19 Oct., 4 & 13 Nov. 1962, K.J. Kuncheria.

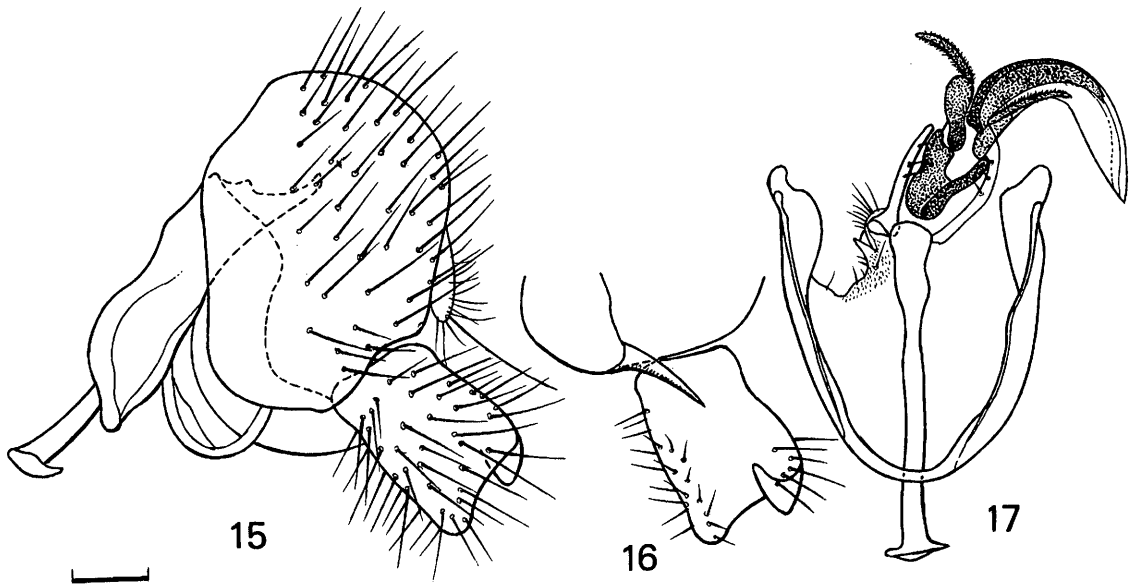
**Diagnosis.** This species is characterized by the yellow mesoscutum without marking, presence of three pairs of the scutellar bristles and a small protuberance on the surstylus.

**Description.** *Male.* Head yellow; frontalia slightly brown tinged except for ventral 1/3 orange; ocellar triangle pale brown between ocelli; face, parafacialia and gena silvery white pruinose; occiput slightly brown tinged; first antennal flagellomere black, arista brown; palpus yellow (brownish apically in paratype male). Thorax yellow; mesoscutum and scutellum slightly brown tinged, sparsely pollinose, subshiny, without dark stripe or spot; pleura shiny. Wing hyaline, faintly tinged with brownish yellow, without distinct apical cloud; calypter with margin pale yellowish brown, fringe yellow; halter yellow. Legs entirely yellow. Abdomen brown, T1 paler, subshiny; epandrium pale brown, cercus yellow. Bristles on body yellowish brown to pale brown.

Frons as wide as eye, very slightly diverging ventrally; frontalia sparsely setulose on ventral part; or four, reclinate, uppermost or longest, lower three or subequal in length; orbital hairs minute, in sparse row; pvt shorter than oc; oc 1/2 as long as or; if distinctly shorter than oc or subequal; face almost flat; gena 1/4–1/5 as high as eye; pm five. Antenna with first flagellomere 1/2 as long as wide, whitish pilose; arista minutely pubescent (pubescence as long as pile on flagellomere). Palpus 1/2 as wide as genal height.

Mesoscutum with 0 + 2 dc, anterior dc 3/4 as long as posterior dc and subequal to prsc in length, distance between two dc as wide as that between two prsc; acr in 10 rows before transverse suture but six sparse rows behind that; ipa 1/2 of opa. Scutellum with three pairs of bsc, dsc and asc, bsc nearly 2/3 as long as asc, dsc situated slightly behind level of bsc. Wing 3.0–3.3 (3.0 in holotype) mm long; costa with three sections in proportion of 60:20:9, r-m beyond middle level of discal cell (20–23:15), ultimate section of  $M_1$  four times as long as penultimate, ultimate section of  $CuA_1$  about 2/5 as long as penultimate. Mid tibia with one spur.

