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REDESCRIPTION OF *DROSOPHILA TARSATA* SCHINER, 1868 AND DESCRIPTION OF A NEW SPECIES, BOTH IN THE *ANNULIMANA* GROUP (DIPTERA, DROSOPHILIDAE)¹

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(With 5 text-figures)

Duda described *Drosophila annulimana* from a series of five females collected in Bolivia, as a probable variety of *D. tarsata* which had been described by Schiner (1868) from a specimen collected in "South America". Dobzhansky & Pavan (1943), unaware of the existence of a group of closely related species, described materials collected at Iporanga, Sao Paulo (Brazil) and considered it as a redescription of *D. annulimana* Duda.

As diagnostic characters in females of this group have not been found up to this date, it is impossible for us to verify the identity between the Duda's types and the specimens described by Dobzhansky & Pavan. Although we suspect they may not be conspecific, based on their known geographical distribution (Bolivia and the Brazilian Atlantic Forest respectively), we have no elements in the moment to clarify this.

Pavan & Cunha (1947) described *D. ararama*, *D. arassari*, *D. arapuan*, and were the first to consider this set of species as the "*annulimana* group". Curiously all papers dealing with this group have successively omitted *D. tarsata*. Following the

suggestion of Dr. M. R. Wheeler (University of Texas), we borrowed the holotype of *D. tarsata*, which is deposited in the "Naturhistorischen Museum", Vienna. Recently, its position in the *annulimana* group has been confirmed by Vilela and Pereira (1982). We are here presenting a redescription of *D. tarsata* and a comparison to its related species.

A new species, the 12th member of the *annulimana* group, has been found among the strains maintained by the Genetics Foundation in the Department of Zoology of the University of Texas at Austin, and it is being described as *D. aracataca*, sp. nov. The other species currently accepted to belong in this group are: *annulimana*, *ararama*, *aragua*, *araicas*, *arapuan*, *arassari*, *arauna*, *breuerae*, *gibberosa*, *talamancana* and *tarsata*. *D. gigas* Duda (1925) is considered to be uncertain in this group (Val *et al.*, 1981).

In preparing the male and female genitalia we followed Wheeler & Kambysellis (1966). The terminology used for the male genitalia is modified after Hsu (1949) and Kaneshiro (1969); for details see Vilela (1983).

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✓ *Drosophila (Drosophila) aracataca*, sp. nov.
(Figs. 1; 2; 3a)

Type-material – Holotype male, labelled: “*Drosophila aracataca*, W. B. Heed *et al.* col. /El Recuerdo, Magdalena, Colombia. 26.VIII.1956/ H186.38 HOLOTYPE ♂”, in MZUSP (São Paulo). Twenty-seven paratypes as follows: (1 ♂ dissected, 2 ♀: one dissected) in MZUSP, (10 ♂, 10 ♀) in DTRC (Austin), (2 ♂, 2 ♀) in NMNH (Washington, D.C.); same data as holotype. All specimens were obtained from DZUT Culture 186.38 in 1979. *Type-locality*: El Recuerdo, Magdalena, Colombia.

External characters of imagines ♂, ♀ – Arista with 3-5 dorsal and 2 ventral branches plus terminal fork. Antennae dark brown. Front dark brown, pollinose. Orbits and anterior region lighter, with bristles arising from dark brown spots. Middle orbital with about 3/4 of other two. Second oral as long as first. Face blackish brown, pollinose. Carina broad below, sulcate, pollinose. Palpi brown, pollinose, with bristles on ventral surface. Cheeks brown, pollinose, their greatest width about 1/3 greatest diameter of eyes. Eyes dark red wine, with short black piles.

Acrostichal hairs in 8 irregular rows. Two long prescutellars. Anterior scutellars convergent. Mesonotum light brown, pollinose, with bristles arising from dark brown spots somewhat fused in the anterior and lateral region. Scutellum dark brown, pollinose, with some irregular lighter spots. Pleurae coffee brown, pollinose. Sterno index about 0.8. Halteres light brown. Coxae, femora and tibiae dark brown; first segment of tarsi proximally yellow, distally dark brown, 2nd and 3rd pale yellow, 4th and 5th dark brown. Apical bristles on first and second tibiae, preapical on all three.

