BLACKFLY NOVELTIES FROM THE AREA NEAR THE "PARAMO DE LOS VALLES" IN THE DEPARTMENT OF TOLIMA, COLOMBIA (DIPTERA:SIMULIIDAE)*

por

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Resumen

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Simulium (Ectemnaspis) anaimense, se describe con base en la hembra farate, macho farate, pupa y larva. Se mencionan algunos datos de su biología y se relacionan las especies presentes en el Páramo de los Valles, cercano a la quebrada Potosí donde se encontró la nueva especie en el Departamento del Tolima, Colombia.

Palabras clave: Simuliidae, **Simulium (Ectemnaspis) anaimense,** Tolima, Colombia.

Abstract

Simulium (Ectemnaspis) anaimense, new species , is described from the pharate female, pharate male, pupa and larva. The biology of the new species and the species present in the Paramo region near the Potosi stream in the department of Tolima, Colombia are mentioned.

Key words : Simuliidae, **Simulium (Ectemnaspis) anaimense,** Tolima, Colombia.

The opportunity to visit the "Reserva de Anaime" area and the "Páramo de los Valles" looking for *Simulium (Ectemnaspis) tolimaense* permit us to collect several species of Simuliidae in the region. At the Paramo, between 3285 m and 3530 m we found several larvae and some pupae of *Simulium (Ectemnaspis) bicornutum, Gigantodax cervicornis, G. wygodzinskyi, G. multituberculatus, G. multifilis, G. zumbahuae* and *G. misitu*. *G. multifilis* and *G. zumbahuae* are the first citations for Colombia (**Muñoz de Hoyos**, 1995).

In the stream of Potosí, near the police inspection, in the row to the paramo region, at 2330 m, were founded several larvae, two pupae and one exuvia of pupa of one species undescribed until now. The Potosí stream begins in the Paramo and goes to the Anaime river.

Based on the pupae morphology, specially on the cocoon shape with very thick walls, dorsal surface of cocoon with a thick longitudinal ridge, anterior margin conspicuously thickened and individual threads difficult to discern, thrichomes morphology of pupa thorax and larva body tegument, plus yellow *scutum* and *scutellum* and female cibarium with many tubercles between the lateral cornuae, we consider that it corresponds to the subgenus *Simulium* (*Ectemnaspis*).

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Description

Simulium (Ectemnaspis) anaimense n. sp. (Figs. 1-23)

Pharate female. The female was very inmature, for that reason the description of the female is incomplete. Color of the *scutum* yellow. Frons wide (0.15 mm). Length of antena 0. 53 mm. Cibarium with pigmented cornuae, space between cornuae with many tubercles; the number and rows of them were difficult to count because of the lack of pigment of the cibarium. Ratio of lengths of segments III - V of the maxillary palp 1: 1.36 : 2.22; sensory vesicle half as length of the third article. Calcipala about as high as wide. Claw III subbasally with medium-sized, pointed projection.

Pharate male. (Figs. 1-2). As it was very inmature only the following information was obtained: *Scutum* and *scutellum* yellow, *postnotum* blackish. Palp sensorial organ as in figure 1, about 1/3 of the article. Calcipala well developed (Fig. 2).

Pupa. (Figs. 3-11). Length of cocoon along dorsal surface 2.6 mm (n=3), along ventral surface 3.4 mm (n=3). Length of respiratory organ 2.3 mm (n=3).

Cocoon whitish, thick, reinforced at the rim of aperture and on a median dorsal ridge (Fig. 3); texture as felt, threads visible only under only high magnification.

Frontoclypeus with rugose platelets moderate in number but abundant around the base (Fig. 4). Frontoclypeus with 1+1 facial trichomes with curl-shape base and 4-7 branches (Fig. 5) and 2+2 frontal trichomes with curved base and 8-9 branches (Fig. 6). Thorax trichomes in number of 5+5 dorsally with 11+13 branches (Figs. 7, 10). The trichomes show curved base and branches flattened basally. Thorax with rugose platelets more concentrated around the base of the respiratory organ (Figs. 8, 9).

