Zootaxa 5048 (2): 176–190
https://www.mapress.com/j/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5048.2.2
http://zoobank.org/urn:lsid:zoobank.org:pub:23767CED-BD83-41FC-8A82-9A23ECEAF964

Two new species of *Neotraginops* Prado from Costa Rica and Brazil (Diptera: Odiniidae: Traginopinae)

HELOÍSA FERNANDES FLORES[1,3*], GABRIELA PIRANI[1,4],
STEPHEN D. GAIMARI[2,5] & DALTON DE SOUZA AMORIM[1,6]

[1]*Laboratório de Morfologia e Evolução de Diptera, Universidade de São Paulo, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Departamento de Biologia, Avenida Bandeirantes, 3900, 14040-901, Ribeirão Preto, SP, Brazil*
[2]*California State Collection of Arthropods, California Department of Food and Agriculture, 3294 Meadowview Road, Sacramento, CA 95832-1448, U.S.A*
[3] *heloisa.flores@usp.br; https://orcid.org/0000-0003-1246-6660*
[4] *gabi.pirani3107@gmail.com; https://orcid.org/0000-0002-3384-9866*
[5] *stephen.gaimari@cdfa.ca.gov; https://orcid.org/0000-0002-4240-7154*
[6] *dsamorim@usp.br; https://orcid.org/0000-0001-5224-8276*
[*]*Corresponding author. heloisa.flores@usp.br*

Abstract

Two new species of *Neotraginops* Prado (*Neotraginops fachini* **sp. nov.** and *Neotraginops arikemi* **sp. nov.**) are added to the known Neotropical diversity of the Traginopinae (Odiniidae), and the range is expanded for *Neotraginops mexicanus* Hernández-Ortiz & Dzul-Cauich. A key to the species of the genus is provided. Along with descriptions, photographs and detailed illustrations of the male terminalia are included for the new species.

Key words: biodiversity, Neotropical region, Schizophora, Acalyptratae, Opomyzoidea, taxonomy

Introduction

Odiniidae (Diptera: Schizophora) is a small family of flies with worldwide distribution, presently including 76 species described in 18 genera (Limeira-de-Oliveira *et al*. 2020b). As is the case for most families of flies, there is still a large number of undescribed species of odiniids in different biogeographical regions (Gaimari & Mathis 2010).

Odiniids are rather robust flies, varying from 2.5 to 6 mm in length. The coloration of the species ranges from silvery to dull grey or brown, and several species have patterns of brown spots or other patterns on various parts of the body. The number and orientation of fronto-orbital setae are important to identify the family, most odiniids having three pairs, the anterior one (to several) inclinate and the posterior two reclinate. The antenna may be micropubescent, pubescent or plumose. The ocellar triangle ranges from flat to slightly bulging, to being on an enlarged tubercle. Another relevant feature is the presence of a dorsal pre-apical seta on one or more tibiae. The wings may be hyaline with spots over the crossveins or may exhibit complex patterns. The wing venation has a subcostal break, with Sc incomplete and C extending to R_{4+5} or M_1 (Gaimari & Mathis 2010).

The family is considered monophyletic, which is supported by the absence of an ejaculatory apodeme, the presence of several setae on the katepisternum and the presence of a preapical dorsal seta on one or more tibiae (McAlpine 1989). Hennig (1965) divided the group into the subfamilies Odiniinae and Traginopinae, which differ in the shape of the head and the position of the ocellar triangle. Odiniines present the frons at an angle in relation to the face and the posterior ocelli are aligned with the inner vertical setae. Traginopines have the frons approximately aligned with the face and the posterior ocelli are not aligned with the inner vertical setae (Hennig 1965; Gaimari & Mathis 2010).

Traginopinae includes 14 described genera. Recent advances in the taxonomy of the subfamily in the Neotropical Region have been carried out with the description of six new genera in the last few years (Gaimari 2007; Limeira-de-Oliveira *et al.* 2017, 2020a, 2020b): *Helgreelia* Gaimari, *Inpauema* Limeira-de-Oliveira, Marques,

 Accepted by D. Bickel: 24 Sept. 2021; published: 6 Oct. 2021

Reis & Rafael, *Neoschildomyia* Gaimari, *Pauximyia* Limeira-de-Oliveira, Marques, Gaimari & Rafael, *Pradomyia* Gaimari, and *Umbodinia* Limeira-de-Oliveira, Marques, Gaimari & Rafael. Additional species were recently described (Carvalho-Filho *et al.* 2009; Hernández-Ortiz & Dzul-Cauich 2014) in the genera *Helgreelia* Gaimari, and *Neotraginops* Prado. The Neotropical Region has the highest diversity of odiniids worldwide (Gaimari & Mathis 2011), yet the real species richness of the family and of the Traginopinae is still poorly understood.

Neotraginops is an exclusively Neotropical genus, with only two species described: *Neotraginops clathratus* (Hendel) and *N. mexicanus* Hernández-Ortiz & Dzul-Cauich. The genus was described by Prado (1973) to separate out the single Neotropical species, *Traginops clathratus* Hendel (Figs 1A-C), from the Nearctic species of *Traginops* Coquillett. The decision to create a new genus was based especially on the male terminalia (Prado 1973). *Neotraginops clathratus* has a broad distribution in the Neotropical Region, with records from Colombia to south of Brazil. After 40 years of the description of the genus, a second species from Mexico and Belize was described, *N. mexicanus*.

We describe here two new species of *Neotraginops* for the Neotropical Region, with a key to the species of the genus, and photographs and genitalic illustrations for each new species. We also extend the distribution of *N. mexicanus* to Costa Rica with specimen records.

Material and methods

The material analyzed in this study belongs to the California State Collection of Arthropods (CSCA, California Department of Food and Agriculture, Sacramento, California, United States), the National Museum of Natural History (USNM, Washington, D.C., United States), and the Natural History Museum of Los Angeles (LACM, Los Angeles, California, United States). With permission of the LACM, the holotype of *Neotraginops arikemi* **sp. nov.** is deposited in the Museu de Zoologia da Universidade de São Paulo (MZUSP). The material was mostly collected with Malaise traps in different projects, under different protocols.

Dry specimens were placed in a wet chamber and rehydrated prior to the preparation of slide mountings. The following procedure was used for dissection: removal of the last abdominal tergites at the level of segment 6; immersion in 10% KOH for approximately 1–2 hours (according to the degree of sclerotization) at 60 °C; immersion in 100% glacial acetic acid to neutralize the base (this was later thoroughly rinsed in distilled water); dissection of the terminalia; transfer to a temporary slide mounting with glycerin jelly. The dissected terminalia was stored in vials with glycerin. Permanent slide mountings of the wing were prepared with Euparal. The vial with the terminalia and the slide of the wing were added to the pin of their respective specimens.

All species studied in this paper are illustrated with photographs in several views (habitus lateral, dorsal view of head, lateral view of head, face, dorsal view of thorax, and dorsal view of the abdomen). The photographs were taken using a Leica DC500 camera attached to a Leica MZ16 stereomicroscope. Stacking was made using the software Helicon Focus 6.3.0. Photos were edited with the Adobe Photoshop CS6 software. Drawings of the male terminalia were performed with a camera lucida coupled to a microscope, later scanned for vectorization in Adobe Illustrator CS6. The male terminalia was illustrated in terminal, lateral and ventral views. The morphological terminology used follows Cumming and Wood (2017). All measurements are given in millimeters and follow Gaimari (2007).

Results and discussion

Taxonomy

Neotraginops Prado

Neotraginops Prado, 1973: 504. Type species: *Traginops clathratus* Hendel, 1909: 52 (original designation).

