

ON AULACOPHYTO AND EUPARAPHYTO (DIPTERA, SARCOPHAGIDAE, MICROCERELLINI), WITH DESCRIPTIONS OF FOUR NEW SPECIES

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Aulacophyto reinhardi n.sp., from Argentina, *A. baumgartneri* n.sp., *A. tarmanensis* n.sp. from Peru; *A. rusca* Hall from Chile and *Euparaphyto peruana* n.sp. from Peru were studied; a key to species of *Aulacophyto* is given.

Key words: *Aulacophyto* new species and key – *Euparaphyto* new species

Microcerella rufomaculata Macquart (1851: 209, pl. 22, Fig. 1) presents a very short antenna with third segment about twice the length of second; yellow marks on sides of last abdominal segment and genital segments red. The most characteristic feature is the short antennae, not reaching half of the distance from base vibrissal level; known from a female collected in Chile. Bischof (1904:101) described males from Peru which were evidently misidentified with Macquart species. Bischof flies were described as having golden marks on thorax and short third antennal segment: "drittes glied kurz, 1, 1/2mal so lang als das zweite". This species is characterized by a golden yellow mark on apex of scutellum found also in *A. reinhardi* n.sp. which presents more elongated third antennal segment.

Euparaphyto auromaculata Townsend (1919: 157) seems to be a species of *Aulacophyto* with the following golden yellow marks: a spot on gena, on both sides of scutellum, on proepisternum, on metapleura and on anepisternum. The type was collected in Peru (Oroya) and probably is different from the species we have studied.

Aulacophyto sp. (Lopes, 1978:761, Figs. 24-27) shows gena with golden yellow mark, pollinose mesonotal vittae and region anterior to the post-supralar bristles also yellow gold; the female genitalia is similar to that of *A. baumgartneri* n.sp. but the preacrostichals are absent. Some material was received after the paper published by Lopes, 1978, from our friend and colleague Guy Shewell, including a male considered by Reinhard as *rusca* Hall (*A. reinhardi* n.sp) and a male compared with the holotype of *A. rusca* Hall by Shewell.

Hall (1937:350) considers *Microcerella* in his key to genera, as having: "fourth sternite of male rounded on posterior margin, bearing a median hump before posterior margin". This character is present in *Aulacophyto rusca* Hall, described in the same paper.

Dr. Donald Baumgartner sent us for study a small lot of flies collected in Tarma, Peru, composed of *A. auromaculata* Townsend (La Oroya), two new species of *Aulacophyto* and one species of *Euparaphyto*.

Key to the species of *Aulacophyto*

1. A pair of strong preacrostichal bristles present 2
– Preacrostichals absent 5
2. Without golden yellow marks on genae . . . 3
– Genae with golden yellow marks 4
3. Thorax with golden yellow marks on notopleura and anepisternum (Peru: Tarma, 4,000 m) *A. tarmaensis* n.sp.
– Thorax with golden yellow marks on humeral region, reaching the anterior predorsocentral bristle; on apex of scutellum; two marks on katepisternum and on meron, in addition to the marks of notopleura and anepisternum (Argentina: Jujuy, 3,300 m) *A. reinhardi* n.sp.
4. Post-alar callus without golden yellow mark; males with prescutellar bristles; cerci with preapical tooth (Lopes, 1978: Fig. 40) (Peru: Puno, 3,800 m) . . . *A. peruana* Lopes.
– Post-alar callus with contrasting golden yellow mark; prescutellar bristles absent; cerci without preapical tooth (Fig. 13) (Peru: Tarma, 4,000 m) . . . *A. baumgartneri* n.sp.
5. Genae without yellow marks (Chile)
. *A. rusca* Hall.
– Genae with yellow marks 6
6. Pollinose vittae between median and lateral longitudinal dark vittae of mesonotum with contrasting golden yellow marks limited to the posterior half of postsutural area; tegula

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- brow (Argentina, Chile, Peru and Bolivia). . .
 *A. auromaculata* Townsend.
- Without contrasting golden yellow marks on pollinose vittae of mesonotum, the yellow pollinosity occupying more than half of the postsutural area; tegula yellow 7
7. Scutellum yellowish gray pollinose, total length about 11 mm (Lopes, 1978:758, Figs. 10-23) (Chile) *A. chilena* Lopes.
- Scutellum gray pollinose, length about 8 mm (Chile) *A. penai* Lopes.

Aulacophyto reinhardi n.sp.

(Figs. 1 to 5)

Male, length: 9mm. Head silvery pollinose, frontalia brown, genal ridges reddish black; front about 0.3 of head width; 9-10 frontal bristles, all directed inwards, reaching about the apical third of second antennal segment, well divergent anteriorly three bristles inserted below base of antenna; reclinate frontorbital bristle directed somewhat inwards; outer vertical bristle less than half inner one; postocular setae very long; postocellar setae with about the size of frontal bristles; paraverticilar bristle a little more robust than outer vertical bristle; two pairs of ocellar bristles, anterior one a little more robust than frontals; 4-5 small bristles on parafacialia, in a transverse row; facial ridges with few hairs above vibrissae; back of head and genae with long hairs; antenna brown, basal segments reddish brown, reaching about 0.77 of the distance from base to vibrissal level, second segment about 0.62 of third; palpi reddish brown with long hairs; parafacialia with about 0.62 of the distance between vibrissae.

