



Two new species of *Saetherolabis* Andersen *et* Mendes, 2007 from Brazil (Diptera: Chironomidae, Orthoclaadiinae)

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Abstract

The genus *Saetherolabis* Andersen *et* Mendes, 2007 was described based on *S. pectinata* Andersen *et* Mendes, 2007 from the Amazon forest in Brazil. Below two new species of *Saetherolabis*, *S. iperuype* **sp. n.** and *S. siriype* **sp. n.**, are described and figured based on males from Mata Atlântica in São Paulo and Sergipe States in Southeastern and Northeastern Brazil.

Key words: Diptera, Chironomidae, Orthoclaadiinae, *Saetherolabis*, new species, Mata Atlântica, Brazil, Neotropical

Introduction

Andersen and Mendes (2007) described five new genera of Orthoclaadiinae from Brazil. The genus *Oleia* Andersen *et* Mendes was based on seven species both from Mata Atlântica and from the Amazon forest, while the remaining four genera, *Saetherocryptus* Andersen *et* Mendes, *Saetherops* Andersen *et* Mendes, *Saetherolabis* Andersen *et* Mendes and *Saetherocladius* Andersen *et* Mendes were all monotypic. Andersen *et al.* (2010) added four new species of *Saetherocladius* from Santa Catarina and São Paulo States and gave new records of *S. hirtus* Andersen *et* Mendes, 2007 from São Paulo and Rio de Janeiro States. Andersen *et al.* (2011) added a second species of *Saetherocryptus* from São Paulo State. The genus *Saetherolabis* was described based on *S. pectinata* Andersen *et* Mendes, 2007 from the Amazon forest. Below we describe and figure two new species of *Saetherolabis*, *S. iperuype* and *S. siriype*, based on adult males from Mata Atlântica in São Paulo and Sergipe States, respectively. The genus *Saetherops* still remains monotypic. However, the discoveries of additional species belonging to *Saetherocladius*, *Saetherocryptus* and *Saetherolabis* underline the importance of describing new genera even though they are monotypic.

Saetherolabis was placed in the *Pseudosmittia* Edwards group of genera by Andersen and Mendes (2007). It can be separated from other Orthoclaadiinae genera by the long, nearly parallel-sided anal point and the deeply split inferior volsella with digitiform, straight to bent oral branch and digitiform to broadly rounded caudal branch combined with bare eyes, wing membrane and squama, few acrostichals in mid scutum or acrostichals apparently sometimes absent, and a row of spine-like setae on all tarsomeres.

Material and methods

The specimens were mounted in Euparal following the procedures outlined by Sæther (1969). The general morphology follows Sæther (1980). Measurements are given as the range followed by the mean when four specimens were measured.

The holotypes of both species are housed in Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP); one paratype of *S. iperuype* is kept in the Department of Natural History, University Museum of Bergen, Norway (ZMBN).

Results

Saetherolabis Andersen *et* Mendes

Saetherolabis Andersen *et* Mendes, 2007: 40.

Type species: *Saetherolabis pectinata* Andersen *et* Mendes, 2007: 43, original designation by monotypy.

Other included species: *Saetherolabis iperuype* **sp. n.** and *S. siriype* **sp. n.**

Diagnostic characters and description as in Andersen and Mendes (2007) with the following emendations:

Emended diagnostic characters: Costa strongly extended or short with false vein nearly reaching wing tip; with few, weak, simple or scalpellate acrostichals in midscutum or acrostichals apparently lacking; palpomeres shortened to normally developed; antenna with 11–13 segments in the male.

Emended description: Male. Small species, wing length 0.6–0.9 mm.

Head. Male antenna with 11–13 flagellomeres; AR 0.90–1.30. Palp 5-segmented, shortened to normally developed; palpomeres 1–2, sometimes 1–4, spherical; palpomere 3 with 4–6 sensilla clavata in subapical sensillum coeloconicum. Temporal setae in single row, inner verticals well separated from outer verticals, postorbitals present or absent. Cibarial pump subtriangular to subrectangular, with well developed cornua and straight anterior margin.