Diagnosis (adapted from Prado 1973 and Hernández-Ortiz & Dzul-Cauich 2014). Head with a large ocellar tubercle, covered by setulae. Ocellar setae divergent; postocellar setae divergent, approximately half length of ocellar setae; inner vertical setae convergent; outer vertical setae divergent. 3 pairs of fronto-orbital setae present, the anteriormost seta inclinate and posterior setae reclinate. Lunula with a velvet black triangular spot. Antenna short

with third antennal segment rounded apically. Arista pubescent, basal portion orange, distal portion dark brown. Chaetotaxy of the thorax as follows: 3 postpronotals, 2 notopleurals, 1 supra-alar presutural, 2 supra-alar postsuturals (anterior pair weak), 2 postalars, 1 intrapostalar, 4 dorsocentrals (anterior pair presutural and remaining three postsutural), 1 acrostichal, 2 propleurals, 3 katepisternals, 2 scutellars with scutellum setulose on disc. Wing brownish with reticulated pattern of hyaline spots; Sc nearly complete, fading distally; R_{2+3} and R_{4+5} slightly divergent apically; R_{4+5} and M_1 slightly convergent but becoming parallel at apex; crossvein dm-m straight. Apical ventral seta on mid tibia twice as long as preapical dorsal seta; one short preapical dorsal seta present on all tibiae.

FIGURES 1A–C. *Neotraginops clathratus* (Hendel), syntype ♀ (HNHM). **A.** *habitus*, lateral view; **B.** head, frontal view; **C.** original label. (photographs by Dr. Zoltán Soltész)

Comments. Within the subfamily, the genus seems to belong to a clade that also includes *Paratraginops* Hendel and *Traginops*. This is especially suggested by the elevated ocellar tubercle, a uniquely derived feature in the family. Within this clade, *Neotraginops* is probably a sister group to *Traginops*, as suggested by the membranous portion of the phallus subdivided into a pilose hemispherical capsule and a set of ventrally projecting membranes. The pubescent arista and a straight M_1 separate *Neotraginops* from *Paratraginops*. *Neotraginops* differs from *Traginops* mainly by the presence of two propleural setae and differences in the male terminalia. The keys presented in Gaimari (2007, 2010) and Gaimari & Mathis (2011) can be used to identify *Neotraginops* leading to the following key to species.

Key to the species of *Neotraginops*

1. Wing brownish with hyaline spots forming X-shaped markings on cells r_1 and r_{2+3} . . . . . *N. mexicanus* Hernández-Ortiz & Dzul-Cauich
- Wing brownish with hyaline spots, without X-shaped marks on cells r_1 and r_{2+3} (Fig. 3D) 2
2. Ocellar tubercle well developed, entirely occupying the vertex (Figs 2C, 3A). Pregonite pilose (Fig. 4B) . . *N. fachini* **sp. nov.**
- Ocellar tubercle well developed, but not extending back to the vertex (Figs 5C, 6A). Pregonite bare or with a single seta (Fig. 7B) 3
3. Frons entirely orange. Posterior half of ocellar tubercle covered by several rows of setulae (Fig. 5B). Pregonite with a small notch (Fig. 7B) . . . . . *N. arikemi* **sp. nov.**
- Frons mostly brown, orange only along border of lunule (Fig. 1B). Surface of ocellar tubercle entirely covered of rows of setulae (Fig. 1B). Pregonite without a small notch . . . . . *N. clathratus* (Hendel)

Neotraginops fachini sp. nov.

(Figs 2–4)

Diagnosis. Ocellar tubercle well developed, occupying entire vertex, covered by scattered rows of setulae. Two longitudinal dark brown stripes with greyish pollinosity on the face. Vibrissal angle enlarged. Genal groove deep, yellow, with one brown spot below margin of eye. Wing with marks along cells r_1 and r_{2+3} more or less rectangular. Pregonite pilose, except for the margin articulated with hypandrium.

Material examined. Holotype (left wing slide-mounted, terminalia in vial), ♂ (LACM): COSTA RICA, **Alajuela Province**, 20 km S Upala, F. D. Parker, 29.i.1991.

Paratypes: COSTA RICA, **Alajuela Province**, 20 km S Upala, F.D. Parker, 28.ii.1991 (1♀, LACM), 1–10.iv.1991 (1♀, LACM), 6.vi.1990 (1♀, LACM), 23.x.1990 (1♀, USNM), 28.x.1990 (1♀, LACM), 30.x.1990 (1♂, CSCA; 1♂, USNM), 6.xi.1990 (1♂, CSCA; 1♂, LACM), 13.xi.1990 (1♀, LACM), 27.xi.1990 (1♀, CSCA), 6.xii.1990 (1♀, CSCA; 1♀, USNM), 11.xii.1990 (2♀, LACM), 25.xii.1990 (2♀ (1 with terminalia in vial), LACM; 1♀, CSCA).

Description. Adults ♂, ♀. Body length, 4.1–4.4 mm. **Head** (Figs 2A–C, 3A). Higher than long in lateral view, wider than high in anterior view. Height 1.96–1.98X length; height 1.06–1.08X width. Eye slightly higher than long in lateral view. Broad, dark brown ocellar tubercle, covered by scattered rows of setulae. Frons 4.16X wider than long. Frons anteriorly orange, brownish on lateral margins of ocellar tubercle. Posterior margin of eye orange, extending to postcranium, and narrowing in postocellar region. Fronto-orbital plate with golden pollinosity, dark brown around insertion of fronto-orbital setae, scattered setulae present. Posteriormost fronto-orbital seta at level of posterior ocelli. Lunule strongly arched, approximately one-third of length of frons, lateroventrally bordered by golden-yellow pollinosity. Face with greyish pollinosity, two longitudinal dark brown stripes. Oral vibrissa well developed, plus 1–2 subvibrissal seta, surrounded by subvibrissal setulae. Parafacial greyish with a median dark brown spot ventrally extending to genal groove area below eye. Streak of bare yellow extending from the brown spot along the lower posterior margin of the eye. Gena broad, brown in the anterior part, with greyish pollinosity, plus densely scattered setulae. Genal groove area yellow. Antennal scape and pedicel light brown; first flagellomere orange, rounded, slightly longer than high, with scattered hairs; arista pubescent, mostly dark brown, basal end orange. Clypeus light brown, with golden yellow pollinosity. Palpus spatulate, orange, with scattered setulae. Proboscis brown with dark yellow setulae. **Thorax** (Figs 2A, 3B). Mesonotum length, 1.76–1.78 mm, width, 1.23–1.26 mm. Chaetotaxy: 3 postpronotals (middle one 1.5X longer than others), anepisternum and anepimeron bare, 2 pro-