Genitalia: Epandrium covered with long setae, with a pair of strong spines at inner antero-ventral corner; surstylus quadrate in lateral view, with small protuberance at postero-dorsal corner, cercus small; proctiger rectangular, weakly chitinized, minutely pubescent; hypandrium V-shaped, 400  $\mu$ m long, with sidepiece broad in lateral view,



Figs. 15–17. Male genitalia of *Allometopon hybos* sp. nov. (holotype).

pregonite setose, postgonite long, curved; phallapodeme 440  $\mu\text{m}$  long, slightly broadened apically; phallus 460  $\mu\text{m}$  long; hypophallus with basal sclerite, longer than basiphallus; distiphallus chitinized on basal half, membranous distally, curved ventrally, pubescent at middle.

Body length 3.5–3.6 mm.

**Female.** Similar to male, but frontalia, mesoscutum and scutellum more distinctly brown tinged than male; palpus dark brown entirely or on apical 1/2–2/3 only; abdominal tergites more darkened posteriorly (about posterior half in T3–4), T5–6 entirely dark brown; ovipositor sheath brownish yellow; wing 3.5–4.0 mm long, second costal section about 1.2 times as long as that of male; body length 3.8–4.4 mm.

**Distribution.** Laos, Malaysia, Philippines.

**Remarks.** This species is similar to *Allometopon sensitivum* Sasakawa in having the yellowish body and six scutellars (bsc, dsc and asc), but is distinguished by its black first antennal flagellomere, presence of four or and 0 + 2 dc. In *sensitivum*, the first flagellomere is yellow, or are three in number, and dc are three postsutural pairs.

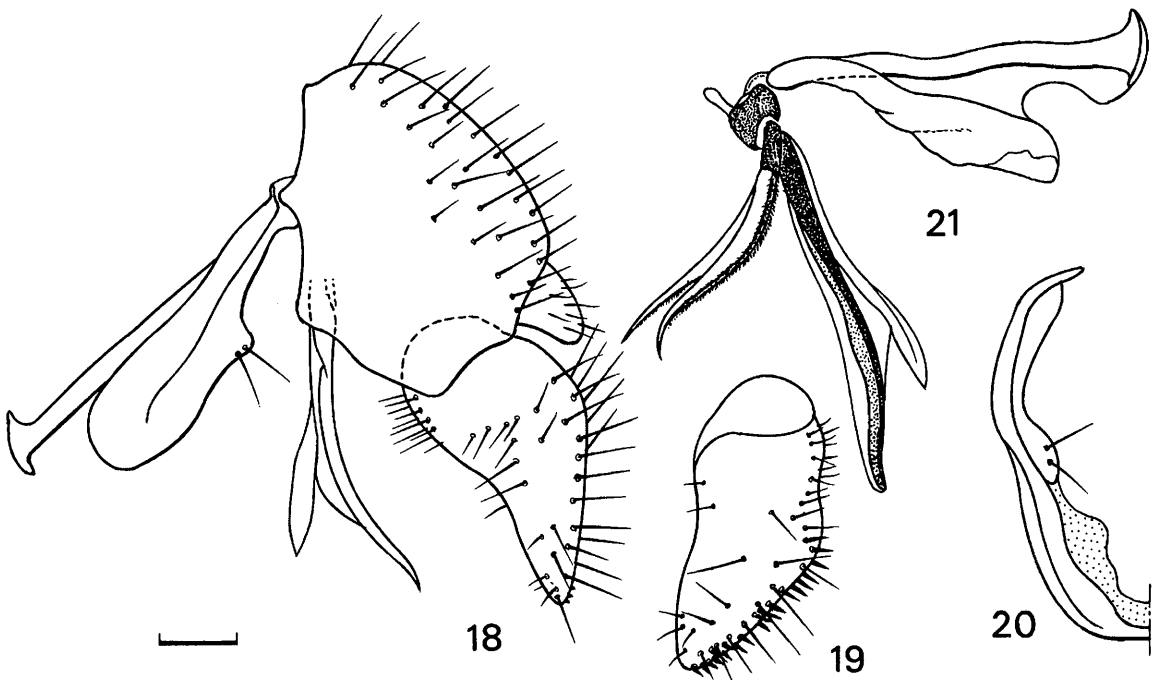
**Etymology.** The specific name refers to a projection (Greek, *hybos*) of the surstylus.