Thorax. Acrostichals few, weak, simple to scalpellate at midscutum; apparently absent in *S. siriype*.

Wing. Costa strongly extended or short with false vein nearly reaching wing tip; R_{4+5} ending proximal or opposite to M_{3+4} ; Cu_1 curved to slightly sinuous; An ending proximal or at FCu.

Legs. Tibial spurs on fore- and hind legs normal, mid leg with one or two spurs.

Hypopygium. Anal point with triangular base, well sclerotized, parallel-sided to slightly wider at rounded apex. Tergite IX short to normally developed, with few setae on each side of base of anal point; laterosternite IX bare or with few setae. Sternapodeme well developed, with straight to strongly curved anterior margin; oral projections well developed to barely indicated. Inferior volsella deeply split in straight, curved or strongly bent oral branch and narrow, tapering to broad, broadly rounded caudal branch. Superior volsella lacking to well developed. Gonostylus without or with low, subapical crista dorsalis.

Saetherolabis iperuype **sp. n.**

(Figs 1–6)

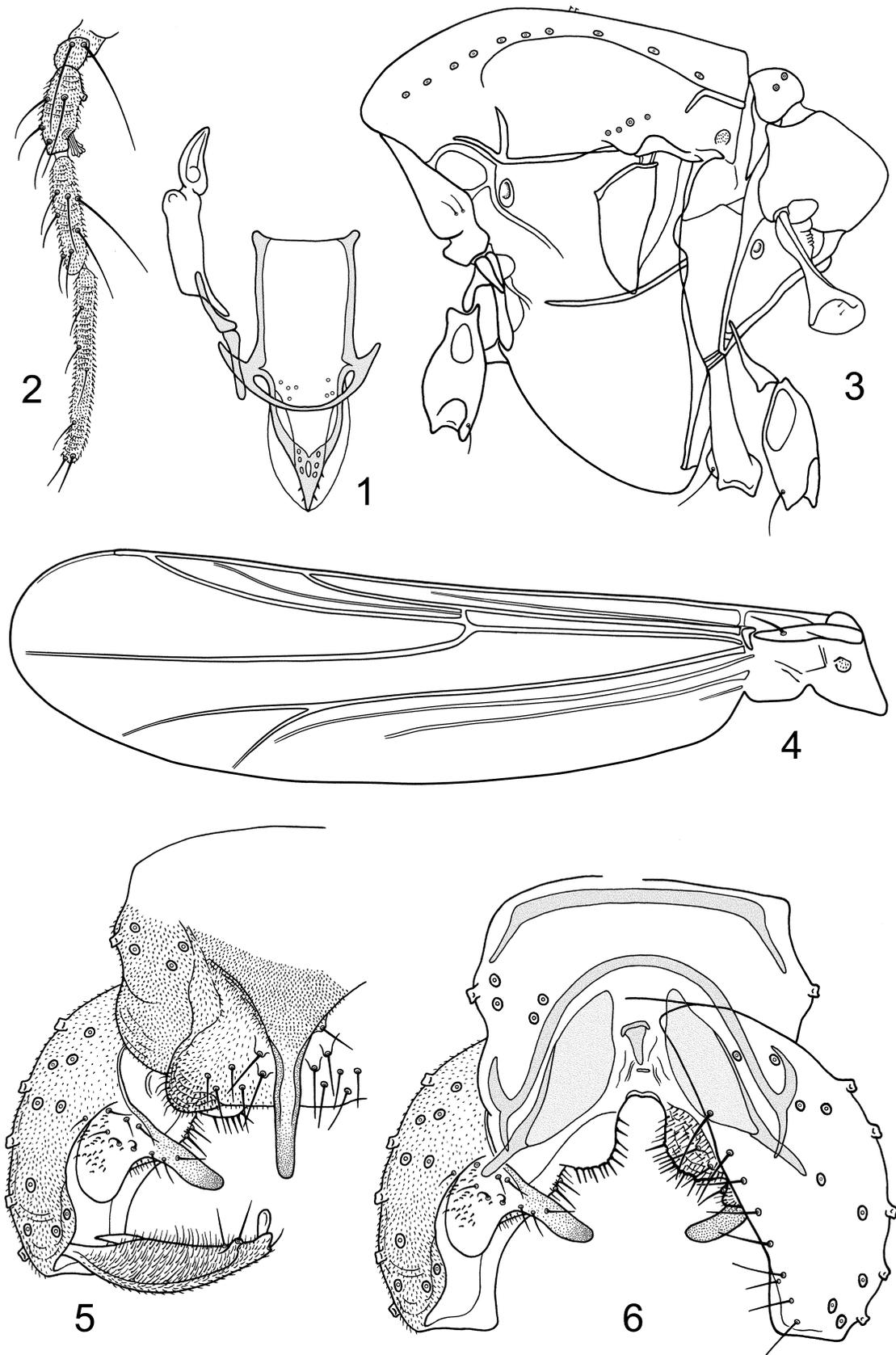
Type Material: Holotype male: BRAZIL, São Paulo State, Peruibe, Estação Ecológica Juréia-Itatins, 24°31'06"S 47°12'06"W, 06.v.2002, Malaise trap (Bosque 6), N.W. Perioto *et al.* (PEJU 08: BIOTA-FAPESP) (MZUSP). Paratypes, 2 males, as holotype (MZUSP, ZMBN), 1 male, as holotype except 03.v.2002, (PEJU 02) (MZUSP).

