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Aulacigastridae (Diptera) from Northeastern Brazil, with description of four new species

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Abstract. Four new species of *Aulacigaster* Macquart, 1835 (Diptera: Aulacigastridae) from Brazil are described and illustrated. They belong in the *leucopeza* (*A. waynei* sp. nov.) and the *plesiomorphica* (*A. carmelitae* sp. nov., *A. franciscae* sp. nov. and *A. joaribeiroi* sp. nov.) groups and represent the first records of the family in Northeastern Brazil. Although the *plesiomorphica* group had been previously known to occur in the country, *A. waynei* sp. nov. is the first record of the *leucopeza* group in Brazil. An updated identification key for the species groups within the genus is presented.

Keywords. Acalyptratae, Amazon Forest, Atlantic Forest, Cerrado Forest, Opomyzoidea.

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Introduction

This contribution describes new species of *Aulacigaster* Macquart, 1835 (Diptera: Aulacigastridae) from Brazil. Brazil is a large country with diverse biomes and a relatively unexplored Diptera Linnaeus, 1758 biodiversity.

The characterization of the small, cosmopolitan acalyptrate family Aulacigastridae Duda, 1924 differs widely among authors (Hennig 1971; McAlpine 1983, 1989), and different genera have been assigned to it, in addition to the type-genus, *Aulacigaster*. The Aulacigastridae s. str. (composed of the type-genus only) are monotypic and are widespread. A broader definition for the family, first advanced by

Hennig (1958, 1965, 1969, 1971), includes the cosmopolitan *Cyamops* Melander, 1913 and *Stenomicra* Coquillett, 1900, the Neotropical *Planinasus* Cresson, 1914, and a fossil species from the Baltic amber, *Protoaulacigaster electra* Hennig, 1965. A close phylogenetic relationship between *Aulacigaster* and *Cyamops*, *Stenomicra* and *Planinasus* was partly corroborated by the molecular phylogeny of Winkler *et al.* (2010), based on two genes.

Griffiths (1972, with the exclusion of *Stenomicra*), Teskey (1987) and McAlpine (1989) followed Hennig's definition. McAlpine (1989) proposed a rather different characterization when he transferred *Stenomicra*, *Cyamops* (McAlpine 1978) and *Planinasus* (McAlpine 1983) from Aulacigastridae to Periscelididae Oldenberg, 1914, excluded *P. electra* from the family, and described two new genera: *Ningulus* McAlpine, 1983 (Afrotropical) and *Nemo* McAlpine, 1983 (Australian), placing them in Aulacigastridae. Freidberg (1994) then proposed the family Neminidae McAlpine, 1983 for *Ningulus*, *Nemo* and his new Afrotropical genus, *Nemula* Freidberg, 1994. Freidberg's arrangement left only *Aulacigaster* in Aulacigastridae. This characterization was most recently adopted by Mathis & Freidberg (1994) and Papp (1998a), and was slightly modified by Roháček (1998), who tentatively transferred the genus *Echidnocephalodes* Sabrosky, 1980 from Periscelididae to Aulacigastridae. Evenhuis (1994a, 1994b) listed the fossil *P. electra* in the family and more recently, Rung *et al.* (2005) described the genus *Curiosimusca* Rung, Mathis & Papp, 2005 in Aulacigastridae. Until more studies using alternative methods and a more comprehensive taxon sampling are conducted to clarify the phylogenetic relationships among these genera, which taxa to include in Aulacigastridae will debated.

The last revison of *Aulacigaster* was published by Rung & Mathis (2011). They listed 55 species, 41 of which are from the Neotropical Region, and divided *Aulacigaster* into five species groups: the cosmopolitan *leucopeza* group and the Neotropical groups *ecuadoriensis*, *grimaldii*, *minuta*, and *plesiomorphica*. Seven of the species named by Rung & Mathis (2011) were from Brazil: *Aulacigaster bromeliae* Rung & Mathis, 2011, *A. lopezi* Rung & Mathis, 2011, *A. serrana* Rung & Mathis, 2011, *A. tibanae* Rung & Mathis, 2011, in the *bromeliae* group; *A. belize* Rung & Mathis, 2011, and *A. rufifemur* Rung & Mathis, 2011, in the *plesiomorphica* group; and *A. stenoptera* Rung & Mathis, 2011 in the *ecuadoriensis* group.

Rung (2018) added another species to the genus, *A. zurqui* Rung, 2018, from collections made in Costa Rica. Following the aforementioned contribution, Grimaldi (2025) described four more species for the *leucopeza* group: *A. alabaster* Grimaldi, 2025; *A. breviradia* Grimaldi, 2025; *A. mathisi* Grimaldi, 2025 and *A. rungae* Grimaldi, 2025 from specimens preserved in amber from the Upper Miocene (15–17 Ma ago) of the Dominican Republic. In the present study, four new species are described in *Aulacigaster*, one in the *leucopeza* group: *A. waynei* sp. nov. and three belonging to the *plesiomorphica* group – *A. carmelitae* sp. nov., *A. franciscae* sp. nov., and *A. joaribeiroi* sp. nov.

Material and methods

This study is based solely on the examination of specimens from the Maranhão Zoological Collection, Caxias, Maranhão, Brazil (CZMA).

The morphological descriptive terminology follows Cumming & Wood (2017). The length of the specimens was measured in lateral view, from the frons (excluding the antenna) to the apex of the abdomen. In the key to the species groups, the scutal ratio was obtained by dividing the greatest length of the scutum by the greatest width of the scutum, measured in dorsal view. The head and wing measurements follow Limeira-de-Oliveira *et al.* (2017).

The postabdomen was removed and macerated in hot (150°C) 85% lactic acid for approximately 25 minutes (Cumming 1992). Once macerated, the terminalia were dissected and examined on excavated

microscope slides, submerged in glycerin. After analysis, the pieces were placed in microtubes containing glycerin, and each microtube was attached to the pin of the corresponding specimen.

The images were taken in Zeiss® Discovery V12 stereo microscope with a 5-megapixel AxionCan 305 color digital camera coupled with Zen® 2024 software.

The images were edited and the plates prepared in CorelDRAW 2024 software.

The label data of holotypes and paratypes are provided 'ipsis litteris', except for the abbreviation 'mts = meters' where the 'ts' was omitted. Abbreviations and symbols were used in the citation of the material examined and, when the coordinates, locality, elevation, method and/or collectors are the same, the terms 'same data as for holotype' and/or 'same data as for preceding' were used. The names of the Brazilian states are written in bold, from west to east and from north to south, while the municipalities are listed in alphabetical order. Additional data not found on the specimen labels (such as the completing abbreviations, for example) are added in square brackets '[ ]'. The depository institution of the holotypes and/or paratypes is indicated immediately after the citation of the specimen label data. The abbreviation 'FLO' followed by any number is the registration number of the specimen (for example, 'FLO 6853').

To facilitate generic identification without having to resort to other publications, we briefly redescribe the adult of *Aulacigaster* and give a diagnosis of species-groups. Subsequent generic and group characters then are not repeated in species' descriptions.

Results

Taxonomy

Class Insecta Linnaeus, 1758
Order Diptera Linnaeus, 1758
Family Aulacigastridae Duda, 1924

Genus ***Aulacigaster*** Macquart, 1835

Aulacigaster Macquart, 1835: 579. Type species: *Aulacigaster rufitarsis* Macquart, 1835 (= *Diastata leucopeza* Meigen, 1830), by monotypy.

Apotomella Dufour, 1846: 455. Type species: *Apotomella impressifrons* Dufour, 1846 [= *Diastata leucopeza* (Meigen, 1830)], by monotypy.

Ampycophora Wahlberg, 1847: 261. Type species *Ampycophora tarsata* Wahlberg, 1847 [= *Diastata leucopeza* (Meigen, 1830)], by monotypy.

Sephanilla Rondani, 1874: 276. Type species: *Sephanilla sertulata* Rondani, 1874 [= *Diastata leucopeza* Meigen, 1830)], by original designation (Rondani 1874: 276).

Aulacogaster Oldenberg, 1914: 30 (unjustified emendation for *Aulacigaster*).

Schizochroa Hennig, 1956: 151–152. Type species: *Schizochroa melanoleuca* Hennig, 1956, by original designation.

Aulacigaster – Schiner 1863: 269–270 [review, synonymy]. — Duda 1934: 1–5 [revision, Palearctic fauna]. — Wirth 1965: 823 [Nearctic catalog]. — Papavero 1967: 91 [Neotropical catalog]. — Teskey 1976: 12 [Diptera associated with trees]; 1987: 891–894 [Manual of Nearctic Diptera]. — Sabrosky 1977: 230 [Oriental catalog]. — Papp 1984: 61 [Palearctic catalog]; 1998a: 225–234 [revision, Palearctic species]; 1998b: 279–284 [Manual of Palearctic Diptera]. — Barraclough 1993: 331–342 [revision, Afrotropical species]. — Mathis & Freidberg 1994: 586–591 [Nearctic species]. — Bächli 1998: 288 [checklist, Switzerland]. — Bächli *et al.* 1999: 119–122 [checklist, Greece, Italy, Switzerland]. — Hilger & Kassebeer 2000: 167–172 [new species, Reunion]. — Kassebeer 2001: 23–32 [review, new species, western Palearctic Region]. — Rung & Mathis 2011: 1–132 [revision,

new species]. — Kahanpää 2014: 285–290 [checklist, Finland]. — Rung 2016: 681–684 [catalog, Colombia]; 2018: 1–6 [new species, Costa Rica]. — Young & Brabant 2016: 103–107 [record, Wisconsin]. —Hagenlund 2017: 72–75 [record, Norway]. — Roháček *et al*. 2017: 136 [records northern Bohemia]. — Kotrba & Rung 2020: 123–140 [description of the female genitalia and phylogenetic analysis]. — Pennards *et al.* 2021: 51–58 [record, The Netherlands]. — Roháček 2023: 133–134 [records in the Gemer area (Central Slovakia)]. — Roháček & Máca 2025: 25 [checklist, Czechia and Slovakia]. — Grimaldi 2025: 458–473 [new fossil species, Dominican Republic].

