

# On the identity of four poorly known species of Neotropical Drosophilidae (Diptera)

Autor(en): **Vilela, Carlos R. / Bächli, Gerhard**

Objektyp: **Article**

Zeitschrift: **Mitteilungen der Schweizerischen Entomologischen Gesellschaft = Bulletin de la Société Entomologique Suisse = Journal of the Swiss Entomological Society**

Band (Jahr): **75 (2002)**

Heft 3-4

PDF erstellt am: **26.09.2024**

Persistenter Link: <https://doi.org/10.5169/seals-402828>

## **Nutzungsbedingungen**

Die ETH-Bibliothek ist Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Inhalten der Zeitschriften. Die Rechte liegen in der Regel bei den Herausgebern.

Die auf der Plattform e-periodica veröffentlichten Dokumente stehen für nicht-kommerzielle Zwecke in Lehre und Forschung sowie für die private Nutzung frei zur Verfügung. Einzelne Dateien oder Ausdrucke aus diesem Angebot können zusammen mit diesen Nutzungsbedingungen und den korrekten Herkunftsbezeichnungen weitergegeben werden.

Das Veröffentlichen von Bildern in Print- und Online-Publikationen ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. Die systematische Speicherung von Teilen des elektronischen Angebots auf anderen Servern bedarf ebenfalls des schriftlichen Einverständnisses der Rechteinhaber.

## **Haftungsausschluss**

Alle Angaben erfolgen ohne Gewähr für Vollständigkeit oder Richtigkeit. Es wird keine Haftung übernommen für Schäden durch die Verwendung von Informationen aus diesem Online-Angebot oder durch das Fehlen von Informationen. Dies gilt auch für Inhalte Dritter, die über dieses Angebot zugänglich sind.

## On the identity of four poorly known species of Neotropical *Drosophilidae* (Diptera)

CARLOS R. VILELA<sup>1</sup> & GERHARD BÄCHLI<sup>2</sup>

The type material of the following four species of South American *Drosophilidae* is analyzed and re-described: *Drosophila* (*Phloridosa*) *alei* BRNCIC, 1962, *Drosophila* (*Drosophila*) *araucana* BRNCIC, 1957, *Drosophila* (*Drosophila*) *camaronensis* BRNCIC, 1957, and *Hirtodrosophila* *kuscheli* (BRNCIC, 1957). Although *D. camaronensis* has always been considered unrelated to any other member of its genus, it undoubtedly belongs to the *mesophragmatica* species group. *D. alei* is extremely similar to *D. denieri* BLANCHARD, 1938, but subtle differences in the male terminalia allow to tell them apart.

Keywords: *Drosophila*, *Hirtodrosophila*, *Phloridosa*, *guarani* group, *mesophragmatica* group, male terminalia, redescriptions, Chile.

### INTRODUCTION

Several species of Neotropical *Drosophilidae* are almost only known from their original descriptions. We have had the opportunity to get on loan about half of the type series of four species described from Chile by Dr. Danko BRNCIC. Although these species were originally described in three subgenera of the genus *Drosophila*, one of them is currently considered to belong to the genus *Hirtodrosophila*, according to GRIMALDI (1990) who proposed raising the rank of this taxon to genus level. The purpose of the present paper is to redescribe these poorly known species of Neotropical drosophilids and try to understand why they have usually been absent from most papers aiming to survey the flies belonging to this family in South America.

In the original descriptions of the species we are treating here, BRNCIC did not designate a single specimen as the holotype, but a male/female pair (besides some paratypes) for *D. alei*, *D. araucana* and *H. kuscheli*, whereas for *D. camaronensis* a series of specimens (syntypes) is mentioned. This is not in conformity with the nomenclatural rules. As BRNCIC (1987) and BRNCIC & MARTINEZ (1990) did not correctly designate lectotypes, and because doubts on the species identity remain, we have decided to formally designate them in this publication.

### MATERIAL AND METHODS

Label data attached to each type specimen are cited in full with a slash indicating a label change. Our own notes or interpretations are included in brackets.

For morphological terminology, measurements, indices, preparations of microscope slides as well as illustrations see VILELA & BÄCHLI (2000). Whenever in the same plate, all figures were drawn to the same scale and all photomicrographs were taken and enlarged to the same magnification.

<sup>1</sup> Departamento de Biologia, Instituto de Biociências, Universidade de São Paulo, Caixa Postal 11461, São Paulo - SP, 05422-970, Brazil. E-mail: crvilela@ib.usp.br

<sup>2</sup> Zoologisches Museum, Universität Zürich-Irchel, Winterthurerstrasse 190, CH-8057 Zürich, Switzerland. E-mail: baechli@zoolmus.unizh.ch

All specimens are deposited in the Museo Nacional de Historia Natural, Santiago, Chile.

## RESULTS

Genus *Drosophila* FALLÉN, 1823

Subgenus *Phloridosa* STURTEVANT, 1942

*Drosophila (Phloridosa) alei* BRNCIC, 1962

(Figs 1, 2, 9A)

*Drosophila (Phloridosa) alei* BRNCIC, 1962: 4 (description, biology); WHEELER 1970: 78.25 (catalog); BRNCIC 1983: 333 ff. (biology); VILELA 1986: 223 (possible synonymy with *Drosophila denieri* BLANCHARD); BRNCIC 1987: 49 ff. (distribution, key); BRNCIC & MARTINEZ 1990: 5 (type material).

Material examined. Lectotype ♂ (by present designation, dissected), labelled: "*Drosophila alei* BRNCIC det BRNCIC / Arica-Tarapacá (Ciudad Flores de Datura arbustiva) 30.7.1960 col BRNCIC / PARATIPO / Chile M. N. H. N. Tipo N° 4571 / Lectotype"; 1 ♀ paralectotype, labelled: "*Drosophila alei* BRNCIC det BRNCIC / Arica-Tarapacá (Ciudad Flores de Datura arbustiva) 30.7.1960 col BRNCIC / HOLOTIPO / Chile M. N. H. N. Tipo N° 4570 / Paralectotype"; 3 ♀ paralectotypes, labelled: "*Drosophila alei* BRNCIC det BRNCIC / Arica-Tarapacá (Ciudad Flores de Datura arbustiva) 30.7.1960 col BRNCIC / PARATIPO / Chile M. N. H. N. Tipo N° 4572 [or 4573 or 4574] / Paralectotype".

Type locality: Arica, Chile.

*Diagnosis.* Generally blackish flies; all setae unusually short, black; wing hyaline; tergites 4 and 5 paler, yellowish seen from behind; prenisetae of surstylus arranged in a S-shaped row; anterior region of hypandrium bag-shaped in profile view.

*Redescription.* ♂ and ♀. Head. Frons dark brown, paler brownish above antennae, frontal length 0.25–0.29 mm; frontal index = 0.88–1.00, top to bottom width ratio = 1.32–1.35. Frontal triangle indistinct. Ocellar triangle prominent, black, about 41% of frontal length. Orbital plates narrow, slightly divergent from eye border, blackish, greyish subshiny, about 75% of frontal length. Orbital setae short, black, almost in a line, distance of or3 to or1 = 100% of or3 to vtm, or1 / or3 ratio = 0.86–1.00, or2 / or1 ratio = 0.50–0.60, postvertical setae = 41–47%, ocellar setae = 35–40% of frontal length. Vibrissal index less than 0.50. Face paler brown. Carina broad, triangular, noselike, dorsally flat and slightly sulcate. Cheek index about 5–7. Eye index = 1.00–1.33. Occiput blackish. Pedicel yellowish-brown. Flagellomere 1 dark brown, length to width ratio = 1.25. Arista with 4 dorsal, 3 ventral and about 4 inner branches, plus terminal fork; all branches unusually short and thick. Proboscis dark brown.