pleurals (anterior longer than posterior), 2 notopleurals, 3 katepisternals (anterior one longer, median and posterior of same length), 1 presutural supra-alar, 2 postsutural supra-alars, 1 postalar, 2 intra-alars, 4 dorsocentrals (similar length, 1 presutural), 1 prescutellar acrostichal seta, and 2 scutellars. Scutum brown, covered by whitish pollinosity; arrow-shaped brown vitta, all dorsocentrals with a brown spot surrounding base, second and third ones connected to median band, first one weakly connected; 12 rows of acrostichals present. Pleuron covered by greyish pollinosity, with complex pattern of brown pollinosity. Postpronotal lobe with anteroventral margin dark brown. Anepisternum mostly dark brown, with three greyish pollinosity halos. Katepisternum with two dark brown spots, setulose. Scutellum brown in distal 2/3 with a central triangular yellow spot, silvery-grey basally, disc densely setulose. **Legs** (Fig. 2A)**.** Mostly brown, with yellow rings; fore femur mostly dark brown with basal and apical yellow tips, row of 6–7 anteroventral setae present, row of 3–4 dorsal setae present. Mid and hind femora with basal and subapical yellow rings. All tibiae with basal, medial and apical yellow rings. Preapical dorsal setae present in all tibiae. Ventrally strong medial spur present. All tarsi brown. **Wing** (Fig. 3D)**.** Length, 4.8–5 mm, width, 2.1–2.2 mm; brownish, with reticulated pattern of hyaline spots. C extending to M; costal spinules extending to R_{2+3}.Veins yellow to brown. R_{2+3} and R_{4+5} apically divergent; R_{4+5} and M_1 converging, but parallel at apex; r-m vein broadly darkened, reaching the discal cell in 2/3 of its length. Halter orange. **Abdomen** (Fig. 3C). Tergites uniformly dark brown with grey whitish pollinosity, covered by setulae slightly longer along posterior margin. **Male terminalia** (Figs 4A–C). Epandrium concave; setulose; 1.35X longer than high; inner margin rounded. Two surstylar lobes articulated with the disto-lateral margin of epandrium; inner surstylar lobe sclerotized, 1/2 the length of the outer surstylar lobe, curved in posterior view, with few inner distal setulae; outer surstylar lobe weakly sclerotized, laminar in posterior view, with scattered setulae on all surfaces. Cercus elongated, setose, microtrichia present. Subepandrial sclerite present as a narrowly sclerotized connection between surstylar lobes in posterior view; articulated with hypandrial arms. Hypandrium 1.1X longer than maximum width, subtriangular in lateral view, U-shaped in ventral view; extending laterally around phallapodeme, connecting with epandrium. Pregonites fused to each other and partially fused to hypandrium; bilobed distally in lateral view; pilose, excepting margin merged with hypandrium; inner margin rounded. Pregonite arms projecting up to level of distiphallus, scattered setae at apex. Postgonite articulated subapically to pregonite and to phallus, reniform, setae absent. Phallapodeme elongated, anterior extremity extending beyond the distal margin of the hypandrium; 2.1X length of hypandrium; Y-shaped. Phallus consisting of a sclerotized portion and a membranous portion. Basiphallus not fused to phallapodeme, curved, almost meeting at apex. Distiphallus subdivided into a pilose hemispherical capsule and a set of membranes projecting ventrally. **Female terminalia** (Figs 8A–B). Tergite 6 broad, 2X wider than long, sclerotized, with sparse setae. Sternite 6 with thin sclerite on anterior margin, sclerotized, setose. Tergite 7 convex in dorsal view, weakly fused with sternite 7. Sternite 7 with D-shaped sclerite, bare. Segment 8 tubular, 3X longer than wide, setulose. Epiproct and hypoproct small, plate-like. Cerci setose, separated, elongated and thin.

Etymology. The species epithet honors Diego Aguilar Fachin, a Brazilian dipterist and a dear friend who has made impressive contributions to the knowledge of Stratiomyidae and other groups of flies.

Distribution. NT: Costa Rica.

Comments. *Neotraginops fachini* **sp. nov.** differs from the other described species of the genus mainly by the pilose pregonite and the particularly large ocellar tubercle, which occupies the entire vertex. This is the first species of *Neotraginops* recorded for Costa Rica, although the genus was recorded by Gaimari (2010).

Neotraginops arikemi sp. nov.

(Figs 5–7)

Diagnosis. Ocellar tubercle well developed, with several rows of setae from the posterior ocelli. Sclerotized portion of the phallus curved, lying apically, projecting ventrally. Pregonite with a small notch.

Material examined. Holotype (left wing slide-mounted, terminalia in vial), ♂ (MZUSP): BRAZIL, **Rondônia**, 62 km SE Ariquemes, W. J. Hanson, 7–18.xi.1995. **Paratypes:** BRAZIL, **Rondônia**, 62 km SE Ariquemes, W. J. Hanson, 8–20.xi.1995 (1♀ (terminalia in vial), LACM), 22–31.xi.1997 (1♂, LACM), 5–16.vi.1996 (1♀, CSCA).

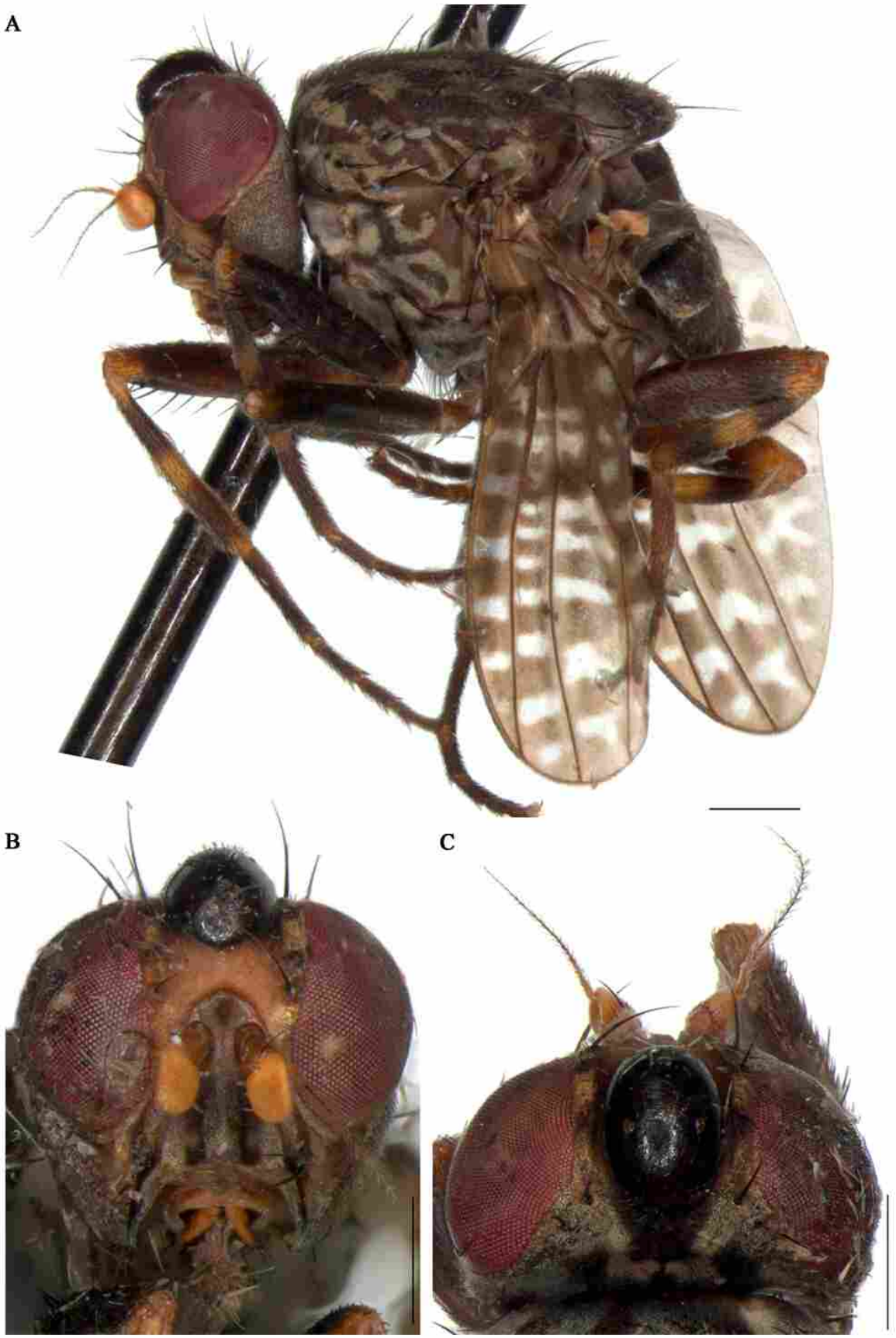
Description. Adults ♂, ♀. Body length, 3.6–3.8 mm. **Head** (Figs 5A–C, 6A). Higher than long in lateral view, wider than high in anterior view. Height, 1.83–1.85X length; height, 0.93–0.94X width. Eye slightly higher than long in lateral view. Ocellar tubercle dark brown, covered by several rows of setulae on surface from anterior ocellus through the posterior half of vertex. Frons 5.0X wider than long. Frons anteriorly orange, brownish on lateral mar-