Apotomella – Schiner 1863: 269 [synonymy with *Aulacigaster*].
Ampycophora – Schiner 1863: 269 [synonymy with *Aulacigaster*].
Schizochroa – McAlpine 1983: 58 [synonymy with *Aulacigaster*].
Sephanilla – Mathis & Freidberg 1994: 585 [synonymy with *Aulacigaster*].

Diagnosis

Body predominantly dark brown to black, sometimes with the anterior region of the abdomen translucent to yellowish; body slightly dorsoventrally flattened; frons, most often with white or yellowish transverse bands; face, generally smooth and shiny, with whitish transverse bands; acrostichal setae in double rows; two pairs of dorsocentral setae; legs with or without ornamentation (on the femur/or tibia); wings predominantly hyaline, sometimes slightly to completely fused.

Description

Head. Face completely sclerotized, protruding, easily visible in lateral view; gena less than ⅓ the width of postpedicel. Arista unsegmented. Ocellar seta often absent; when present, minute. Inner vertical setae, when present, slightly convergent, at most ¾ length of outer vertical seta. Two fronto-orbital setae; setulae between fronto-orbital setae 1–2, one is proclinate. Intrafrontal seta absent. Peristomal vestiture typically consisting of weaker setae following pseudovibrissal seta. Postcranium concave in dorsal view.

Thorax. Anepisternum bearing 1–2 setae along posterior margin. Anterior supra-alar seta weak, almost inconspicuous, posterior slightly stronger. Postalar seta 1, strong and long. Notopleural setae 2, anterior slightly weaker and shorter than posterior. Subscutellum (Fig. 1B) absent. Scutellum (Fig. 1B) with two pairs of macrosetae, proximal pair slightly shorter and weaker than distal pair.

Wing. Costal vein extended to vein R_{4+5}; subcostal vein partially fused with vein R_1 apically; cell *dm* flat, lacking a longitudinal crease or fold; crossvein *r-m* basal to middle of combined cell *dm+bm*.

Abdomen male. Pregenital segment large, at least twice as long as tergite 5. Abdominal sternites slightly increasing in width posteriorly.

Terminalia male. Surstylus fused with epandrium. Cerci separate or partially fused. Subepandrial sclerite with caudal portion attached to cerci and proximal portion attached to hypandrial bridge. Hypandrium bearing a lateral, anterior apodeme at base of each gonopod, halves of hypandrium connected posteriorly by a narrow bridge above phallapodeme. Gonopods fused to hypandrium forming a shovel-like structure, gonopodal halves connected posteroventrally, each bearing a posterior lobe or projection and 1 to a few central setae. Phallapodeme cuneiform with asymmetrical posterolateral projections. Phallus short, partially sclerotized. Parameres inconspicuous.

Abdomen female. Postabdomen distinctly shorter than preabdomen.

Terminalia female. Spermathecae often with ventral digitiform projections. A thorough description of the female genitalia can be found in Kotrba & Rung (2020).

Geographical records

Worldwide, excluding Australasian and Oceanic regions.

Dichotomous key to the species groups of *Aulacigaster*

1. Thorax broad, nearly as wide as long (scutal ratio 1.1–1.35) (Fig. 1A–B) 2
– Thorax about 1.5–2.0 times as long as wide (scutal ratio 1.5–1.75) (Rung & Mathis 2011: figs 40, 107) 6

2. Frons orange, bearing a silvery microtomentose stripe or band above lunula (Fig. 1C); arista often relatively short, about 2 times width of postpedicel, rarely long and bipectinate apically, appearing glabrous at low magnification; postpedicel round to oval; surstylus often arising from posteroventral margin of epandrium and directed posteriorly (Fig. 2) .....***leucopeza*** group
– Frons yellowish on lower half, rarely completely black; arista relatively long, about 3.5 times width of postpedicel, in some specimens partially bipectinate with long rays; postpedicel often round to oval, rarely triangular; surstylus variable 3

3. Frons concave, often with a pair of microtomentose spots right above lunula; arista straight or only slightly undulate, bipectinate with long rays on distal half; postpedicel elongate, decumbent; habitus in nature ant-like and associated with bromeliads (Rung & Mathis 2011: figs 9–12) ....***bromeliae*** group
– Frons flat, with or without a continuous microtomentose stripe or band above lunula; arista naked or distinctly zigzag, pubescent with very short rays; postpedicel short, rounded to triangular; associated with decaying trunks or the sap flux of deciduous trees 4

4. Frons predominantly brown, at the most with anterior margin pale yellow; anepisternum predominantly shiny (Rung & Mathis 2011: figs 207, 209) 5
– Frons with ventral portion yellowish (yellowish area covered by dense microtomentum, silvery at some angles) (Figs 3C, 5C, 7C). If frons completely black then pedicel triangular (Rung 2018: fig. 4); anepisternum predominantly dull microtomentose .....***plesiomorphica*** group

5. Frons with transverse medial microtomentose band anterior to anterior fronto-orbital setae, not silvery; hind femur and hind tibia of both sexes unmodified, without conspicuous ventral setae; hind femur slender; syntergite 1+2 whitish (Rung & Mathis 2011: fig. 101) .....***grimaldii*** group
– Frons predominantly brown with ventral margin yellowish; ventral one-sixth with dense microtomentum, silvery at some angles; syntergite 1+2 whitish to yellowish, sometimes extending onto tergite 3; hind femur and tibia of both sexes modified, with small but conspicuous ventral setae; male hind femur often robust with basal lobe (Rung & Mathis 2011: figs 62, 64, 66, 70–71) ....***femorata*** group

6. Thoracic pleura uniformly black (Rung & Mathis 2011: fig. 107) ..... ***minuta*** group
– Thoracic pleura pale yellow on ventral half; legs whitish to pale yellow (Rung & Mathis 2011: figs 40, 49) ..... ***ecuadoriensis*** group

The *leucopeza* group

Diagnosis

Stout flies (length 1.6–3.5 mm) with frons typically bearing a transverse, orange to orange-brown stripe (may be obliterated laterally with dark infuscation), often followed by a brown stripe or shadow; anterior portion of frons densely microtomentose, with a narrow, anterior, silver stripe or band merging with brown ventrally; facial band often present.

Description

Head. Typically higher than long. Face in lateral view with dorsal half concave, ventral portion bulbous. Gena in most species in lateral view up to half the width of postpedicel. Ocellar seta typically present and minute. Fronto-orbital setae typically with posterior seta internal to and almost horizontally aligned with anterior seta. Arista often short, appearing naked at low magnification.

Wing. Subcostal vein partially fused with vein R_1 apically but terminating in costa.

Terminalia (male). Surstylus often arising from posteroventral margin of epandrium. Cerci often broad, plate-like. Subepandrial sclerite forming a single, plate-like structure. Gonopods short, wide, with a few central setae and a posterior lobe or projection.

Geographical records

Worldwide, excluding the Australian and Oceanic regions.

Remarks

The *leucopeza* group formerly included 19 species. Mathis & Freidberg (1994) revised the Nearctic *Aulacigaster* and provided a key for the species known to occur in that region. Papp (1998a) published a key to the Palearctic species. Barraclough (1993) and Kassebeer (2001) treated the Afrotropical species of the genus. Rung & Mathis (2011) revised the group and listed three species for the Neotropical Region, only one of which, *A. spangleri* Rung & Mathis, 2011, was formally described, from Costa Rica. Grimaldi (2025) described four more species for the *leucopeza* group, from the Caribbean. In this contribution, we describe the first species from Brazil and bring the number of described species to 20. The other two species mentioned, but not formally described, by Rung & Mathis (2011), are from Colombia (*Aulacigaster* L1) and Peru (*Aulacigaster* L2). The Palaearctic and Afrotropical species of this group are associated with the sap fluxes of deciduous trees (Rung & Mathis 2011). The biological associations of the Neotropical species are not known.

Aulacigaster waynei sp. nov.
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Figs 1–2

Differential diagnosis

Aulacigaster waynei sp. nov. differs from congeners in having a long arista that appears zigzagged distally. It differs from the only other species described from the Neotropics, *A. spangleri* Rung & Mathis, 2011, in having a broad orange stripe or band on the frons. In *A. spangleri*, the orange does not extend to the margins of the eyes. Also, while *A. waynei* has a conspicuous microtomentose band on the face, typical of the *leucopeza* group, *A. spangleri* lacks it. In the brief description of the male genitalia of *A. splangleri*, Rung & Mathis (2011) wrote that the surstylus is "approximately triangular, bearing setae (with a long terminal seta), relatively long". The surstylus of *A. waynei* is approximately finger-like and does not bear a terminal seta.

Etymology

The specific epithet is a patronymic in honor of Dr Wayne Mathis, for his important contribution to the study of Diptera worldwide, such as the Ephydridae Zetterstedt, 1837, Periscelididae, and Aulacigastridae.

Type material

Holotype

BRAZIL – **Maranhão [MA]** • ♂ (pinned, good condition); Mirador, Parque Estadual do Mirador, Base da Geraldina; 6°37′48″ S, 45°52′49″ W; 20−31 Jul. 2022; alta (20 m) [= elev. 20 m a.s.l.]; F. Limeira-de-Oliveira, A. Tôrres and M.O. Braga leg.; PET (Vinagre V. [= Vinho] Tinto + Etanol) [red wine vinegar + ethanol]: CZMA FLO 6853.

Paratypes

BRAZIL – **Maranhão [MA]** • 1 ♂; same data as for holotype; 20−31 Mar. 2023; CZMA FLO 6852 • 1 ♂ (pinned, terminalia in microvial of plastic); same data as for preceding; 1−10 Aug. 2022; F. Limeira-de-Oliveira, A. Tôrres and G.A. Reis leg.; CZMA FLO 8756 • 2 ♂♂; same data as for preceding; 10−20 Apr. 2023; CZMA FLO 8766, CZMA FLO 8768 • 1 ♂ (pinned, terminalia in microvial of plastic); same data as for preceding; 10−20 May 2023; CZMA FLO 8790 • 1 ♂; same data as for preceding; 20−31 May. 2023; CZMA FLO 8791 • 1 ♂; same data as for preceding; Centro Novo do Maranhão, REBIO – Reserva Biológica Gurupi, Trilha 1; 3°37′35.4″ S, 46°48′55.8″ W; alta 30 m [= elev. 20 m a.s.l.]; 1–15 Jan. 2023; F. Limeira-de-Oliveira, A. Tôrres and E.S. Pessoa leg.; PROTAX [project]; PET (Vinagre V. [= Vinho] Tinto + Etanol) [red wine vinegar + ethanol]; CZMA FLO 10469 • 1 ♂; same data as for preceding; 1–15 May 2022; CZMA FLO 6861.

