

***Pebapomberus*, a new orthoclad genus from
Brazil (Diptera: Chironomidae, Orthoclaadiinae)**

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Abstract: The genus *Pebapomberus* gen. n. is erected for *P. rugendas* sp. n. from Santa Catarina and São Paulo States and *P. euniceae* sp. n., from São Paulo State. The genus is characterized by bare eyes without dorsomedian extension; anterior simple and posterior scalpellate, weak acrostichals; bare wing membrane; squama with few setae; large, wedge-shaped anal point; and gonostylus with large, flattened apical lobe.

Keywords: new species, Brazil, São Paulo State, Santa Catarina State, Neotropical region, Mata Atlântica.

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Resumo: O gênero *Pebapomberus* gen. n. é descrito com base em *P. rugendas* sp. n. dos Estados de Santa Catarina e São Paulo e *P. euniceae* sp. n., de São Paulo. O gênero é caracterizado pelo olho sem microtríquios entre os omatídeos e extensão dorso-mediana do olho ausente; setas acrosticais fracas, sendo as anteriores simples e as posteriores escalpeladas; membrana alar sem setas; *squama* com poucas setas; ponta anal em forma de cunha e gonóstilo com um lobo apical grande e achatado.

Palavras-chave: espécie nova, Brasil, São Paulo, Santa Catarina, região Neotropical, Mata Atlântica.

Introduction

In their catalog of the Neotropical and Mexican chironomids Spies & Reiss (1996) recorded seven Orthoclaadiinae species from Brazil; one of these, *Ichthyocladius neotropicus* Fittkau, as uncertain, a species which later has proved not to occur in Brazil (Mendes et al. 2004). Today about 100 species of orthoclads have been described or recorded from Brazil and several new genera have been added (Mendes & Pinho 2011). However, a high number of new species still await description. When collecting in Brazil many of the orthoclads encountered do not readily fit into any described genus. Several of these might be terrestrial or semiterrestrial and the larvae and pupae might be difficult to find. Below we describe the males of two of these species and place them in a new genus. Both species were collected in Mata Atlântica in South and Southeast Brazil.

Material and Methods

The specimens were mounted on slides in Canada balsam or Euparal following the procedures outlined by Sæther (1969). The terminology follows Sæther (1980).

The types are deposited in the Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP).

Pebapomberus new genus

Type species: *Pebapomberus rugendas* sp. n., by present designation.

Other included species: *Pebapomberus euniceae* sp. n.

Etymology: From Tupy “*peb*”, “*po*”, and “*mberu*” meaning flat, hand, and midge, referring to the shape of the gonostylus. The gender of the name is masculine.

Diagnostic characters: The combination of bare eyes without dorsomedian extension; anterior simple and posterior scalpellate, weak acrostichals; bare wing membrane; squama with few setae, large wedge-shaped anal point, and gonostylus with large, flattened apical lobe will separate the genus from all other Orthoclaadiinae

Description

Small sized species, wing length 1.1-1.3 mm.

Head. Eye bare, reniform, without dorsomedian extension. Male antenna with 13 flagellomeres; groove beginning on flagellomere 3; sensilla chaetica present on flagellomeres 2, 3 and ultimate; ultimate flagellomere slightly swollen subapically, tapering, without subapical seta; AR 0.7-0.9. Palpomeres normal, third palpomere with few sensilla clavata subapically. Temporal setae in partly double row, inner verticals weak, outer verticals and postorbitals strong. Frontal tubercle absent, but with small, pale scar. Tentorium and stipes normal. Cibarial pump with anterior margin nearly straight. Clypeus with few setae.

Thorax. Anteprepronotum well developed with lobes meeting medially at anterior margin of scutum, with few lateral anteprepronotal. Acrostichals weak, starting close to anteprepronotum, anterior acrostichals simple, posterior acrostichals scalpellate; dorsocentrals simple, uniserial; prealars uniserial, grouped in posterior and anterior prealars; supraalar present. Scutellum with few setae in single row.