Abdomen brown, all segments with an irregular posterior silver-gray band, except the 6th which is entirely brown.

Wings light brown, surface slightly wrinkled. Costal index about 3.8; 4th vein index about 1.6; 5x index about 1.1; 4c index about 0.6; M index about 0.4. Apex of first costal section black, with two enlarged bristles. First costal section of males with a double row of strong bristles (Figs. 1a, b). Third costal section with heavy bristles on its basal 2/3. Third and fourth longitudinal veins convergent. Crossveins strongly clouded.

Wings length about 3.5 mm (♂, ♀).

Body length (dried specimens) about 4.7 mm (♂); 4.8 mm (♀).

Genitalia (♂) – Epandrium with about 22 lower and 2 upper bristles. Cerci fused at lower half. Surstylus with about 10 primary teeth, 15 secondary teeth and 5 marginal bristles. There is no distinct difference between marginal bristles and secondary teeth (Fig. 2a).

Hypandrium slightly shorter than epandrium; concha of hypandrium bearing one anterior bristle (Fig. 2b).

Aedeagus (Figs. 2c-e) with a pair of short, subapical spurs; rough plate of apex about half of posterior dorsoventral edge (Fig. 3a), shorter than in *D. annulimana* (Fig. 3b) and longer than in *D. araicas* (Fig. 3c); dorsal region convex with a pair of wing-shaped projections; dorsal cleft occupying all length but apex. Aedeagal apodeme and ventral rod broadly fused. Ventral rod slightly shorter than gonopod. Gonopod well-developed with about 4 small subapical sensilla, linked to concha of hypandrium by membranous tissue. Phallosomal index about 2.4. (♀) – Ovipositor apically pointed with about 15 marginal and 5 discal teeth. Spermatheca light bulb-shaped, weakly sclerotized with irregular, circular ridges on proximal region; distal surface covered with small bristles; duct deeply invaginated.

Eggs, puparia and chromosomes – Not studied.

Other strains examined (2, DZUT) – COSTA RICA: Cartago; Turrialba (H161.10). EL SALVADOR: San Salvador; Volcan San Salvador, Crater El Boqueron (H42.38).

Relationship – *D. aracataca* belongs to the *annulimana* group of the subgenus *Drosophila*. It is closely related to *D. annulimana* Duda (*Sensu* Dobzhansky & Pavan, 1943), *D. araicas* Pavan & Nacur and *D. aragua* Vilela & Pereira, from which it differs chiefly in the shape of aedeagus.

Distribution – El Salvador, Costa Rica, Colombia.

Etymology – The specific name refers to the toponym “Rio Aracataca” situated not far from the type-locality.

Remarks – Specimens of the strains H161.10 (species D of Throckmorton, 1962) and H42.38 (species B of Throckmorton, 1962) examined in 1979, were found to be conspecific with the strain H186.38 used for the description of *D. aracataca*. Throckmorton (op. cit.) figured the ejaculatory bulb, apodeme, paragonia, vasa deferentia and spermatheca of two different species referred to as B and D. It was impossible for us to verify whether the