Description

Measurements (Figs 1–2). Body: length 3.2 mm; wing: length 2.4 mm, width 0.7 mm.

Male

Head (Fig. 1A–C). Frons (Fig. 1C) predominantly orange color between lower ocellus and lunula, appearing glabrous, except for ventral margin, bearing a whitish microtomentose stripe. Fronto-orbital plate dark brown. Ocellar tubercle dark brown to black with two bright spots lateral to posterior ocelli. Face (Fig. 1C) predominantly yellow, except for a dorsal transverse brown, median band bearing a white microtomentose stripe. Gena dark yellow anteriorly merging to brown to black posteriorly, dorsal margin tomentose. Postcranium brown to dark brown, microtomentose. Antenna (Fig. 1A–C) predominantly yellow, except for upper ⅓ of scape and pedicel brown. Mouthparts light yellow with short, light setae, labellum membranous, palpus light brown and yellow in the proximal and distal segments, respectively. Head slightly sub-square, length 0.5 mm and width of 0.6 mm. Face 1.2 times as wide as distal end of postpedicel at level of pseudovibrissa; projecting or slightly inflated, distal half bordered laterally by a row of short setae below pseudovibrissa. Ocellar tubercle with ocelli isosceles relative to each other; ocellar setae present, inconspicuous, (missing in the holotype). Inner and outer vertical setae present (missing in holotype). Frons length 0.1 mm and width of 0.3 mm almost 1.6 times as wide as high. Antenna with postpedicel approximately oval. Arista apical, relatively long, about 3.0 times length of antenna; appearing straight on proximal half and zigzag on distal half. Gena triangular, with row of dark setulae on inner surface, bordering peristome, strong setae only at distal end of gena. Mouthparts with distal segment of palp widely dilated, shaped as a ‘foot’.

Thorax (Fig. 1A–B). Mesonotum brown to dark brown, microtomentose, except for small, shiny areas laterally. Postpronotal lobe concolorous with scutum, shiny. Scutellum (Fig. 1B) concolorous with scutum. Halter mostly white. Acrostichal setae minute, almost inconspicuous, arranged in two rows. Two pairs of dorsocentral setae (missing in the holotype).

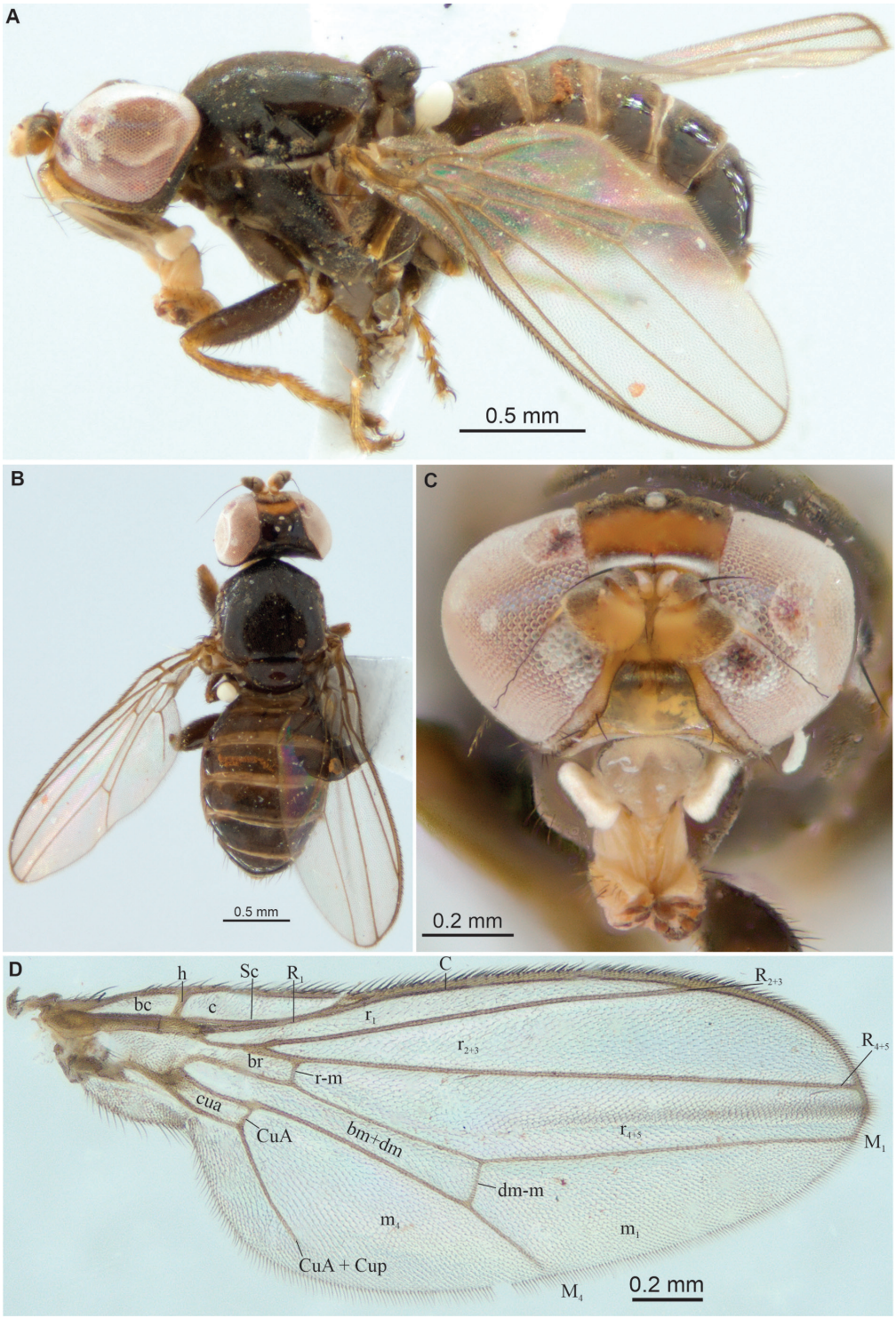


Fig. 1. *Aulacigaster waynei* sp. nov., holotype, ♂ (CZMA FLO 6853). **A**. Habitus, lateral view. **B**. Habitus, dorsal view. **C**. Head, frontal view. **D**. Wing. Abbreviations: *bm–m* = basal medial crossvein; *C* = costal vein; *CuA* = anterior branch of cubital vein; *CuA+CuP* = anterior branch of cubital vein + posterior branch of cubital vein; *dm–m* = discal medial crossvein; *h* = humeral crossvein; M_1 = first branch of media; M_4 = fourth branch of media; R_1 = anterior branch of radius; R_{2+3} = second branch of radius; R_{4+5} = third branch of radius; *r–m* = radial–medial crossvein; *Rs* = radial sector; *Sc* = subcostal vein.

Legs (Fig. 1A). Predominantly brown to dark brown, except tarsomeres 1–3 predominantly yellow, legs with predominantly short, dark-colored setae; fore femur slightly inflated.

Wing (Fig. 1A–B, D). Slightly infuscate with yellow, covered with microtrichia. Vein R_{4+5} straight ending at the apex of the wing; vein M_1 with strong concavity in the region of the intersection of vein *dm-m*,

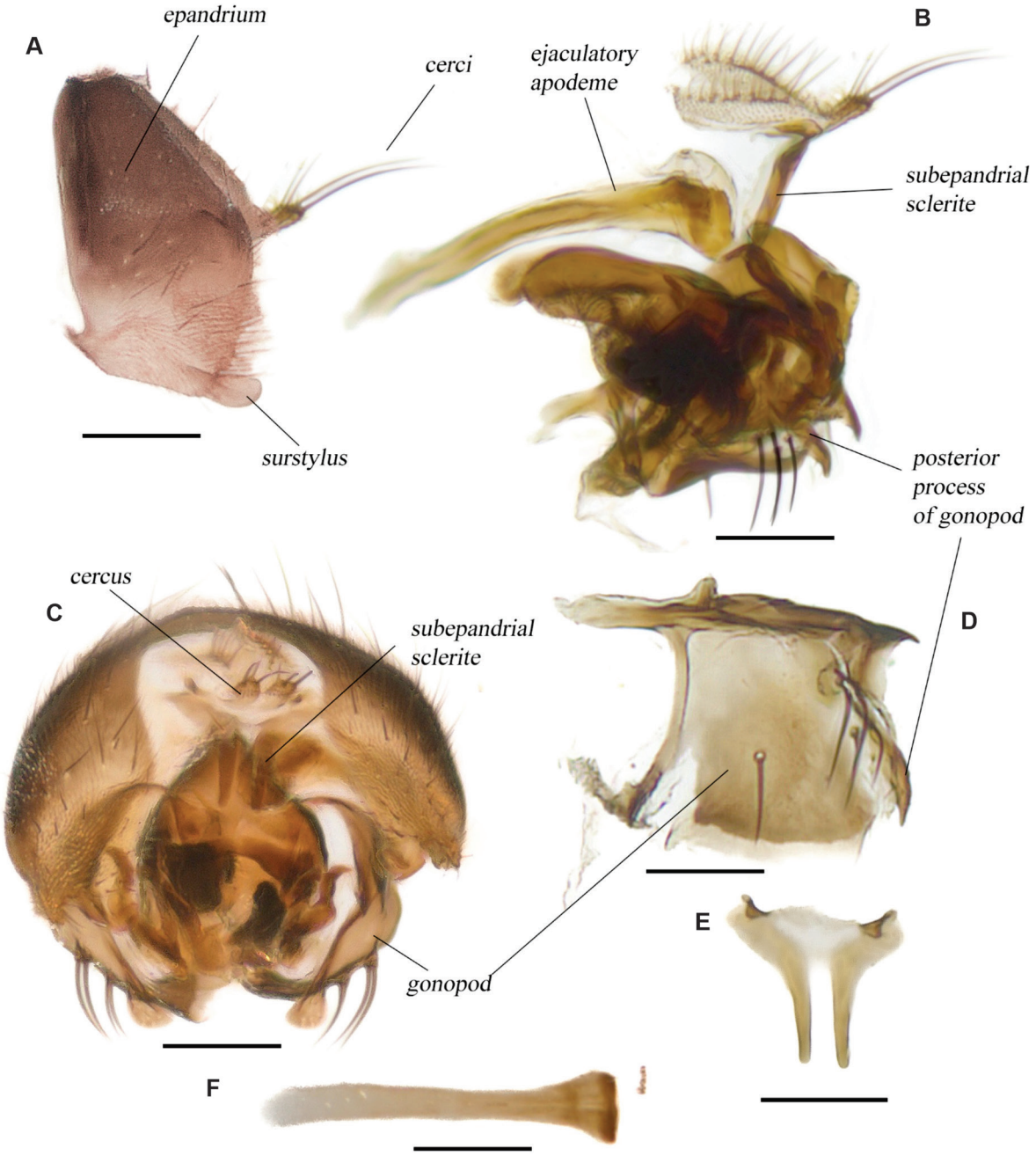


Fig. 2. *Aulacigaster waynei* sp. nov., paratype, ♂, genitalia (CZMA FLO 8756). **A**. Epandrium, lateral view. **B**. Terminalia, lateral view. **C**. Terminalia, posterior view. **D**. Gonopod, lateral view. **E**. Subepandrial sclerite, dorsal view. **F**. Ejaculatory apodeme, dorsal view. Scale bars = 0.1 mm.

vein M_1 slightly convergent to vein R_{4+5}; vein *dm-m* short, about 0.4 times as long as the distal portion of vein M_4.