gins of ocellar tubercle, extending until third fronto-orbital. Brown stripe from posterior portion of ocellar tubercle to postcranium, narrowing at postocellar region, where it widens. Fronto-orbital plate with golden pollinosity, dark brown around insertion of fronto-orbital setae, scattered setulae present. Posteriormost fronto-orbital seta at level of posterior ocelli. Lunule strongly arched, approximately two-third of length of frons, lateroventrally bordered by golden-yellow pollinosity. Face with greyish pollinosity, with two interconnected longitudinal dark brown stripes. Oral vibrissa well developed, plus 2 subvibrissal setae, surrounded by subvibrissal setulae. Parafacial covered by whitish pollinosity, a median dark brown spot ventrally extending to the genal groove area and gena, almost reaching the ventral margin of the gena. Gena broad, brown, covered by greyish pollinosity plus scattered setulae. Genal seta present. Genal groove area yellow. Antennal scape and pedicel dark orange; first flagellomere orange, rounded, slightly longer than high, with scattered hairs; arista pubescent, mostly dark brown, basal end orange. Clypeus brown, with golden yellow pollinosity, two black spots laterally. Palpus spatulate, orange, with scattered setulae. Proboscis brown with dark yellow setulae. **Thorax** (Figs 5A, 6B). Mesonotum length, 1.43–1.44 mm; width, 1.1–1.3 mm. Chaetotaxy: 3 postpronotals (middle one 1.5X longer than other two), anepisternum and anepimeron bare, 2 propleurals (anterior longer than posterior), 2 notopleurals, 3 katepisternals (anterior one longer, median and posterior of equal length), 1 presutural supra-alar, 2 postsutural supra-alars, 1 postalar, 2 intra-alars, 4 dorsocentrals (posterior longer, 1 presutural), 1 prescutellar acrostichal seta, and 2 scutellars. Scutum brown, covered by whitish pollinosity; arrow-shaped brown vitta, all dorsocentrals with a brown spot surrounding bases, last two connected to medial vitta; 12 rows of acrostichals present. Pleuron covered by greyish pollinosity with complex pattern of brown pollinosity. Postpronotal lobe with anteroventral margin dark brown. Anepisternum dark brown, with three greyish pollinosity halos. Katepisternum brown from point of insertion of katepisternals, setulose. Scutellum brown in distal 2/3 with yellow central triangular area, silvery-grey basally, disc densely setulose. **Legs** (Fig. 5A) Mostly brown, with yellow rings. Fore femur mostly dark brown with apical and basal yellow margins, row of 6–7 anteroventral setae present, row of 3–4 dorsal setae present. Mid and hind femora with basal and subapical yellow rings. Hind femur light brown ventrally, hind tarsus orange ventrally. All tibiae with basal, medial and apical yellow rings. Preapical dorsal setae present in all tibia. Ventrally strong medial spur present. All tarsi brown. **Wing** (Fig. 6D). Length, 4.4–4.5 mm; width, 1.9 mm. Membrane brownish with reticulated pattern of hyaline hourglass-shaped marks. Vein C extending to M; costal spinules extending to R_{2+3}.Veins yellow to brown. Veins R_{2+3} and R_{4+5} diverging apically; R_{4+5} and M_1 converging; r-m vein broadly darkened, reaching the discal cell in 2/3 of its length. Halter yellow. **Male abdomen** (Fig. 6C). Tergites uniformly dark brown with greyish pollinosity, covered by dark setulae, slightly longer along posterior margin. **Male terminalia** (Figs 7A–C). Epandrium concave, setulose; 1.35X longer than high; inner margin rounded. Surstylus as two articulated lobes with epandrial margin; inner surstylar lobe sclerotized, 3/4 of length of outer surstylar lobe, curved in posterior view, with few inner distal setulae; outer surstylar lobe weakly sclerotized, laminar in posterior view, with scattered setulae in all surfaces. Cercus elongated, setulose, microtrichia present. Subepandrial sclerite present as a narrowly sclerotized connection between surstylar lobes in terminal view; articulated to hypandrial arms. Hypandrium 1.2X longer than maximum width; subtriangular in lateral view; U-shaped in ventral view; extending laterally around phallapodeme and connecting with epandrium. Pregonite fused to each other and partially fused to hypandrium, pilose, except along margin, merged with hypandrium; inner margin rounded. Pregonite arms projecting up to height of distiphallus, with a small notch, scattered setae. Posgonite articulated subapically to pregonite and to phallus, setulose. Phallapodeme elongated, ventral tip overlapping with ventral margin of hypandrium; Y-shaped. Phallus consisting of a sclerotized portion and a membranous portion. Basiphallus not fused to phallapodeme, curved, almost meeting at apex, projecting ventrally. Distiphallus subdivided into a pilose hemispherical capsule and a set of membranes projecting ventrally. **Female terminalia** (Figs 8C-D). Tergite 6 broad, 1.6X wider than long, sclerotized, with sparse setae. Sternite 6 membranous, setose. Tergite 7 weakly fused with sternite 7. Sternite 7 with D-shaped sclerite, bare. Segment 8 tubular, 4.3X longer than wide, setulose. Epiproct and hypoproct small, plate-like. Cerci broken.

