

A NEW SPECIES OF THE ANNULIMANA GROUP OF THE GENUS
DROSOPHILA (DIPTERA, DROSOPHILIDAE).

Carlos Ribeiro Vilela 1,2
Maria Augusta Q. R. Pereira 1

ABSTRACT

Drosophila aragua, sp. nov. (type-locality: 10 km S of Santa Maria da Serra, São Paulo, Brazil), belonging to the annulimana group of the subgenus *Drosophila* is described and illustrated. It is closely related to *D. araicus* Pavan & Naerur and *D. annulimana* Duda but readily distinguished by male genitalia.

INTRODUCTION

D. annulimana was doubtfully described by Duda (1927) as a probable variety of *D. tarsata* Schiner. The *annulimana* group was first cited by Pavan & Cunha (1947). Breuer & Pavan (1950) divided the group into three sub-groups as follows: species with prescutellar bristles, *D. annulimana*, *D. araicus* and *D. arauana*; species without prescutellar bristles, anterior scutellar bristles convergent, *D. gibberosa* and *D. ararama*; species without prescutellar bristles, anterior scutellar bristles divergent, *D. arassari* and *D. arapuan*. Burla & Pavan (1953), followed by Wheeler (1968), considered *D. talamancana* as member of the *D. annulimana* species group. Another species, *D. breuerae*, was included in the group by Rocha (1971). *D. aragua* described below is a new member in the *annulimana* group. The type specimen of the *D. tarsata* Schiner recently loaned to us by the Naturhistorischen Museum in Vienna, will be subject of a forthcoming paper. We anticipate here that it clearly belongs to the *annulimana* group and it is different from *D. annulimana sensu* Dobzhansky & Pavan (1943).

Drosophila (Drosophila) aragua, sp. n.
(Figs. 1, 2)

Drosophila sp Z Vilela et al., 1980: 839.

Type-material. Holotype male, labelled: "Brasil-SP, 10 Km S. Santa Maria da Serra, 22°40'S, 48°12'W, F. M. Sene col., 15.VIII.1980/HOLÓTIPO ♂ *Drosophila aragua*"; paratypes (10 ♂, 21 ♀): same data as holotype. All paratypes but two were originated from F₁ and F₂ generations of an isofemale line. Holotype, one male paratype and the female which gave origin to the isofemale line were wild-caught. An additional paratype is labelled: "Argentina-Tuc., 14 Km N. Tucuman, 26°39'S, 65°14'W, Sene & Vilela col., 25-26.X.1978/PARÁTIPO ♂ *Drosophila aragua*". The postabdomen of holotype and 8 paratypes (4 ♂, 4 ♀) were removed, dissected and placed in microvials attached to the respective specimens. All the specimens are in the "Museu de Zoologia da Universidade de São Paulo" (São Paulo).

External characters of imagines. ♂, ♀. Arista with 3-5 dorsal and 2-3 ventral branches plus the terminal fork. Antennae dark brown. Front brown, pollinose. Orbits lighter. Middle orbital with 1/2 of other two; base of middle orbital in front of and laterally from that of anterior. Second oral varying from 1/4 to the same size of first; sometimes 3 large orals of about the same size. Face brown, pollinose. Carina slightly broad below, sulcate, pollinose.

1. Departamento de Biologia, Instituto de Biociências, Universidade de São Paulo, Caixa Postal 11461, São Paulo, SP.
2. Fundação de Amparo à Pesquisa do Estado de São Paulo, postdoctoral fellowship (Proc. Biol. 81/0483-9).