Thorax with gray pollinosity, showing gold yellow pollinosity on notopleura and humeral region, reaching anteriorly the anterior predorsocentral bristle; on apex of scutellum, on anepisternum, two patches on katepisternum (around anterior bristle and inferiorly), a small part of katergite and a small spot before the bristles of meron; a pair of strong preacrostichal bristles is present at the same level of anterior pre-intralars; one strong pre-supralar and 3 post-supralars, only median one strong; meron with 6-7 bristles. Wings with yellow veins, R4+5 with 3 hairs on base; costal spine very small. Legs black, trochanters and base of femora reddish black; middle femora with a series of long, robust hairs on apex of posterior side, ventrally; middle tibiae with small preapical ventral bristle, hind tibiae with ventral bristle displaced to anterior side, bearing long villosity.

Abdomen with pollinosity dorsally which become yellow on the sides of last three tergites,

fourth tergite without median marginal bristles; sternites I-II with long, erect hairs, III-IV with short scattered hairs, fourth sternite with a preapical hump bearing a pair of small protuberances having robust short hairs directed backwards; fifth sternite similar to that of *A. auromaculata* Townsend (Lopes, 1978: Fig. 1) but with very short hairs; first genital segment shining black, with scattered hairs and three pairs of marginal bristles; second with some hairs, mostly on sides; cerci curved forwards, with short hairs and black apices; surstyli small, slender (Fig. 1); ninth sternite very small, forcipes interiores slender, curved apically, bearing a long bristle near base; palpi genitalium very robust, with some hairs on basal half; penis with differentiated theca (Fig. 2), paraphallus well sclerotized, apical and lateral plates almost membranous, ventralia very small, sclerotized, glans composed of pigmented median process and long, slender styli (only one stylus was observed, the other was lost) (Figs. 3-5); basally a long, curved process, like that observed in *A. peruana* Lopes (1978: Fig. 44) is present.

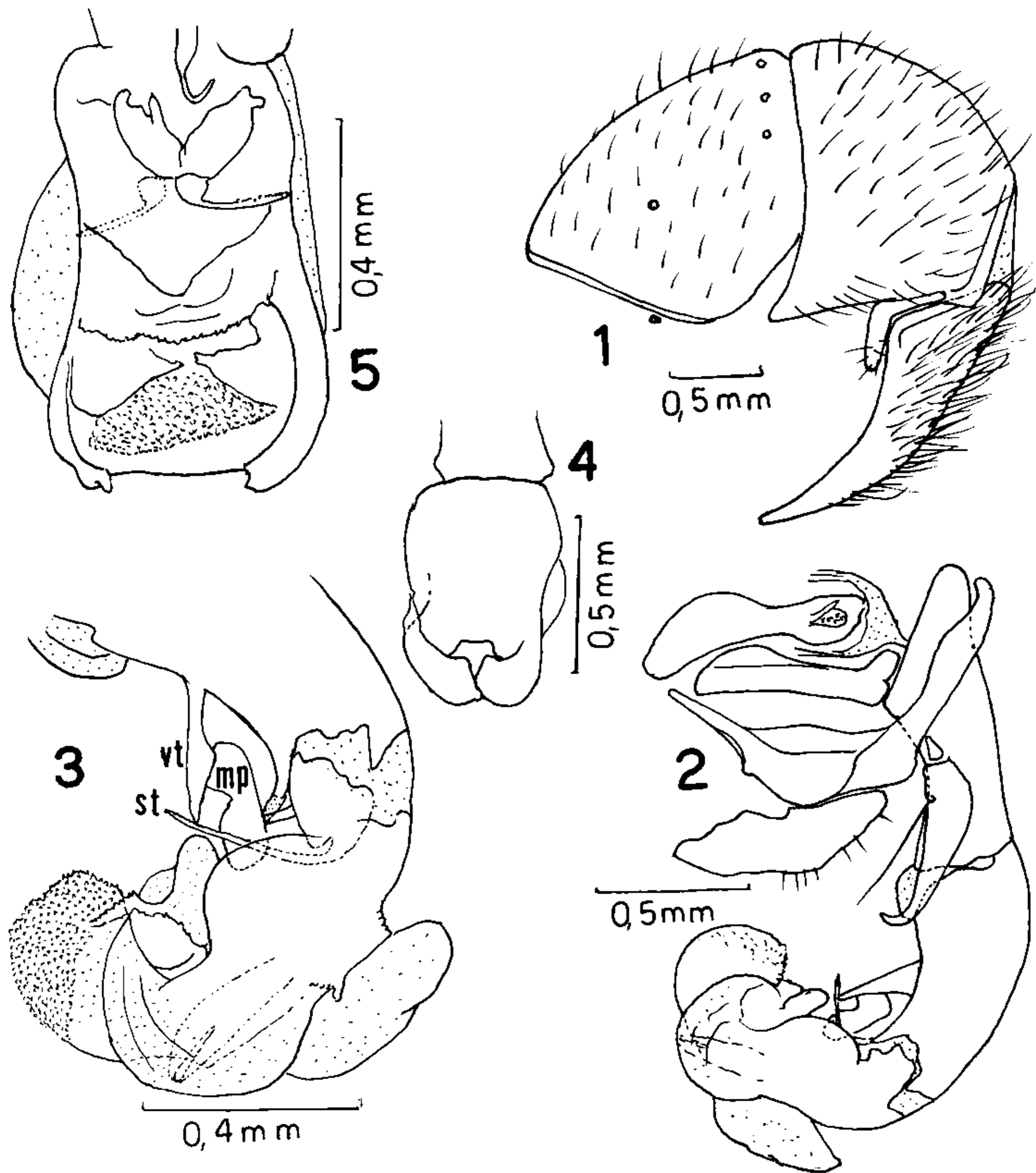
This species is near *A. peruana* Lopes, 1978 by the presence of strong preacrostichal bristles and by the structure of the glans; differs by the absence of gold pollinosity on the head and by the different structure of the male genitalia.