Thorax length 0.88–1.07 mm. Scutum blackish-brown, subshiny. 8 rows of acrostichal setae. h index = 1.00–1.14. Transverse distance of dorsocentral setae 283–317% of longitudinal distance; dc index = 0.50–0.57. Distance between apical scutellar setae about 112–114% of that of the apical to the basal one; basal ones divergent; scut index = 0.64. All setae in the thorax are unusually short and thick. Pleura dark brown, subshiny. Sterno index = 0.40. Halteres and legs brown, preapical setae on all tibiae (minute on foreleg), ventral apical seta on mid tibia.

Wing hyaline, veins yellowish, length 1.78–2.10 mm, length to width ratio = 2.13–2.36. Indices: C = 2.62–2.83, ac = 2.33–3.00, hb = 0.67–0.77, 4C = 0.86–0.93, 4v = 1.71–1.93, 5x = 1.17–1.60, M = 0.50–0.62, prox. x = 0.57–0.71.

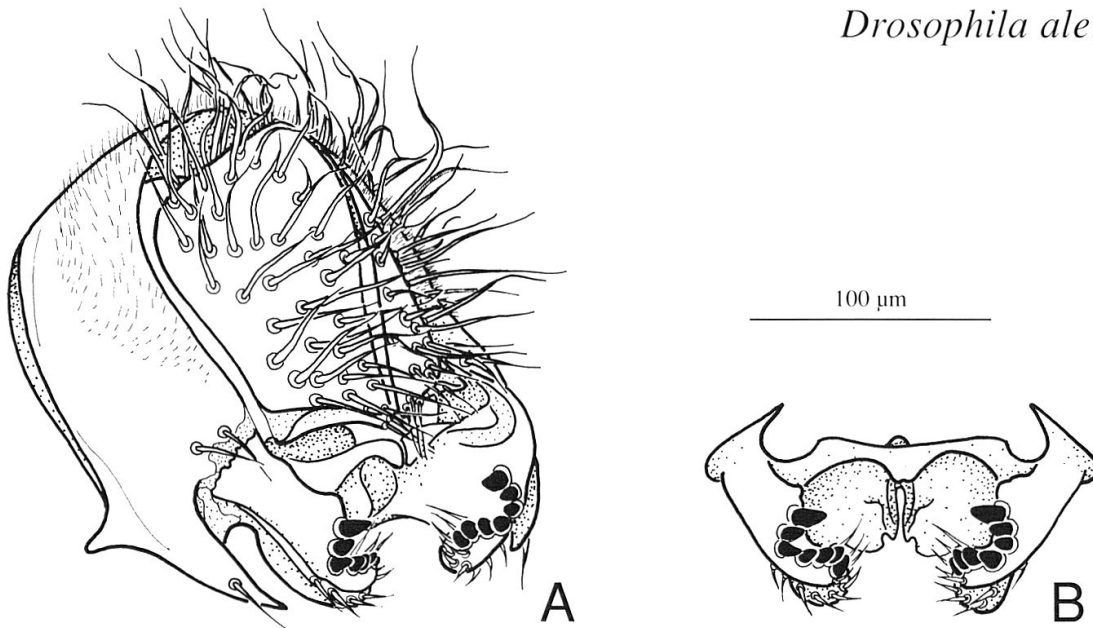
*Drosophila alei*

Fig. 1. *Drosophila alei* BRNCIC, lectotype ♂. A, epandrium, cerci, surstyli and decasternum, oblique posterior view. B, surstyli and decasternum, posterior view.

Abdomen shiny, basally dark brown, apically diffusely yellowish, particularly if seen from behind.

♂ *Terminalia* (Figs 1, 2, 9A). Epandrium posterodorsally microtrichose with about 1 lower seta, two setae on the median region just above the connection with surstylus and no upper setae; ventral lobe not microtrichose, pointed downwards. Cerci linked to hypandrium by membranous tissue, not microtrichose. Surstylus not microtrichose, with 7 cone-shaped prenisetae, apically roundish and arranged in a conspicuously S-shaped row, about 5 long outer setae and ca. 4 long inner setae. Decasternum as in Fig. 1B. Hypandrium shorter than epandrium, dorsal arch medially membranous, gonopod fused to paraphysis, distally microtrichose, bearing one long seta on the posterior inner margin; in profile the anterior half is conspicuously bag-shaped. Aedeagus subproximally expanded ventrad, subapically bearing 2 lateral, bent, sharply pointed, proximally serrated expansions, directed anterodorsally, slightly sulcate at tip. Aedeagal apodeme shorter than aedeagus, bent and rod-shaped. Ventral rod shorter than paraphysis, dorsoventrally flattened, distally expanded. Paraphysis linked to distal margin of aedeagal apodeme by membranous tissue, and mostly microtrichose.

*Distribution.* Chile, Peru.

*Comments.* For comparison purposes, refer to the illustrations of the male terminalia of its sibling species *Drosophila denieri* BLANCHARD, 1938 as presented by VILELA (1986: 224–225). The subtle main differences between the aedeagi of the two species are as follows: in dorsal and ventral views, the distal border of the aedeagus of *D. denieri* is clearly narrower than that of *D. alei*; in lateral view, the narrow anterior region, where it is fused to aedeagal apodeme, is shorter in *D. denieri* than in *D. alei*.

As there are no records of *D. denieri* from Chile, we consider the female paralectotypes mentioned above as belonging to *D. alei*.