Wing. Membrane without setae, with fine punctuation. Anal lobe normal. Costa extended; R_{2+3} running and ending midway between R_1 and R_{4+5} ; R_{4+5} ending opposite to or distal to M_{3+4} ; FCu distal to RM; Cu_1 slightly sinuous. Brachiolum with 1 seta, C without or with few non-marginal setae, other veins bare. Squama with few setae. Sensilla campaniformia about 8 basally, 10 apically, and 3 above seta on brachiolum; 1 on RM; and 1 basally on R_1 .

Leg. Tibial spurs and comb normal. Tarsal pseudospurs and sensilla chaetica absent. Pulvilli vestigial.

Abdomen. Tergite I with few lateral setae, tergites II with anterior and posterior row of setae, tergites III-VIII with more scattered setae. Sternites I-III bare, sternites IV-V with single to few median setae, sternites VI-VII with more median setae, sternite VIII with more scattered setae.

Hypopygium. Anal point large, wedge-shaped with rounded apex, reaching below posterior margin of tergite IX, with microtrichia and weak, lateral setae. Tergite IX without seta; laterosternite IX with several setae. Phallapodeme normal; transverse sternapodeme curved, with well developed oral projections. Virga consisting of two separate, strong sclerites. Inferior volsella with anterior small bluntly rounded to larger, narrowly triangular, pointed lobe and posterior broadly rounded lobe with few marginal setae. Superior volsella barely indicated. Gonostylus broad, with large, apical, bluntly triangular to rounded, flattened lobe covered with macrotrichia and with few scattered setae; megaseta normal.

Female, pupa and larva. Unknown.

Systematics

This genus will key to dichotomy 76 in Cranston et al. (1989) where it will not key further and to *Antillocladius* Sæther in Mendes & Andersen (2008) and in Spies et al. (2009). This genus shows similarities with *Lyrocladius* Mendes et Andersen, from which it can be separated on the broader, wedge-shaped the anal point and the gonostylus bearing a large, flattened apical lobe.

Following the parsimony analysis presented by Mendes & Andersen (2008), the new genus is placed among the genera *Antillocladius*, *Bryophaenocladius* Thienemann, *Gymnometriocnemus* Goetghebuer, *Litocladius* Mendes, Andersen et Sæther, and *Lyrocladius*.

Pebapomberus rugendas sp. n. (Figures 1-10)

Type material: Holotype male, **Brazil: Santa Catarina State:** São Bento do Sul, 26° 19' 25.6" S and 48° 18' 26.5" W, 13-16.x.2001, 660 m a.s.l., Malaise trap (Trilha Rugendas), M. V. Yamada (MZUSP). Paratypes: 1 male, **São Paulo State:** Estação Biológica Boracéia, Salesópolis, córrego Coruja, 18.ix.2007, light trap, C. G. Froehlich et al. (MZUSP); 1 male: same data as previous except for: córrego Venerando, 12.xii.2001.

Diagnostic characters: This species can be separated from *P. euniceae* n. sp. by the inferior volsella having a small, knob-like anterior lobe and by the subtriangular apical lobe of the gonostylus.

Etymology: Named after the path, Rugendas, where the Malaise trap was standing. The name is to be regarded as a noun in apposition.