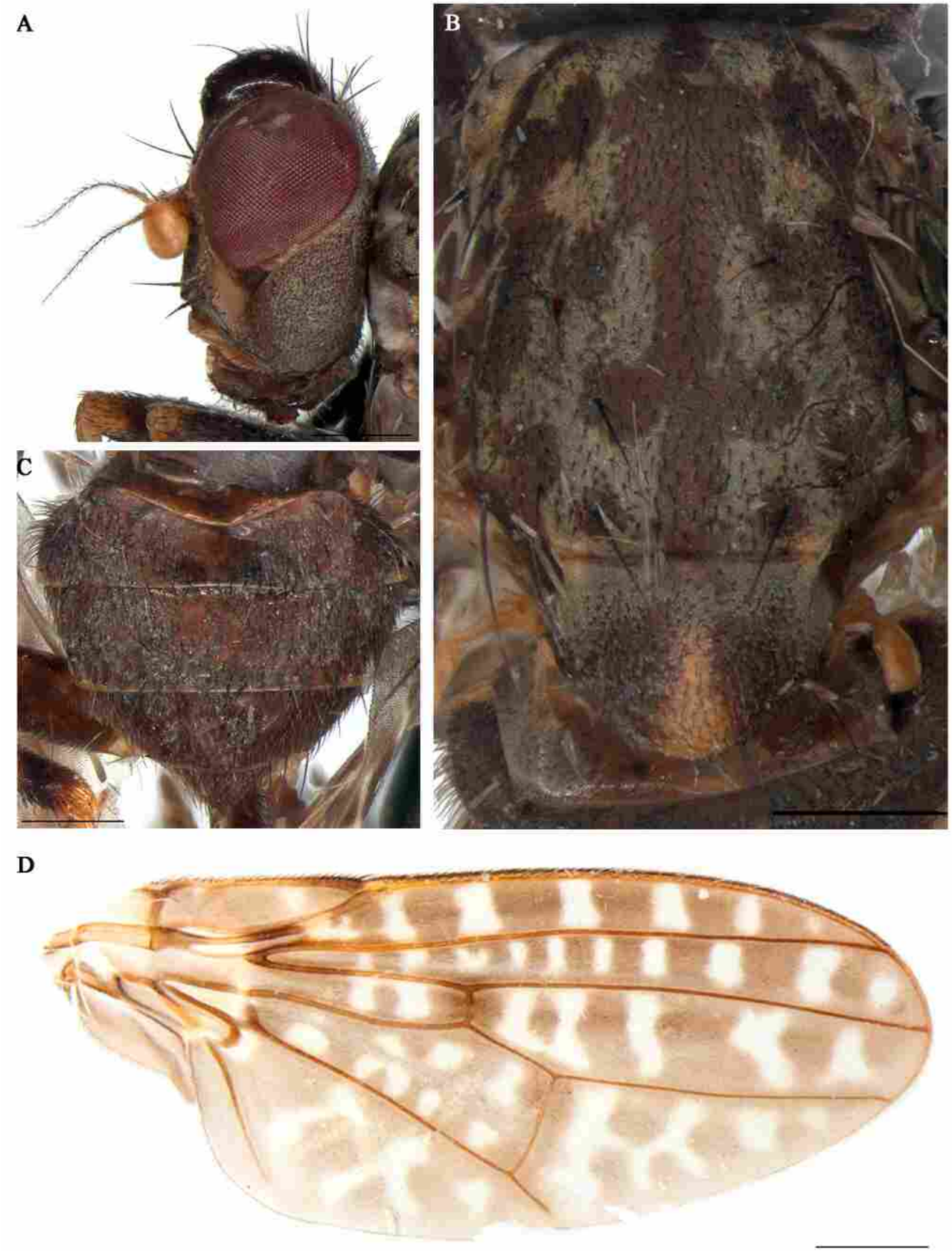
Etymology. The specific epithet honors the extinct indigenous tribe Arikeme, that lived in the state of Rondonia, in Brazil.

Distribution. NT: Brazil.

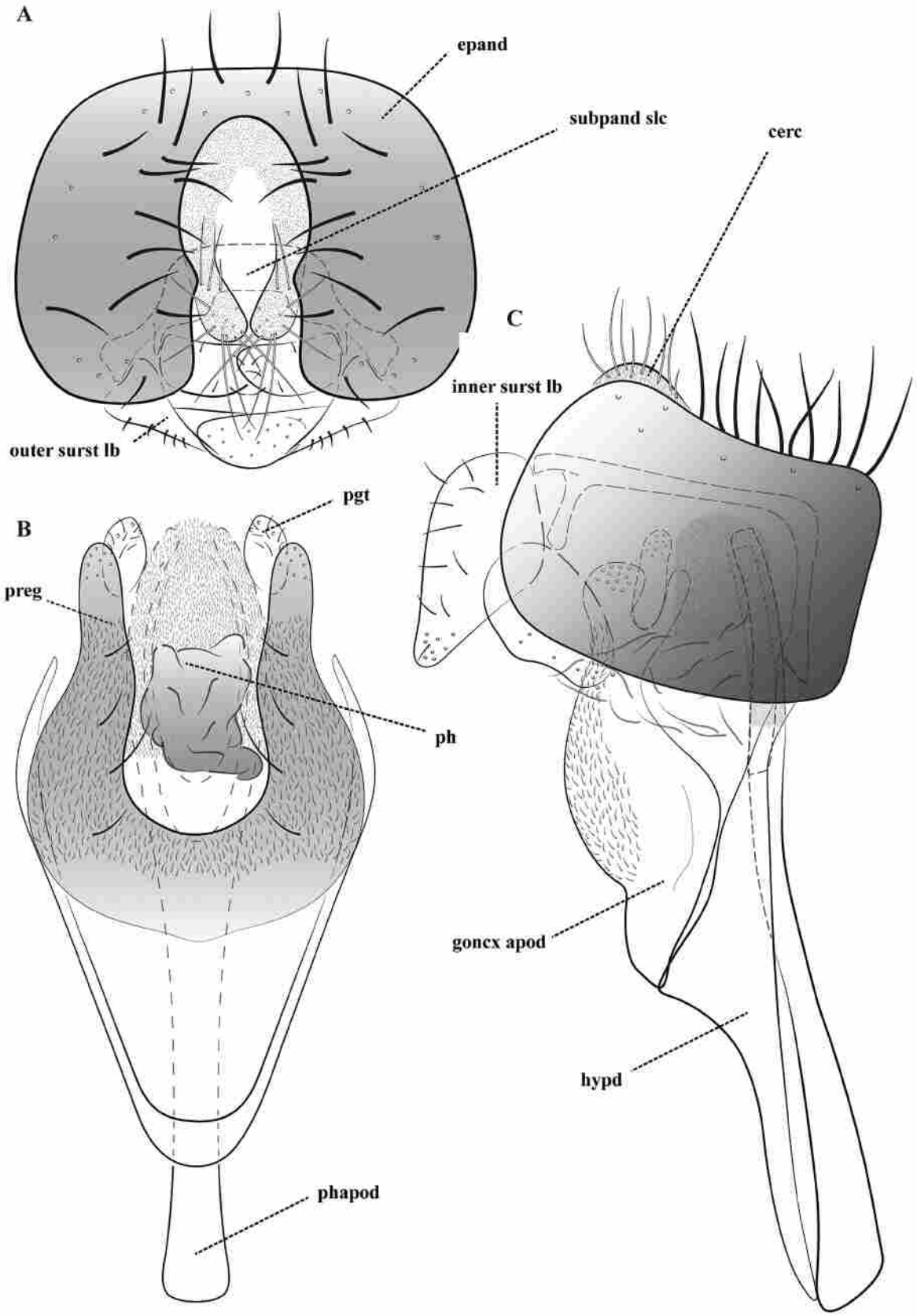
Comments. *Neotraginops arikemi* **sp. nov.** differs from the other described species in the genus mainly by the pregonite with a small notch. *N. clathratus* is readily distinguished from both new species by the frons mostly brown and the surface of the ocellar tubercle completely covered by several rows of setulae. This is the first record of the genus for the Amazon Forest.