Subgenus *Drosophila* FALLÉN, 1823  
*guarani* species group

*Drosophila alei*

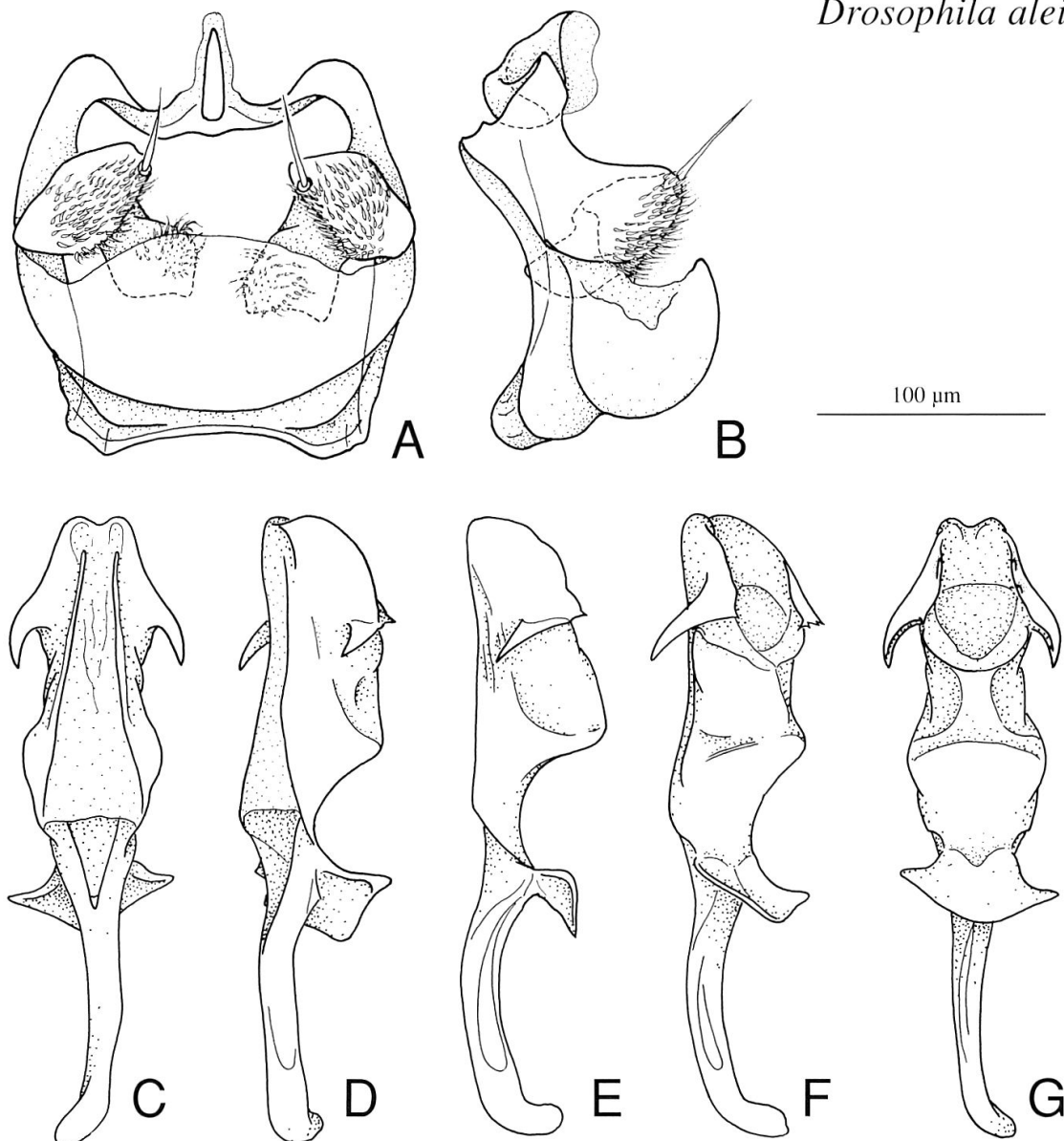


Fig. 2. *Drosophila alei* BRNCIC, lectotype ♂. A, hypandrium, gonopods and paraphyses, posterior view. B, idem, left lateral view. C–G, aedeagus and aedeagal apodeme, several views from dorsal through ventral.

***Drosophila (Drosophila) araucana* BRNCIC, 1957**

(Figs 3, 4, 9B)

*Drosophila (Drosophila) araucana* BRNCIC, 1957a: 82 (description); WHEELER 1970: 79.12 (catalog); VILELA & PEREIRA 1985: 435 (affiliation); BRNCIC 1987: 42 ff. (distribution, wing, key); BRNCIC & MARTINEZ 1990: 4 (type material).

Material examined. Lectotype ♂ (by present designation, dissected), labelled: “*Drosophila araucana* BRNCIC det BRNCIC / Puerto Montt (Chile) 9.1 1954 [1964 cancelled] col BRNCIC / HOLOTYPE / Chile M. N. H. N. Tipo N° 4528 / Lectotype”; 2 ♀ paralectotypes, same labels as above [but 4529 or 4530, and Paralectotype].

Type locality: Puerto Montt, Chile.

*Diagnosis.* Generally yellowish flies; 3 vibrissae, almost equal in length; abdomen with broad, dark marginal bands which are medially and laterally more or

less extended to the base of the tergites; wing with shadowed crossveins; aedeagus, in profile view, medially strongly bent dorsad.

*Redescription.* ♂ and ♀. Head. Frons generally orange-brown, pale yellowish above antennae, frontal length 0.39–0.44 mm; frontal index = 0.74, top to bottom width ratio = 1.23. Frontal triangle brownish, greyish microtrichose, about 65% of frontal length; ocellar triangle black, prominent, about 39–42% of frontal length. Orbital plates brownish, greyish microtrichose, about 69–78% of frontal length. Orbital setae black, almost in a line, or2 more close to or1 than to or3, distance of or3 to or1 = 70% of or3 to vtm, or1 / or3 ratio = 0.75–0.93, or2 / or1 ratio = 0.29–0.53, postvertical setae = 54–65%, ocellar setae = 85% of frontal length; vibrissal index = 1.00; the following oral seta of about the same size. Face brownish. Carina prominent, narrow between pedicels, diverging downwards, dorsally evenly convex but not noselike. Cheek index about 5–6. Eye index = 1.12. Occiput brown. Antennae more or less brownish, length to width ratio of flagellomere 1 = 1.75. Arista with 5 dorsal, 2–3 ventral and about 6 small inner branches, plus terminal fork. Proboscis yellowish. Clypeus brown.

Thorax length 1.53–1.70 mm. Scutum yellowish-brown, subshiny, with a more or less diffuse darker median stripe which is broadened towards scutellum. 6–8 rows of acrostichal setae. Transverse distance of dorsocentral setae 163–165% of longitudinal distance; dc index = 0.58–0.63. Scutellum medially brown, laterally paler yellowish, scutellar setae nearly equidistant; basal ones divergent; scut index = 0.38. Pleura brown, sterno index = 0.63, mid katepisternal seta about 60% of the anterior one. Halteres brown. Legs brownish, preapical setae on all tibiae, ventral apical seta on mid tibia.

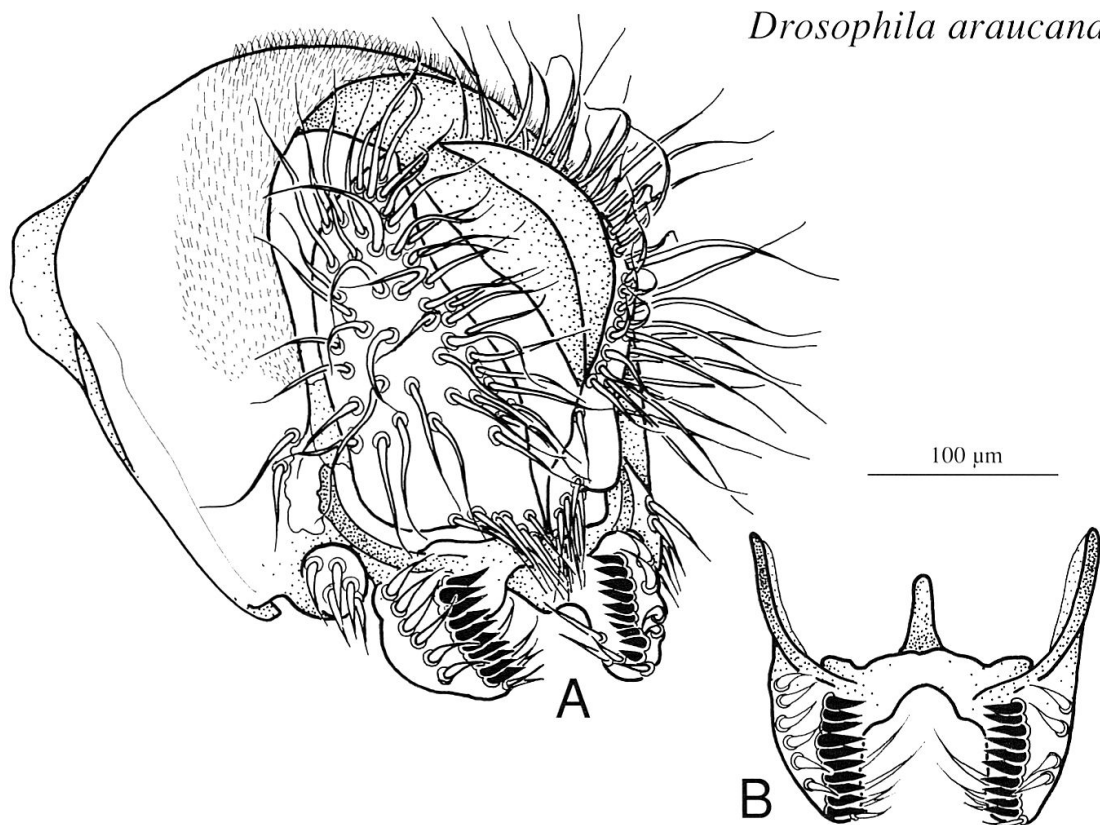


Fig. 3. *Drosophila araucana* BRNCIC, lectotype ♂. A, epandrium, cerci, surstyli and decasternum, oblique posterior view. B, surstyli and decasternum, posterior view.