Etymology: From the native Brazilian language Tupi, *iperu* and *ype*, ‘shark’ and ‘river, sea’, meaning river filled with sharks. The name is an allusion for the type locality and is to be treated as a noun in apposition.

Diagnostic characters: The species can be separated from *S. pectinata* by having a slightly higher AR (1.16–1.26 compared to 0.93–0.98) and HR (1.58–1.86 compared to 1.12–1.37), by having a well developed, rounded superior volsella and on the oral branch of inferior volsella which is digitiform, straight and almost perpendicular to caudal branch; from *S. siriype* on the arched transverse sternapodeme with oral projections barely indicated and on the shape of the inferior and superior volsellae.

Description: Male (n = 3–4). Total length 1.50–1.58 mm. Wing length 838–912 μ m. Total length / wing length 1.65–1.89. Wing length / length of profemur 2.91–3.09.

Coloration. Head, pedicel, thorax and coxae dark brown; flagellum of antenna, palpomeres, legs (trochanter to tarsomere 5) light brown; abdominal segments I–III, VI–VII and hypopygium light brown, segments IV–V dark brown.



FIGURES 1–6. *Saetherolabis iperuye* sp. n., male. 1–tentorium, stipes, and cibarial pump; 2–palp; 3–thorax; 4–wing; 5–hypopygium, dorsal aspect; 6–hypopygium with anal point and tergite IX removed, dorsal aspect to the left and ventral aspect to the right.

Head. AR 1.16–1.26. Antenna with 13 flagellomeres, ultimate flagellomere 295–313 µm long. Temporal setae 4–6 including 2 inner verticals and 2–4 outer verticals. Clypeus with 4–7, 5 setae. Cibarial pump, tentorium and stipes as in Figure 1. Tentorium 73–95 µm long, 14–16 µm wide at sieve pore. Stipes 66–82 µm long. Palp segment lengths / widths (in µm): 14–16 / 14–16, 20–23 / 14–16, 45–48 / 14–16, 52–61 / 10–12, 68–93 / 7–9. Third palpomere with 5–6 sensilla clavata in subapical sensillum coeloconicum (Fig. 2), longest 9–11 µm long.

Thorax (Fig. 3). Antepronotum with 2–4 setae. Dorsocentrals 10, acrostichals 2 scalpellate in mid scutum, prealars 3–4. Scutellum with 4 setae.

Wing (Fig. 4). VR 1.53–1.66. Costal extension 29–34 µm long, with false vein nearly reaching wing tip. Brachiolum with 1 seta, remaining veins and cells bare.