Description

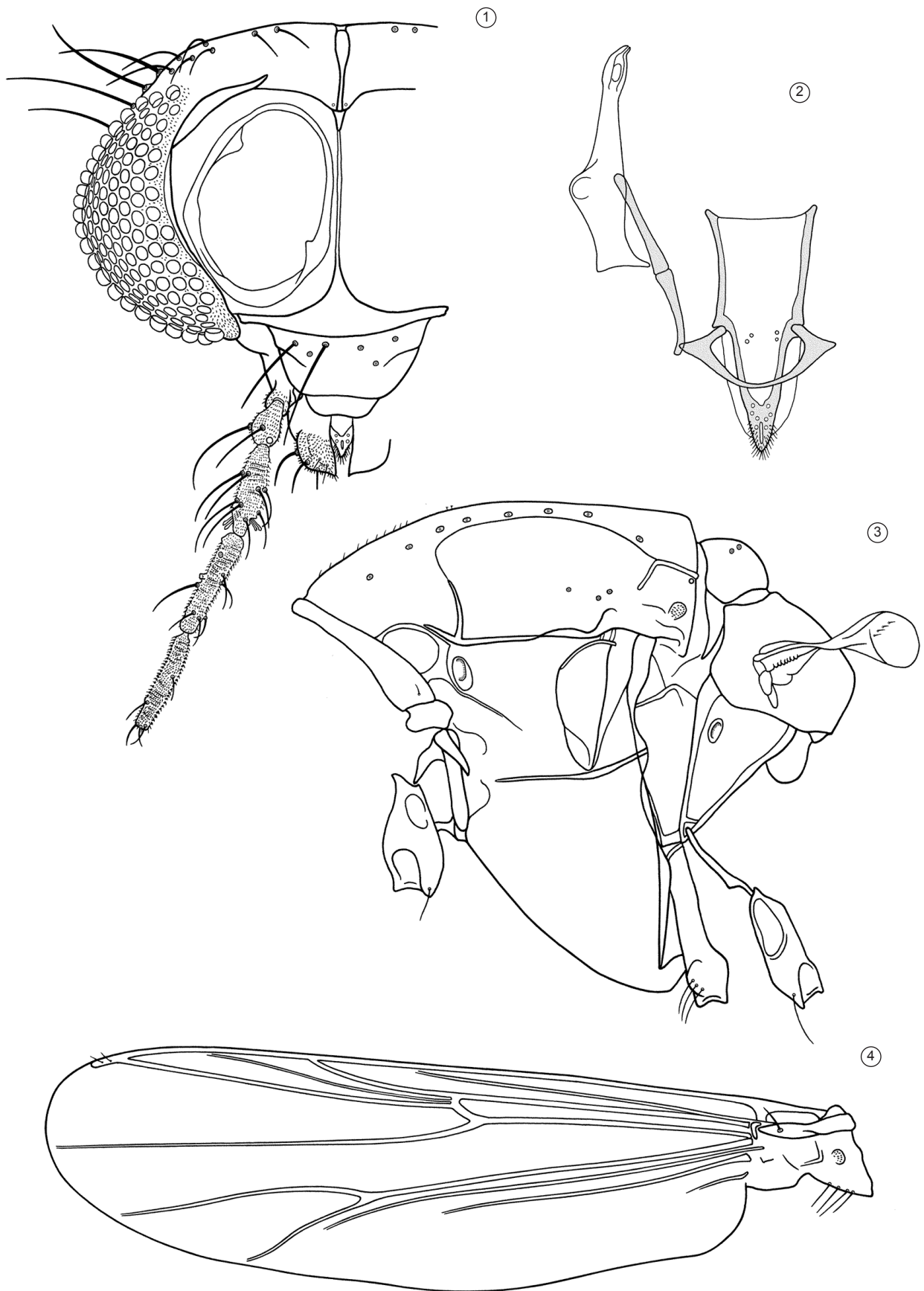
Male (n = 2-3, except when otherwise stated). Total length 1.75-1.99 mm. Wing length 1.17-1.26 mm. Total length/wing length 1.44-1.70. Wing length/length of profemur 2.54-2.70.

Coloration. Thorax, head, antennal flagellum, and coxae brown; abdomen and legs uniformly light brown.