Holotype male: La Quiaca, Argentina (about 10,000 feet, Dept. Jujuy, Rumeña Prov.), 13 Feb. 1920, Cornell Univ. Exped., R. G. Harris, *Aulacophyto rusca* Hall (Reinhard det.), in the Collection of the Biosystematics Research Institute, Ottawa.

Aulacophyto rusca Hall, 1937
(Figs. 6 to 13)

Aulacophyto rusca Hall, 1937:350,361 (Rio Negro, Argentina)

Male, length: 7-9 mm. Description of the holotype: Head black, almost quadrate, epistoma protuberant, genal grooves reddish, covered with silvery pollinosity except on posterior half of gena, frontal vitta, ocellar triangle and three vertical stripes on occiput; but a region just before ocellar triangle is pollinose. Front about 0.29 of head width; 7-9 frontal bristles and superior frontorbital directed inwards; frontal bristles strongly divergent anteriorly, 2 bristles inserted below base of antenna; ocellar bristles long and slender, a little longer than frontals, directed outwards; outer vertical bristle a little stronger than postocular setae; 2-3 slender hairs near eye, on parafacialia; 3-4 hairs in more than one row above vibrissae; antenna black, basal segments reddish, third with silvery pollinosity, reaching about 0.77 of the distance to vibrissal level, second segment about 0.6 of third.



Aulacophyto reinhardi n.sp., holotype. Fig. 1: genital segments. Fig. 2: phallic organs. Fig. 3: apex of penis, lateral view. Fig. 4: idem, anterior view. Fig. 5: idem, ventral view (mp: median process, st: stylus, vt: ventralia).

Thorax black with silvery pollinosity and the following yellow marks: above notopleural bristles and pronotal lobe; on middle of the posterior part of anepisternum and on middle of anepimeron, katepisternum with two bristles, meron with 7 bristles; prosternum with few long sparse hairs; scutellum with two marginal bristles, a preapical pair; apical bristles absent.

Wings with yellow veins, R4+5 with hairs on base; legs reddish black, hind tibiae with long villosity, without preapical ventral bristle; middle tibiae with strong ventral bristle.

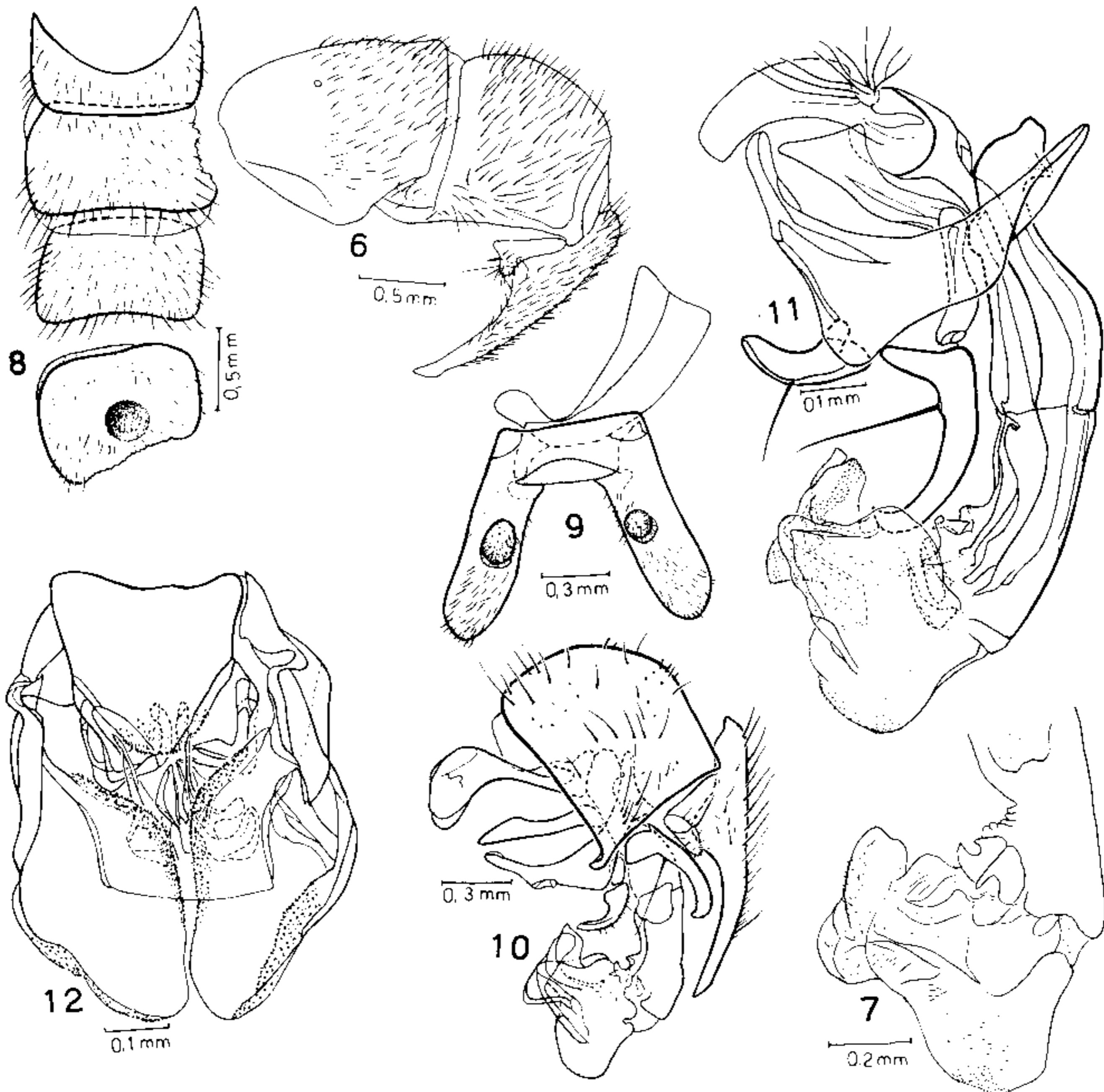
Abdomen silvery pollinose, sides of tergite II to IV with golden yellow pollinosity, no median marginal bristles on fourth tergite; first