##### 5. *Allometopon macrophallus* sp. nov. (Figs. 18–21)

**Material examined.** Holotype ♂ (BPBM 17195), Philippines, Luzon, 6 km W of Imugan, Nueva Vizcaya, 11 Apr. 1968, M.D. Delfinado.

**Diagnosis.** This species is characterized by yellow mesoscutum without marking, pale brown narrow stripe on the anepisternum, largely brownish black abdomen, oval surstylus with spinules along inner posterior margin, and long distiphallus.

**Description.** *Male.* Head including antenna and palpus yellow; ocellar triangle brownish black between ocelli; parafacialia and gena silvery white pruinose (first antennal flagellomere missing). Thorax yellow; mesoscutum and scutellum slightly brown tinged; anepisternum with pale brown stripe obliquely extending to anterior lower corner of anepimeron; mediotergite pale brown. Wing very faintly tinged with brown; calypter with margin brown, fringe yellow; halter yellow. Legs yellow. Abdomen weakly shiny, T1 and anterior 1/3 of T2 yellowish brown, T2–5



Figs. 18–21. Male genitalia of *Allometopon macrophallus* sp. nov. (holotype).



brownish black, T6 dark brown; epandrium shiny dark brown, blackend dorsally, surstylus black, cercus yellow. Bristles on head and thorax yellow to brownish yellow, but those on T2–6 and oc brown to black.

Frons slightly wider than eye, diverging ventrally; or three, third or shorter than upper two; oc subequal to third or in length; if minute; pvt absent; gena about 1/4 as high as eye; pm nine.

Mesoscutum with 0 + 3 dc, first dc about twice as long as acr, second dc 2/5 as long as third; acr in eight rows; prsc slightly longer than acr; scutellum with bsc 1/4 as long as asc. Wing 3.2 mm long; costa with three sections in proportion of 55 : 20 : 10; r-m at middle level of discal cell; ultimate section of  $M_1$  about 3.5 times as long as penultimate; ultimate section of  $CuA_1$  1/2 as long as penultimate. Mid tibia with a long spur.

Genitalia: Epandrium with surstylus oval, narrowing distally, bearing 20 spinules along inner posterior margin. Hypandrium 500  $\mu$ m long, U-shaped, broadened basally. Pallapodme 500  $\mu$ m long, with ventral projection at middle; phallus 500  $\mu$ m long, basiphallus very short, with short membranous knob, distiphallus long, narrowing distally, hypophallus rather long.

Body length 3.5 mm.

*Female.* Unknown.

**Distribution.** Philippines.

**Remarks.** This species differs from *A. punctulatus* Sasakawa and *dicrostylis* sp. nov. in color of the anepisternum and abdomen as noted in the key (couplets 14–15).

**Etymology.** The specific name refers to long phallus of the male genitalia (Greek, *macro* + *phallos*).

#### 6. *Allometopon megastylis* sp. nov. (Figs. 22–25)

**Material examined.** Holotype ♂ (BPBM 17196), Philippines, Camarines Sur, Mt. Iriga, 500–600 m, 6 Mar. 1962, H.M. Torrevillas. Paratypes: 10♂, same data as holotype; 2♂, Camarines Sur, Mt. Isarog, 500 m, 4 & 5 Apr. 1963, Torrevillas.

**Diagnosis.** This species has four short vittae on the mesoscutum, large lobate surstylus, and the hypandrium and phallapodeme each broadened at middle of the ventral side.