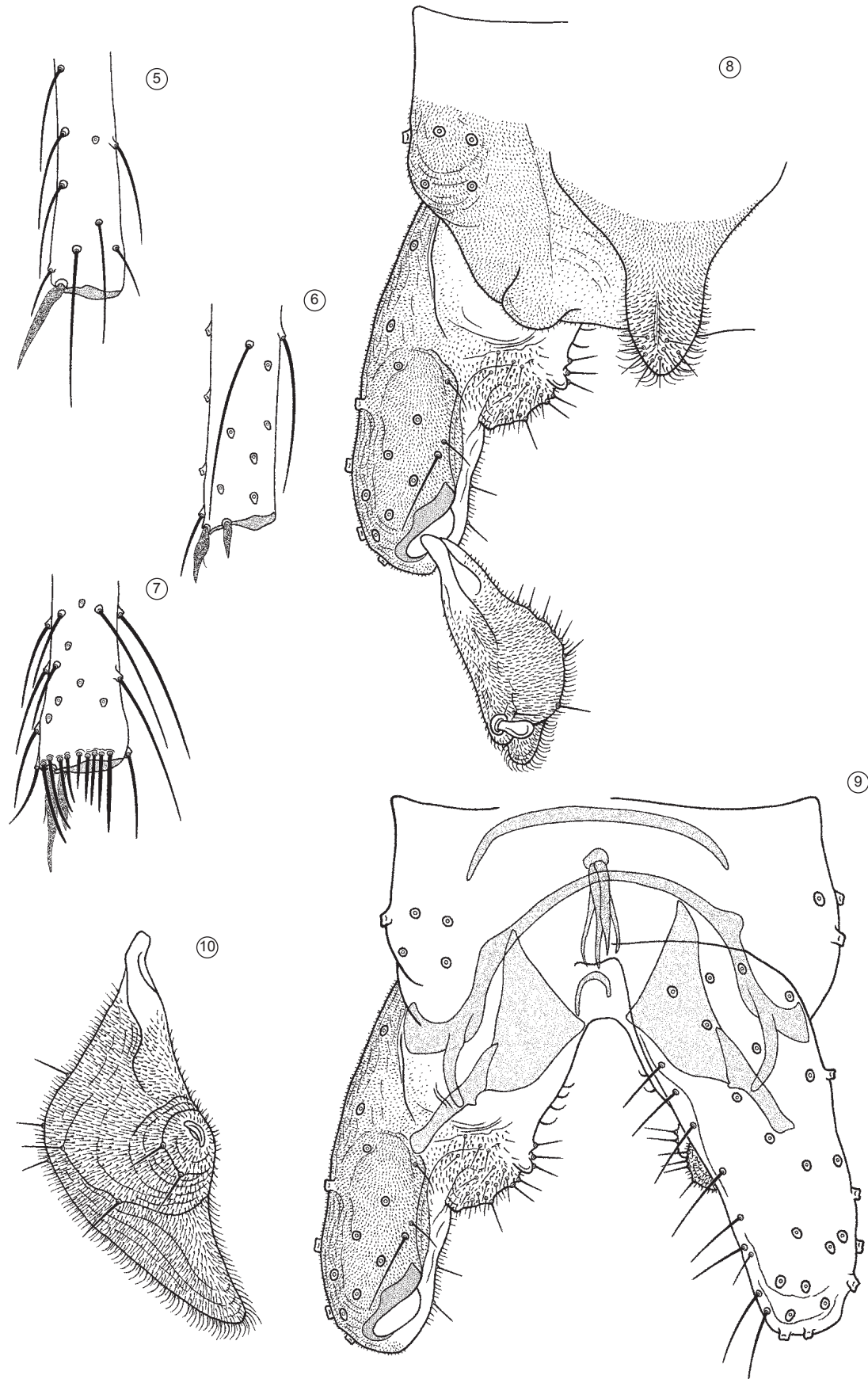
Head (Figures 1-2). AR 0.74-0.78. Ultimate flagellomere 281-299 μ m long. Temporal setae 8-10 including 4-5 inner verticals, 2 outer verticals, and 2-3 postorbitals. Clypeus with 6-11 setae. Tentorium, stipes, and cibarial pump as in Figure 2. Tentorium 93-109 μ m long, 18-23 μ m wide. Stipes 93-102 μ m long. Palp segment lengths (in μ m): 16-20, 29-36, 57-69, 74-84, 68-79. Third palpomere with 5 sensilla clavata in two groups subapically, longest 9-12 μ m long.