Abdomen (Fig. 1A–B). Tergites predominantly dark brown to black, with yellowish posterior margin, subshiny, sternites predominantly yellowish.

Male terminalia (Fig. 2A–F). Epandrium (Fig. 2A, C) brown to dark brown, arched, saddle-shaped, constricted in dorsal view. Cercus (Fig. 2A–C) slightly sclerotized, long and robust, covered with minute setulae, with a pair of long, apical setae. Surstylus (Fig. 2A) yellow, short, semitransparent, approximately finger-like. Subepandrial sclerite (Fig. 2E) sclerotized, Y-shaped, weakly articulated anteriorly with the arm of the epandrium and posteriorly with the cerci. Hypandrium saddle-shaped. Gonopod (Fig. 2B–D) with elongated and pointed posterior process, with row of long, strong setae at base of the posterior process, gonopod with strong apical seta on submedial region, just below posterior process. Ejaculatory apodeme (Fig. 2F) relatively short, remiform, about 1.5 times as long as distal width.

Variation

Male (n = 2). Body length 2.9−3.0 mm, mean 2.6 mm; wing length 2.2−2.4 mm, mean 2.3 mm; wing width 0.7−0.8 mm, mean 0.7 mm.

Geographical record

Brazil: Maranhão (Centro Novo do Maranhão, Mirador).

The plesiomorphica group

Diagnosis

Stout, medium-sized flies, body length 2.4–3.5 mm with frons often with anterior ¼–½ yellowish in ground color, rarely completely black; anterior portion of frons densely microtomentose, often with microtomentum forming a wide, lunate, silvery stripe or band. Facial band often present. Anepisternum mostly dull microtomentose. Abdomen in a few species with a large, white to yellowish region on syntergite 1+2.

Description

Head. Head higher than long. Face in lateral view strongly convex on ventral ⅔, easily visible. Ocellar seta minute. Fronto-orbital setae with posterior seta slightly medial to and almost transversely aligned with anterior seta.

Thorax. Subcostal vein partially fused with vein R_1 apically but terminating on costa.

Terminalia (male). Surstylus a short, posteroventral lobe in lateral view. Cerci often partially fused. Subepandrial sclerite typically forming a single, plate-like structure; gonopods often with 2 posterior projections, one bearing 4–5 strong, stout setae.

Geographical records

Neotropical: Belize, Brazil, Costa Rica, Ecuador, Guyana, Panama, Peru, Venezuela.

Remarks

The *plesiomorphica* group includes 11 previously described species. Rung & Mathis (2011) revised the group, and Rung (2018) described one additional species in it, *A. zurqui*, while noting that the group placement of the species may change as more species are described or a phylogenetic analysis employing

different character systems is conducted. The species *A. zurqui* has a glabrous frons without a crescent-moon-shaped silver stripe on it, which is a characteristic shape of the species of the group. Also, the postpedicel is triangular and the facial band is completely absent in *A. zurqui*, deviating from the pattern of the group.

In this contribution, three additional species are described in the plesiomorphica group, bringing the number of species described to 14.

Aulacigaster carmelitae sp. nov.
urn:lsid:zoobank.org:act:61ED03B6-A4B0-48CA-84D8-1B4AE40FA57F
Figs 3–4

Differential diagnosis

Aulacigaster carmelitae sp. nov. can be distinguished from congeners in having two strongly microtomentose, yellowish, facial bands. All other species of this group have at the most one facial band.

Etymology

The specific epithet is a tribute to Professor Carmelita Freitas dos Santos, for her valuable contribution to the academic training of the corresponding author.

Type material

Holotype

BRAZIL – **Maranhão [MA]** • ♂ (pinned, good condition); Mirador, Parque Estadual do Mirador, Base da Geraldina; 6°37′48″ S, 45°52′49″ W; alta (20 m) [= elev. 20 m a.s.l.]; 20−31 Jul. 2022; F. Limeira-de-Oliveira, A. Tôrres and M.O. Braga; PET (Vinagre V. [= Vinho] Tinto + Etanol) [red wine vinegar + ethanol]; CZMA FLO 6855.

Paratypes

BRAZIL – **Maranhão [MA]** • 3 ♂♂ (pinned, terminalia in microvial of plastic); same data as for holotype; 10−20 Oct. 2022; CZMA FLO 6848, FLO 6849, FLO 6852 • 1 ♂; same data as for holotype; 1−10 Aug. 2022; CZMA FLO 6854.

Description

Measurements (Figs 3–4). Body: length 3.0 mm; wing: length 2.8 mm, width 0.8 mm.

Male

Head (Fig. 3A–C). Frons (Fig. 3C) yellow on ventral third, whitish microtomentose, dorsal two thirds brown, microtomentose and bearing whitish microtomentose stripe on ventral third. Fronto-orbital plate dark brown. Ocellar tubercle subshiny with microtomentose areas. Face (Fig. 3C) with dorsal half light brown, microtomentose; ventral half of face predominantly dark brown to black with two short yellowish transverse bands. Gena dark brown to black, dorsal margin with brownish tomentose. Postcranium with dark yellow to brown microtomentum. Antenna predominantly brown, except for light yellow scape when viewed from above, postpedicel velvety. Mouthparts light yellow, with short, light setulae, labellum membranous, palpus light brown and yellow in the proximal and distal segments, respectively. Head length 0.6 mm and width 0.6 mm. Face 1.3 times as wide as distal end of postpedicel, at level of pseudovibrissa; proximal half of face concave, distal half projecting or slightly inflated, bordered laterally by a long seta almost as long as pseudovibrissa but slightly weaker than it, with two weak setulae between facial setae and pseudovibrissa. Ocellar tubercle with ocelli isosceles from each other; ocellar setae present, inconspicuous. Inner and outer vertical setae present (but missing in the holotype). Frons length 0.1 mm and width 0.3 mm, almost 2.0 times as wide as high. Fronto-orbital plate

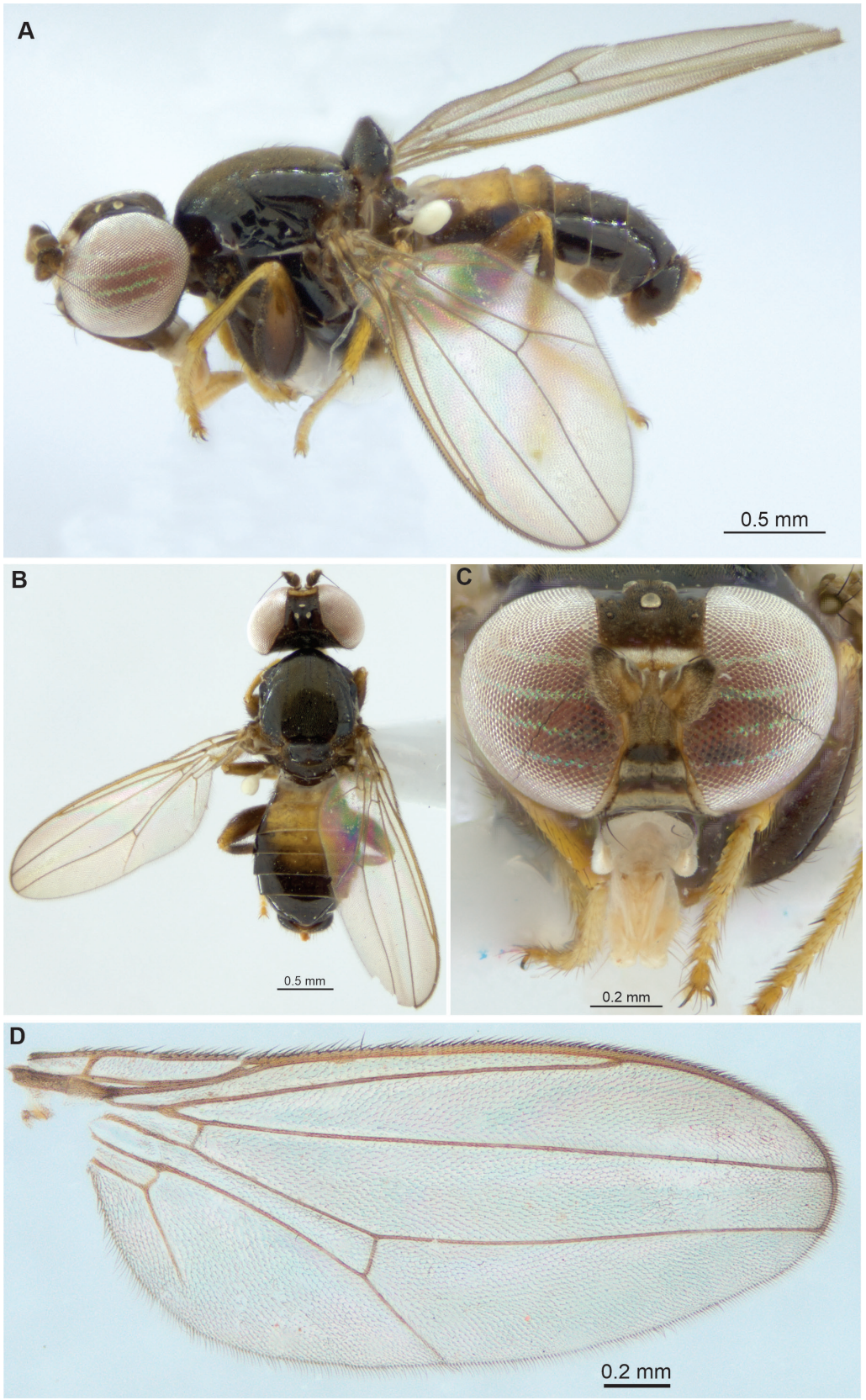


Fig. 3. *Aulacigaster carmelitae* sp. nov., holotype, ♂ (CZMA FLO 6855). **A**. Habitus, lateral view. **B**. Habitus, dorsal view. **C**. Head, frontal view. **D**. Wing.

