NOTES ON THE HOLOTYPES OF FOUR NEOTROPICAL SPECIES OF
THE GENUS DROSOPHILA (DIPTERA, DROSOPHILIDAE) DESCRIBED
BY A.H. STURTEVANT

Carlos Ribeiro Vilela1

ABSTRACT

The male genitalia of the holotypes of Drosophila (Drosophila) albirostris, Drosophila (Drosophila) metzii, Drosophila (Phloridosa) alfarri, Drosophila (Phloridosa) lutzii are illustrated, described and compared to those of related species. Their distributions and ecological information are summarized and their relationships discussed.

While working at the American Museum of Natural History (New York City) in 1979, I had the opportunity to study the male holotypes of four Drosophila species described by A.H. Sturtevant: Drosophila albirostris and D. metzii, belonging to the tripunctata group of the subgenus Drosophila; D. alfarri and D. lutzii, both in the subgenus Phloridosa. No attempts were made to locate paratypes.

The genitalia of the analyzed specimens were illustrated, photographed, described and compared to those of related species.

The methods are the same as those previously presented by Vilela (1983) and the terminology is modified after Hsu (1949) and Kaneshiro (1969). Unless otherwise noted, the data on the georegional distribution of the species were collected from the Catalogue of the World’s Fauna (Wheeler, 1981).

The purpose of this report is to provide information that will permit a more accurate identification of those four species, one of which is only known from its original description.

\[ \text{Drosophila (Drosophila) albirostris Sturtevant} \]
\[ \text{(Figs. 1; 2; 9a,b)} \]

Drosophila albirostris Sturtevant, 1921: 78.

Drosophila (Drosophila) albirostris, Sturtevant, 1942: 32.

Holotype male labelled: "Panama, R.P., Feb. March 1915/Type/ac. 5497/ Drosophila albirostris Sturtevant".

Genitalia c. Epandrium with about 10 lower and no upper bristles. Cerci not fused to posterior margin of epandrium. Surstylus with about 7 primary teeth, 5 marginal bristles and 3 bristle-like secondary teeth (Figs. 1a, b).

Hypantrum as long as epandrium; bow of hypantrum posteriorly expanded; concha of hypantrum bearing one anterior bristle (Figs. 1a, c, d).

Aedeagus laterally rough at posterior region, slightly invaginated at tip, with a pair of small, roundish, lateral, serrated expansions; dorsal lobe about 1/3 of length. Aedeagal apodeme straight, laterally flattened, broadly fused to ventral rod. Ventral rod as long as gonopod. Gonopod with one tiny sensillum, fused to concha of hypantrum (Figs. 2a-e; 9a,b). Phallosomal index about 0.9.

Relationship. Belongs to the subgroup IV (Frota-Pessoa, 1954) of the tripunctata group of the subgenus Drosophila. It is closely related to a sibling set of three species:

1. Departamento de Biologia, Instituto de Biociências, Universidade de São Paulo, Caixa Postal 11.461, 05499 São Paulo, SP, Brasil.
D. leticiae Pipkin, D. metzii Sturtevant and D. pellewae Pipkin & Heed, from which it differs chiefly in the shape of aedeagus and of primary teeth row of surstylus.

According to Heed & Wheeler (1967), D. albirostris Sturtevant could be synonymous with D. albicans Frota-Pessoa. Comparison of the illustrations of the male genitalia of the former species (this report) with that of the latter as provided by Frota-Pessoa

Figure 1. Drosophila (Drosophila) albirostris Sturtevant (holotype): a, male genitalia, lateroblique aspect; b, external male genitalia, posterior aspect; c,d, internal male genitalia, two aspects.
(1954) corroborates the surmise. However, I am of the opinion that a final decision should be preceded by the analysis of maleatypes since the holotype of *D. albicums* is a female and no intact male paratype is available (Val, 1982).

Comparing the aedeagus of *D. albirostris* with those of *D. mediosignata* Dobzhansky & Pavan and *D. medionotata* Frata-Pessos (as illustrated by Val, 1982) one can notice

![Figure 2. Drosophila (Drosophila) albirostris Sturtevant (holotype): a-e, aedeagus, several aspects.](image-url)
some similarities, although the first belongs to the subgroup IV and the last two to the subgroup II.

**Distribution Pan**ama

**Ecology.** *D. albirostris* has been found feeding on fallen fruits of *Andira inermis* and

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**Figure 3. Drosophila (Drosophila) metzii** Sturtevant (holotype): a, male genitalia, lateroblique aspect; b, external male genitalia, posterior aspect; c,d, internal male genitalia, two aspects.
fallen pea family vine blossoms; it has been bred from the latter as well as from fruits of *Clucia* sp. (Pipkin, 1965).

Figure 4. *Drosophila (Drosophila) metzii* Sturtevant (holotype): a-e, aedeagus, several aspects.
**Drosophila (Drosophila) metzii** Sturtevant
(Figs. 3; 4; 9c,d)

*Drosophila metzii* Sturtevant, 1921: 78.


Holotype male labelled: “Herradura, Cuba /♂/ 2/16 /Type /ac. 5497 /Drosophila metzii Sturtevant”.

Genitalia♂. Epandrium with about 9 lower and no upper bristles. Cerci not fused to posterior margin of epandrium. Surstylus with about 14 primary teeth, 5 marginal bristles and 3 bristle-like secondary teeth (Figs. 3a, b).

Hypantrum as long as epandrium; bow of hypantrum posteriorly expanded; concha of hypantrum bearing one anterior bristle (Figs. 3a,c,d).