Thorax (Figure 3). Anteprepronotum with 1-2 seta. Dorsocentrals 7-8; acrostichals 12-13, beginning close to anteprepronotum, composed of 8-10 anterior simple and 2-5 posterior scalpellate; prealars 3, 2 posterior and 1 anterior; supraalar 1. Scutellum with 4 setae.

Pebapomberus, New Genus

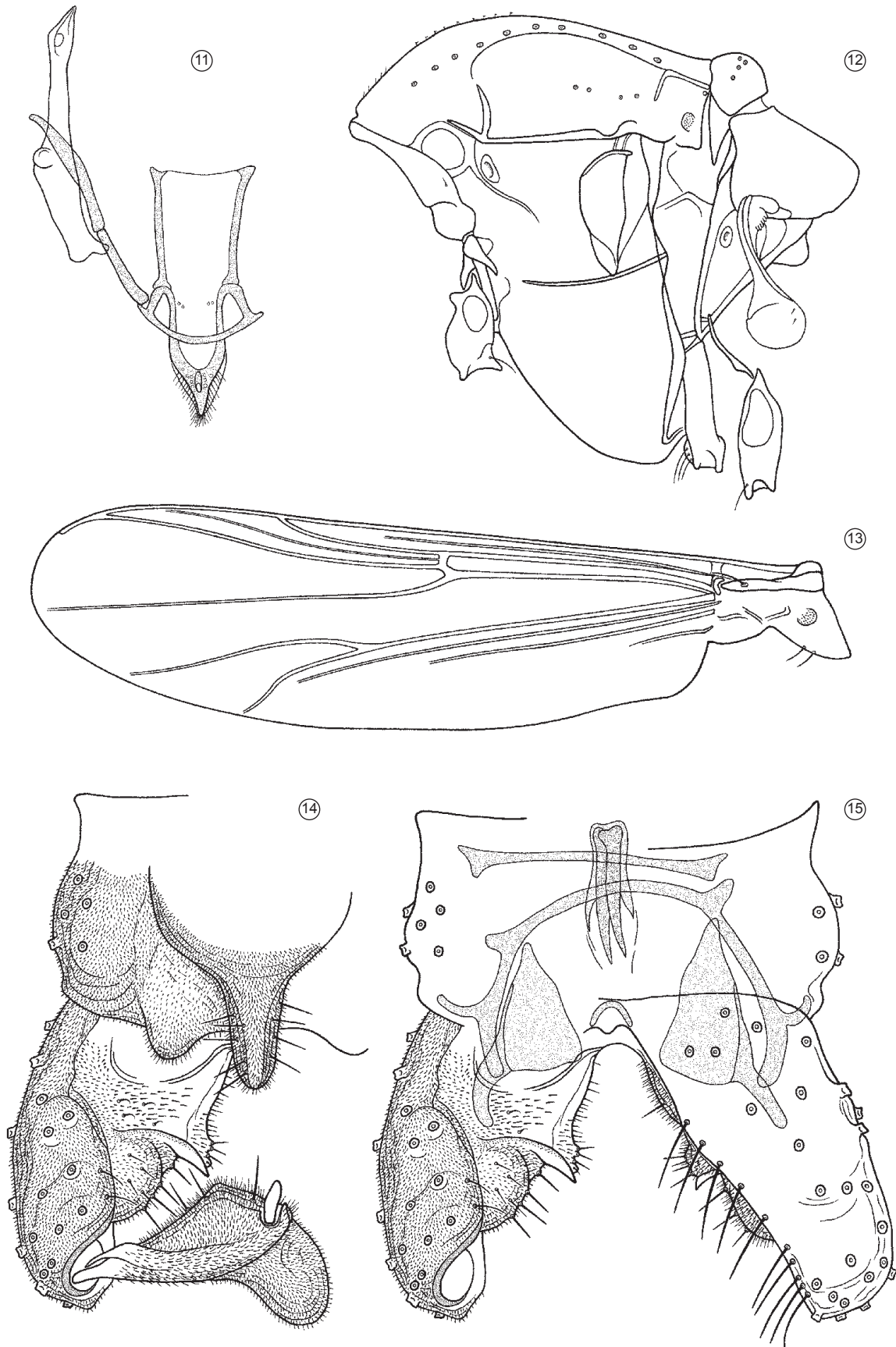


Figures 1-4. *Pebapomberus rugendas* sp. n., male. 1) Head; 2) Tentorium, stipes, and cibarial pump; 3) Thorax; 4) Wing.



Figures 5-10. *Pebapomberus rugendas* sp. n., male. 5) Apex of fore tibia; 6) Apex of mid tibia; 7) Apex of hind tibia; 8) Hypopygium, dorsal view; 9) Hypopygium with anal point and tergite IX removed, dorsal aspect to the left and ventral aspect to the right; 10) flattened gonostylus, dorsal view.

Pebapomberus, New Genus



Figures 11-15. *Pebapomberus euniceae* sp. n., male. 11) Tentorium, stipes, and cibarial pump; 12) Thorax; 13) Wing; 14) Hypopygium, dorsal view; 15) Hypopygium with anal point and tergite IX removed, dorsal aspect to the left and ventral aspect to the right.

Table 1. Lengths (in μm) and proportions of legs of *Pebapomberus rugendas* sp. n., male (n = 2-3).

| | fe | ti | ta ₁ | ta ₂ | ta ₃ | ta ₄ | ta ₅ | LR | BV | SV | BR |
|----------------|---------|---------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------|-----------|-----------|---------|