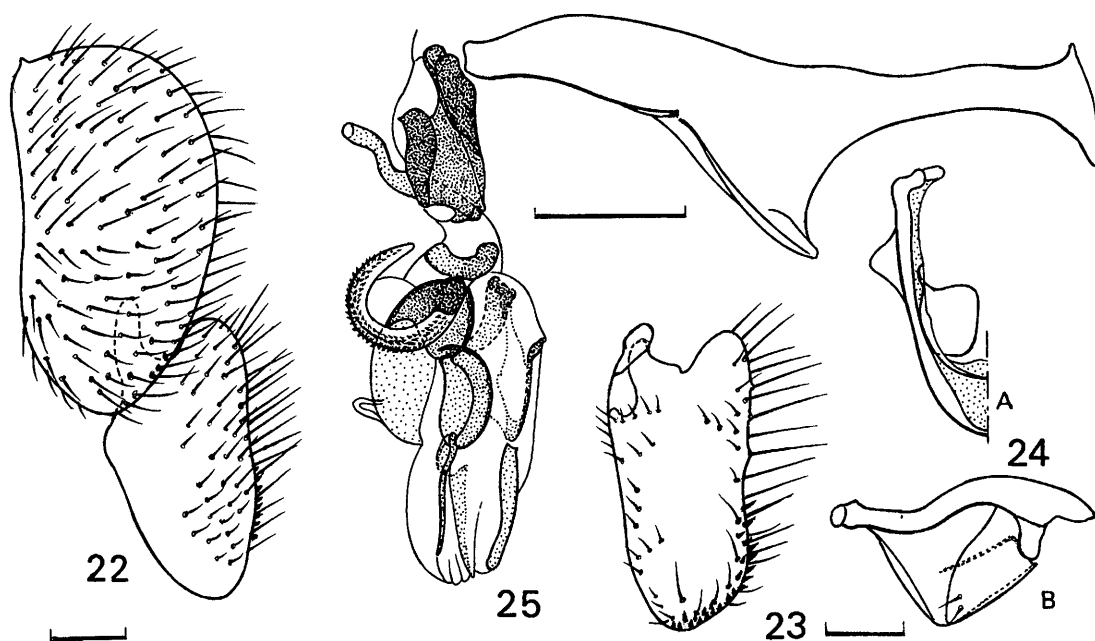
**Description.** *Male.* Head including antenna and palpus yellow; frons and occiput slightly brown tinged, shiny but orangish ventral half of frontalia matt; ocellar triangle brownish black between ocelli; dark brown area of dorsal postorbit extending obliquely to occiput; parafacialia ventrally silvery white pruinose; arista pale brown excepting basal 1/3–1/4 yellow. Mesoscutum pale brownish yellow, with a pair of dark brown stripes between dc-bases and sa-base on posterior half of scutum, broadening posteriorly and extending to lateral margins of scutellum, and brown narrow stripes from dorsal halves of postpronotal lobes to entire notopleura, connecting with anterior brown margin of scutum; scutellum and pleura yellow; anatergite brown; mediotergite yellowish brown. Wings very faintly brown tinged; calypter with margin brown, fringe yellowish; halter yellow. Legs entirely yellow. Abdomen weakly shiny, T1 yellowish brown, T2–6 brownish black; epandrium shiny black, but yellowish narrowly in ventral side; surstylus and cercus yellow. Bristles on body yellow to pale brownish yellow.

Frons slightly narrower than eye, distinctly diverging ventrally; or three, reclinate, third or shortest; oc 1/2 as long as second or; if 1/2 as long as oc; pvt minute or absent; gena 1/5 as high as eye; pm seven or eight; first antennal flagellomere with whitish pile subequal to pubescence on arista.

Mesoscutum with 0 + 3 dc, first dc twice as long as acr, second dc 1/2 as long as the third and behind level of sa, eight rows of acr but decreasing into five or six rows between levels of second and third dc, prsc thrice as long as acr; scutellum with bsc short (1/3 as long as asc growing on yellow apex). Wing 1.7–2.5 (2.1 in holotype) mm long; costa with three sections in proportion of 54 : 20 : 9, r-m at or slightly before middle level of discal cell, ultimate section of  $M_1$  3.3–3.5 times as long as penultimate, ultimate section of  $CuA_1$  3/5 as long as penultimate.