and second sternites with dense hairs, third and fourth with short hairs, the last with a conspicuous hump behind middle; fifth sternite largely divided longitudinally, each arm with conspicuous rounded hump before middle (Fig. 9); first genital segment black, shining, with 3 pairs of marginal bristles; second red, bearing scattered short hairs; cerci slender, long, gently curved forwards, intensely blackish on a little more than apical half; surstyli reduced; apical and lateral plates of paraphallus very much developed, the glans becoming ventral (Figs. 12, 13).

Female, length: 8.5-9 mm. Two reclinate frontorbital bristles, superior one about half the length of inferior bristle; reclinated bristle a little shorter than inferior proclinate; a single post-dorsocentral bristle, the hindmost one; genital syntergite VI+VII black with gray polinosity on base, largely red apically, the stigmata on the black part, the hairs restricted to near marginal bristles; synsternite VI+VII dark

red on posterior margin, following sternites light red, sternite IX as broad as precedent one, bearing a pair of conspicuous concavities.

Male homeotype: Rio Teno, 2,400 m. Curico, Chile, 6-7. III 62, L. Pena (compared with the holotype by G. Shewell); male, Banos, 1,500 m. Azufre Road, Argentine Border, L. Pena, 19.I.1964; male, Banos, El Toro, Coquimbo, Chile, 3,300 m. 6-12.I.66, L. Pena; male, Gualletue, Malleco, Chile, 9-14.XII.1963, L. Pena, 1,200 m; male, Mucar, on Argentine Border, 4,000-4,500 m, Antofagasta, Chile, 12-16.XII.65, L. Pena; female, Los Paraguas, Cautin, Chile, 21-24.I.1955, 1,400 m; 4 males, 5 km E Lo Valdes, P Santiago. XII. 1968, 8,300', C.W.O'Brien; male, Chile, Santiago, Rio Yeso, 1954, 2,500 m, 5-7.X; male, female, Rio Yeso 9.I.1953. 9.I.1959, L. Pena; female, Farelones, Santiago, Chile, 7-8.IV.1962, 2,400 m, in the collections of Biosystematics Research Institute and "Museu Nacional".