| p ₁ | 425-482 | 518-619 | 281-295 | 193-206 | 133-140 | 59-68 | 41-43 | 0.54-0.57 | 2.85-2.89 | 3.36-3.38 | 2.5-3.0 |
| p ₂ | 497-500 | 465-468 | 188-191 | 104-112 | 72-77 | 37-43 | 28-29 | 0.40-0.41 | 4.43-4.73 | 5.06-5.07 | 3.8-4.3 |
| p ₃ | 511-554 | 529-605 | 292-338 | 151-180 | 144-156 | 58-61 | 40-43 | 0.54-0.56 | 3.48-3.52 | 3.42-3.65 | 3.9-6.0 |

Table 2. Lengths (in μm) and proportions of legs of *Pebapomberus euniceae* sp. n., male (n = 1).

| | fe | ti | ta ₁ | ta ₂ | ta ₃ | ta ₄ | ta ₅ | LR | BV | SV | BR |
|----------------|-----|-----|-----------------|-----------------|-----------------|-----------------|-----------------|------|------|------|-----|
| p ₁ | 475 | 511 | 268 | 178 | 130 | 68 | 40 | 0.52 | 3.02 | 3.68 | 2.8 |
| p ₂ | 508 | 461 | 184 | 101 | 79 | 47 | 32 | 0.40 | 4.44 | 5.27 | 3.3 |
| p ₃ | 544 | 533 | 310 | 162 | 140 | 61 | 40 | 0.58 | 3.44 | 3.48 | 6.0 |

Wing (Figure 4). VR 1.43-1.44. C extension 50-70 μm long. Brachiolum with 1 seta, C with 0-2 non-marginal setae, remaining veins and cells bare. Squama with 2-4 setae.

Legs (Figures 5-7). Spur of fore tibia 25-36 μm long, spurs of mid tibia 9-11 μm and 15-23 μm , of hind tibia 14-16 μm and 36-40 μm long. Width at apex of fore tibia 24-32 μm , of mid tibia 23-25 μm , of hind tibia 35-39 μm . Hind tibia comb with 9 (1) setae, longest 27 (1) μm , shortest 14 (1) μm long. Lengths and proportions of legs as in Table 1.