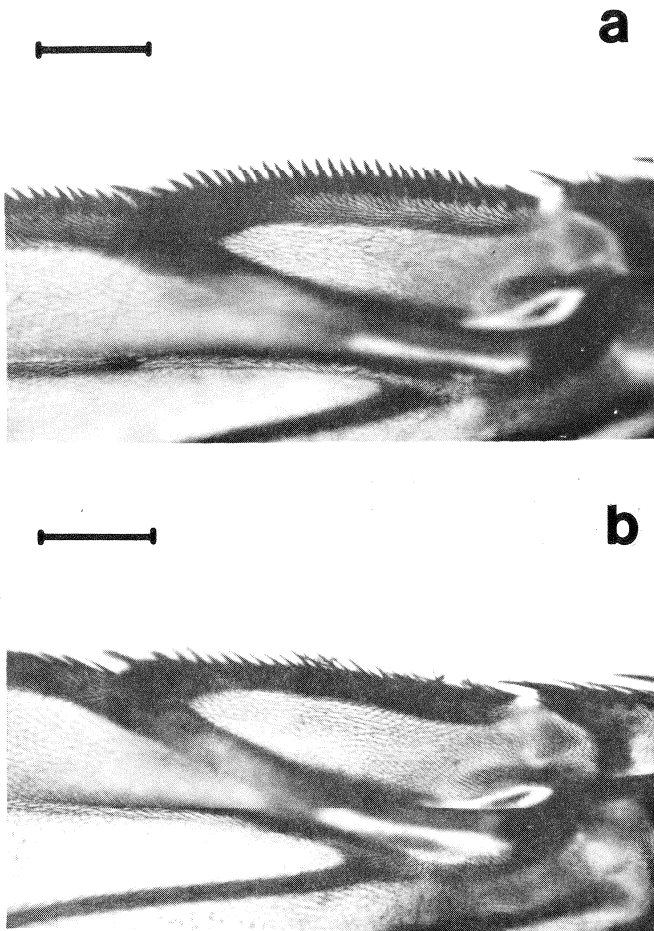


Fig. 1 - *Drosophila aracataca*, sp. nov. (strain H186.38), first costal section of wing: a, male; b, female. Bars: 0.2 mm.

ocks used by Throckmorton in the early 60's are actually the same as those analyzed in 1979 under identical stock numbers.

✓ *Drosophila (Drosophila) tarsata* Schiner
(Figs. 3d; 4; 5)

Type-material - Holotype male, labelled: "Lindig 1864 Venezuela/*tarsata* Alte Sammlung HOLOTYPE /*D. tarsata* Schiner", in the "Naturhistorischen Museum", Vienna. The abdomen has been removed, dissected and placed in an attached microvial. Type locality: "Venezuela". According to Schiner's original description, the only available specimen came from

"South America", although one locality label attached to the holotype specifies Venezuela.

External characters of imagines ♂ - Arista with 4-5 dorsal and 2 ventral branches plus terminal fork. Antennae dark brown. Front brown, pollinose. Orbits and posterior region lighter. Middle orbital with about 1/2 of other two. Second oral about 3/4 of first. Face light brown, pollinose. Carina broad below, sulcate, pollinose. Palpi light brown, pollinose, with bristles on ventral surface. Cheeks brown, pollinose, their greatest width about 1/3 greatest diameter of eyes. Eyes brown, with short black piles.

Acrostichal hairs in 8 irregular rows. Two long prescutellars. Anterior scutellars divergent (convergent in *D. annulimana* Duda *sensu*