Wing hyaline but slightly brownish along the costa, veins brownish, both crossveins brown and with a diffuse brown shadow, length 3.85 mm, length to width ratio = 2.34. Indices: C = 4.28–4.37, ac = 1.80–1.90, hb = 0.44, 4C = 0.56–0.58, 4v = 1.41–1.55, 5x = 1.23–1.30, M = 0.42–0.47, prox. x = 0.53–0.58.

Abdomen predominantly dark brown, shiny, tergites 2–5 each with paramedian yellowish areas of variable size, in some specimens leaving only dark marginal bands and more or less expressed median and lateral stripes.

♂ *Terminalia* (Figs 3, 4, 9C). Epandrium dorsoposteriorly microtrichose with about 4 lower setae, 2 setae just above the connection with surstylus and no upper setae; ventral lobe not microtrichose, not covering surstylus. Cerci linked to hypandrium by membranous tissue, not microtrichose. Surstylus not microtrichose, with 10 cone-shaped, sharply pointed prenisetae, about 5 outer peg-like, sharply pointed setae and ca. 5 long inner setae. Decasternum as in Fig. 3B. Hypandrium longer than epandrium, dorsal arch (= bow) present, membranous at middle area, gonopod fused to paraphysis, bearing one seta on the posterior region. Aedeagus, in profile view, medially strongly bent dorsad, laterally covered with tiny spines in the middle area, dorsally entirely membranous, ventrodistally membranous, except for a pair of wing-shaped lateral expansions dorsoposteriorly directed and serrated along dorsal margin. Aedeagal apodeme longer than aedeagus, dorsoventrally flattened. Ventral rod absent. Paraphysis triangular, linked to distal margin of aedeagal apodeme by membranous tissue, distally slightly concave, bearing two setulae of different size at dorsodistal end.

*Distribution.* Chile.

*mesophragmatica* species group

### ***Drosophila (Drosophila) camaronensis* BRNCIC, 1957**

(Figs 5, 6, 9C)

*Drosophila (Drosophila) camaronensis* BRNCIC, 1957a: 95 (description); WHEELER 1970: 79.13 (catalog); BRNCIC 1987: 48 ff. (distribution, biology, key); BRNCIC & MARTINEZ 1990: 5 (type material).

Material examined. Lectotype ♂ (by present designation, dissected), labelled: “*Drosophila camaronensis* BRNCIC ♂ det BRNCIC / Camarones Tarapacá 28.8.54 col BRNCIC / HOLOTIPO / Chile M. N. H. N. Tipo N° 4553 / Lectotype”; 2 ♂ and 1 ♀ paralectotypes, same labels as lectotype, [but PARATIPO, 4555 or 4556 or 4557, and Paralectotype].

Type locality: Camarones (Arica), Chile.

*Diagnosis.* Generally yellowish flies; tergites with dark, rather diffuse marginal bands which are medially narrowed or interrupted; wing relatively short, both crossveins slightly shadowed; paraphysis slightly bent, three times longer than wide, dorsally concave.

*Redescription.* ♂ and ♀. Head. Frons golden yellowish, pale yellow above antennae, subshiny, frontal length 0.35–0.39 mm; frontal index = 0.88–0.91, top to bottom width ratio = 1.24–1.39. Frontal triangle microtrichose, about 56–71% of frontal length; ocellar triangle prominent, yellow with narrow brown areas on the inner side of the ocelli, about 43–68% of frontal length. Orbital plates slightly diverging from eye border, about 74–77% of frontal length. Orbital setae blackish-brown, or2 slightly outside and more close to or1, distance of or3 to or1 = 56–63% of or3 to vtm, or1 / or3 ratio = 0.79–1.00, or2 / or1 ratio = 0.43–0.47, postvertical setae = 55–68%, ocellar setae = 82–110% of frontal length; vibrissal index = 0.38–

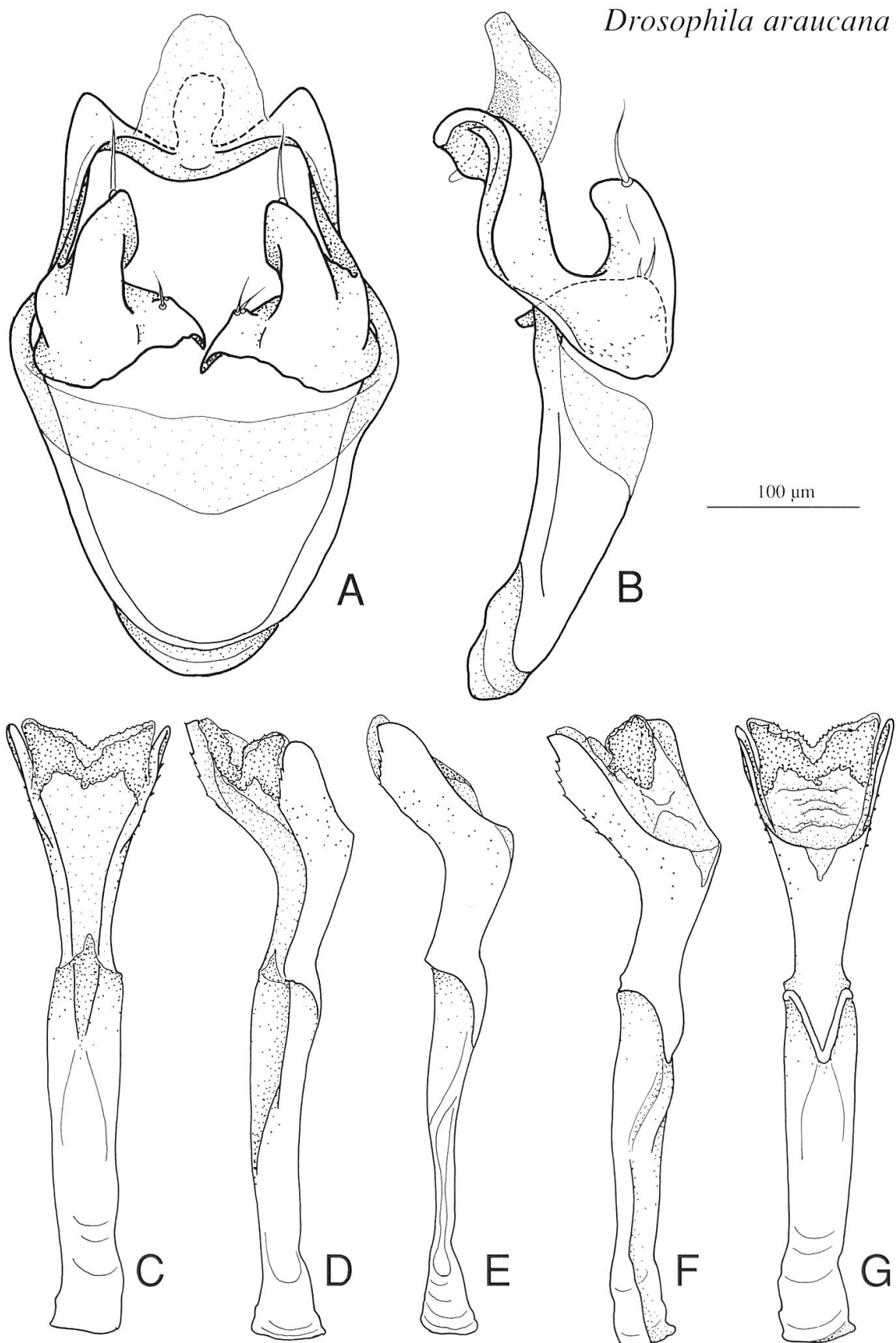


Fig. 4. *Drosophila araucana* BRNCIC, lectotype ♂. A, hypandrium, gonopods and paraphyses, posterior view. B, idem, left lateral view. C–G, aedeagus and aedeagal apodeme, several views from dorsal through ventral.