Gill branches whitish, thick and dispposed in several planes, dotted homogeneously (Fig. 8), in number of six. Basal trunk well evident with three primary branches, a few longer than the basal trunck, bifurcated and getting slowly thin until the apex.

Abdomen with onchotaxy as in figure 11 .

Larva . (Figs. 12-23). Maximum length of mature larva 4.0 - 5.5 mm (n=8).

Head color brown, body green to light blue over whitish base; shape and ornamentation as in figure 12, showing distally two small ventral papillae.

Cephalic apotome brown, dark basally (Fig. 13) with slowly accuminate anterior border and numerous single thrichomes (Fig. 14). Postgenal bridge about 1/6-1/4.7 of hypostomium high. Hypostomial setae arranged in single row, numbering 4+5 in each row; disc of hypostomium with a simple setae and with 4-8 lateral serrations (Fig. 15). Cephalic fan with 28-34 rays, fan rays showing alternativelly 3-5 small teeth between 2 long teeth, about twice longer than the former (Fig. 16). Antenna light brown longer than stem of the cephalic fan. Ratio of lengths of articles I-III = 1: 1.0 - 1.1 : 1.5 - 1.6 (n=4) (Fig. 17). Mandibles with 9-10 internal teeth, with one latero mandibular process; three subapical teeth, conspicuously decreasing in size from first to third, two marginal serrations present, the anterior two times bigger than the second one (Fig. 18). Maxillary palp robust, with 4-5 apical papilles (Fig. 19).

Thorax and abdomen cuticule with palmiform trichomes with some single filiform intermixed, very abundant on abdomen dorsal and laterally (Fig. 20). Proleg sclerite with teeth dispossed in 6- 7 groups of 2-3 teeth each (Fig. 21). Anal sclerite as shown in figure 22. Anal circle with 64-70 rows each composed of 11-14 hooks. Anal gill consisting of three groups of 18-12-15 elongate diverticles in each group (Fig. 23).

Material examined. Holotype: very inmature female; Colombia : Tolima: Potosí stream; 17 Km far from Anaime, 2330 m, Aug 6 1994 (S. Coscarón; ICN-MHNDIPSi 1505). **Allotype**: pharate male; Colombia : Tolima: same data as holotype (S. Coscarón; MLP). **Paratypes** : pupa exuvia; Colombia : Tolima: same data as holotype (R. Miranda; ICN-MHNDIPSi 1506); several larvae same data as holotype (C. Moreno & L. Arteaga; ICN-MHNDIPSi 1507-1509, 1614).

Etymology. The specific name is taken from Anaime, a little town near the "quebrada Potosí" in which this insect was found.

Biology. Larvae and pupae were obtained in medium size torrentous stream with crystalline cold water. Larvae and pupae occurs attached to trailing roots on the high speed running waters.Temperature 21°C; water temperature 12°C ; pH 7.46, resistance - 0.23mV. One of the larvae was infected with a mermithid. *Simulium (Ectemnaspis) ignescens* was present with this new species.