Genitalia: Epandrium densely covered with short setae; surstylus about 4/5 as high as epandrium, lobate, setose or setulose on both sides, with about 24 spinules along inner ventral margin; cerci very small, closely connected with each other. Hypandrium 350  $\mu$ m long, narrow U-shaped, with broad, weakly chitinized lobes ventrally and two setae on lateral side near tip of ventral lobe. Phallapodeme 420  $\mu$ m long, projected ventrally at middle; phallus 330  $\mu$ m long, basiphallus with ventral process almost membranous, distiphallus with oval sclerites on lateral sides but membranous distally.

Body length 1.9–2.8 (2.5 in holotype) mm.



Figs. 22–25. Male genitalia of *Allometopon megastylis* sp. nov. (paratype). 24, hypandrium, ventral (A) and lateral (B) views.

*Female.* Unknown.

**Distribution.** Philippines.

**Remarks.** This is smallest among the known Oriental species. It differs from *A. hirsutiseta* Frey in coloration of the thorax (couplet 5 in the key).

**Etymology.** The specific name refers to large surstylus (Greek, *me-gas* + *stylos*).

### 7. *Allometopon pulcher* Sasakawa

*Allometopon pulcher* Sasakawa, 1993: 3.

**Material examined.** 1 ♀, Malaysia, Sabah, SE Pahang, Taman, 5 m, 18 Sept. 1960, J.L. Gressitt.

**Remarks.** A female examined was different from the paratype female from Malaysia (Sabah) in the following points: median vitta on the mesoscutum is narrowly furrowed by central yellow line in its anterior 7/8; fore coxa is brown, fore and mid femora are pale brown, hind femur is brown at middle, all tibiae are yellowish brown; wing length 3.6 mm, body length 4.2 mm.

**Distribution.** Singapore, Malaysia (Peninsular, Sabah).

### 8. *Allometopon sensitivum* Sasakawa (Figs. 26–29)

*Allometopon sensitivum* Sasakawa, 1993: 7.

**Material examined.** 1 ♂, Malaysia, Sabah, Sepilok Prov., Sandakan Bay, 1–10 m, 28 Oct. 1957, J.L. Gressitt.

**Diagnosis.** This brownish yellow species is distinctive in having the broad maxillary palpus with black apex and three pairs of the scutellar bristles.

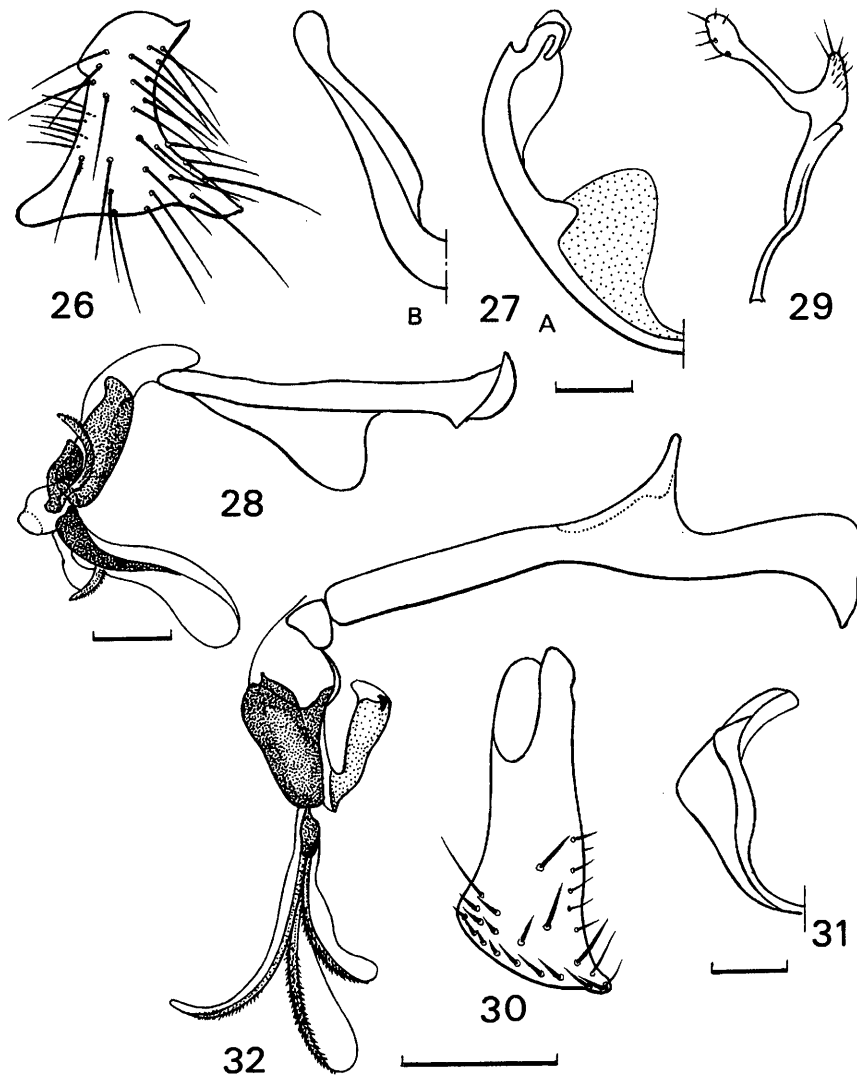
**Remarks.** This species was described by a single female from Malaysia (Sabah). A male collected on same island as the holotype female is recorded here for the first time.