0.53. Face yellow. Carina distinctly broadened downwards, noselike, dorsally flattened and grooved. Cheek index about 6–8. Eye index = 1.13–1.16. Occiput yellowish, medially diffusely brownish. Antennae yellow. Flagellomere 1 brownish, length to width ratio = 1.30–2.00. Arista with 5 dorsal, 3 ventral and about 6 small inner branches, plus terminal fork. Proboscis yellow. Palpi with 2 dark, strong apical and a few pale ventral setae.

Thorax length 1.27–1.40 mm. Scutum and scutellum yellowish, subshiny, 6–8 rows of acrostichal setae; a few slightly prolonged setae in front of the dorsocentral setae. h index = 0.80–1.14. Transverse distance of dorsocentral setae 177–200% of longitudinal distance. Distance between apical scutellar setae about 83–87% of that of the apical to the basal one; basal ones divergent; scut index = 1.00–1.08. Pleura yellow, sterno index = 0.71–0.81, mid katepisternal seta about 41–59% of the anterior one. Halteres and legs yellow, preapical setae on all tibiae, ventral apical seta on mid tibia.

*Drosophila camaronensis*

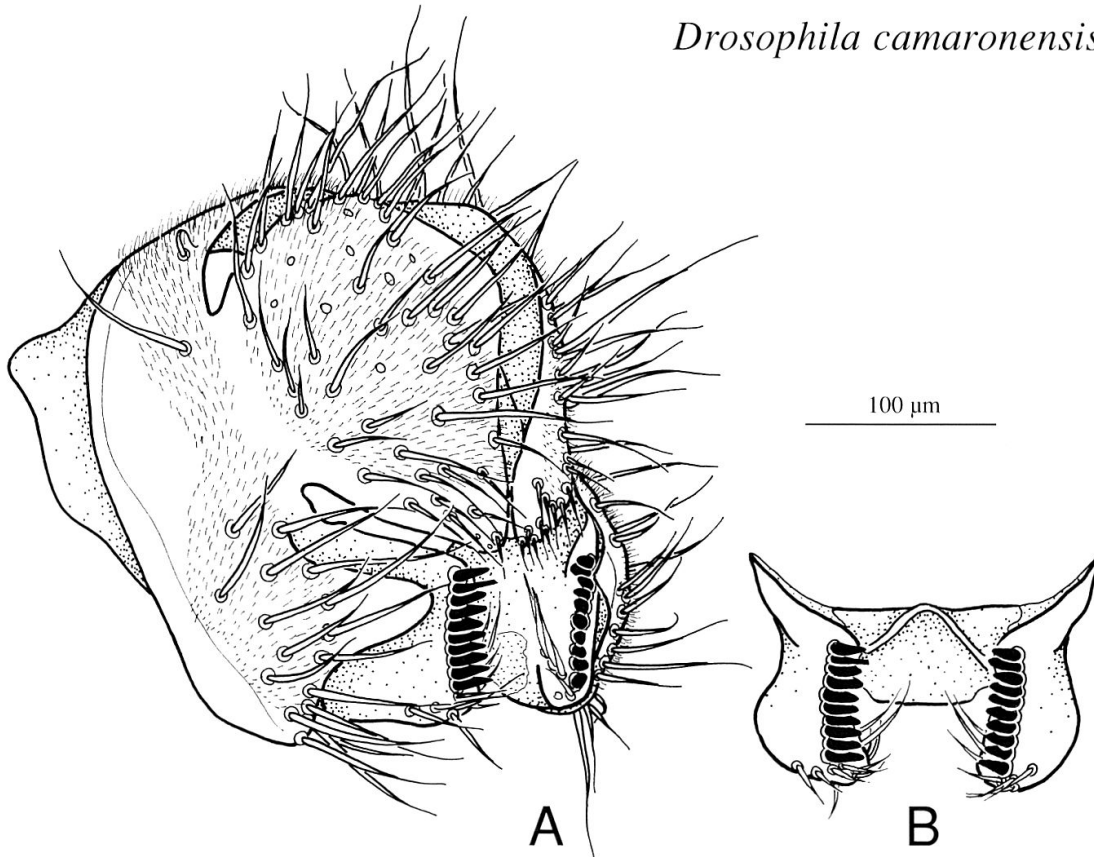


Fig. 5. *Drosophila camaronensis* BRNCIC, lectotype ♂. A, epandrium, cerci, surstyli and decasternum, oblique posterior view. B, surstyli and decasternum, posterior view.

Wing relatively short, hyaline, in some specimens both crossveins and the apices of longitudinal veins slightly shadowed, length 2.59–3.05 mm, length to width ratio = 2.00–2.07. Indices: C = 3.06–3.59, ac = 2.00–2.43, hb = 0.25–0.31, 4C = 0.67–0.76, 4v = 1.48–1.63, 5x = 1.25–1.63, M = 0.48–0.54, prox. x = 0.54–0.65.

Abdomen predominantly yellow, tergites 2–5 each with a faint, diffuse, rather narrow marginal band which is medially more or less interrupted.

♂ *Terminalia* (Figs 5, 6, 9C). Epandrium mostly microtrichose with about 17 lower setae, and two upper setae; ventral lobe anteriorly microtrichose, partially covering surstylus. Cerci mostly fused to hypandrium, and mostly microtrichose. Sur-

stylus not microtrichose, with 10 cone-shaped prenisetae roundish at tip, about 4 outer small setae and ca. 6 longer inner setae. Decasternum as in Fig. 5B. Hypandrium as long as epandrium, dorsal arch absent, gonopod bare, linked to paraphysis by membranous tissue. Aedeagus pointed and slightly bifid at tip, subapically bearing