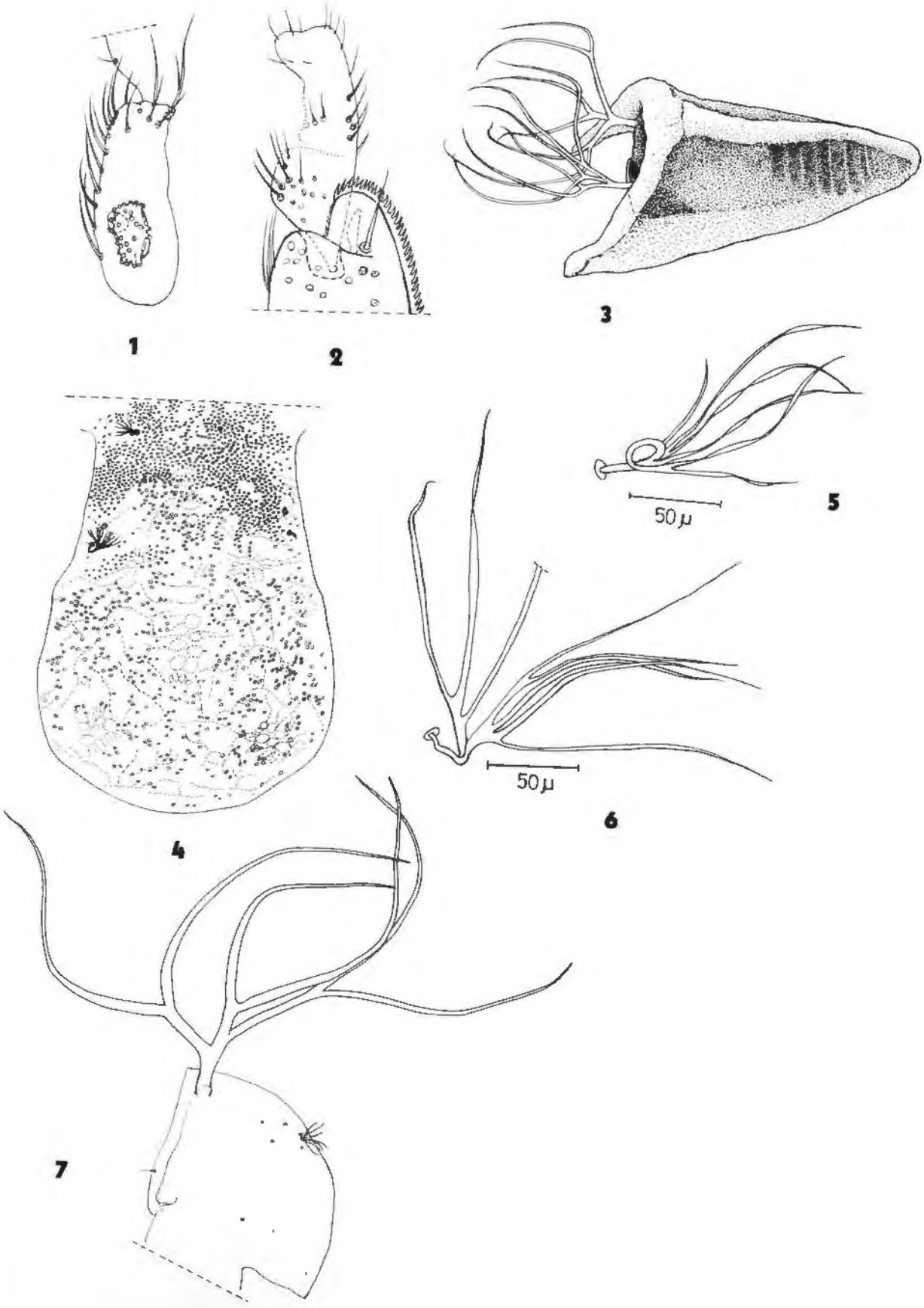
Distribution. This new species was found in the Cordillera Central from the Andes of Colombia, in the department of Tolima.