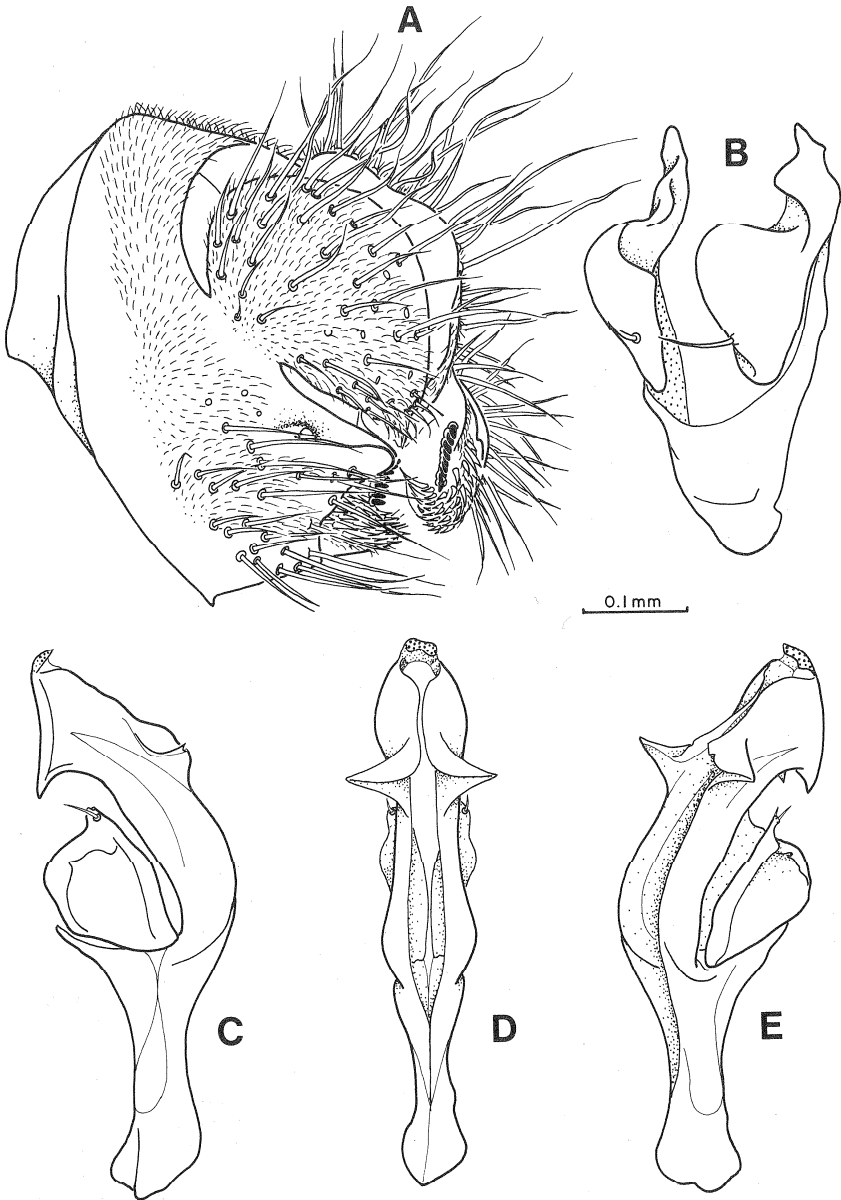


Figure 1. *Drosophila aragua*, sp. nov. (holotype): A, epandrium, cerci and surstyli, lateroblique aspect; B, hypandrium, lateroblique aspect; C-E, aedeagus and aedeagal apodeme, several aspects.

Palpi dark 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 convergent. Mesonotum yellowish brown, pollinose, bristles arising from dark brown spots somewhat fused in anterior and lateral region. Scutellum dark brown, pollinose, with some irregular yellowish brown spots. Pleurae dark brown, pollinose. Sterno-index about 0.8. Halteres yellowish brown. Coxae and femora brown; tibiae proximally brown, distally dark brown; first segment of tarsi proximally yellow, distally dark brown, 2nd and 3rd yellowish, 4th light brown and 5th dark brown. Apical bristles on first and second tibiae, preapicalls on all three.

Abdomen brown, posterior margin of tergite with a narrow, irregular, pollinose, light stripe and anterior margin with diffuse pollinose spots.

Wings light brown, surface slightly wrinkled. Costal index about 3.3; 4th vein index about 1.5; 5x index about 1.0; 4c index about 0.7; M index about 0.4. Apex of first costal section black, swallowed, with two slightly enlarged bristles. Third costal section with heavy bristles on its basal 2/3. Third and fourth longitudinal veins slightly convergent. Crossveins clouded.

Wings length about 3.3 mm (♂); 3.4 mm (♀).

Body length (dried specimens) about 4.6 mm (♂); 4.7 mm (♀).

Internal characters of imagines and genitalia. ♂. Epandrium partially micropubescent; lower portion with about 22 bristles; upper portion usually without bristles. Cercus partially micropubescent, fused at lower 1/3. Surstylus partially micropubescent with about 11 primary teeth, 18 secondary teeth and 14 marginal bristles. There is no distinct difference between marginal bristles and secondary teeth.

Hypandrium slightly shorter than epandrium; bow of hypandrium absent; conchae of hypandrium bearing one anterior bristle.