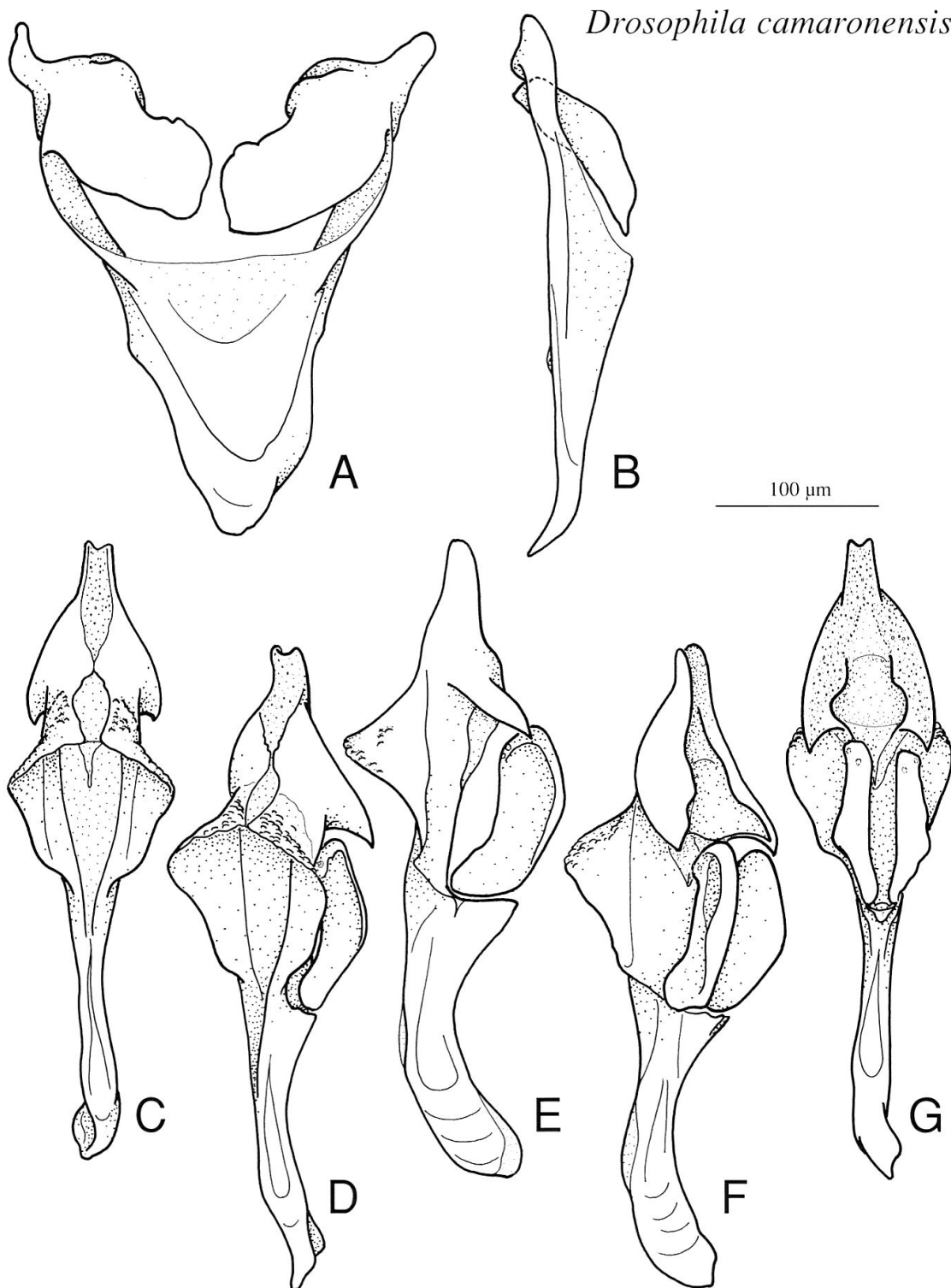


Fig. 6. *Drosophila camaronensis* BRNCIC, lectotype ♂. A, hypandrium and gonopods, posterior view. B, idem, left lateral view. C–G, aedeagus, aedeagal apodeme and paraphyses, several views from dorsal through ventral.

a pair of anteriorly directed, ventral spurs, medially bearing a pair of dorsal expansions directed outwards. Aedeagal apodeme as long as aedeagus, bent, laterally flattened. Ventral rod as long as anterior margin of paraphysis. Paraphysis bent, three times as long as wide, linked to distal margin of aedeagal apodeme by membranous tissue, bearing two setulae at distal end.

*Distribution.* Chile.

*Comments.* According to NACRUR (1958) the male terminalia of the species of the *mesophragmatica* group are extremely similar, and therefore not useful for telling the species apart. He concluded that the species of the *mesophragmatica* group could be an exception in relation to the general rule observed for the remaining groups of Neotropical *Drosophila* where even cryptic species are easily separated from each other based on the unique features of their terminalia, mainly the shape of the aedeagus. However, *D. camaronensis* can be separated from *D. mesophragmatica* DUDA on the basis of the shape and size of the paraphyses, which are dorsally clearly concave and three times as long as wide in the first species and dorsally almost straight and two times as long as wide in the latter (refer to VILELA & BÄCHLI 1990 for illustrations of the latter species). Further analysis of the terminalia of the remaining species belonging to the *mesophragmatica* group is needed to verify if the shape of the paraphyses is a diagnostic feature to tell the species of the group apart.

It is not clear to us why *D. camaronensis*, being so similar to *D. mesophragmatica* regarding the male terminalia, has always been considered an ungrouped species and has not been included in the *mesophragmatica* group by BRNCIC, who is one of the authors who proposed and diagnosed this group of mostly Andean flies.

Genus *Hirtodrosophila* DUDA, 1923

*Hirtodrosophila kuscheli* (BRNCIC, 1957)

(Figs 7, 8, 9D)

*Drosophila (Hirtodrosophila) kuscheli* BRNCIC, 1957a: 68 (description, as "... *kuscheli* BRNCIC, 1957. Rev. Chilena Entomolog., 6 (en prensa)"; published April, 1957); WHEELER 1970: 79.24 (catalog); BRNCIC 1987: 49 ff. (key); BRNCIC & MARTINEZ 1990: 5 (type material).

*Drosophila kuscheli* BRNCIC 1957b: 394 (description, as "*Drosophila kuscheli* sp. nov."; published October, 1957).

Material examined. Lectotype ♂ (by present designation, dissected), labelled: *Drosophila kuscheli* BRNCIC det. BRNCIC ♂ / Masatierra Robinson Crusoe Is. col G. KUSCHEL 1954 / PARATIPO / Chile M. N. H. N. Tipo N° 4567 / Lectotype"; 1 ♂, 1 ♀ paralectotypes, same labels as lectotype [but 4565 or 4566, and Paralectotype].

Type locality: Mirador de Selkirk, Islas Juan Fernández, Chile.

*Diagnosis.* Generally yellowish flies; scutum usually with a diffuse, broad, brown medial stripe; pleura usually brownish; cercus ventrally bearing a conspicuous tuft of long setae in the inner area.

*Redescription.* ♂ and ♀. Head. Frons predominantly dark brown, paler downwards, frontal length 0.36 mm; frontal index = 1.11. Frontal triangle greyish microtrichose, about 76% of frontal length; ocellar triangle prominent, black, about 52% of frontal length. Orbital plates pale brown, greyish microtrichose, about 95% of frontal length. Orbital setae black, or2 just outside of or1, distance of or3 to or1 = 50% of or3 to vtm, or1 / or3 ratio = 0.67, or2 / or1 ratio = 0.60, postvertical setae = 90% of frontal length. Face brown, greyish microtrichose, almost flat. Carina very narrow, dorsally sharp, about half face length. Cheek index about 11. Eye index =

1.14. Pedicel yellowish-brown. Flagellomere 1 dark brown, covered with fine setulae, length to width ratio = 1.00. Arista with 7–8 dorsal, 1 ventral (behind the terminal fork) branches. Proboscis yellowish. Palpi slightly broadened, darker brown towards tip, with 1–2 black setae at tip.

Thorax length 1.24–1.55 mm. Scutum yellowish, with a more or less diffuse median, brown stripe, subshiny. 6 rows of acrostichal setae. Transverse distance of dorsocentral setae 118–126% of longitudinal distance; 1–2 slightly prolonged setae