Discussion

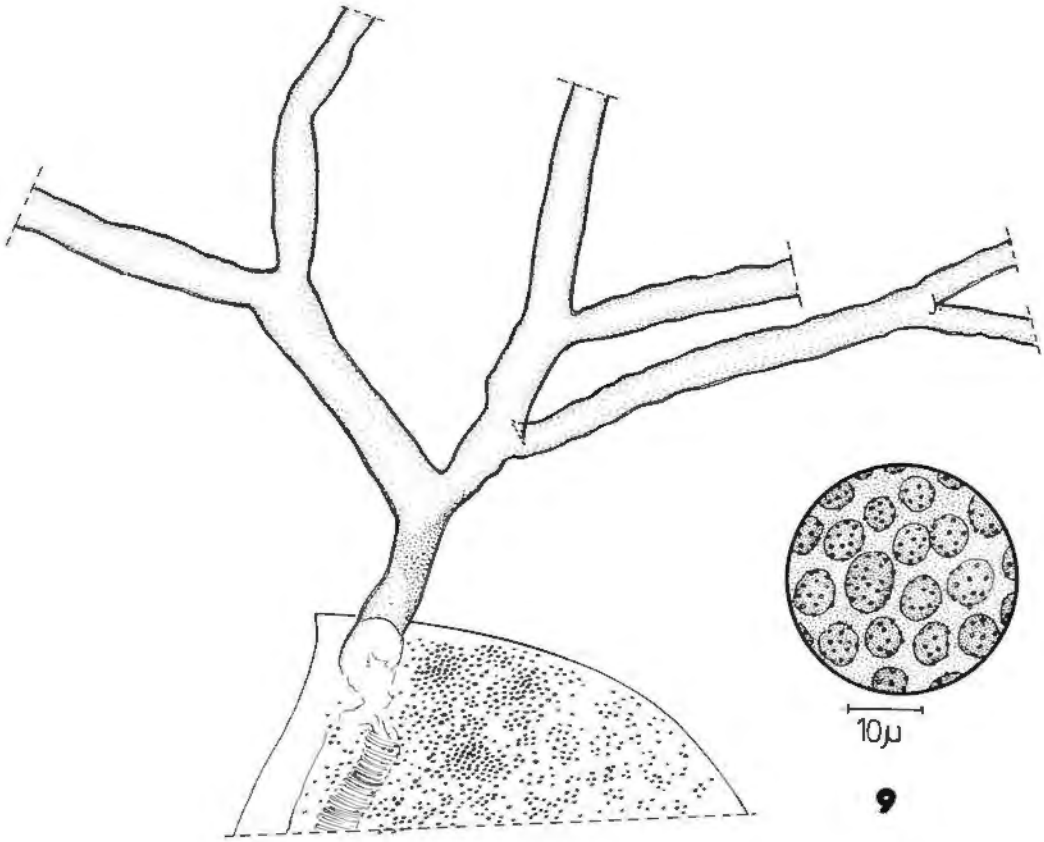
The new species is specially defined by the peculiar pupa gill compossed by 6 thick tubular branches dispossed in several planes and with homogeneous microstructure.

In accordance to the larva body trichomes this species is closed to *Simulium (Ectemnaspis) albanense* (**Coscarón**, 1990) (the bifid trichomes of *S. albanense* probably are the expression of similar palmiform trichomes boiled in NaOH); the thin membranous trichomes of larvae are well evident without alkalis traitment and stained with lignin pink.

The thick whitish cocoon reinforced on the anterior border and medial dorsally ridge with fibers not differenciate with individual threads difficult to discern, plus the multirramous thorax and frontoclypeus trichomes



Figs. 1-2. *Simulium anaimense* pharate male. 1: Basal article and sensorial organ of maxillary palp. 2: Calcipala and second tarsal segment.
Figs. 3-7. *Simulium anaimense* pupa. 3: Pupa in cocoon, lateral view. 4: Frontoclypeus. 5: Facial trichomes of frontoclypeus. 6: Frontal trichomes of frontoclypeus. 7: Thorax and gill.