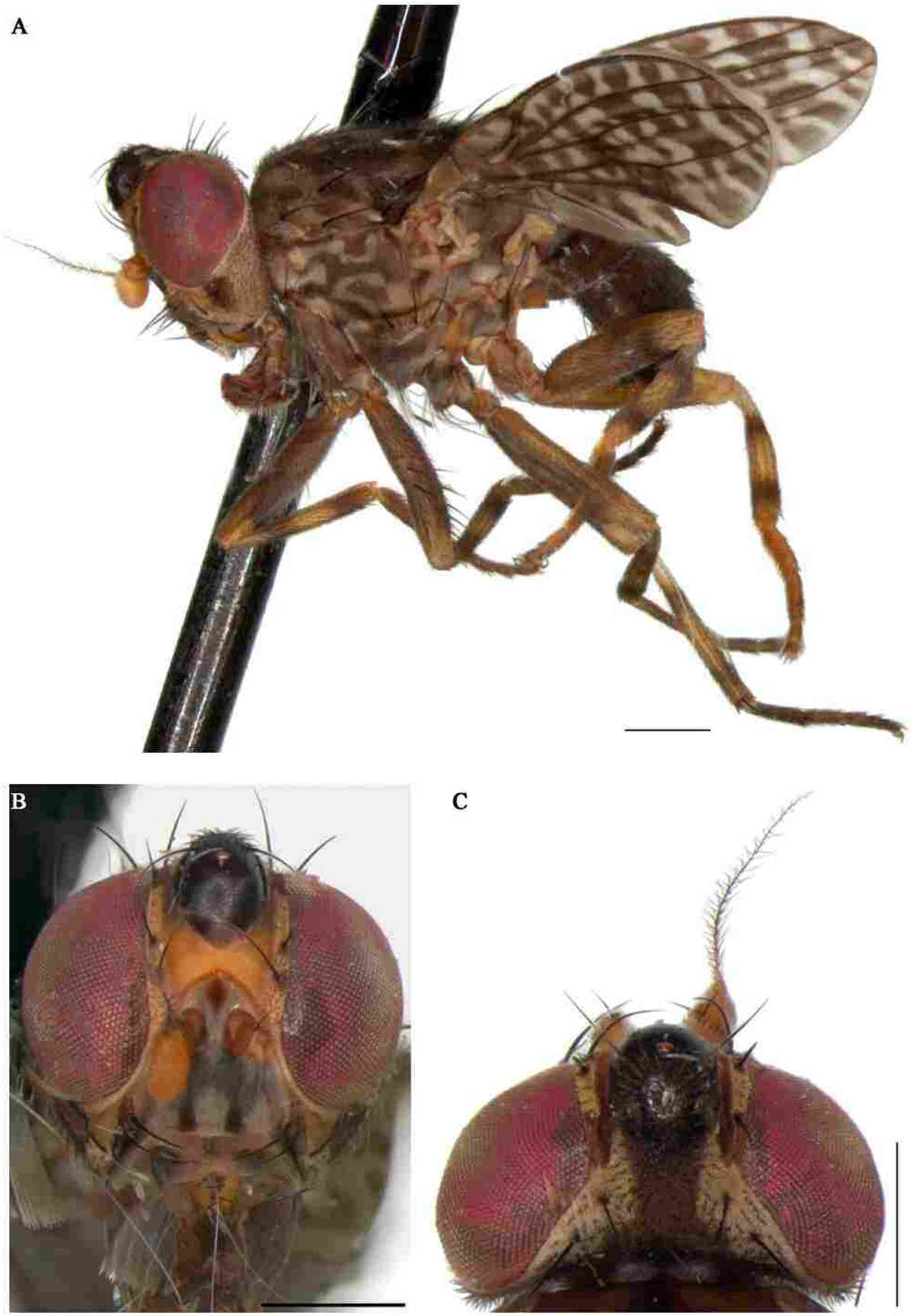
FIGURES 2A–C. *Neotraginops fachini* **sp**. **nov.**, holotype ♂. **A.** *habitus*, lateral view; **B.** head, frontal view; **C.** head, dorsal view. Scale bar: 0.5 mm.



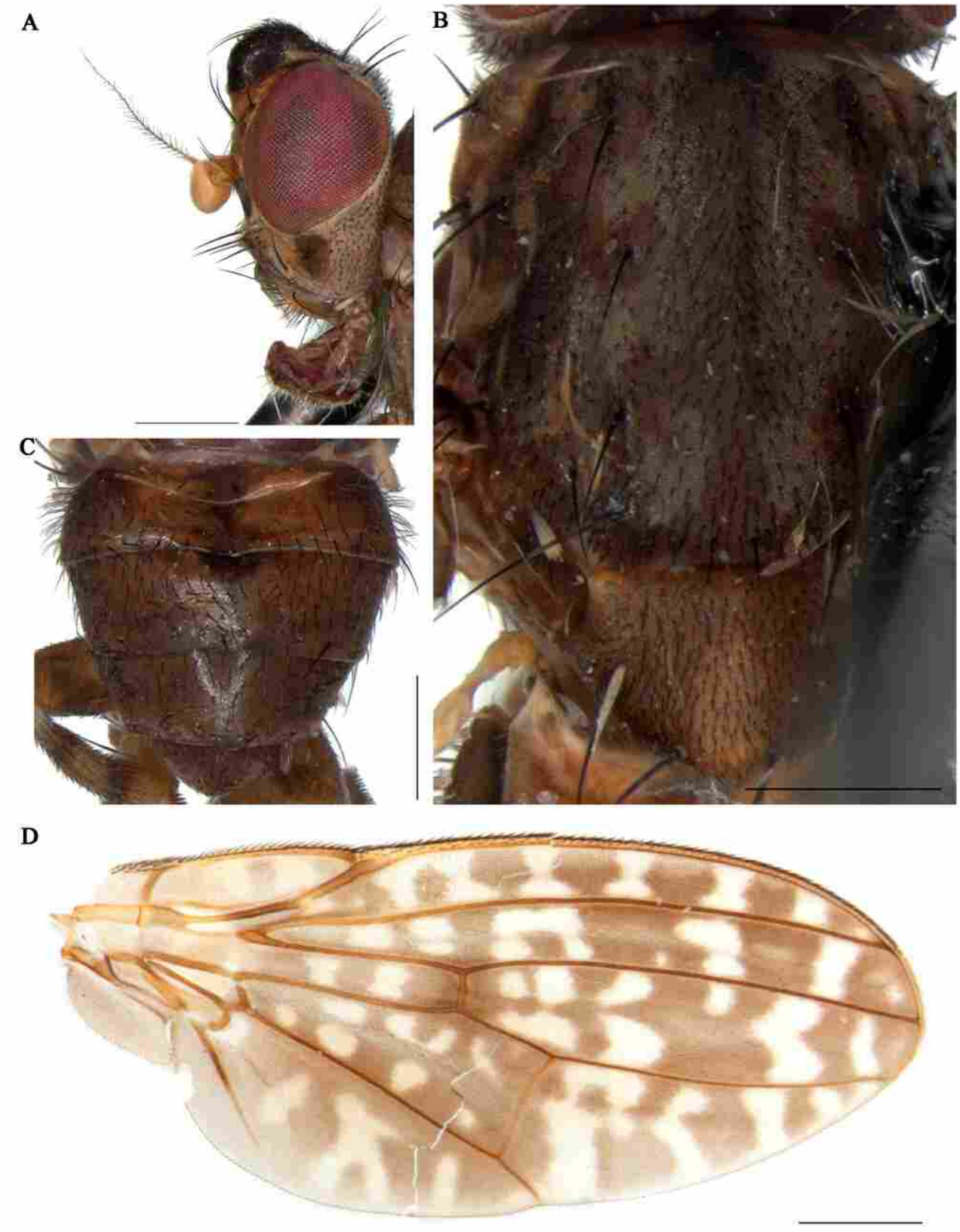
FIGURES 3A–D. *Neotraginops fachini* **sp**. **nov.**, holotype ♂. **A.** head, lateral view; **B.** thorax, dorsal view; **C.** abdomen, dorsal view; **D.** wing. Scale bar: 0.5 mm.