Aedeagus laterally rough at middle region, invaginated at tip, with a pair of roundish, lateral, serrated expansions; dorsal cleft about 4/5 of length. Aedeagal apodeme rod-shaped; broadly fused to ventral rod. Ventral rod as long as gonopod. Gonopod with no sensillum, fused to concha of hypantrium (Figs. 3a,e; 9c,d).

Phallosomal index about 0.9.

Relationship. Belongs to the subgroup IV (Frota-Pessoa, 1954) of the *albipunctata* group of the subgenus *Drosophila*. It is closely related to a sibling set of three species: *D. albipunctata* Sturtevant, *D. leticiae* Pipkin and *D. pellewae* Pipkin & Heed, differing from the first chiefly in the shape of aedeagus and of primary teeth row of surstylus.

The characters used to distinguish between *D. metzii* and the last two species have been presented by Pipkin & Heed (1964) and Pipkin (1967a,b).


Ecology. This species has been found feeding and breeding on the drier type of fallen fruits such as those of *Clusia sp.* and *Bactris sp.* and on fallen blossoms of *Bombax barrigon* (Pipkin, 1965, 1967a).

**Drosophila (Phloridosa) alfari** Sturtevant
(Figs. 5; 6; 9e,f)

*Drosophila alfari* Sturtevant, 1921: 75.


Holotype male labelled: “*Datura* flower/San Jose, Costa Rica, March 1915 /Type/ac. 5497 /Drosophila alfari Sturtevant”.

Genitalia♂. Epandrium with about 3 lower and no upper bristles. Cerci not fused to posterior margin of epandrium. Surstylus with about 6 primary teeth, 8 marginal bristles and 4 bristle-like secondary teeth (Figs. 5a,b).

Hypantrum as long as epandrium; bow of hypantrum posteriorly expanded; concha of hypantrium microspescent, bearing one anterior bristle (Figs. 5a,c,d).

Aedeagus ventrally expanded at anterior region, with a pair of lateral, serrated expansions; dorsal cleft as long as aedeagus. Aedeagal apodeme straight, laterally flattened, broadly fused to ventral rod. Ventral rod as long as gonopod. Gonopod microspescent with no sensillum, fused to concha of hypantrium (Figs. 6a-e; 9e,f).

Phallosomal index about 2.1.

Relationship. Belongs to the subgenus *Phloridosa*. It is related to *D. lutii* Sturtevant, from which it differs chiefly in the shape of aedeagus and the type of connection between epandrium and surstylus.

Distribution. Known from the type-locality (San Jose, Costa Rica) only.

Ecology. Collected in the corollae of a large species of *Datura* (Sturtevant, 1921).
Drosophila (Phloridosa) lutzii Sturtevant
(Figs. 7; 8; 9g,h)


Figure 5. Drosophila (Phloridosa) alfari Sturtevant (holotype): a, male genitalia, lateroblique aspect; b, external male genitalia, posterior aspect; c,d, internal male genitalia, two aspects.


Figure 6. Drosophila (Phloridosa) alfari Sturtevant (holotype): a-e, aedeagus, several aspects.
Figure 7. *Drosophila (Phloridosa) luteii* Sturtevant (holotype): a, male genitalia, lateroblique aspect; b, external male genitalia, posterior aspect; c,d, internal male genitalia, two aspects.
Genitalia $\delta$. Epandrium with about 3 lower, one median and no upper bristles. Core not fused to posterior margin of epandrium. Eversible linked to epandrium by membranous tissue, with about 5 primary teeth, 6 marginal bristles and 5 bristle-like secondary teeth (Figs. 7a,b).

Figure 8. *Drosophila (Phloridosa) lutzii* Sturtevant (holotype): a-e, aedeagus, several aspects.
Hypandrium as long as epandrium; bow of hypandrium posteriorly expanded; concha of hypandrium microscopic, bearing one anterior bristle (Fig. 7d).

Figure 9. Aedeagi of the holotypes of *Drosophila (Drosophila) albirostris* Sturtevant (a: ventral aspect, b: lateral aspect); *Drosophila (Drosophila) metzii* Sturtevant (c: ventral aspect, d: lateral aspect); *Drosophila (Philoridae) alfari* Sturtevant (e: ventral aspect, f: lateral aspect); *Drosophila (Philoridae) lutzii* Sturtevant (g: ventral aspect, h: lateral aspect). All pictures were taken at the same magnification (bar: 0.2 mm).
Aedeagus invaginated and slightly assymmetric at tip, ventrally expanded at anterior region, with a pair of lateral, serrated expansions; dorsal cleft as long as aedeagus. Aedeagal apodeme curved, undulated. Ventral and basal than gonapophyses. Gonapophyses not micropubescent, with two tiny sensilla; fused to concha of hypandrium (Figs. 8a-e; 9g,h). Phallosomal index about 1.0.

Relationship. Belongs to the subgenus Phloridosa. It is related to D. alfari Sturtevant, from which it differs chiefly in the shape of aedeagus and the type of connection between epandrium and surstylus.

Distribution. SE USA, West Indies, Mexico to Costa Rica. Brazil (Hsu, 1949).

Ecology. Collected in flowers of Datura, melon, cotton and morning glory and reared from decaying petals of such flowers; also bred on tomato fruit (Sturtevant, 1916, 1921).

Acknowledgments. The author is indebted to Dr. P. Wygodzinsky, Dr. R.T. Schuh and The American Museum of Natural History for providing facilities. Thanks are given to Dr. M.A.Q.R. Pereira and Dr. F.C. do Val, for discussion and advice. Appreciation is expressed to C. de Lurcero for revising the English manuscript and to A.R. Ribeiro Filho for printing the negatives. This work was supported by the "Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP)", 04-biológicas 78/0296, 81/0483-9.

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Recebido para publicação em 27.10.1982.