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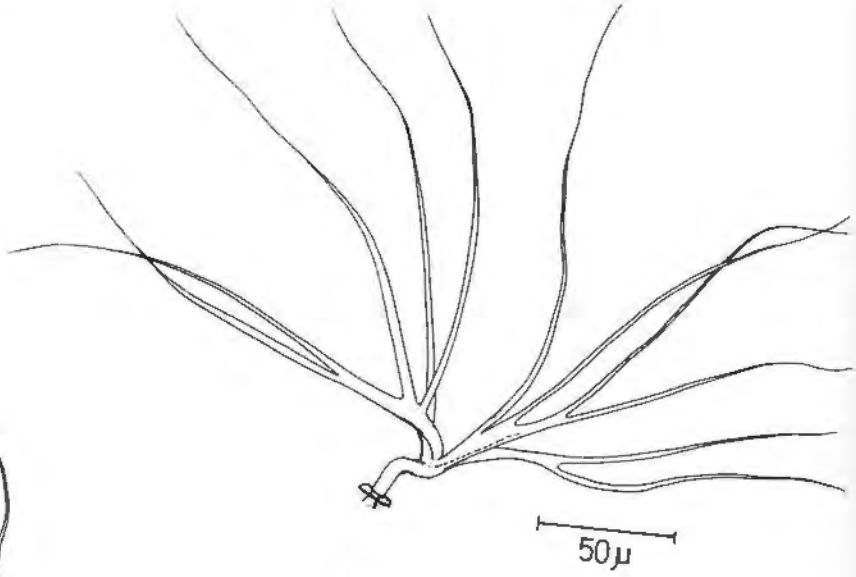

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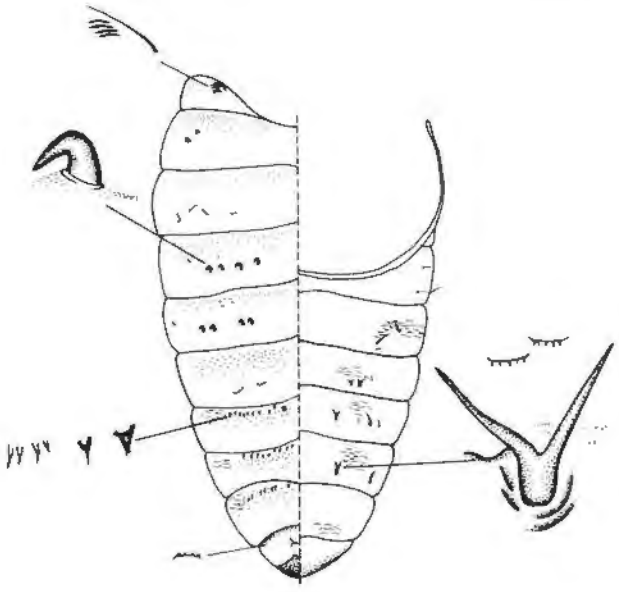