Legs. Spur of fore tibia 38–45 µm long; mid tibia with only one spur, 14–20 µm long; spurs of hind tibia 39–45 µm and 18–23 µm long. Width at apex of fore tibia 17–19 µm, of mid tibia 20 µm, of hind tibia 27–34 µm. Comb with 11–13 setae, longest 29–36 µm long, shortest 16–23 µm long. With row of spine-like setae on all tarsomeres of fore-, mid- and hind legs, particularly distinct on ta_1 ; setae on ta_1 of fore leg 20–29 µm long. Mid- and hind leg with stout, subapical seta on all tarsomeres; seta on tarsomeres 1–4 of mid leg 20–23, 16–18, 16–17 and 16 µm long; on tarsomeres 1–4 of hind leg 19–21, 18–19, 16–17, 14–15 µm long. Lengths and proportions of legs as in Table 1.

Hypopygium (Figs 5–6). Tergite IX with 3–7, 5 strong setae on each side of anal point; laterosternite IX with 4–5, 5 setae. Anal point 40–45, 43 µm long; 9–14, 12 µm wide at base; 6–7, 6 µm wide at apex; without microtrichia. Phallapodeme 54–66, 59 µm long; transverse sternapodeme 50–57, 55 µm long, curved, with oral projections barely indicated. Virga 9–15, 12 µm long. Gonocoxite 107–122, 113 µm long. Inferior volsella deeply split; oral branch digitiform, straight, almost perpendicular to caudal branch, 25–27, 26 µm long, 9–12, 10 µm wide at base; caudal branch broadly rounded, straight, 17–19, 18 µm long, 14–18, 15 µm wide at base. Superior volsella well developed, broadly rounded, with strong setae. Gonostylus 61–70, 66 µm long, without crista dorsalis; megaseta 8 µm long. HR 1.58–1.86, 1.72; HV 2.14–2.58.

Distribution and ecology: This species is known from four specimens collected in Malaise traps in Peruíbe, São Paulo State, Brazil. This nature reserve covers an area of about 80.000 ha in the southernmost coastal parts of São Paulo State and the vegetation consists of both primary and secondary forest, mainly mangrove and different types of coastal rainforest.

TABLE 1. Lengths (in µm) and proportions of legs of *Saetherolabis iperuype* sp. n., male (n = 2–3).

	fe	ti	ta_1	ta_2	ta_3	ta_4
p_1	306–331	306–334	166–169	63–65	43–45	26–28
p_2	349–371	334–356	191–198	83–90	42–61	32
p_3	334–371	341–389	191–216	97–108	90–97	36–43
	ta_5	LR	BV	SV	BR	
p_1	31–33	0.49–0.53	4.76–4.80	3.70–3.87	2.4–3.0	
p_2	32	0.56–0.57	4.19–4.67	3.58–3.67	3.6–9.3	
p_3	29–32	0.55–0.56	3.32–3.47	3.52–3.58	5.8–9.0	