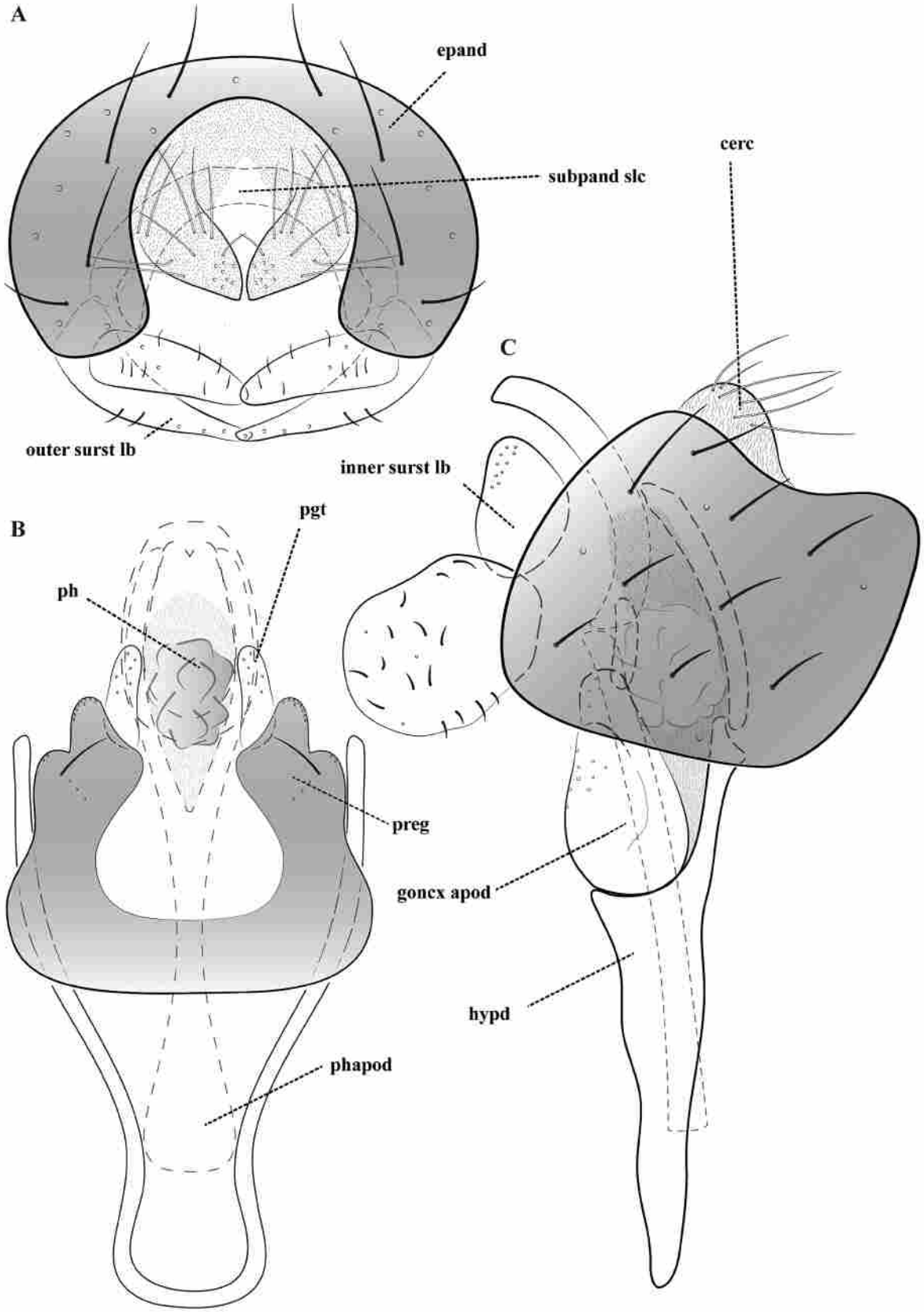
FIGURES 4A–C. *Neotraginops fachini* **sp**. **nov.**, holotype ♂, male terminalia**. A.** posterior view; **B.** ventral view; **C.** lateral view. Abbreviations: cerc, cercus; epand, epandrium; goncx apod, gonocoxal apodeme; hypd, hypandrium; inner surst lb, inner surstylar lobe; outer surst lb, outer surstylar lobe; pgt, postgonite; ph, phallus; phapod, phallapodeme; preg, pregonite; subpand scl, subepandrial sclerite.



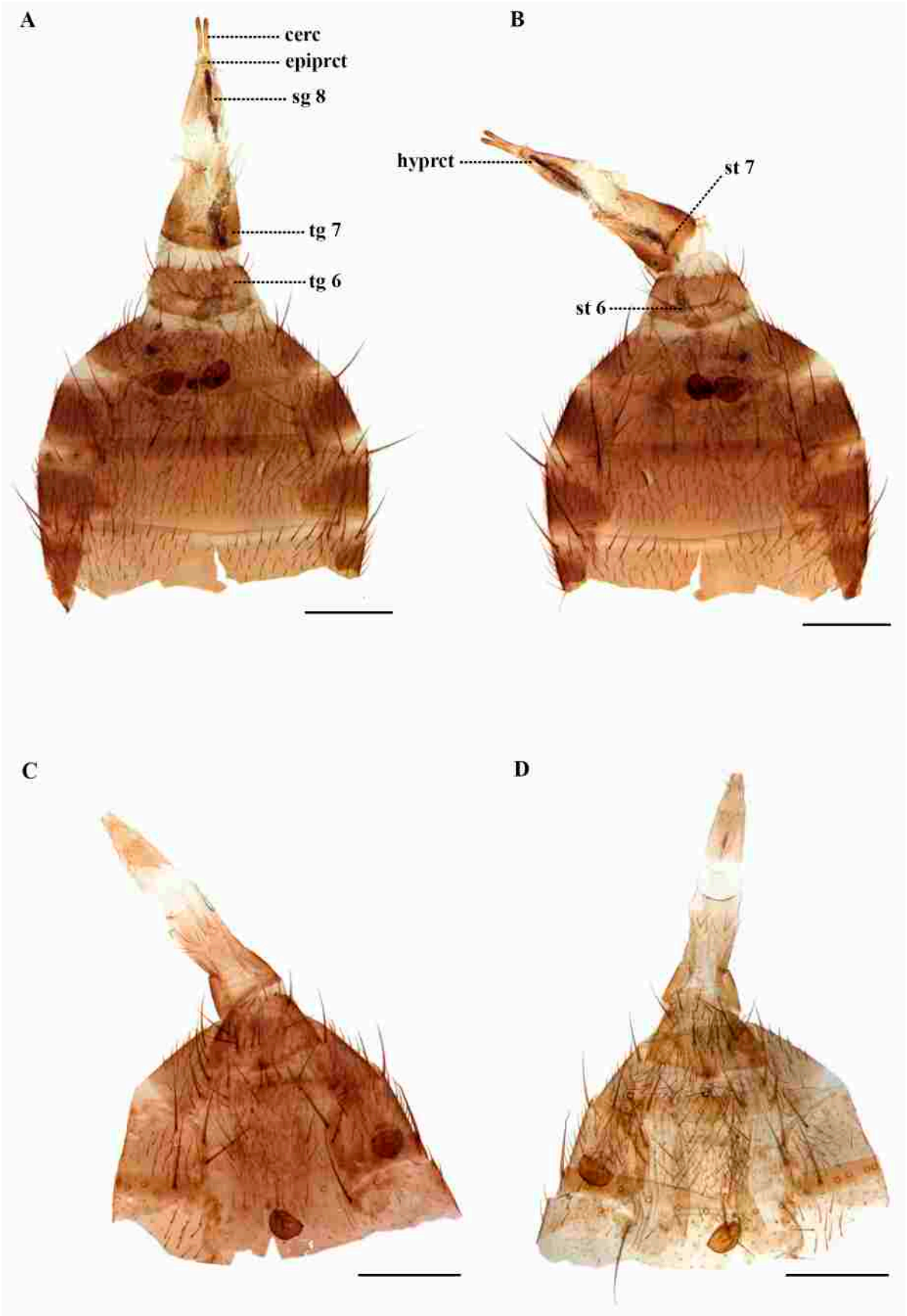
FIGURES 5A–C. *Neotraginops arikemi* **sp**. **nov.**, holotype ♂. **A.** *habitus*, lateral view; **B.** head, frontal view; **C.** head, dorsal view. Scale bar: 0.5 mm.