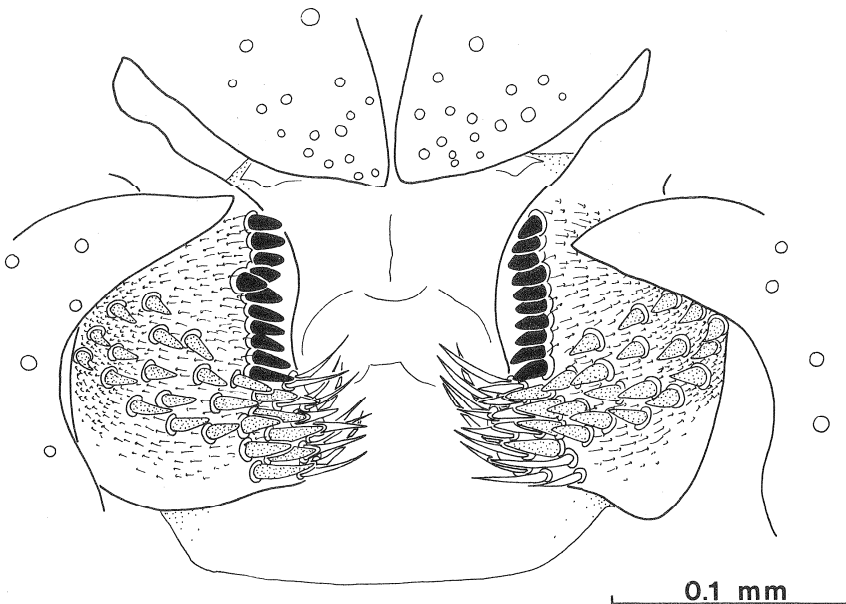


Figure 2. *Drosophila aragua*, sp. nov. (holotype): Surstyli, posterior aspect.

Aedeagus with a pair of short, subapical, straight spurs; rough plate of posterior apex about 1/5 of its dorsoventral width; dorsal region convex with a pair of wing-shaped projections; dorsal cleft occupying all length but the apex. Aedeagal apodeme and ventral rod broadly fused. Gonopods well-developed with 2-3 small subapical sensilla, linked to conchae of hypandrium by membranous tissue. Phallosomal index about 1.4.

♀ . Ovipositor apically pointed with about 18 marginal and 7 discal teeth. Spermathecae light bulb-shaped, weakly sclerotized with irregular, circular ridges on proximal region; distal surface covered with small bristles; duct deeply invaginated.

Eggs. Four filaments.

Puparia. Reddish brown; horn index about 18.6; each anterior spiracle with about 11 branches.

Chromosomes. Not studied.

Life cycle. About 38 days (at 25°C): maturing time about 20 days, larval stage about 9 days, and pupal stage about 6 days.

Relationships. *D. aragua* belongs to the *annulimana* group of the subgenus *Drosophila*. The presence of a rough plate on the apex of the aedeagus and small bristles covering distal surface of spermathecae relates this species to *D. annulimana* Duda and *D. araicus* Pavan & Nacur, from which it differs chiefly in the shape of aedeagus.

Distribution. Known from the type-locality in the state of São Paulo, Brazil, and from the province of Tucumán, Argentina (*D. sp Z* of Vilela *et al.*, 1980: 839).

Etymology. The species name refers to the toponym "Ribeirão Aragua", a creek nearby the type-locality.

Acknowledgments. We would like to thank Fábio M. Sene, Francisca C. Val and Visut Baimai for the criticism of the manuscript; A. Willink, H. E. Erb, E. Dente and J. C. Magalhães for providing facilities. This work was supported by Conselho Nacional de Desenvolvimento Científico e Tecnológico (Plano Integrado de Genética), Fundação de Amparo à Pesquisa do Estado de São Paulo and Universidade de São Paulo.

REFERENCES

- Breuer, M. E. & C. Pavan. 1950. Genitalia masculina de "Drosophila" (Diptera): "grupo annulimana". *Revta bras. Biol.* 10(4): 469-488.
- Burla, H. & C. Pavan. 1953. The "calloptera" group of species (Drosophilidae, Diptera). *Ibidem* 13(4): 291-314.
- Dobzhansky, T. & C. Pavan. 1943. Studies on Brazilian species of *Drosophila*. *Bolm Fac. Filos. Cienc., Univ. S. Paulo* (36) *Biologia Geral* 4: 7-72.
- Duda, O. 1927. Die südamerikanischen Drosophiliden unter Berücksichtigung auch der anderen neotropischen sowie der nearktischen Arten. *Arch. Naturgesch.* (a) 91 (11-12) (1925): 1-228.
- Pavan, C. & A. B. Cunha. 1947. Espécies Brasileiras de *Drosophila*. *Bolm Fac. Filos. Cienc. Univ. S. Paulo* (86) *Biologia Geral* 7: 3-46.
- Rocha, R. F. 1971. *Drosophila breuerae*, a new Neotropical species of the annulimana group (Diptera, Drosophilidae). *Papéis Avulsos Zool. S. Paulo* 25 (16): 139-142.
- Vilela, C. R., F. M. Sene & M. A. Q. R. Pereira. 1980. On the *Drosophila* fauna of Chaco and East Slopes of the Andes in Argentina, *Revta bras. Biol.* 40(4): 837-841.
- Wheeler, M. R. 1968. Some remarkable new species of Neotropical Drosophilidae. *Univ. Tex. Publs* 6618: 431-442.