Hypopygium (Figures 8-10). Tergite IX covered with microtrichia; laterosternite IX with 5-6 setae. Anal point wedge-shaped, 36-43 μm long, 20-34 μm wide at base, with 8-10 weak marginal setae. Phallapodeme 79-84 μm long; transverse sternapodeme 82 μm long. Virga 41-48 μm long. Gonocoxite 138-148 μm long. Gonostylus 73 μm long (not including apical lobe); megaseta 10-11 μm long. HR 2.00-2.03. HV 2.41-2.70.

Distribution

The species is known from Santa Catarina and São Paulo States in Brazil, where it was collected in Malaise- and light traps. Both collection sites have a humid, coastal climate with many small streams. The vegetation is a mosaic of primary and secondary forest and epiphytes are abundant.

Pebapomberus euniceae sp. n. (Figures 11-15)

Type material: Holotype male, **Brazil: São Paulo:** Parque Estadual Intervales, Iporanga, 24° 32' S and 48° 42' W, 26-27.x.2001, CDC trap, E.A.B. Galati (MZUSP).

Diagnostic characters: This species can be separated from *P. rugendas* n. sp. by the inferior volsella having a narrowly triangular, pointed anterior lobe and a broadly rounded apical lobe of the gonostylus.

Etymology: Named after Dr. Eunice A. B. Galati for making the material available to us.

Description

Male (n = 1). Total length 2.00 mm. Wing length 1.17 mm. Total length/wing length 1.71. Wing length/length of profemur 2.44.

Coloration. Thorax, head, and coxae brown; abdomen, antennal flagellum and legs uniformly light brown.

Head. AR 0.88. Ultimate flagellomere 328 μm long. Temporal setae 9 including 5 inner verticals and 4 outer verticals and 2 postorbitals. Clypeus with 7 setae. Tentorium, stipes, and cibarial pump as in Figure 11. Tentorium 118 μm long, 20 μm wide. Stipes 107 μm long. Palp segment lengths (in μm): 18, 34, 69, 79, 100. Third palpomere with 3 sensilla clavata subapically, longest 12 μm long.

Thorax (Figure 12). Anteprenotum with 1 seta. Dorsocentrals 10; acrostichals 14 beginning close to anteprenotum, composed of 5 anterior simple and 9 posterior scalpellate; prealars 4, 2 posterior and 2 anterior; supraalar 1. Scutellum with 7 setae.

Wing (Figure 13). VR 1.45. C extension 68 μm long. Brachiolum with 1 seta, remaining veins and cells bare. Squama with 2 setae.

Legs. Spur of fore tibia 34 μm long, spurs of mid tibia 16 μm and 23 μm long, spurs of hind tibia 14 μm and 43 μm long. Width at apex of fore tibia 25 μm , of mid tibia 27 μm , of hind tibia 36 μm . Comb with 11 setae, longest 32 μm , shortest 19 μm long. Lengths and proportions of legs as in Table 2.

Hypopygium (Figures 14-15). Tergite IX covered with microtrichia; laterosternite IX with 5 setae. Anal point wedge-shaped, 43 μm long, 20 μm wide at base, with 9 weak marginal setae. Phallapodeme 83 μm long; transverse sternapodeme 84 μm long. Virga 42 μm long. Gonocoxite 150 μm long. Gonostylus 70 μm long (not including apical lobe); megaseta 14 μm long. HR 2.13. HV 2.84.

Distribution

The species is known from southern São Paulo State in Brazil, where it was collected in a CDC trap during a project aimed at Phlebotominae. The locality is within a nature reserve with many small streams and rivulets. The vegetation is mainly pristine mountain forest with mosses and many different species of epiphytes.

Acknowledgements

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