*Male.* Similar to the female, but there are some differences in the following points: frons brown tinged on dorsal 2/3, as wide as eye, diverging ventrally; gena 1/5 as high as eye; palpus slightly narrower than genal height; scutellum with lateral margin, katapisternum except for yellow dorsal margin, anatergite, katatergite, and me-

diotergite pale brown; wing 3.6 mm long, costa with three sections in proportion of 70:20:10, ultimate section of  $CuA_1$  slightly shorter than one-half of penultimate (23:10); abdomen brownish yellow, epandrium shiny, dark brown but narrowly yellowish dorsomesally as longitudinal line, surstylus blackish brown, cercus yellow.

Genitalia: Epandrium with surstylus T-shaped, bearing long setae on outer side and short setae on inner side; cercus with apical seta as long as cercal height; proctiger V-shaped. Hypandrium 480  $\mu$ m long, almost circular, with short ventral process at middle; postgonite forked at end and setulose on apices. Phallapodeme 470  $\mu$ m long, protruded at middle of ventral side; phallus 450  $\mu$ m long; distiphallus slightly longer than basiphallus, minutely spinulose before apex; hypophallus rather short.

**Distribution.** Malaysia (Sabah).



Figs. 26–32. Male genitalia of *Allometopon sensitivum* Sasakawa (26–29) and *A. thrinacos* sp. nov. (paratype, 30–32). 26, surstylus, outer view; 27A, hypandrium, ventral view; 27B, proctiger; 28, 32, phallapodeme and phallus, lateral view; 29, postgonite; 30, surstylus, inner view; 31, hypandrium, ventral view.

### 9. *Allometopon thrinacos* sp. nov. (Figs. 30–32)

**Material examined.** Holotype ♂ (BPBM 19197), Philippines, Luzon, 6 km W of Imugan, Nueva Vizcaya, 11 Apr. 1968, D.E. Hardy. Paratypes: 1 ♂, same data as holotype; 1 ♀, Philippines, Camarines Sur, Mt. Isarog, 500 m, 4 Apr. 1963, H.M. Torrevillas; 1 ♀, Philippines, Mindanao, Misamis Oriental, Mt. Empagatao, 1050–1200 m, 19–30 Apr. 1961, Torrevillas; 1 ♀, Malaysia, Sabah, 19 km N of Malabakan, Forest Camp, 19 Oct. 1962, K.J. Kuncheria.