with fronto-orbital setae separated by a distance not greater than width of the anterior ocellus. Antenna with postpedicel oval. Arista apical, relatively long, about 3.0 times length of antenna; arista straight on proximal half and zigzag on distal half. Gena triangular, with row of setulae on inner surface, bordering the peristome, strong setae only on distal end of gena. Mouthparts with distal segment of palp widely dilated, appearing like a 'foot'.

Thorax (Fig. 3A–B). Mesonotum dark brown to black, microtomentose, microtomentum arranged between dorsocentral setae (missing in the holotype), shiny laterally. Postpronotal lobe concolorous with scutum, shiny. Scutellum (Fig. 3B) concolorous with scutum, except for brown distal portion, with microtomentose areas. Halter mostly white. Acrostichal setae minute, almost inconspicuous, arranged in 2 rows. One 1 pair of dorsocentral setae.

Legs (Fig. 3A). Predominantly brown to dark brown, except for tibia and anterior and middle tarsi yellow, posterior tarsi also yellow; fore femur slightly inflated; legs with predominantly short, light-colored setae.

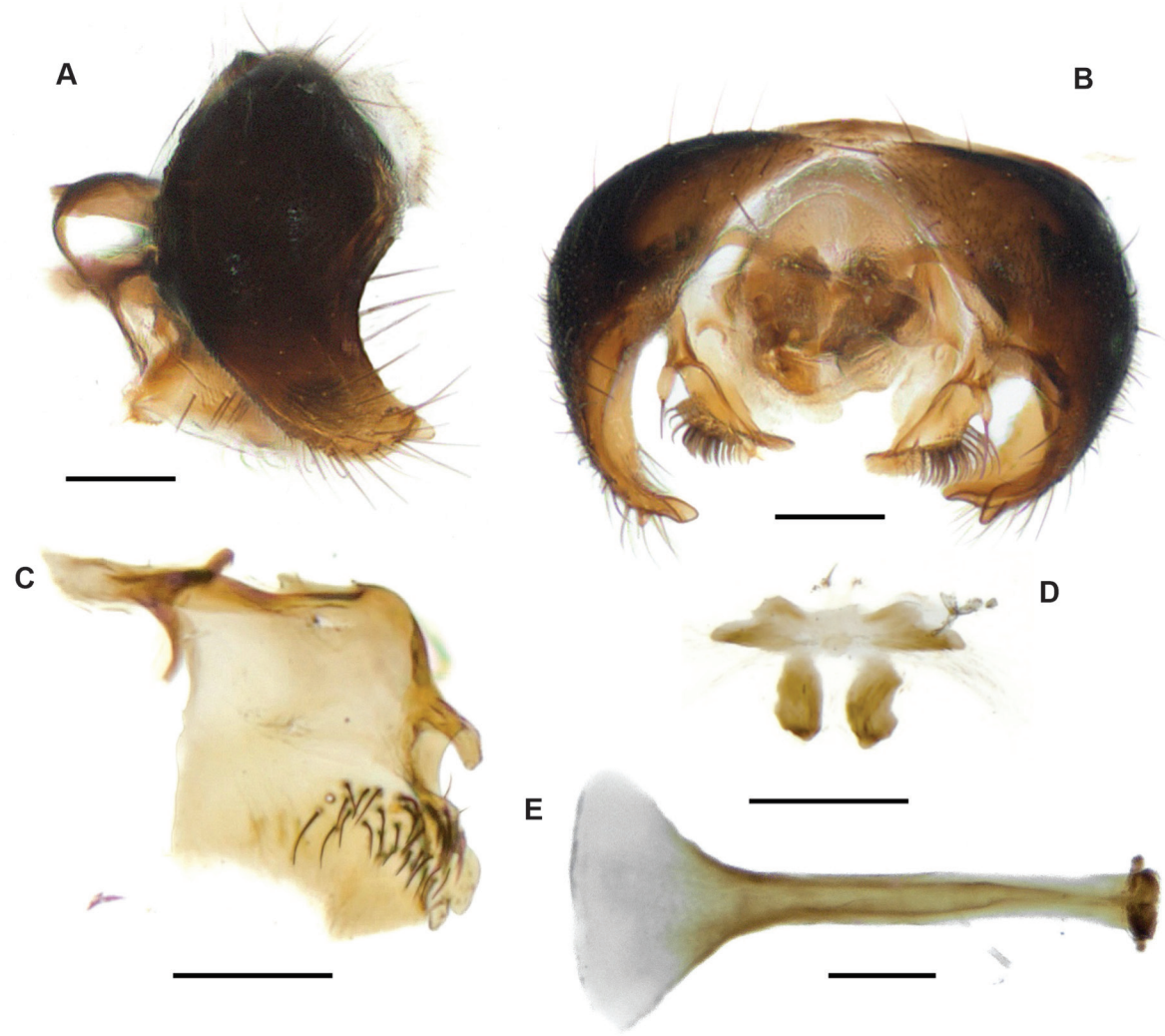


Fig. 4. *Aulacigaster carmelitae* sp. nov., paratype, ♂, genitalia (CZMA FLO 6848). **A**. Epandrium, lateral view. **B**. Terminalia, posterior view. **C**. Gonopod, lateral view. **D**. Subepandrial sclerite, dorsal view. **E**. Ejaculatory apodeme, dorsal view. Scale bars = 0.1 mm.

Wing (Fig. 3A–B, D). Slightly infuscate with brown, almost hyaline, covered with microtrichia. Vein *C* with spicules extended to about half the distance between the vein R_{2+3} and R_{4+5}; vein R_{4+5} straight ending at the apex of the wing; vein M_1 with strong concavity in the region of the intersection of vein *dm-m*; vein M_1 slightly convergent to vein R_{4+5}; vein *dm-m* short, about 0.4 times as long as distal portion of vein M_4.

Abdomen (Fig. 3A–B). Tergites predominantly dark brown to black, subshiny, except for syntergite (1+2) and tergite 3 and median region of tergite 4 dark yellow dorsally, sternites predominantly yellowish, mottled with brown. Epandrium bilobed. Cerci membranous. Gonopod with digitiform posterior process.

Male terminalia (Fig. 4A–E). Epandrium (Fig. 4A–B) brown to dark brown, arched bilobed, saddle-shaped, epandrial lobes interconnected by a small triangular sclerite. Cercus (Fig. 4A–B) membranous, short, almost inconspicuous, with minute setulae. Surstylus (Fig. 4A) yellow, short, semitransparent, located in the laterodistal region of the epandrium. Subepandrial sclerite (Fig. 4D) weakly sclerotized, 'butterfly-shaped'. Hypandrium saddle-shaped. Gonopod (Fig. 4B–C) with digitiform posterior process, with a strong apical seta, bordered by a cluster of moderately long, strong black setae arranged on the distal and subventral margin of the gonopod, just below the posterior process. Ejaculatory apodeme (Fig. 4E) elongated with remiform appearance, about 3.0 times as long as wide distally.

Variation

Male (n = 2). Body length 2.6−2.8 mm, mean 2.7 mm; wing length 2.3−2.5 mm, mean 2.4 mm; wing width 0.8 mm.

Geographical record

Brazil: Maranhão (Mirador).

Aulacigaster franciscae sp. nov.
urn:lsid:zoobank.org:act:DF003496-63ED-441C-9639-28D56024AABC
Figs 5–6

Differential diagnosis

Aulacigaster franciscae sp. nov. is externally similar to *A. atriseta* Rung & Mathis, 2011 (from Peru) and *A. joaribeiroi* sp. nov. It differs from either of these species in having a shorter microtomentose stripe on the frons. *Aulacigaster franciscae* has a face with a light yellow transverse stripe, while *A. atriseta* and *A. joaribeiroi* lack the yellowish transverse stripe, although there is an opaque transverse stripe in *A. atriseta*. The ventral, banana-shaped surstylus of *A. joaribeiroi* differs from the short, flattened and posteriorly directed surstylus of *A. franciscae* and from the concealed surstylus of *A. atriseta*. *Aulacigaster franciscae* has a subrectangular and posteriorly directed surstylus. The surstylus is lacking or is concealed in *A. atriseta* and is banana-shaped in *A. joaribeiroi*.

Etymology

The specific epithet is a tribute to Francisca Alves Marinho Reis, the mother of the first author.

Type material

Holotype

BRAZIL – **Maranhão [MA]** • ♂ (pinned, good condition); Centro Novo do Maranhão, REBIO – Reserva Biológica Gurupi, Trilha 1; 3°37′35.4″ S, 46°48′55.8″ W; alta (16 m) [= elev. 16 m a.s.l.); 1–31 Oct. 2023; F. Limeira-de-Oliveira, A. Tôrres and G.A. Reis leg.; Arm. [= Armadilha, trap] Malaise; CZMA FLO 6851.