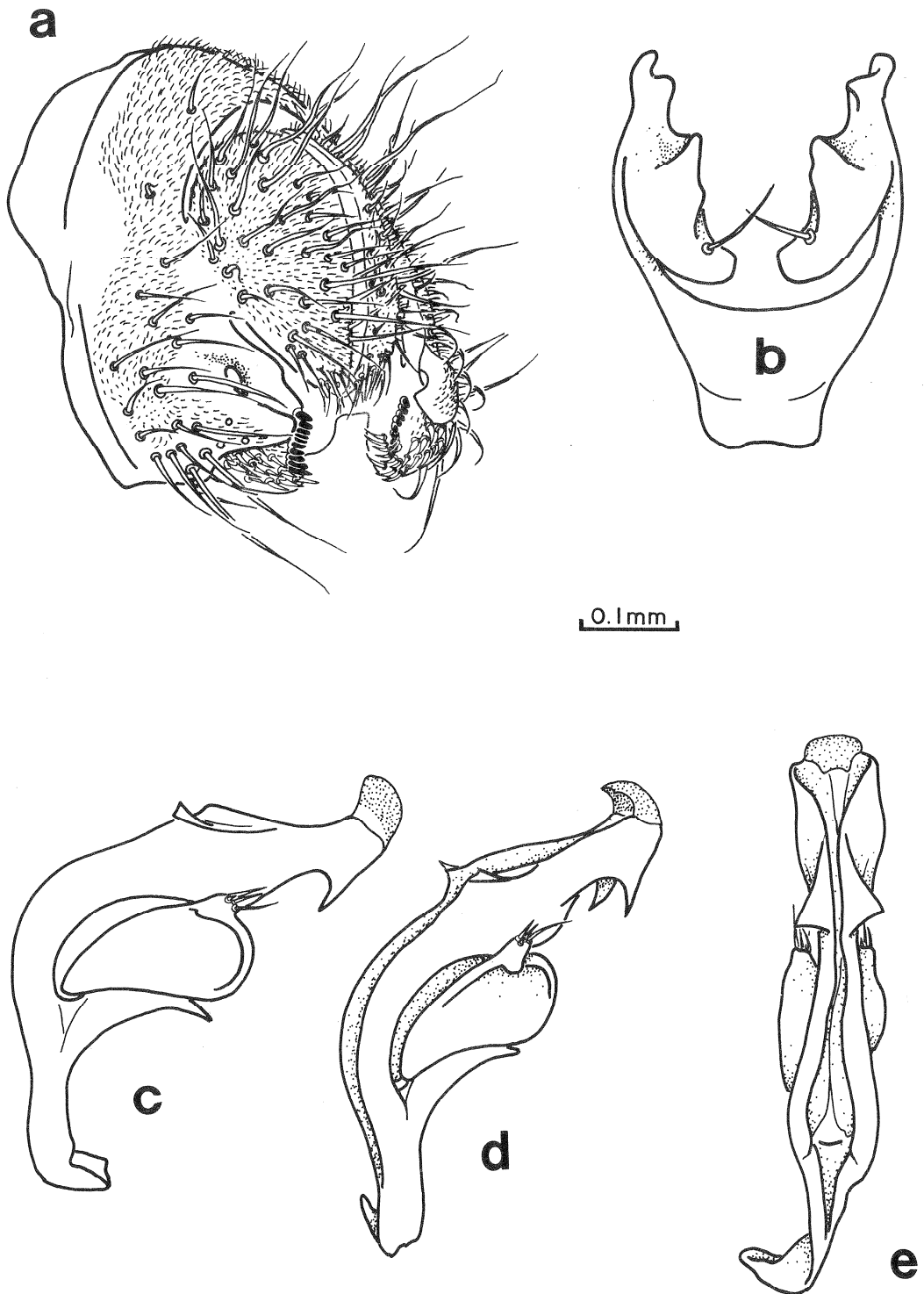


Fig. 2—*Drosophila aracataca*, sp. nov. (paratype): a, external male genitalia, lateroblique aspect; b, hypandrium, posterior aspect; c-e, aedeagus, several aspects.

Dobzhansky & Pavan). Mesonotum brown, pollinose with bristles arising from dark brown spots, somewhat fused at antero-lateral region. Scutellum dark brown, pollinose, with some irregular lighter spots. Pleurae dark brown, pollinose. Sterno index about 0.8.

Halteres light brown. Coxae brown; femora brown; tibiae proximally brown, dark brown at distal half; tarsi proximally yellow, brown at distal joints. Apical bristles on first and second tibiae, preapicals on all three.