FIGURES 6A–D. *Neotraginops arikemi* **sp**. **nov.**, holotype ♂. **A.** head, lateral view; **B.** thorax, dorsal view; **C.** abdomen, dorsal view; **D.** wing. Scale bar: 0.5 mm.



FIGURES 7A–C. *Neotraginops arikemi* **sp**. **nov.**, holotype ♂, male terminalia**. A.** posterior view; **B.** ventral view; **C.** lateral view. Abbreviations: cerc, cercus; epand, epandrium; goncx apod, gonocoxal apodeme; hypd, hypandrium; inner surst lb, inner surstylar lobe; outer surst lb, outer surstylar lobe; pgt, postgonite; ph, phallus; phapod, phallapodeme; preg, pregonite; subpand scl, subepandrial sclerite.



FIGURES 8A–D. Female terminalia. **A–B.** *Neotraginops fachini* **sp**. **nov.**, paratype ♀. **A.** dorsal view; **B.** ventral view. **C–D.** *Neotraginops arikemi* **sp**. **nov.**, paratype ♀**. C.** dorsal view; **D.** ventral view. Abrevietions: cerc, cercus; epiprct, epiproct; hyprct, hypoproct; sg, segment; st, sternite; tg, tergite. Scale bar: 0.5 mm.

Neotraginops mexicanus **Hernández-Ortiz and Dzul-Cauich, 2014**

Material examined. BELIZE, **Stann Creek District**, Cockscomb Basin Wildlife Sanctuary, 16 47'N, 88 30" W, W. Mathis, 5–6.iv.1993 (1♂, USNM). COSTA RICA, **Guanacaste Province**, 3km SE R. Naranjo, F.D. Parker, 1–5.ix.1993 (1♀, LACM), 15–22.x.1991 (1♂, LACM), 2–8.xi.1991 (1♀, CSCA), xii.1991 (1♂, CSCA); Macizo Miravalles, Estación Cabro Muco, 1100m, 31.iii–1.iv.2003, B. Hernández, Luz Mercurio, L_N_299769_411243 #73577, INB0003709997, INBIOCRI COSTA RICA (1♀, INBC); Santa Cruz, Vista del mar. Torre COCESNA, 972m, 10.ii.2003, W. Porras, Libre, L_N_235350_357500 #73267, INB0003703218, INBIOCRI COSTA RICA (1♂, INBC);

Distribution. NT: Belize, Costa Rica (new country records), Mexico.

Acknowledgements

The authors thank Brian V. Brown (Natural History Museum of Los Angeles, Los Angeles, United States) for the loan of the material used in this study, and for permission to deposit the type of *Neotraginops arikemi* **sp. nov.** in the MZUSP. We also thank Zoltán Soltész (Hungarian Natural History Museum, Budapest, Hungary) for the photographs of one of the syntypes of *Traginops clathratus* (Hendel). The support from Maria Isabel P.A. Balbi (Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Universidade de São Paulo) preparing specimens for examination was indispensable for this work. Dr. Diego A. Fachin was very helpful with comments and tips in the Adobe Photoshop and Adobe Illustrator. We also thank the reviewers of the manuscript, including Francisco Limeira-de-Oliveira and one anonymous referee. This study was benefitted from FAPESP and CAPES Grants 2016/21333-6 and 2018/14504-4.

References

Carvalho-Filho, F.S., Esposito, M.C. & Santos, R.C.O. (2009) A new species of *Helgreelia* Gaimari (Diptera: Odiniidae) from Brazil, with a key to the Neotropical species of Odiniidae. *Zootaxa*, 2219 (1), 61–68. https://doi.org/10.11646/zootaxa.2219.1.6

Cumming, J.M. & Wood, D.M. (2017) 3. Adult morphology and terminology. *In*: Kirk-Spriggs, A.H. & Sinclair, B.J. (Eds.). *Manual of Afrotropical Diptera. Vol. 1. Introductory chapters and keys to Diptera families*. *Suricata 4*. SANBI Graphics & Editing, Pretoria, pp. 89–133.

Gaimari, S.D. (2007) Three new Neotropical genera of Odiniidae (Diptera: Acalyptratae). *Zootaxa,* 1443, 1–16. https://doi.org/10.11646/zootaxa.1443.1.1

Gaimari, S.D. (2010) Odiniidae. *In*: Brown, B.V., Borkent, A., Cumming, J.M., Wood, D.M., Woodley, N.E. & Zumbado, M.A. (Eds.), *Manual of Central American Diptera. Vol. 2*. NRC Research Press, Ottawa, pp. 1049–1055.

Gaimari, S.D. & Mathis, W.N. (2011) World catalog and conspectus on the family Odiniidae (Diptera: Schizophora). *Myia*, 12, 291–339.

Hendel, F. (1909) Über eine Dipterengattung mit turmartigem Scheitel, *Traginops* Coquillett. *Wiener Entomologische Zeitung*, 28, 49–52.

Hennig, W. (1965) Die Acalyptratae des Baltischen Bernsteins und ihre Bedeutung für die Erforschung der phylogenetischen Entwicklung dieser Dipteren-Gruppe. *Stuttgarter Beiträge zur Naturkunde*, 145, 1–215.

Hernández-Ortiz, V. & Dzul-Cauich, J.F. (2014) A new species of *Neotraginops* Prado (Diptera: Odiniidae) from Mexico and Belize, with additional records for *Odinia coronata* Sabrosky in Mesoamerica. *Zootaxa*, 3786 (5), 593–599. https://doi.org/10.11646/zootaxa.3786.5.7

Limeira-de-Oliveira, F., Marques, D.W.A., Reis, G.A. & Rafael, J.A. (2017) *Inpauema*, a new genus of Odiniidae (Diptera) from Brazil, with description of five new species. *Zootaxa*, 4362 (4), 517–534. https://doi.org/10.11646/zootaxa.4362.4.3

Limeira-de-Oliveira, F., Marques, D.W.A., Gaimari, S.D. & Rafael, J.A. (2020a) *Pauximyia*, a new genus of Odiniidae (Diptera: Acalyptratae) with description of two new species from Brazil. *Zootaxa*, 4728 (2), 227–236. https://doi.org/10.11646/zootaxa.4728.2.4

Limeira-de-Oliveira, F., Marques, D.W.A., Gaimari, S.D. & Rafael, J.A. (2020b) A new genus and species of odiniids (Diptera: Odiniidae) from the canopy of the Brazilian Amazon rainforest. *Zootaxa*, 4801 (1), 164–170. https://doi.org/10.11646/zootaxa.4801.1.8

McAlpine, J.F. (1989) Phylogeny and classification of the Muscomorpha. *In*: McAlpine, J.F., Wood, D.M. (Eds.), *Manual of Nearctic Diptera*. *Vol. 3. Research Branch, Agriculture Canada, Monograph 32*. Minister Supply and Services Canada, Ottawa, pp. 1397–1518.

Prado, A.P. (1973) Contribuição ao conhecimento da família Odiniidae (Diptera, Acalyptratae). *Studia Entomologica*, 16, 481–510.