Paratypes

BRAZIL – **Ceará [CE]** • 1 ♂; Ubajara, Parque Nacional de Ubajara, Teleférico; 3°50′16.2″ S, 40°53′52.1″ W; alta (30 m) [= elev. 30 m a.s.l.]; 10−20 Sep. 2022; F. Limeira-de-Oliveira and A. Tôrres leg.; PET (Vinagre V. [= Vinho] Tinto+Etanol [red wine vinegar + ethanol]), INPA FLO 6858 • 1 ♂; same data as for preceding; 20−30 Sep. 2022; CZMA FLO 6857 • 1 ♂ (pinned, terminalia in microvial of plastic); same data as for preceding; 20−31 Oct. 2022; CZMA FLO 6859 • 1 ♂; same data as for preceding; 1−10 Nov. 2022; CZMA FLO 10415. – **Maranhão [MA]** • 1 ♂; same data as for holotype; 1–15 Sep. 2023; CZMA FLO 9012 • 1 ♂; same data as for holotype; Parc. [= Parcela, parcel] 1/sub-p. [= sub parcela, subparcel] 13; 3°37′11.43″ S, 46°47′33.46″ W; 15−30 Apr. 2023; F. Limeira-de-Oliveira and A. Tôrres leg. - PELD [project]; Armadilha Malaise pequena [small Malaise trap]; CZMA FLO 9119 • 1 ♂ (pinned, terminalia in microvial of plastic); same data as for holotype; Parc. [= Parcela, parcel] 4/ ub-p. [= sub parcela, subparcel] 13; 3°37′21.09″ S, 46°48′30.21″ W; CZMA FLO 9121 • 1 ♂; same data as for holotype; Mirador, Parque Estadual do Mirador, Base da Geraldina; 6°37′48″ S, 45°52′49″ W; alta (20 m) [= elev. 20 m a.s.l.]; 10−20 Oct. 2022; PET (Vinagre V. [= Vinho] Tinto+Etanol [red wine vinegar + ethanol]); CZMA FLO 6860 • 1 ♂; same data as for holotype; C. [= Candido] Mendes, Fazenda 7 Irmãos; 1°52′06″ S, 45°45′59.7″ W; 1−15 Jan. 2019; F. Limeira-de-Oliveira, D. Limeira and J.S. Brito leg.; Arm. [=Armadilha] Malaise [Malaise trap]; CZMA FLO 6864 • 1 ♂; same data as for holotype; CZMA FLO 9176.

Description

Measurements (Figs 5–6). Body: length 2.6 mm; wing: length 2.2 mm; width 0.6 mm.

Male

Head (Fig. 5A–C). Frons (Fig. 5C) yellow on ventral third, whitish micromentose, dorsal two thirds brown, microtomentose and bearing whitish microtomentose stripe on ventral third. Fronto-orbital plate dark. Fronto-orbital plate dark brown. Ocellar tubercle dark brown to black, subshiny with microtomentose spots. Face (Fig. 5C) with dorsal half brown, light-brown microtomentose; median face brown, shiny, with transverse whitish microtomentose band; ventral third of face yellow-orange, shiny. Gena dark brown to black. Postcranium dark yellow to brown microtomentose. Antenna predominantly brown, except for the scape with a light yellow appearance in dorsal view, postpedicel with a velvety appearance. Mouthparts light yellow, with short, light setulae, labellum membranous, palpus light brown and yellow on proximal and distal segments, respectively. Head length 0.7 mm and width 0.6 mm. Face 1.3 times as wide as the width of the distal end of the postpedicel, at level of pseudovibrissa; proximal half of face concave, projecting or slightly inflated on distal half, distal half bordered laterally by a long seta, almost as long as the pseudovibrissa, slightly weaker than it, with two weak setulae between the facial and pseudovibrissa. Ocellar tubercle with ocelli isosceles from each other; ocellar setae present, almost inconspicuous. Inner and outer vertical setae present but missing in the holotype. Frons length 0.1 mm and width of 0.3 mm. Fronto-orbital plate with fronto-orbital setae separated by a distance not greater than the width of the anterior ocellus. Antenna appearing bilobed distally. Arista apical, relatively long, about 3.0 times as long as antenna, appearing straight on proximal half and zigzag on distal half. Gena triangular; with row of setulae on inner surface, bordering peristome, strong setae only on distal end of the gena. Mouthparts with distal segment widely dilated, with a ‘foot’ appearance.

Thorax (Fig. 5A–B). Mesonotum with brownish microtomentum arranged between dorsocentral setae, shiny laterally. Postpronotal lobe dark brown to black, shiny. Scutellum (Fig. 5B) concolorous with scutum, except for the brown distal end, with microtomentose spots. Halter mostly white. Acrostichal setae minute, almost inconspicuous, arranged in 2 rows. Two pairs of dorsocentral setae.

Legs (Fig. 5A). Predominantly brown to dark brown, except for fore tibia yellow, and all tarsi also yellow; fore femur slightly inflated; legs with predominantly short, light setae; first tarsomere as long

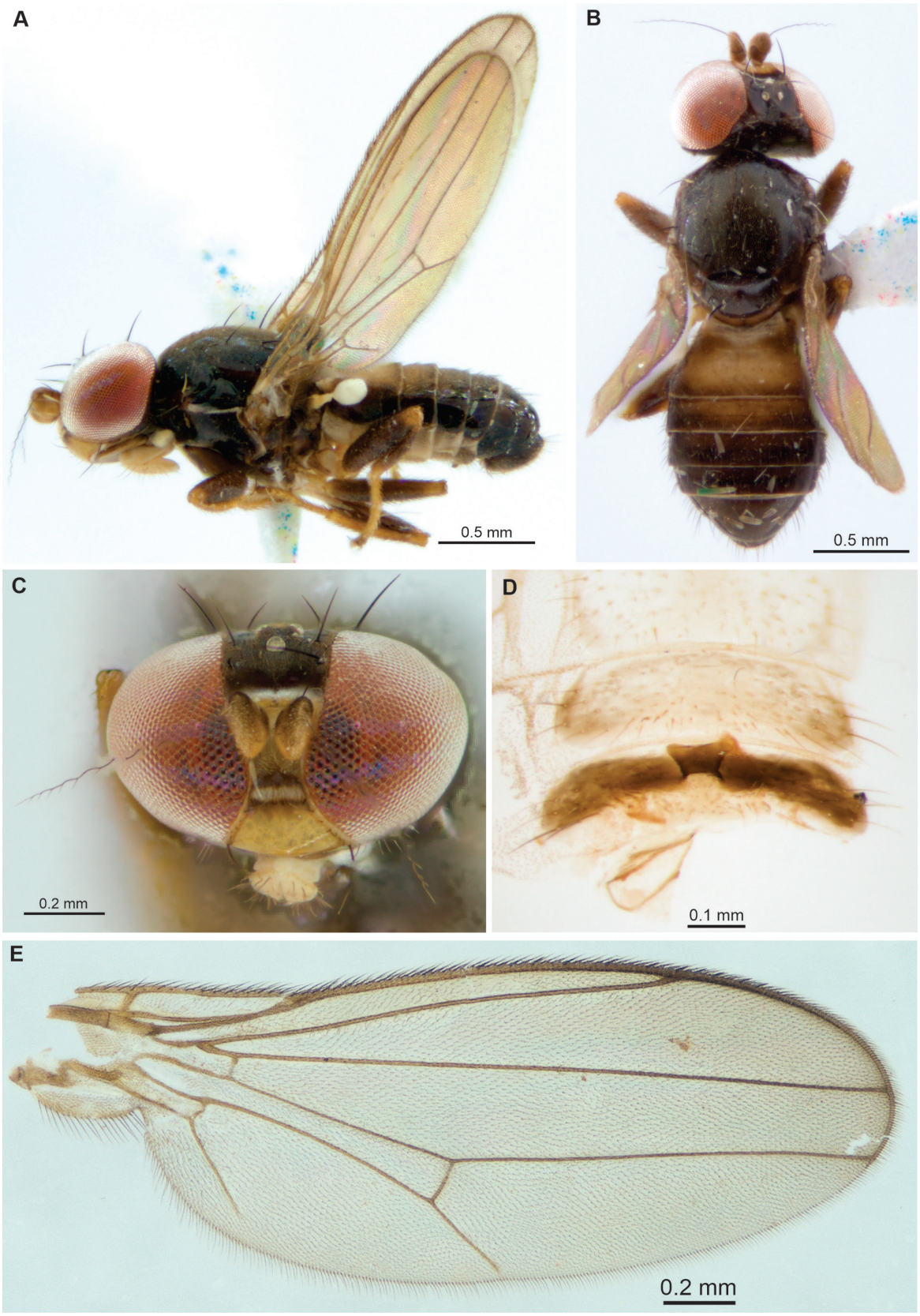


Fig. 5. *Aulacigaster franciscae* sp. nov., holotype, ♂ (CZMA FLO 6851). **A**. Habitus, lateral view. **B**. Habitus, dorsal view. **C**. Head, frontal view. **D**. Sternite 5, ventral view. **E**. Wing.

as the length of the second and third combined, fourth tarsomere slightly shorter than the third, and fifth tarsomeres as long as the second.

Wing (Fig. 5A–B, E). Infuscated with yellow, almost hyaline, about 3.3 times as long as wide, covered with microtrichia. Vein *C* extended to vein M_1; vein R_{4+5} straight ending at apex of the wing; vein M_1 with strong concavity at the intersection of vein *dm-m*; vein M_1 slightly convergent to vein R_{4+5}; vein *dm-m* short, about 0.4 times as long as distal portion of vein M_4.

Abdomen (Fig. 5A–B). Tergites predominantly dark brown to black, subshiny, except for syntergite (1+2) and tergite 3 and median region of tergite 4 dark yellow dorsally, sternites predominantly yellowish, mottled with brown.