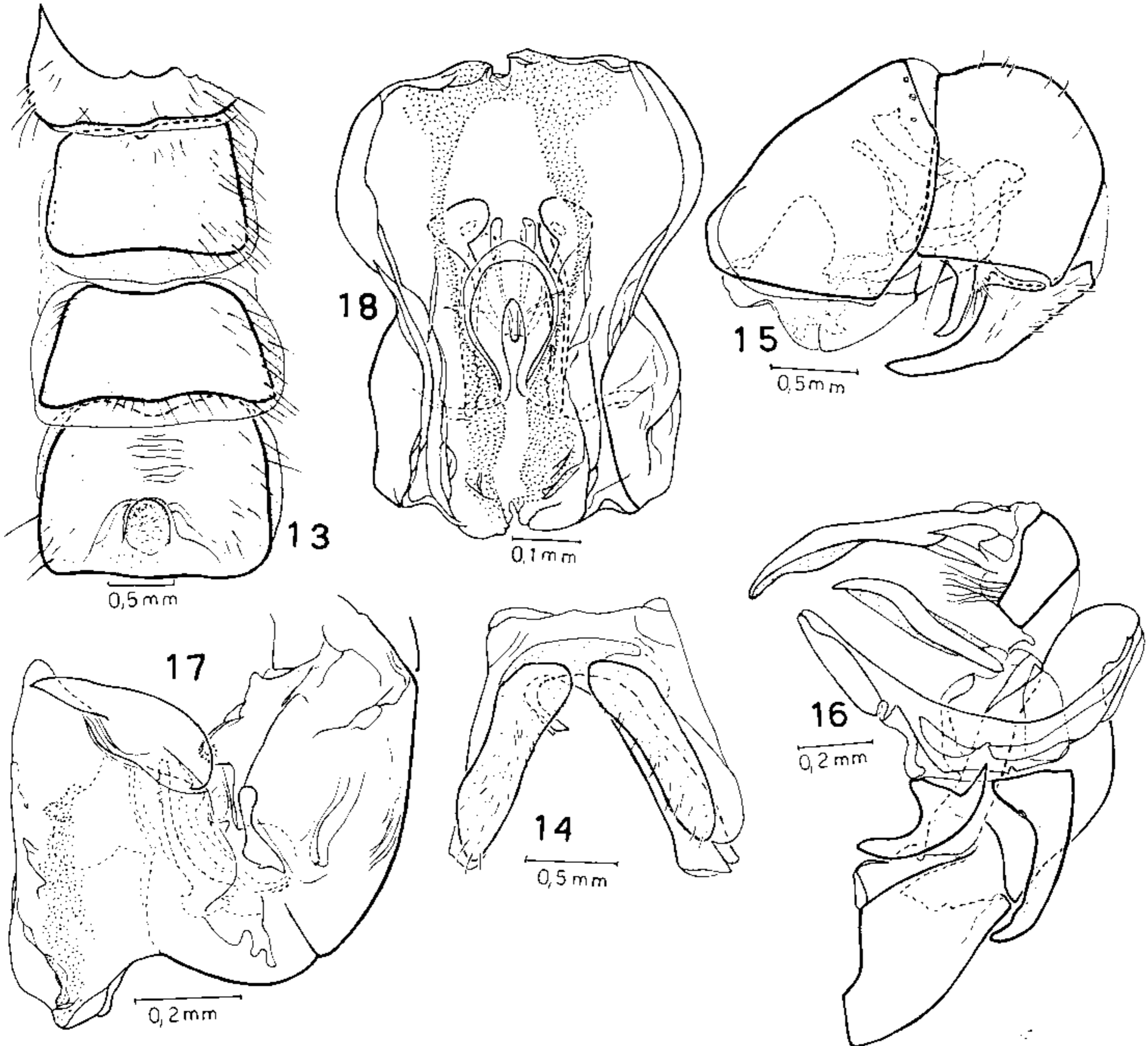
Aulacophyto rusca Hal, homeotype, male. Fig. 6: genital segments. Fig. 7: apex of penis, lateral view. Male, Lo Valdes. Fig. 8: abdominal sternites. Fig. 9: fifth sternite. Fig. 10: genital tergite and phallic organs. Fig. 11: phallic organs. Fig. 12: apex of penis, ventral view.

Aulacophyto baumgartneri n.sp.
(Figs. 14 to 24)

Male, length: 9.9.5 mm. Head silvery pollinose, gena with an almost circular golden yellow patch; frontal vitta dark gray, silvery pollinose around ocellar triangle; front about 0.32 of head width; 7-9 frontal bristles, inferior 4-5 strongly divergent, the bristles directed outwards, no bristles inserted below base of antenna; parafrofrontalia with few scattered small hairs; parafacialia with small hairs superiorly and long bristly hairs below, attaining the genal grooves which are grayish black; ocellar bristles strong, back of head with black hairs, genae with scattered hairs; a few hairs and small bristles above vibrissae, on facial ridges; antenna dark brown, somewhat reddish, basal segments blackish, reaching about 0.65 of the distance from base to vibrissal level, second seg-

ment about 0.75 of third; parafacialia about 0.41 of the distance between vibrissae.

Thorax gray, a stripe from humerus to postalar callus, the sides of scutellum, the proepisternum, the median third of the anepisternum, anepimeron, marks on superior and inferior regions of katepisternum, golden yellow pollinose; some yellow pollinosity on katatergite; a pair of strong postacrostichal bristles at the level of the presutural intralar; postacrostichals absent; 2:3 intralars; 1:3 supralars; 2 pairs of marginal scutellar bristles, strong or moderate preapicals; two very long and two moderate notopleurals; 3 bristles on katepisternum, posterior one very long, median bristle inserted a little below others; 6-7 bristles on meron. Wings with yellowish and brownish veins; tegula brownish black. Legs brown, middle and hind tibiae with yellowish apices; hind femur and



Aulacophyto baumgartneri n.sp., male. Fig. 13: Abdominal sternites. Fig. 14: fifth sternite. Fig. 15: genital segments. Fig. 16: phallic organs. Fig. 17: apex of penis, lateral view. Fig. 18: idem ventral view.

tibia with long hairs, middle tibia with, hind tibia without ventral bristle.