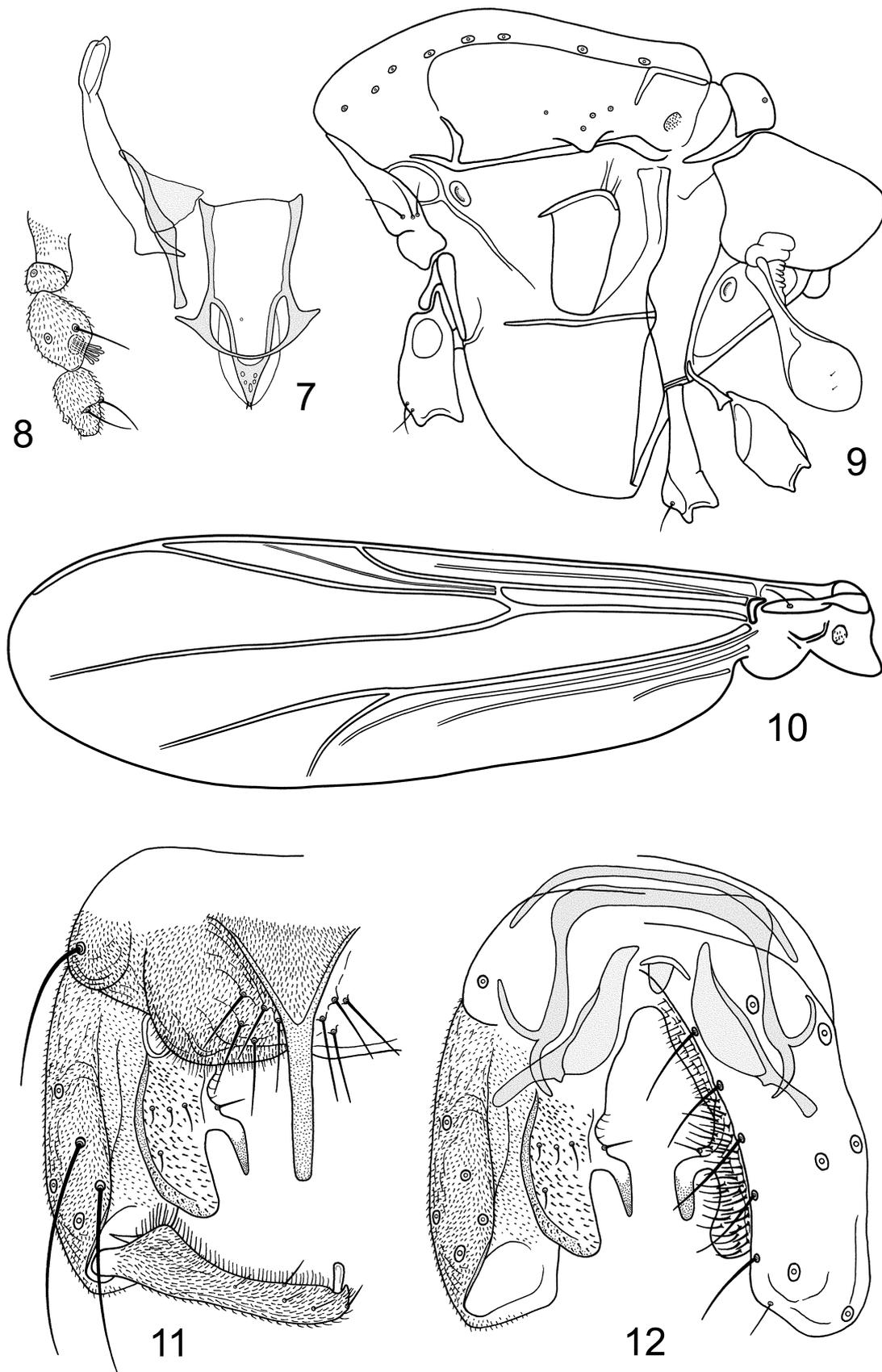
Saetherolabis siriype sp. n.

(Figs 7–12)

Type Material: Holotype male: BRAZIL, Sergipe State, Areia Branca, Serra Itabaiana, riacho Coqueiro, 05.viii.2009, light trap, A.R. Calor & L. Lecci (MZUSP).

Etymology: From the native Brazilian language Tupi, *siri* and *ype*, ‘crab’ and ‘river, sea’, meaning river filled with crabs. The name is an allusion for the type locality and is to be treated as a noun in apposition.

Diagnostic characters: The species can be separated from both *S. pectinata* and *S. iperuype* on the straight transverse sternapodeme with strong oral projections and on the oral branch of inferior volsella which is strongly bent with apical one-half almost parallel to caudal branch.



FIGURES 7–12. *Saetherolabis siriype* sp. n., male. **7**–tentorium, stipes, and cibarial pump; **8**–palpomeres 1-4; **9**–thorax; **10**–wing; **11**–hypopygium, dorsal aspect; **12**–hypopygium with anal point and tergite IX removed, dorsal aspect to the left and ventral aspect to the right.

Description: *Male* (n = 1). Total length 1.24 mm. Wing length 787 µm. Total length / wing length 1.58. Wing length / length of profemur 2.76.