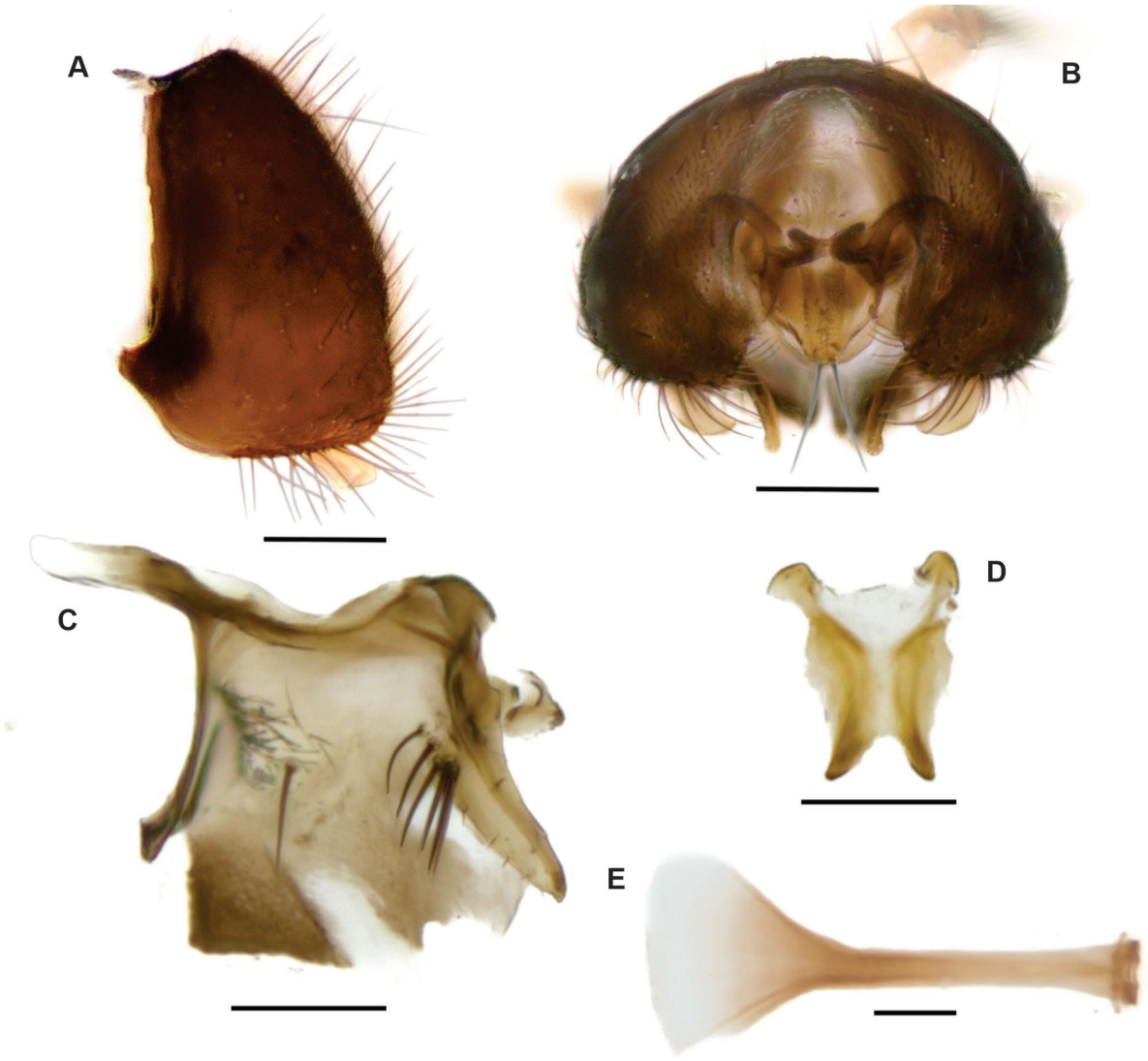


Fig. 6. *Aulacigaster franciscae* sp. nov., paratype, ♂, genitalia (CZMA FLO 10415). **A**. Epandrium, lateral view. **B**. Terminalia, posterior view. **C**. Gonopod, lateral view. **D**. Subepandrial sclerite, dorsal view. **E**. Ejaculatory apodeme, dorsal view. Scale bars = 0.1 mm.

Male terminalia (Fig. 6A–E). Sternite 5 (Fig. 5D) with a spatular process on the posterior margin. Epandrium (Fig. 6A–B) brown to dark brown, arched, saddle-shaped. Cercus (Fig. 6B) slightly sclerotized, elongated, covered with minute setulae, with an apical seta as long as cerci. Surstylus (Fig. 6A–B) yellow, short, banana-shaped, semitransparent, located in the laterodistal region of the epandrium. Subepandrial sclerite (Fig. 6D) weakly sclerotized, 'butterfly-shaped', weakly articulated anteriorly with the arm of the epandrium, posteriorly with the cerci. Hypandrium in the shape of a 'saddle'. Gonopod (Fig. 6C) with an elongated posterior process, with a cluster of strong, moderately long black setae arranged on the basal margin of the posterior process; gonopod with a strong seta in the submedial region, bordered by a cluster of short setulae. Ejaculatory apodeme (Fig. 6E) elongated with remiform appearance, about 2.0 times as long as the distal width.

Variation

Male (n = 2). Body length 2.2−3.2 mm, mean 2.9 mm; wing length 2.2−2.6 mm, mean 2.4 mm; wing width 0.6−0.8 mm, mean 0.7 mm.

Geographical record

Brazil: Ceará (Ubajara), Maranhão (Cândido Mendes, Centro Novo do Maranhão, Mirador).

Aulacigaster joaribeiroi sp. nov.
urn:lsid:zoobank.org:act:9F7CD142-520A-4406-8375-758BC07DDD7C
Figs 7–8

Differential diagnosis

Aulacigaster joaribeiroi sp. nov. is externally similar to *A. atriseta* (from Peru) and *A. franciscae* sp. nov. See the diagnosis for *A. franciscae* above to differentiate the species.

Etymology

The specific epithet is a tribute to Professor Joaquim Ribeiro Neto, for his valuable contribution to the academic training of the corresponding author.

Type material

Holotype

BRAZIL – **Maranhão [MA]** • ♂ (pinned, good condition); Centro Novo do Maranhão, REBIO – Reserva Biológica Gurupi, Trilha 1; 3°37′35.4″ S, 46°48′55.8″ W; 1–31 Oct. 2023; F. Limeira-de-Oliveira, A. Tôrres and G.A. Reis leg.; Arm. [= Armadilha, trap] Malaise (água 1) [water 1]; CZMA FLO 9164.

Paratypes

BRAZIL – **Maranhão [MA]** • 1 ♂; same data as for holotype; CZMA FLO 9160 • 1 ♂ (pinned, terminalia in microvial of plastic); same data as for holotype; 1–15 Sep. 2023; F. Limeira-de-Oliveira, A. Tôrres and G.A. Reis leg.; Arm. [= Armadilha, trap] Malaise (solo [ground]); CZMA FLO 10405.

Description

Measurements (Figs 7–8). Body: length 3.0 mm; wing: length 2.3 mm, width 0.8 mm.

Male

Head (Fig. 7A–C). Frons (Fig. 7C) yellowish-orange on ventral half, whitish microtomentose; dorsal half dark brown to black, microtomentose. Fronto-orbital plate black. Ocellar tubercle black, subshiny with microtomentose spots. Face (Fig. 7C) brown, shiny and semitransparent on distal half, bicolored, dorsal half dark brown, ventral half light brown. Gena dark brown to black, dorsal margin brownish

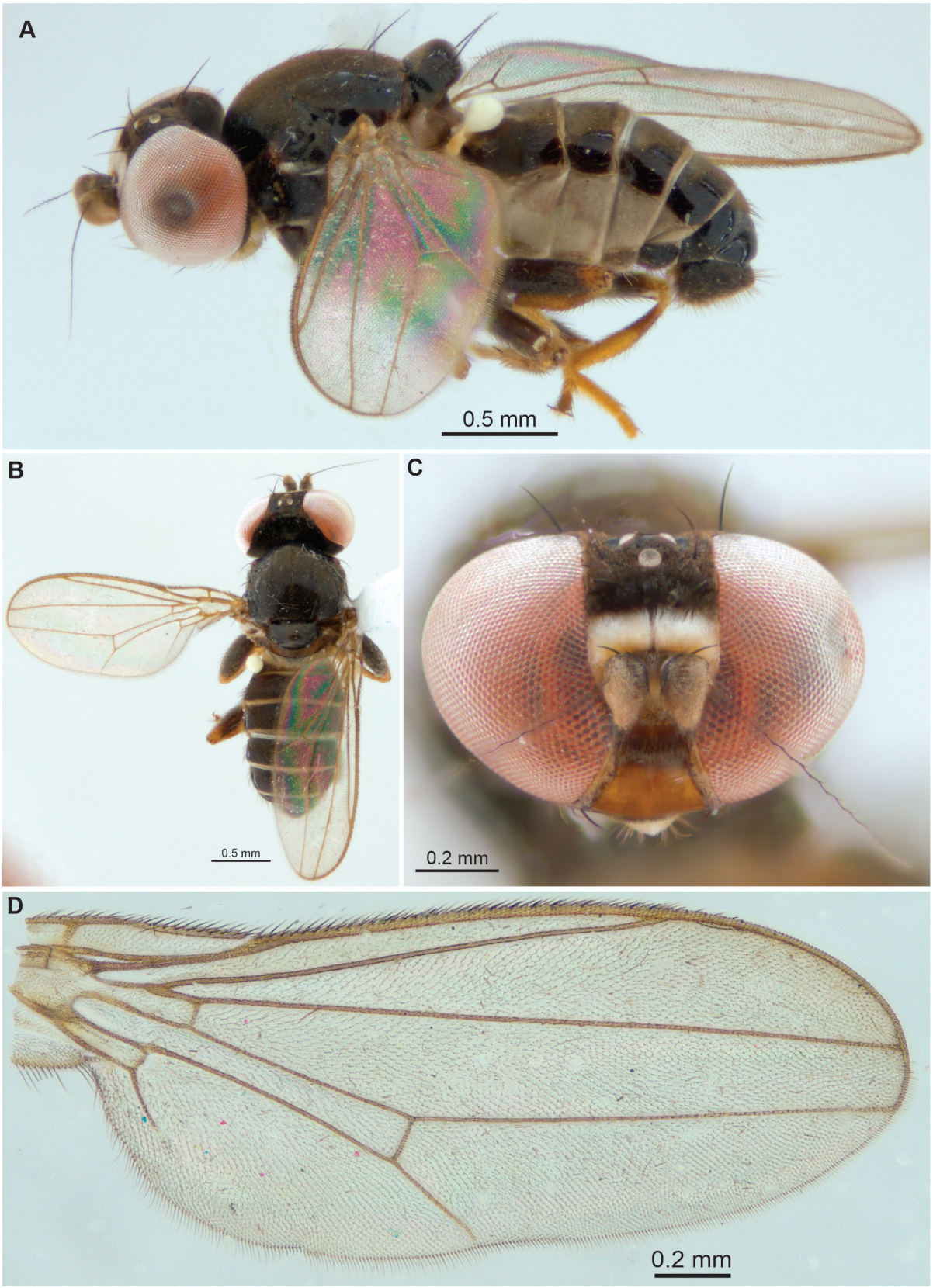


Fig. 7. *Aulacigaster joaribeiroi* sp. nov., holotype, ♂ (CZMA FLO 9164). **A**. Habitus, lateral view. **B**. Habitus, dorsal view. **C**. Head, frontal view. **D**. Wing.