*Hirtodrosophila kuscheli*

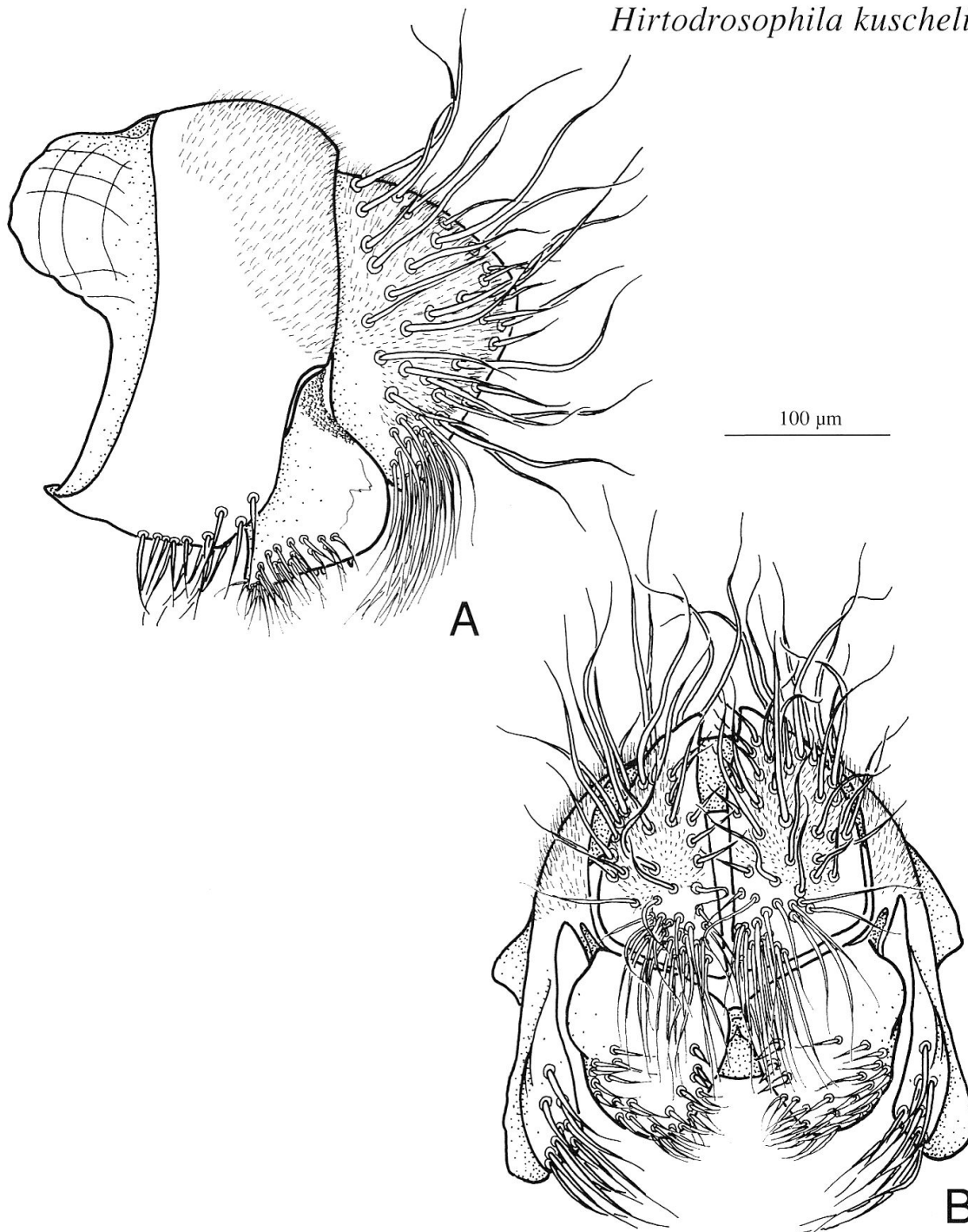


Fig. 7. *Hirtodrosophila kuscheli* (BRNCIC), lectotype ♂. A, epandrium, cerci, surstyli and decasternum, left lateral view. B, idem, posterior view.

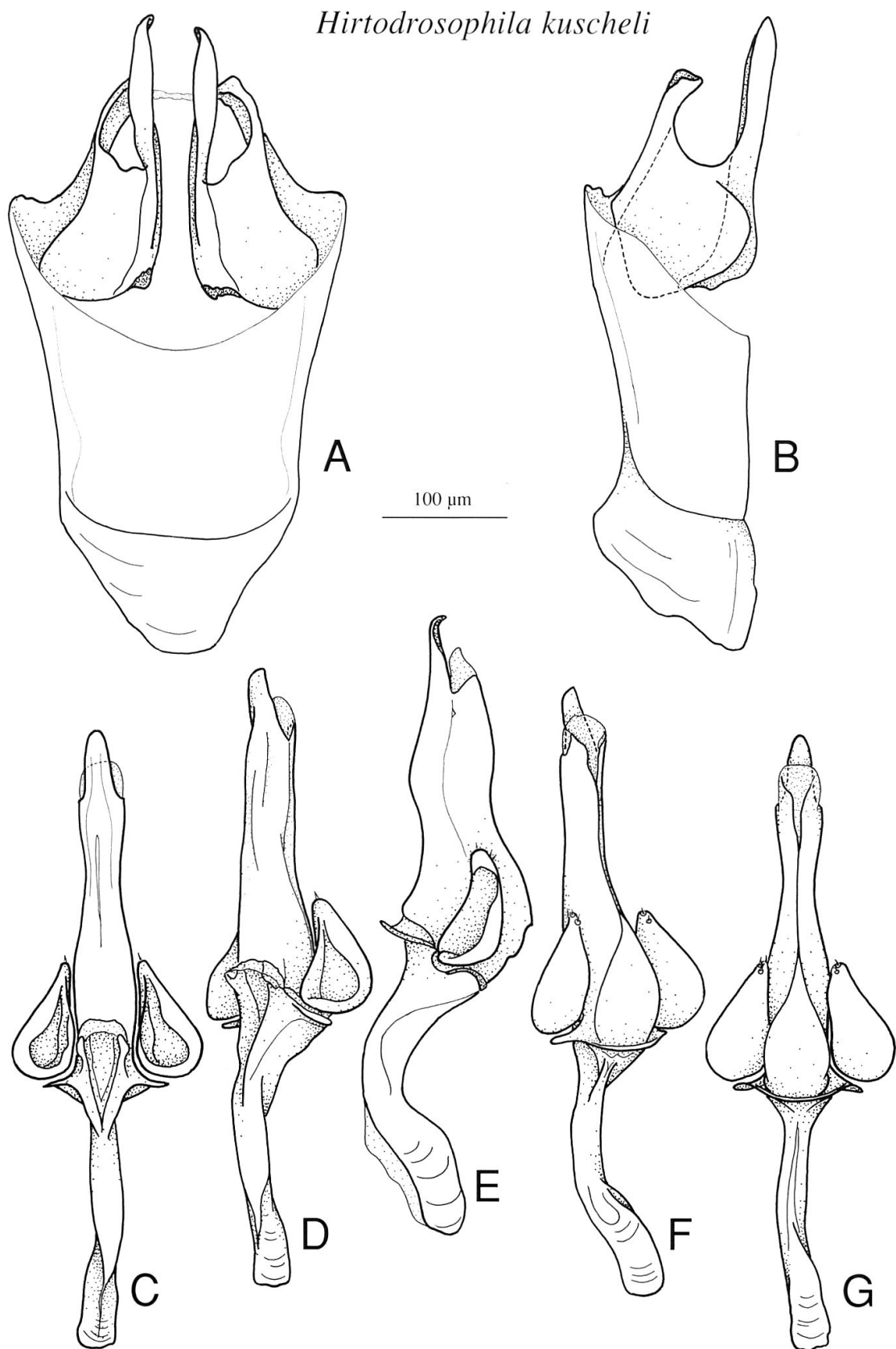


Fig. 8. *Hirtodrosophila kuscheli* (BRNCIC), lectotype ♂. A, hypandrium and gonopods, posterior view. B, idem, left lateral view. C–G, aedeagus, aedeagal apodeme, and paraphyses, several views from dorsal through ventral.

in front of the anterior dorsocentral seta. Scutellum brownish-yellow, medially more or less brownish, distance between apical scutellar setae about 67–69% of that of the apical to the basal one; scut index = 0.53. Pleura brownish, paler in lower half, sterno index = 0.70. Halteres brown. Legs brown, knees diffusely yellowish, preapical setae on all tibiae, ventral apical setae on fore and mid tibiae.

Wing hyaline, slightly brownish, veins brown, length 2.66–3.26 mm, length to width ratio = 2.25–2.45. Indices:  $C = 4.31\text{--}5.00$ ,  $ac = 1.75\text{--}1.88$ ,  $hb = 0.38\text{--}0.50$ ,  $4C = 0.45\text{--}0.57$ ,  $4v = 1.23\text{--}1.48$ ,  $5x = 1.25\text{--}1.38$ ,  $M = 0.34\text{--}0.43$ ,  $prox. x = 0.39\text{--}0.43$ .