**Diagnosis.** This species is characterized by a dorsal brown spot on outer side of the first antennal flagellomere, dark brown trifurcate stripes on the mesoscutum, plectrum-shaped surstylus, and presence of dorsal projection on the phallapodeme.

**Description.** *Male.* Head yellow; frons shiny, faintly brown tinged; ocellar triangle brown between ocelli; face, parafacialia and gena white, gena whitish pruinose; antenna and palpus yellow, first antennal flagellomere with brown spot above level of base of arista; arista brown excepting yellow base. Thorax shiny brownish yellow; mesoscutum with three dark brown stripes connected with each other behind level of second dc, median stripe extending throughout entire length of scutum just outside of dc-line but narrowed anteriorly, and lateral stripe about 1/2 as long as whole length of scutum, extending from sa-level to scuto-scutellar suture above sa-line, and connected with median stripe behind middle level between second and third dc; scutellum dark brown excepting lateral margin and apical 1/3 yellow; postpronotal lobe, notopleuron and pleura yellow, only anatergite brown, mediotergite pale brown. Wing hyaline, very faintly brownish tinged; calypter with margin and fringe pale brown; halter yellow. Legs yellow. Abdomen shiny, T1 brownish yellow, T2–5 and epanthrium brownish black, T6 brown, cercus and surstylus brownish yellow. Bristles on head and thorax yellowish brown to pale brown, those on abdomen black.

Frons almost as wide as eye, slightly diverging in ventral half, or three, reclinate; third or shorter than upper two; oc about 1/2 as long as upper or; gena 1/5–1/6 as high as eye; pm 4–7. First antennal flagellomere with distinct pile but shorter than pubescence on arista; palpus narrower than genal height.

Mesoscutum with 0 + 3 dc, first dc twice as long as acr, second dc 3/4 as long as the third, acr in eight rows anteriorly but decreasing behind level of second dc; prsc 3/5 as long as third dc. Wing 2.6–2.9 (2.9 in holotype) mm long; costa with three sections in proportion of 60–64 : 20 : 9–9.5, r-m beyond middle level of discal cell (15 : 8), ultimate section of  $M_1$  4–5.5 times as long as penultimate, ultimate section of  $CuA_1$  approximately 2/3 as long as penultimate. Mid tibia with a long spur.

Genitalia: Surstylus broadened distally, incurved, bearing short or long setae along inner distal margin. Hypandrium 300  $\mu$ m long, narrow U-shaped, broadened at middle. Phallapodeme 380  $\mu$ m long, with short ventral projection at basal 1/3; phallus 250  $\mu$ m long, basiphallus with ventral process weakly chitinized, distiphallus almost as long as hypophallus.

Body length 2.8–3.0 mm.

*Female.* Similae to male, but darker than male; palpus blackish on apical 1/3–1/2; dark lateral stripe on mesoscutum extending posteriorly from transverse suture to scuto-scutellar suture; postpronotal lobe and notopleuron brown, anepisternum to anatergite dark brown; scutellum with long bsc and dsc (2/3 as long as asc); wing faintly infuscated along costa; fore tibia pale brown, all tarsi yellowish brown; abdomen yellowish brown to dark brown, T2–5 more darkened; wing length 2.6–3.1 mm, body length 2.7–3.4 mm; costal sections in proportion of 52–74 : 20 : 8.5–12, ultimate section of  $M_1$  3.5–5.7 times as long as penultimate; ultimate section of  $CuA_1$  nearly 1/2 as long as penultimate.

**Distribution.** Philippines, Malaysia (Sabah).

**Remarks.** This species is closely related to *A. antennalis* sp. nov. in the coloration of the first antennal flagellomere and mesoscutum, but is distinguished by the wing venation and shape of the surstylus from *antennalis*.

**Etymology.** The specific name refers to three-forked marking (Greek, *thrinakos*) on the mesoscutum.

### 10. *Allometopon trimaculosus* sp. nov.

**Material examined.** Holotype ♂ (BPBM 17198), Laos, Vientiane Prov., Ban Van Eue, 31 Dec. 1965, native collector. Paratypes: 1 ♂, same data as holotype; 1 ♀, Thailand, Chiangmai Prov., Doi Suthep, 28–31 Mar. 1958, T.C. Maa.