Abdomen black, tergites II to IV each with a dorsal pair of silvery pollinose rounded spots, and golden yellow marks on sides; no median marginal bristles on fourth tergites; sternites I and II with erect moderate long hairs; III with short scattered hairs; fourth sternite almost bare on center, with outside directed hairs laterally, erect robust hairs on the center of posterior third, behind a conspicuous tubercle which presents granulous surface (Fig. 13); fifth sternite with divergent internal margins (Fig. 14); first genital segment black with dorsal gray pollinosity and three pairs of marginal bristles, second orange red, with scattered hairs; cerci robust, curved forwards, surstyli reduced, with anterior lobe (Fig. 15); phallic forcipes curved, pointed; apodema of penis reduced (Fig. 16), paraphallus well sclerotized, apical plate large, ventralia very much reduced, styli almost straight, with broad bases (Figs. 17, 18).

Female, length: 8.5-9.5 mm. Front about 0.34 of head width; two superior outside directed frontorbital bristles smaller than reclinate one; antenna reaching about 0.85 of the distance from base to vibrissal level, second segment about 0.55 of third; parafacialia about 0.75 of the distance between vibrissae; a single pair of robust post-dorsocentral bristles inserted near scutellum; yellowish red area of syntergite VI+VII very large, almost bare, having only a few hairs laterally, near marginal row bristles; pollinose basal area yellow laterally; sternite IX narrow, with a pair of concavities; vaginal plate very large, strongly sclerotized at sides, anal tergite and sternite absent (Figs. 19, 20).

Holotype male, male and female paratypes, Tarma, Peru, about 4,000 m, 12.XI.81, on fish, female, La Oroya, 12,000 feet, D. L. Baumgartner, in the collection of "Museu Nacional".

Aulacophyto tarmaensis n.sp.
(Figs. 22 to 24)

Female, length: 9.5-9 mm. Head silvery pollinose, frontal vitta dark gray, limits of ocellar triangle light gray pollinose; front about 0.25 of head width; 7-8 frontal bristles, two inferior ones inserted below base of antenna, largely divergent; reclinate and anterior proclinate frontorbital bristles strong, superior proclinate small, having, sometimes, an additional bristle and long hairs; ocellar bristles strong; 3-4 strong bristles and long hairs on parafacialia, near eyes; facial ridges with hairs on inferior third; gena with long few hairs; antenna gray, slightly reddish, basal segments dark, reaching about 0.8 of the distance from base to vibrissal level, second

segment about 0.28 of third; parafacialia about 0.48 of the distance between vibrissae.

Thorax gray with conspicuous yellow golden marks on notopleura and anepisternum; a pair of strong presutural acrostichal bristles having an additional pair, sometimes, before the strong pair; prescutellars absent; 3:3 strong dorsocentrals; 1:2 intralars; 1:3 supralars; 2 pairs of marginals, a pair of long preapicals, on scutellum; 3 bristles on katepisternum, median one small, inserted a little below others; 6-7 bristles on meron. Wings largely yellow on base, tegula black, veins yellow and reddish brown. Legs black, tibiae reddish, middle tibia with two ventral bristles.

Abdomen black with dorsal gray pollinosity and golden yellow sides of tergites II to V; syntergite VI+VII with black base, covered with silvery and golden pollinosity on sides; apical half orange yellow, almost bare, with few hairs near the small marginal bristles, on sides; tergite VIII visible in dry specimens; sternites I to V black, each with a pair of silvery pollinose spots, bearing few short hairs and some long hairs on margins and discs; synsternite VI+VII reddish yellow with black base, following sternites yellow, eighth sternite with small marginal bristles, IX with emarginate hind margin; vaginal plate conspicuous; anal tergite and sternite not sclerotized, cerci reduced (Figs. 22, 23); spermatheca largely striated (Fig. 24).

Holotype (on liver), 3 paratypes (on fish), females, Tarma, Peru, 3,994 m, D. Baumgartner, in the collection of "Museu Nacional".

Euparaphyto peruana n.sp.
(Figs. 25 to 29)

Male, length 8-9 mm. Head gray, front about 0.27 of head width; 8-9 frontal bristle, two bristles inserted below base of antennae, strongly divergent anteriorly; reclinate frontorbital strong, longer than frontals; 3-5 strong fasciorbital bristles; back of head and gena with black hairs, the hairs of the latter long; antenna gray, basal segments black, reaching about 0.78 of the distance from base to vibrissal level, second segment about 0.68 of third, arista short pubescent, basal fourth thickened; epistoma conspicuously salient; cheek grooves black, parafacialia about 0.48 of the distance between vibrissae.

Thorax: mesonotum black with the four striae yellowish gray pollinose, median pair reaching postallar callus and the apex of scutellum which is entirely pollinose; a pair of strong preacrostichal bristles present, prescutellar absent; two strong predorsocentrals, three post-dorsocentrals, the hindmost one exceedingly