microtomentose. Postcranium black, subshiny. Antenna predominantly dark brown to black; postpedicel with velvety appearance, appearing oval distally, dorsal lobe slightly darker. Mouthparts light yellow, with short, light-colored setulae, except for the black clypeus; labellum membranous, palpus light brown and yellow in the proximal and distal segments. Head length 0.5 mm and width 0.5 mm. Face 3.3 times as wide as width of the distal end of the postpedicel, at the level of the pseudovibrissa; proximal half of face with concave, distal half slightly inflated and delimited laterally by a long seta, almost as long as pseudovibrissa and slightly weaker than it, with two weak setulae between the facial and pseudovibrisssa. Ocellar tubercle with ocelli equidistant from each other; ocellar setae black, weak, proclinate, almost inconspicuous. Inner and outer vertical setae black and strong, inner pair weaker than the outer. Frons length 0.1 mm and width 0.3 mm. Fronto-orbital plate with fronto-orbital setae separated by a distance not greater than the width of the anterior ocellus. Arista apical, relatively long, about 3.0 times as long as antenna. Arista straight on proximal half and zigzag on the distal half. Gena triangular, with a row of light setulae on the inner surface, bordering the peristome, with strong seta only on distal portion. Mouthparts with distal segment widely dilated, with a ‘foot‘ appearance.

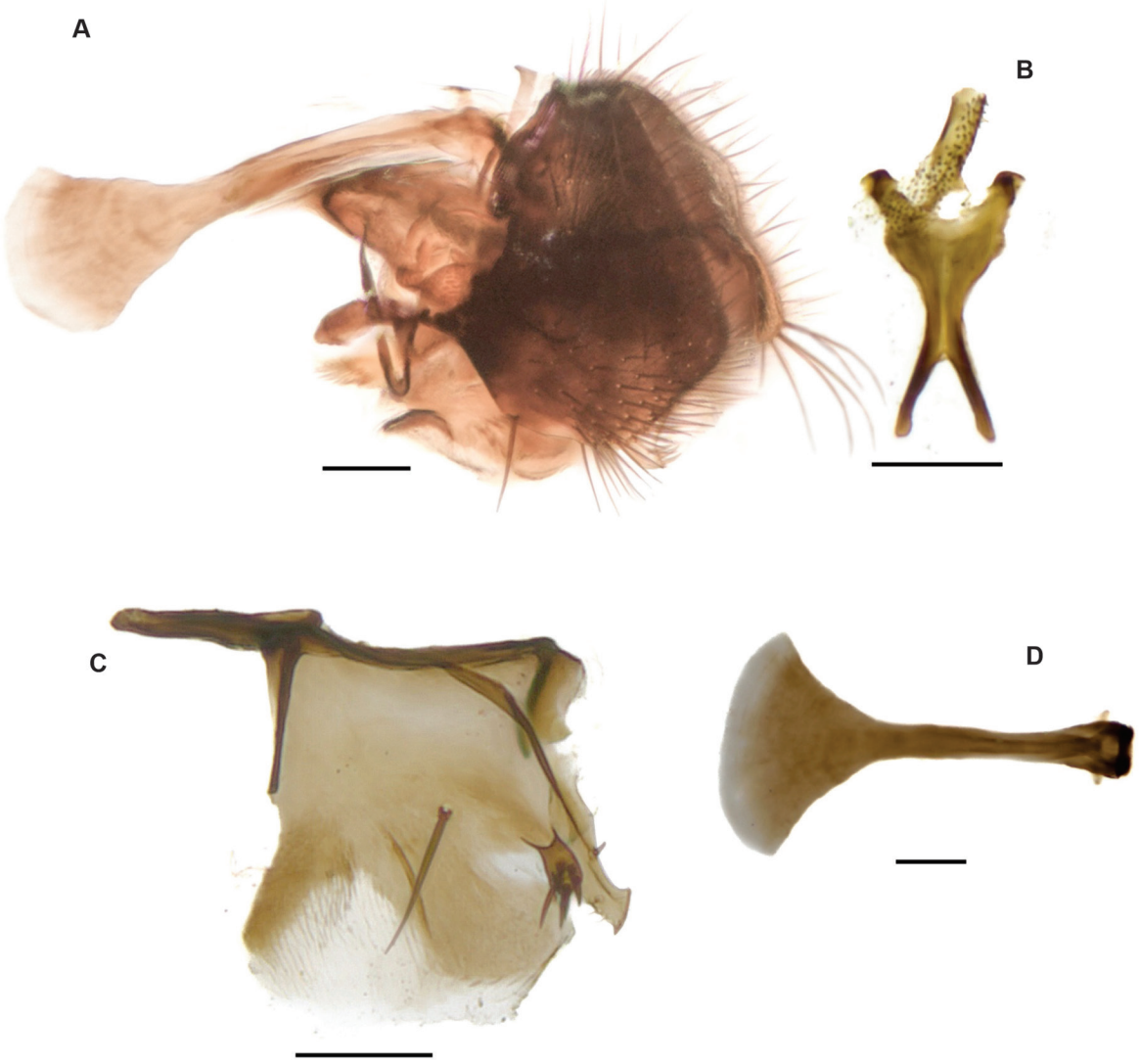


Fig. 8. *Aulacigaster joaribeiroi* sp. nov., paratype, ♂, terminalia (CZMA FLO 10405). **A**. Terminalia, lateral view. **B**. Subepandrial sclerite, dorsal view. **C**. Gonopod, lateral view. **D**. Ejaculatory apodeme, dorsal view. Scale bars = 0.1 mm.

Thorax (Fig. 7A–B). Mesonotum black, brownish microtomentose. Postpronotal lobe dark brown, shiny. Scutellum (Fig. 7B) with microtomentose spots. Pleuron brown, subshiny, bearing short and weak, almost inconspicuous setulae. Halter predominantly white. Acrostichal setae minute, almost inconspicuous.

Legs (Fig. 7A). Predominantly dark brown to black, except for yellow tibiae and tarsi, fifth tarsomere brown; fore femur slightly inflated; legs with predominantly long, light- and dark-colored setulae.

Wing (Fig. 7A–B, D). Slightly yellowish, almost hyaline, about 2.6 times as long as wide, covered with microtrichia. Vein *C* with spicules; vein M_1 with strong concavity at intersection of vein *dm-m*; vein M_1 slightly converging toward vein R_{4+5}; vein *dm-m* short, about 0.4 times as long as the length of the distal portion of vein M_4.

Abdomen (Fig. 7A–B). Tergites predominantly dark brown to black, subshiny, sternites predominantly brown, strongly sclerotized. yellowish anterior margin of syntergite 1+2 and posterior margin of the 3–5.

Male terminalia (Fig. 8A–D). Epandrium (Fig. 8A) brown to dark brown, arched, saddle-shaped, view. Cercus (Fig. 8A) filiform, elongated, with four long distal setae. Surstylus (Fig. 8A) brown, short, semitransparent, banana-shaped in posterior view, with marginal setae on inner surface. Subepandrial sclerite (Fig. 8B) sclerotized, X-shaped. Hypandrium saddle-shaped. Gonopod (Fig. 8C) with posterior process shaped like a 'hand', with strong and robust setae on distal margin, gonopods with a strong black seta of moderate length arranged on subventral margin of the gonopod, just below posterior process. Ejaculatory apodeme (Fig. 8D) long, about 2.0 times as long as hypandrium.

Variation

Male (n = 2). Body length 2.6−2.9 mm, mean 2.7 mm; wing length 2.1−2.5 mm, mean 2.3 mm; wing width 0.8−0.9 mm, mean 0.8 mm.

Geographical record

Brazil: Maranhão (Centro Novo do Maranhão).

Discussion

Brazil's extensive territory is categorized into six primary terrestrial biomes, showcasing its abundant biodiversity and diverse climates. These biomes are characterized by their vegetation, climate, and ecological traits. Additionally, Brazil is officially segmented into five macroregions: North, Northeast, Central-West, Southeast, and South. While these divisions primarily serve statistical and administrative functions, each region typically encompasses one or more biomes (MapBiomas 2026). The majority of *Aulacigaster* species previously documented in Brazil are found in the Southeast and South regions, where the Atlantic forest biome is dominant. These species are classified within the *bromeliae* group (Rung & Mathis 2011). This distribution indicates a collecting bias: the second author (A. Rung) resided in the Southeast region and conducted collections in that area, focusing on bromeliads while searching for another genus, *Stenomicra*. While a few species of *Aulacigaster* have been described from the state of Rondonia, which is characterized by the Amazon Rainforest biome (*A. rufifemur*, *A. belize*, and *A. stenoptera*), there are no records of *Aulacigaster* in the Center-West region, where grasslands, savannas, and dry forests prevail. Furthermore, there is no documentation of *Aulacigaster* from the Caatinga, a biome located in the Northeast (Rung & Mathis 2011). This study addresses a significant gap in the macroregional distribution of the genus, the Northeast. The northern section of the state of Maranhão is situated within the Tocantins–Araguaia–Maranhão moist forests, which are part of the Amazon biome and host the majority of known Neotropical *Aulacigaster* (Rung & Mathis 2011). Further research is essential to determine the biological associations of *Aulacigaster* from the *leucopeza* and

plesiomorphica groups in Brazil, and additional collecting efforts in states lacking records of the genus are crucial to enhance our understanding of this fascinating genus of flies.

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G.A.R.: Conceptualization, Data curation, Investigation and Writing – original draft. A.R.: Writing – original draft, Writing – review & editing. F.L.O.: Investigation, Writing – original draft, Writing – review & editing.

Conflict of interest

The authors declare no conflict of interest.

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