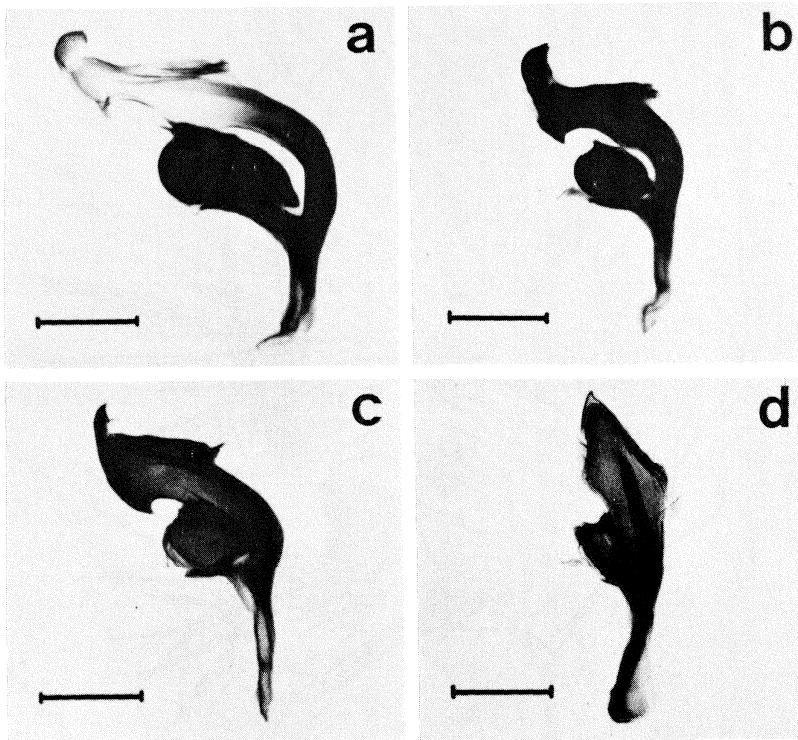


Fig. 3. Aedeagi, lateral aspects: a, *Drosophila aracataca*, sp. nov. (paratype, MZUSP); b, *Drosophila annulimana* Duda (Iporanga, São Paulo, VII-943, MZUSP); c, *Drosophila araicas* Pavan & Nacur (paratype, MZUSP); d, *Drosophila tarsata* Schiner (holotype, "Naturhistorischen Museum", Vienna). All bars: 0.2 mm.

Abdomen brown; each tergite with an irregular posterior slightly darker band, lateral areas brown.

Wings honey-yellow, surface slightly wrinkled. Costal index about 3.9; 4th vein index about 1.5; 5x index about 1.0; 4c index about 0.6; M index about 0.4. Apex of first costal section black, swallowed, with two enlarged bristles. Third costal section with heavy bristles on its basal half. Third and fourth longitudinal veins convergent. crossveins clouded.

Wings length about 4.3 mm.

Genitalia ♂ - Epandrium with about 19 lower and none upper bristles. Cerci fused at lower 1/3.

Surstylus with about 8 primary teeth, 22 secondary teeth and 7 marginal bristles. There is no distinct difference between marginal bristles and secondary teeth (Figs. 4a, b).

Hypandrium about as long as epandrium; concha of hypandrium bearing a submedian bristle (Fig. 5a).

Aedeagus with one pair of dorso-lateral projections: posterior end with two small beaks and no rough plate (typically present in the *D. annulimana* sibling set: *D. annulimana*, *aracataca*, *aragua* and *araicas*): dorsal cleft about 4/5