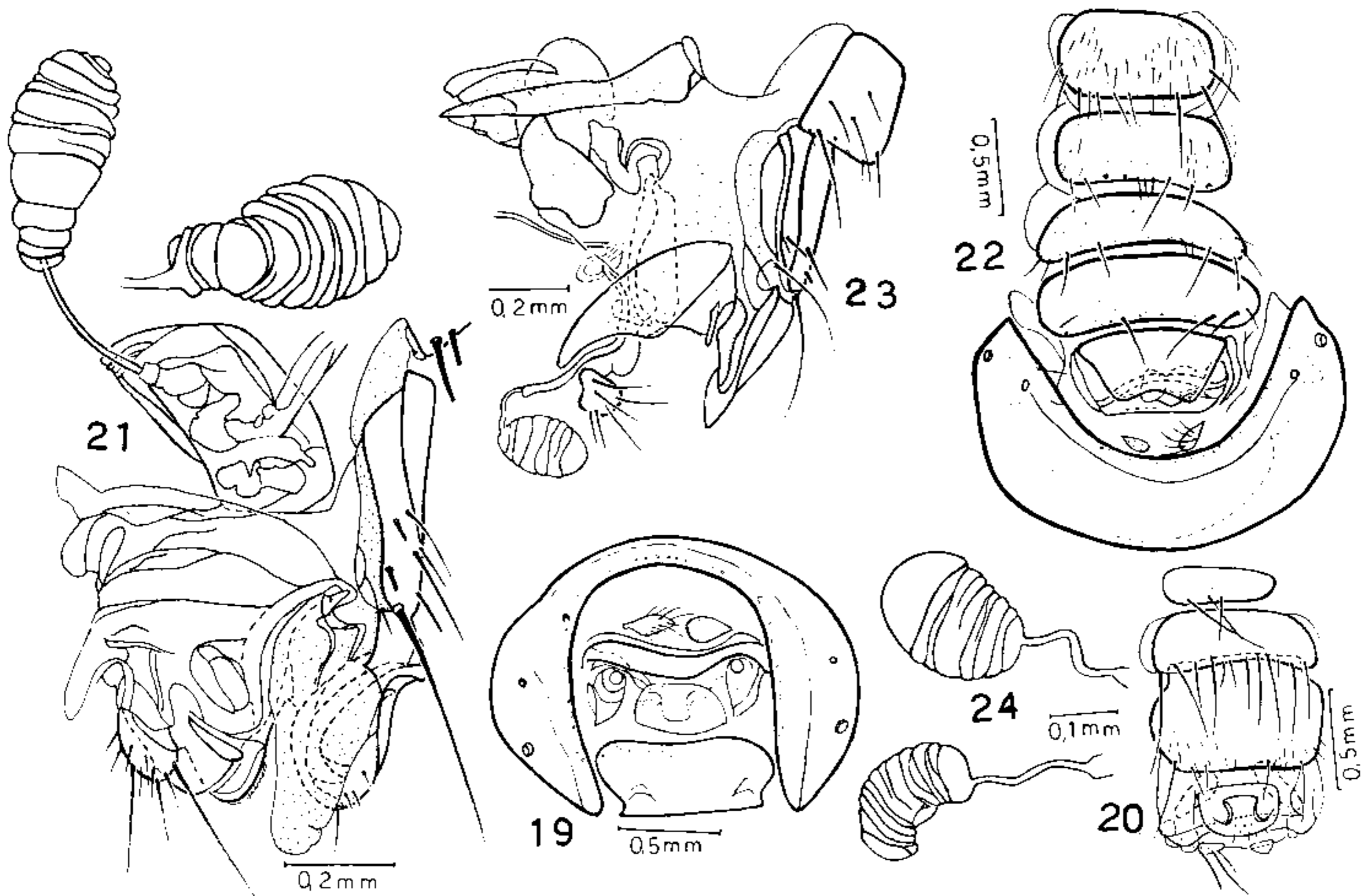
long, surpassing the apex of scutellum; 1:2 intralars; 1:3 supralars, two strong lateral scutellars, no preapical or apical bristles on scutellum; 3 bristles on katepisternum, median one a little smaller and inserted below others; meron with 5-6 bristles. Wings with orange yellow veins which become brown on apical half of R4+5, median, cubital and cross veins; costal spine very long; R4+5 hairy on basal half of the distance from base to cross vein. Legs black, middle femur without ctenideum, middle and hind tibiae with conspicuous ventral bristle.

Abdomen with median vitta, underside of abdomen, including sternites, black, dorsally with yellowish gray pollinosity and lateral vittae brown; rounded spots of gray pollinosity on III and IV tergites, near sternites and pairs of gray spots on second and third sternites; fourth tergite with a pair of strong median marginal bristles; sternites II and III with long pile, IV with moderately long pile; fifth sternite with broad median slit and short pile (Fig. 25); first genital segment shining black with small median pollinose area and three pairs of marginal bristles; second orange yellow with two pairs of