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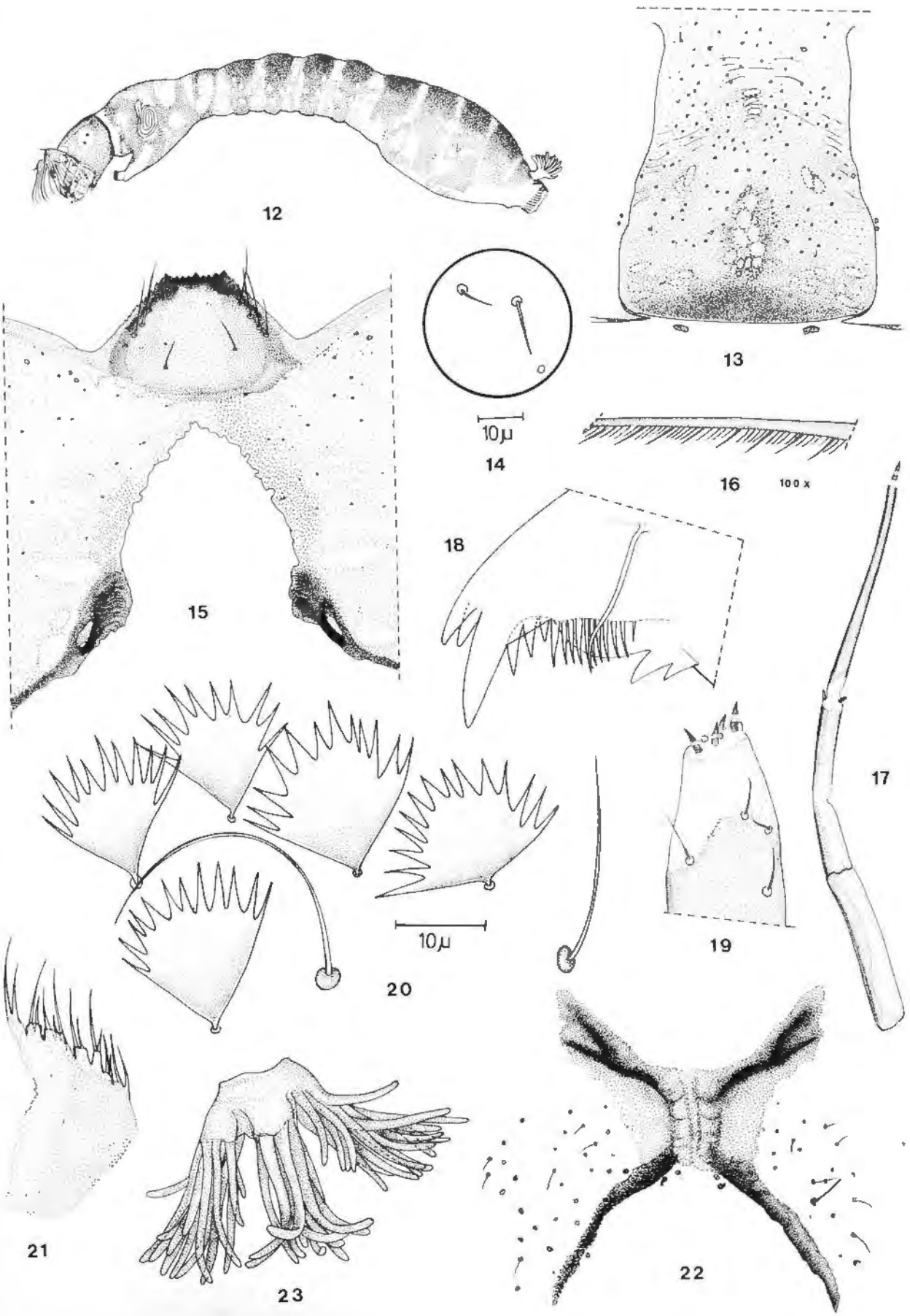
Figs. 8-11. *Simulium anaimense* pupa. **8**: Portion of thorax and basal branches of gill. **9**: Aspect of platelets with high magnification. **10**: Dorsal thorax trichome. **11**: Onchotaxy of abdomen.



Figs. 12-23. *Simulium anaimense* larva. **12**: Larva, lateral view. **13**: Cephalic apotome. **14**: Trichomes of cephalic apotome. **15**: Portion of head, seen from below. **16**: Detail of ray of large fan of mouth brush. **17**: Antenna. **18**: Apex of mandible. **19**: Apical portion of maxillary palp. **20**: Trichomes of body tegument. **21**: Lateral sclerite of proleg. **22**: Anal sclerite. **23**: Anal gills.

and the abdominal onchotaxy very similar to *Simulium (Ectemnaspis) furcillatum* (**Wygodzinsky & Coscarón**, 1982), added to yellow *scutum* and *scutellum* and black *postnotum*, characteristics of mostly species of *romanai* group of *Simulium (Ectemnaspis)* (**Coscarón**, 1984, 1990) induce us to include the new species in this subgenus. In concordance, ornamentation and morphology of head, body, and appendages of larva, congruent with the *S. (Ectemnaspis)* species, are another evidence to sustain the taxonomic position. Unfortunatelly we could not obtained mature imagos, in order to see the morphology of the genitalia helping on its systematic ubication.

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