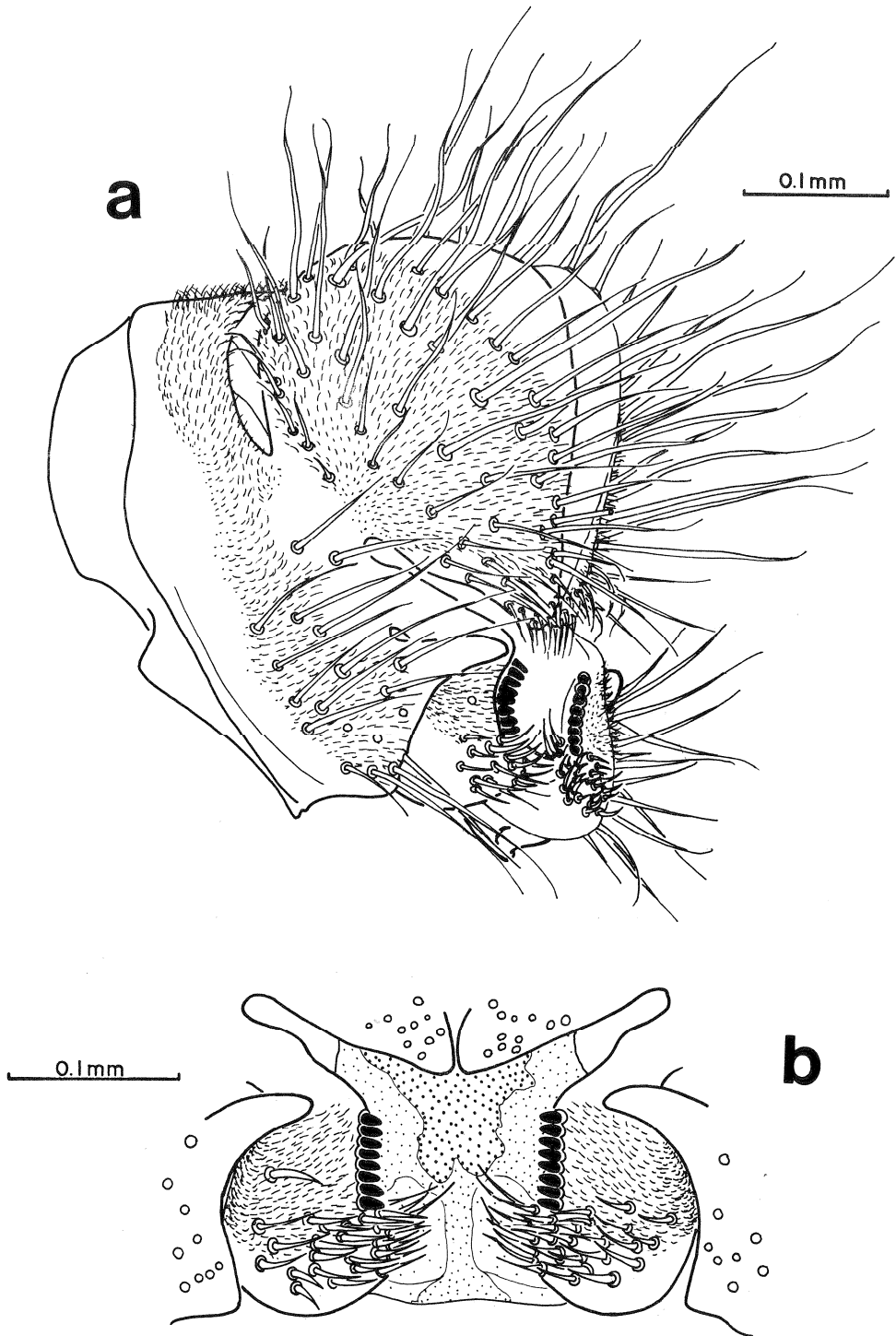


Fig. 4 - *Drosophila tarsata* Schiner (holotype): a, external male genitalia, lateroblique aspect; b, surstyli, posterior aspect.