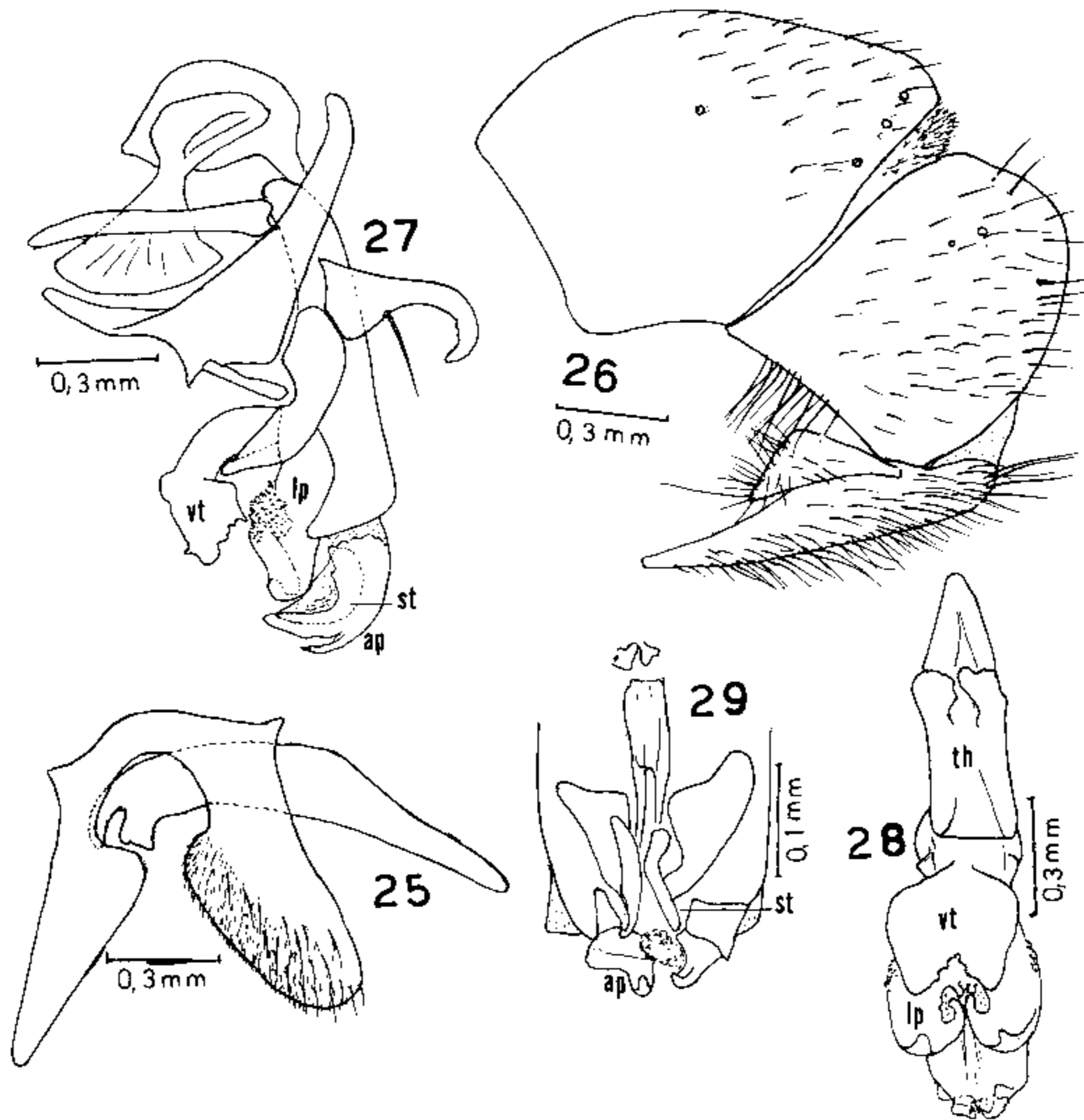
small bristles and conspicuous long hairs on ventral side; cerci reddish black, almost straight, surstyli elongated (Fig. 26); IX sternite moderate, forcipes interiores curved on apices, bearing long bristle; theca heavily sclerotized, apical plate of paraphallus composed of a pair of plates, curved on apices, lateral plates spinous ventrally, ventralia large, styli with conspicuous bases (Figs. 27-29).

Holotype and two paratypes, males, Tarma, Peru, 3,994 m, 12.XI.81, D. Baumgartner, in the collection of "Museu Nacional".

This species runs, in the key to genera of Microcerellini (Lopes, 1982:361) to *Euparaphyto* by having arista short pubescent, proepisternum bare, faciorbital bristles present, strong, and conspicuous costal spine. The apical plate of paraphallus is very different from *E. cinerea* Lopes which is very elongate, not bifid. From *E. ecuatoriana* Lopes the most striking differences are the most developed structures of the glans. The ventralia of *E. cinerea* is inserted very much far from the lateral plates being very much reduced in *E. ecuatoriana* Lopes.



Aulacophyto baumgartneri n.sp., female. Fig. 19: genitalia. Fig. 20: genital sternites, ventral view. Fig. 21: idem, lateral view. *Aulacophyto tarmaensis* n.sp., female. Fig. 22: genitalia. Fig. 23: genital sternites, lateral view. Fig. 24: spermatheca.



Euparaphyto peruana n.sp., male. Fig. 25: fifth sternites. Fig. 26: genital segments. Fig. 27: phallic organs. Fig. 28: penis, ventral view. Fig. 29: apex of penis, ventral view (ap: apical plate, lp: lateral plate, st: stylus, th: theca, vt: ventralia).

RESUMO

Sobre *Aulacophyto* e *Euparaphyto* (Diptera, Sarcophagidae, Microcerellini), com descrição de quatro espécies novas — Foram estudados *Aulacophyto reinhardi* n.sp., da Argentina; *A. baumgartneri* n. sp., *A. tarmaensis* n.sp. do Peru; *A. rusca* Hall do Chile e *Euparaphyto peruana* n.sp. do Peru; é publicada uma chave para as espécies de *Aulacophyto*.

Palavras-chave: *Aulacophyto* novas espécies — chave — *Euparaphyto* nova espécie

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