**Diagnosis.** This species is distinctive in having three brown spots on the mesoscutum.

**Description.** *Male.* Head brownish yellow; ocellar triangle black, dorsal half of back head dark brown but not

reaching to vertical angle; parafrofrontalia and gena pale yellow except for peristome, silvery white pruinose; antenna and palpus yellow, arista pale brown. Thorax brownish yellow; mesoscutum weakly shiny, with anterior brown semicircular spot extending laterally to dorsal margin of postpronotal lobe, and lateral oval spots behind transverse suture narrowed before level of sa-base extending to scuto-scutellar suture; pleura shiny yellow, anepisternum with brown round spot dorsally (about 2/3 as high as pleural height), anatergite and mediotergite brown; scutellum brown. Wing faintly brown tinged antero-apically; calypter with fringe yellowish; halter yellow. Legs yellow. Abdomen shiny, T1–2 yellowish brown, T3–6 and epandrium brown, surstylus yellow. Bristles yellow to pale brownish yellow.

Frons slightly wider than eye, diverging ventrally; or three, reclinate, third or slightly shorter than upper two; oc weak, about 1/2 as long as first or; pvt shorter than oc, if absent; gena 1/5 as high as eye; pm seven or eight. First antennal flagellomere with pile longer than pubescence on arista; arista minutely pubescent; palpus narrower than genal height.

Mesoscutum with 0 + 2 dc, anterior dc 1/2 as long as posterior, six rows of acr but 4–5 rows behind anterior dc; scutellum with bsc less than 1/2 as long as asc. Wing 2.5–3.0 (2.5 in holotype) mm long; costa with three sections in proportion of 57:20:9, r-m beyond middle level of discal cell (2:1), ultimate section of M<sub>1</sub> about six times as long as penultimate, ultimate section of CuA<sub>1</sub> 2/3 as long as penultimate.

Body length 3.1–3.3 (3.1 in holotype) mm.

*Female.* Similar to male, but anterior spot on mesoscutum larger, with central projection almost reaching to transverse suture, spot on anepisternum larger and only narrowly separated from margins, only T1 yellowish brown; wing length 3.6 mm, second and third costal sections as 70:20, r-m on 2:1.5 of discal cell, ultimate section of M<sub>1</sub> about four times as long as penultimate; body length 4.0 mm.

**Distribution.** Laos, Thailand.

**Remarks.** The markings on the mesoscutum in this species are unique among the known Oriental species. It differs from *A. antennalis* sp. nov. and *thrinacos* sp. nov., with the spotted mesoscutum, in the absence of dark spot on the first antennal flagellomere.

**Etymology.** The species name refers to the three spotted (Latin, *tri* + *maculosus*) mesoscutum.

### Acknowledgment

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### References

- Frey, R. 1928. Philippinische Dipteren. *Notulae Entomologicae* 8: 100-108.
- Frey, R. 1960. Studien über indoaustralische Clusiiden (Dipt.) nebst Katalog der Clusiiden. *Societas Scientiarum Fennica, Commentationes Biologicae* 22: 1-31.
- Hennig, W. 1938. Beiträge zur Kenntnis der Clusiiden und ihres Kopulationsapparates (Dipt., Acalypt.). *Encyclopédie Entomologique* BII. *Diptera* 9: 121-138.
- Sasakawa, M. 1993. Studies on the Oriental and Pacific Clusiidae (Diptera). Part 6. Descriptions of six new species from Malaya and Borneo. *Transactions of the Shikoku Entomological Society* 20: 1-11.
- Sasakawa, M. 1998. Family Clusiidae. In: Papp, L. and Darvas, B. (Eds.) *Contributions to a Manual of Palaearctic Diptera* 3: 219-225. Science Herald, Budapest.
- Sóós, A. 1964. *Sobarocephaloides discolor* gen. nov., spec. nov., eine neue Clusiide aus Costa-Rica, nebst einer Bestimmungstabelle der Gattungen der Familie Clusiidae (Diptera, Acalyprtrata). *Reichenbachia* 4: 1-8.