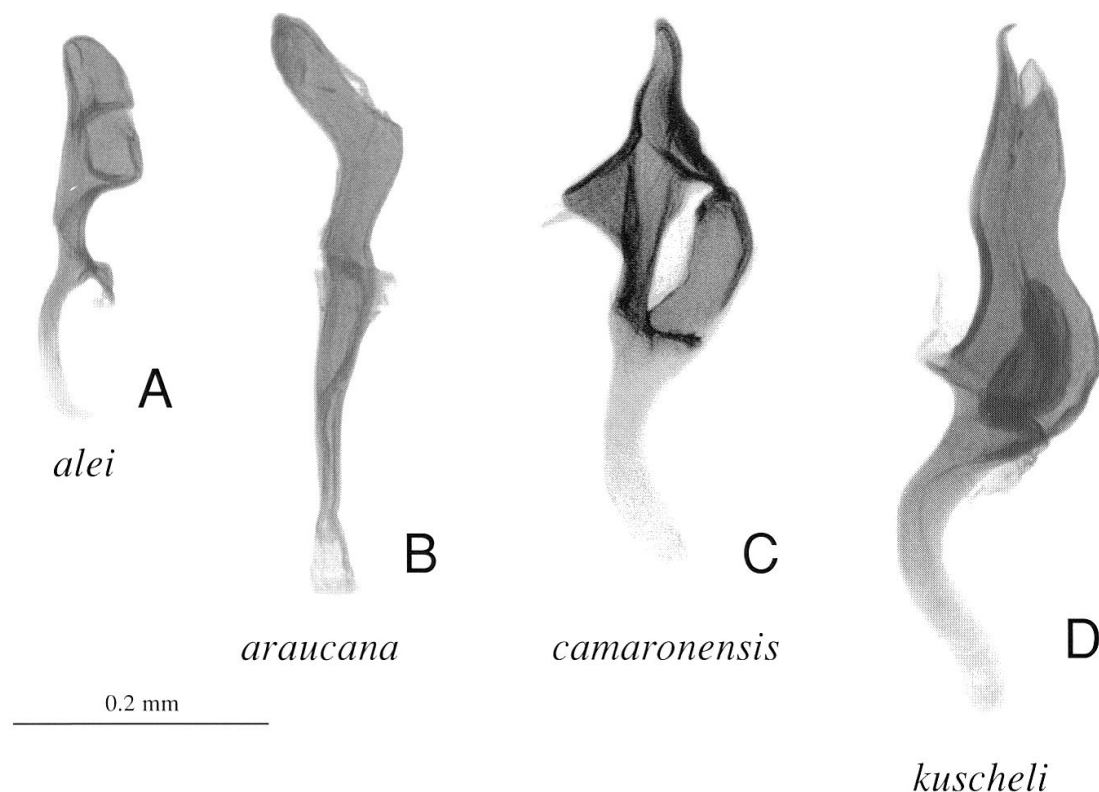


Fig. 9. Aedeagus, aedeagal apodeme and paraphyses (except A and B), left lateral view, of the lectotypes of: A, *Drosophila alei* BRNCIC; B, *Drosophila araucana* BRNCIC; C, *Drosophila camaronensis* BRNCIC; D, *Hirtodrosophila kuscheli* (BRNCIC).

Abdomen blackish-brown, shiny.

♂ *Terminalia* (Figs 7, 8, 9D). Epandrium dorsoposteriorly microtrichose with about 13 lower setae near the ventral margin, and no upper setae; ventral lobe not microtrichose, not covering surstylus. Cerci linked to hypandrium by membranous tissue, mostly microtrichose. Surstylus not microtrichose, with about 27 setae in the ventral area and not arranged in a row of prenisetae, although some setae are almost peg-like in shape. Decasternum as in Fig. 7B. Hypandrium almost twice as long as epandrium, dorsal arch absent, gonopod bare, linked to paraphysis by membranous tissue and conspicuously bearing a pair of long, finger-shaped, distally directed projections. Aedeagus somewhat waved in lateral view, slightly flattend laterally, dorsal tip slightly directed ventrad. Aedeagal apodeme bent, shorter than aedeagus, laterally flattened. Ventral rod absent. Paraphysis positioned laterally to aedeagus, linked to posterior region of aedeagal apodeme by membranous tissue, bearing three setulae at very distal end.

*Distribution.* Chile (Juan Fernández Islands).

*Note.* BRNCIC (1987: 49) stated that the (anyway not correctly designated) “holotypes” of *D. kuscheli* are lost.

#### ACKNOWLEDGMENTS

We are indebted to K. HUTTER, P. BRAUCHLI and D. RÖTHLISBERGER for helping with digital image processing and to A. CAMOUSSEIGHT for kindly loaning the specimens included in the present study.

#### REFERENCES

- BRNCIC, D. 1957a. Las especies chilenas de Drosophilidae. *Colecc. Monograf. Biol. Univ. Chile* 8: 1–136.
- BRNCIC, D. 1957b. Los insectos de las Islas Juan Fernández. 31. Drosophilidae (Diptera). *Revta chil. Ent.* 15. 5: 391–397.
- BRNCIC, D. 1962. New Chilean species of the genus *Drosophila*. *Biológica* 33: 3–6.
- BRNCIC, D. 1983. Ecology of flower-breeding *Drosophila*. In: ASHBURNER, M., CARSON, H.L., & THOMPSON, J.N. (eds.), *The genetics and biology of Drosophila*, vol. 3d, pp. 333–382. Academic Press, London.
- BRNCIC, D. 1987. A review of the genus *Drosophila* FALLEN (Diptera: Drosophilidae) in Chile with the description of *Drosophila atacamensis* sp. nov. *Revta chil. Ent.* 15: 37–60.
- BRNCIC, D. & MARTINEZ, H. 1990. Lista de ejemplares de Drosophilidae depositados en el Museo Nacional de Historia Natural. *Notic. mens., Santiago* 317: 1–7.
- GRIMALDI, D.A. 1990. A phylogenetic, revised classification of the genera in the Drosophilidae (Diptera). *Bull. Amer. Mus. Nat. Hist.* 197: 1–139.
- NACRUR, J. 1958. Genitalia masculina de “*Drosophila*” do grupo “*mesophragmatica*” (Diptera). *Revta bras. Biol.* 18: 243–249.
- VILELA, C.R. 1986. The type-series of *Drosophila denieri* BLANCHARD (Diptera, Drosophilidae). *Revta bras. Ent.* 30 (2): 223–226.
- VILELA, C.R. & BÄCHLI, G. 1990. Taxonomic studies on Neotropical species of seven genera of Drosophilidae (Diptera). *Mitt. Schweiz. Ent. Ges.* 63 (Suppl.): 1–332.
- VILELA, C.R. & BÄCHLI, G. 2000. Morphological and ecological notes on the two species of *Drosophila* belonging to the subgenus *Siphlodora* PATTERSON & MAINLAND, 1944 (Diptera, Drosophilidae). *Mitt. Schweiz. Ent. Ges.* 73 (1–2): 23–47.
- VILELA, C.R. & PEREIRA, M.A.Q.R. 1985. Notes on two species of spot-thoraxed *Drosophila* belonging to the *guarani* group (Diptera, Drosophilidae). *Revta bras. Ent.* 29: 435–442.
- WHEELER, M.R. 1970. Family Drosophilidae. In: *A catalogue of the Diptera of the Americas south of the United States*, pp. 79.1–79.65. Museu de Zoologia, Universidade de Sao Paulo.

(received April 8, 2002; accepted September 10, 2002)