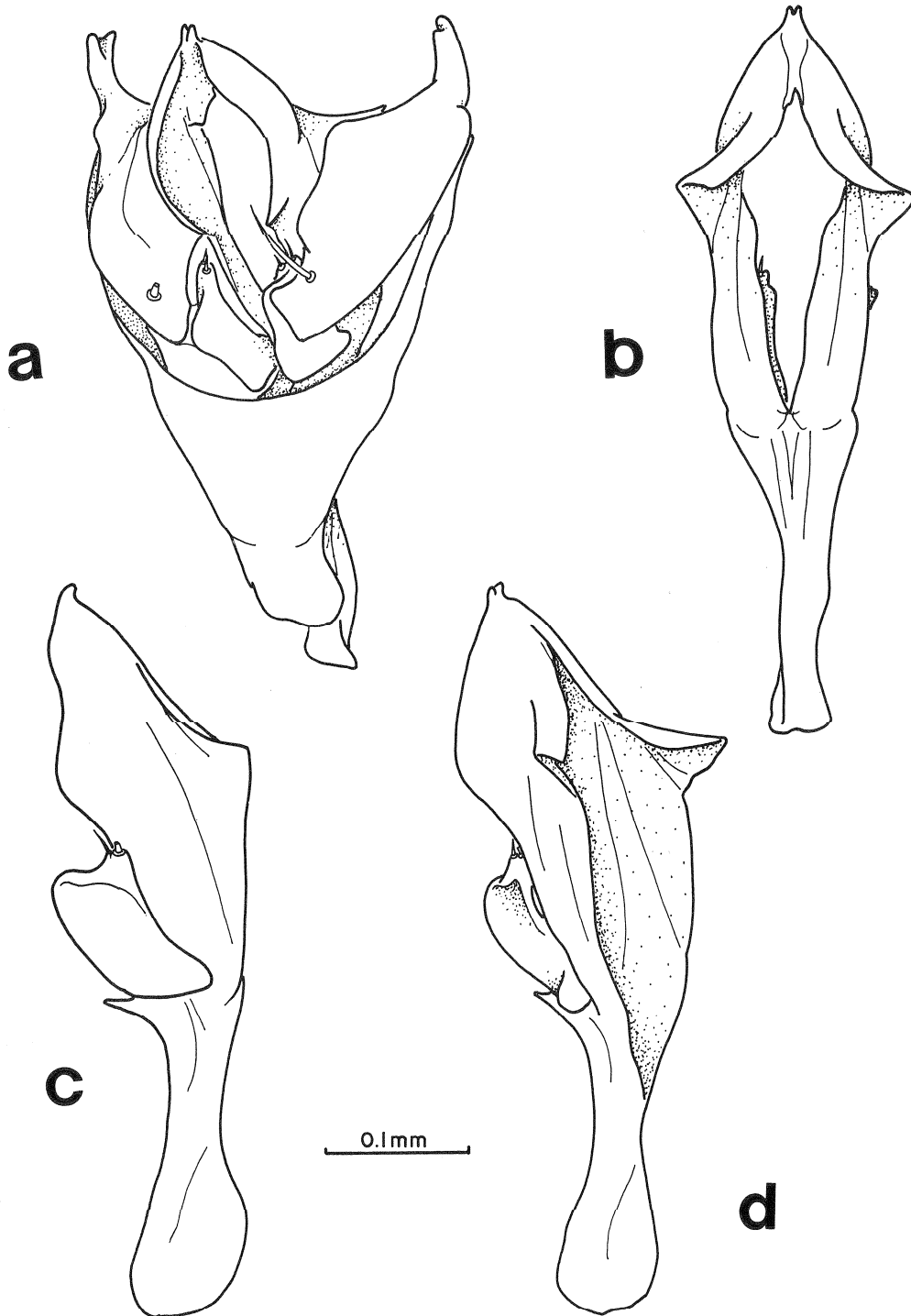


Fig. 5 – *Drosophila tarsata* Schiner (holotype): a, internal male genitalia, lateroblique aspect; b-d, aedeagus, several pects.

of length. Ventral rod rudimentary. Gonopod with about 3 sensilla, linked to concha of hypandrium by membranous tissue (Figs. 5b-d). Phallosomal index about 1.4. ♀, eggs, puparia and chromosomes – Unknown.

Relationship – Belongs to the *annulimana* group of the subgenus *Drosophila*. It is related to *D. breueriae* Rocha from which it may be distinguished chiefly by the following characters: distinctive shape of aedeagus, divergent anterior scutellars and the presence of two long prescutellars.

Distribution – Known only from the holotype collected somewhere in Venezuela.

SUMMARY

The holotype of *Drosophila tarsata* Schiner, belonging to the *annulimana* group of the subgenus *Drosophila*, is redescribed. *D. aracataca*, sp. nov. (type-locality: El Recuerdo, Magdalena, Colombia), in the same group, is described and compared to closely related species.

RESUMO

Este trabalho apresenta a redescricao do holótipo de *Drosophila tarsata* Schiner, espécie pouco conhecida do grupo *annulimana*. Contém também a descricao de um novo membro do mesmo grupo: *D. aracataca*, sp. nov. (localidade-tipo: El Recuerdo, Magdalena, Colômbia).

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