Coloration. Head and antennae dark brown; thorax light brown with dark brown vittae, median anepisternum, preepisternum, scutellum and postnotum; abdominal segments I–V and hypopygium dark brown, abdominal segments VI–VII light brown; legs with femur brown, tibia and tarsus light brown.

Head. AR 1.20. Antenna with 11 flagellomeres, ultimate flagellomere 241 µm long. Temporal setae 4 including 2 inner verticals and 2 outer verticals. Clypeus with 4 setae. Cibarial pump, tentorium and stipes as in Figure 7. Tentorium 79 µm long, 11 µm wide at sieve pore. Stipes 59 µm long, 34 µm wide. Palp segment lengths / widths (in µm): 11 / 12, 10 / 12, 23 / 18, 23 / 14, fifth palpomere lost. Third palpomere with 5 sensilla clavata in subapical sensillum coeloconicum (Fig. 8), longest about 9 µm long.

Thorax (Fig. 9). Anteprepronotum with 3 setae. Dorsocentrals 8, acrostichals apparently absent, prealars composed of 3 posterior and 1 anterior. Scutellum with 2 setae.

Wing (Fig. 10). VR 1.54. Costal extension 109 µm long. Brachiolum with 1 seta.

Legs. Spur of fore tibia 27 µm long, spurs of mid tibia 18 µm and 10 µm long, spurs of hind tibia 41 µm and 12 µm long. Width at apex of fore tibia 24 µm, of mid tibia 20 µm, of hind tibia 25 µm. Comb with 10 setae, longest 25 µm long, shortest 16 µm long. With row of spine-like setae on all tarsomeres of fore-, mid- and hind legs, particularly distinct on ta₁; setae on ta₁ of fore leg 14–18 µm long. Lengths and proportions of legs as in Table 2.

Hypopygium (Figs 11–12). Tergite IX with 4–5 strong setae to each side of anal point; laterosternite IX with single strong seta. Anal point 41 µm long, 9 µm wide at base, 6 µm wide at apex, without microtrichia. Phallopodeme 54 µm long; transverse sternapodeme 54 µm long, straight, with strong oral projections. Virga 10 µm long. Gonocoxite 104 µm long. Inferior volsella deeply split; oral branch strongly bent, 20 µm long, 3 µm wide medially; caudal branch straight, 12 µm long, 11 µm wide medially. Superior volsella barely indicated. Gonostylus 58 µm long, without crista dorsalis; megaseta 8 µm long. HR 1.80; HV 2.14.

Distribution: The species is known from a single male collected in a light trap in Sergipe State, near the Brazilian northeastern coast.

TABLE 2. Lengths (in µm) and proportions of legs of *Saetherolabis siriype* sp. n., male (n = 1).

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	295	328	180	68	58	32	35	0.55	4.13	3.46	3.2
p ₂	334	338	149	72	58	30	29	0.44	4.35	4.51	3.1
p ₃	317	342	216	101	90	34	31	0.63	3.40	3.05	3.2

Key to the males of *Saetherolabis* Andersen *et* Mendes

1. AR < 1.0; caudal lobe of inferior volsella narrow, straight, nearly parallel-sided in basal two-thirds, apically tapering, about 5 µm wide medially (Andersen & Mendes 2007, Fig. 85). Brazil, Amazonas *S. pectinata* Andersen *et* Mendes
- AR > 1.15; caudal lobe of inferior volsella broad, with broadly rounded apex, more than 10 µm wide medially. 2
2. Transverse sternapodeme curved with oral projections barely indicated; oral branch of inferior volsella digitiform, straight, almost perpendicular to caudal branch; superior volsella well developed, broadly rounded (Fig. 6). Brazil, São Paulo.
- Transverse sternapodeme straight with strong oral projections; oral branch of inferior volsella strongly bent, apical one-half almost parallel to caudal branch; superior volsella barely indicated (Fig. 12). Brazil, Sergipe *S. iperuype* sp. n.
- Transverse sternapodeme straight with strong oral projections; oral branch of inferior volsella strongly bent, apical one-half almost parallel to caudal branch; superior volsella barely indicated (Fig. 12). Brazil, Sergipe *S. siriype* sp. n.

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