

Two new species of *Nilotanypus* Kieffer, 1923 (Diptera, Chironomidae, Tanypodinae) from Brazil

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Two new Neotropical species of *Nilotanypus* Kieffer, 1923 are described and figured based on male adults. *Nilotanypus pusillus* n. sp. was collected in a light trap in Mato Grosso State, Brazil, while *N. urubici* n. sp. was taken in a Malaise trap in Santa Catarina State. Both new species have pseudospurs on mid tarsus. The only other *Nilotanypus* species with pseudospurs on mid tarsus is *N. fimbriatus* (Walker, 1848), a North American species with a wing length of 1.1–1.5 mm and a uniformly brown abdomen. The species is distinctly larger than *N. pusillus* n. sp. with a wing length of only 0.8 mm and it can easily be separated from *N. urubici* n. sp. on the coloration of the abdomen as *N. urubici* n. sp. has a pale brown to nearly colorless abdomen.

Key words: Diptera, Chironomidae, Tanypodinae, *Nilotanypus*, new species, Brazil, Neotropical region.

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Introduction

The genus *Nilotanypus* was erected by Kieffer (1923) based on *N. remotissimus* Kieffer, 1923 from Sudan. The genus comprises nine described species and is distributed in all biogeographical regions except Antarctica (Ashe & O'Connor 2009). Three species are described from North America, *N. americanus* Beck & Beck, 1966; *N. fimbriatus* (Walker, 1848); and *N. kansensis* Roback, 1986. Only the female and immatures of *N. americanus* are described (Beck & Beck 1966). A fourth unnamed species is known from Texas (Roback 1986). The genus has been recorded repeatedly from the Neotropical Region (Ashe *et al.* 1987, Mendes & Pinho 2014, Spies & Reiss 1996, Watson & Heyn 1993). However, there are no named species from South- or Central America

so far.

Nilotanypus has wing vein R_{2+3} reduced or absent in common with *Monopelopia* Fittkau, 1962, *Schineriella* Murray & Fittkau, 1988 and *Labrundinia* Fittkau, 1962. However, it is easily recognized as costa is strongly reduced, apical flagellomere has several wavy setae, and the eyes are pubescent (Murray & Fittkau 1989). The larvae of *Nilotanypus* inhabit flowing waters, especially with sandy beds, where they can be the dominant Tanypodinae (Cranston & Epler 2013).

Below we describe and figure two new species from Brazil. *Nilotanypus pusillus* n. sp. is based on a single male collected in a light trap in Nova Xavantina, Mato Grosso State, while *N. urubici* n. sp. is based on five males collected in a Malaise trap in Urubici, Santa Catarina State.

Material and methods

The specimens examined are mounted on slides in Canada balsam following the procedure outlined by Sæther (1969). Morphological terminology follows Sæther (1980). Measurements are given as ranges, followed by the mean when four or more specimens were measured, and by the number of specimens measured in parenthesis. The coloration is described based on slide-mounted specimens.

Both holotypes and most paratypes of *N. urubici* n. sp. will be deposited at the Museu de Zoologia da Universidade de São Paulo, São Paulo, Brazil (MZUSP), the remaining paratypes will be kept in the Department of Natural History, University Museum of Bergen, Bergen, Norway (ZMBN).

Nilotanypus pusillus n. sp. (Figures 1, 3 & 4)

Type material: Holotype male: Mato Grosso State, Nova Xavantina, Fazenda Sr. Queté, Córrego Cachoeira, 254 m a.s.l., 14°32.817'S 51°31.395'W, 16.x.2007, light trap, leg. L.C. Pinho *et al.* (MZUSP).

Etymology: From latin *pusillus*, meaning very little and referring to the small size of the species.

Diagnostic characters: The combination of a wing length of 0.81 mm, pseudospurs on mid ta_1 – ta_3 , an antennal ratio of 0.45, and the color pattern of the abdomen, with tergites I–V light brown and tergites VI–IX and hypopygium brown, will separate the species from all other species in the genus.

Description: Male (n = 1). Total length 1.51 mm. Wing length 0.81 mm. Total length / wing length 1.86. Wing length / length of profemur 2.77.

Coloration. Head, antenna and thorax brown; abdominal tergites I–V light brown, tergites VI–IX and hypopygium brown; legs light brown;

wing membrane pale brown.

Antenna. Antennal ratio (AR) = 0.45. Ultimate flagellomeres 168 μ m long, apical seta missing.

Head. Temporal setae 9, including 2 strong frontals, 2 inner verticals, 3 outer verticals and 2 postorbitals. Clypeus with 16 setae. Tentorium 91 μ m long, 17 μ m wide. Palp segment lengths (in μ m): 21, 25, 62, 92, 144. Third palpomere with 2 sensilla along inner margin, longest 14 μ m long.

Thorax. Anteprenotals 4; dorsocentrals 22, starting close to anteprenotum, irregularly biserial in front; acrostichals 20, starting close to anteprenotum, biserial in front; prealars 8 in two groups, anterior group with 3 setae, posterior group with 5 setae; supraalar 1; prescutellum with 1 strong seta; anterior border of mesonotum with row of 9 tubercles. Scutellum with 7 strong setae, uniserial and about 14 weak, scattered, anterior setae.

Wing (Figure 1). Venarum ratio (VR) = 0.70. Wing membrane and veins densely covered with setae. Brachiolum with 2 setae. Squama with 13 setae.

Legs. Width at apex of fore tibia 21 μ m, of mid tibia 26 μ m, of hind tibia 28 μ m. Spur of fore tibia 30 μ m long, of mid tibia 39 μ m long, of hind tibia 43 μ m long. Fore tarsus apparently without pseudospurs; pseudospur of mid ta_1 33 μ m long, of mid ta_2 26 μ m long, of mid ta_3 18 μ m long; hind tarsus missing. Comb of hind tibia with 7 setae, longest seta 35 μ m long, shortest 28 μ m long. Length (in μ m) and proportion of legs as in Table 1.

Hypopygium (Figures 3–4). Tergite IX with slightly concave posterior margin and 2–3 setae on each side. Anal point broadly rounded. Gonocoxite 69 μ m long, 37 μ m wide. Gonostylus 46 μ m long, megaseta 7 μ m long. Hypopygium ratio (HR) = 1.50. Hypopygium value (HV) = 3.28.

TABLE 1. Lengths (in μ m) and proportions of legs of *Nilotanypus pusillus* n. sp., male (n = 1). LR = Leg ratio, BV = “Bein-Verhältnis”, SV = “Schenkel-Schiene-Verhältnis”, BR = Bristle ratio.

| | fe | ti | ta ₁ | ta ₂ | ta ₃ | ta ₄ | ta ₅ | LR | BV | SV | BR |
|----------------|-----|-----|-----------------|-----------------|-----------------|-----------------|-----------------|------|------|------|------|
| p ₁ | 292 | 228 | 160 | 72 | 60 | 48 | 40 | 0.70 | 3.09 | 3.25 | 4.33 |
| p ₂ | 404 | 232 | 324 | 108 | 80 | 60 | 44 | 1.40 | 3.29 | 1.96 | 5.33 |
| p ₃ | 340 | 292 | – | – | – | – | – | – | – | – | – |

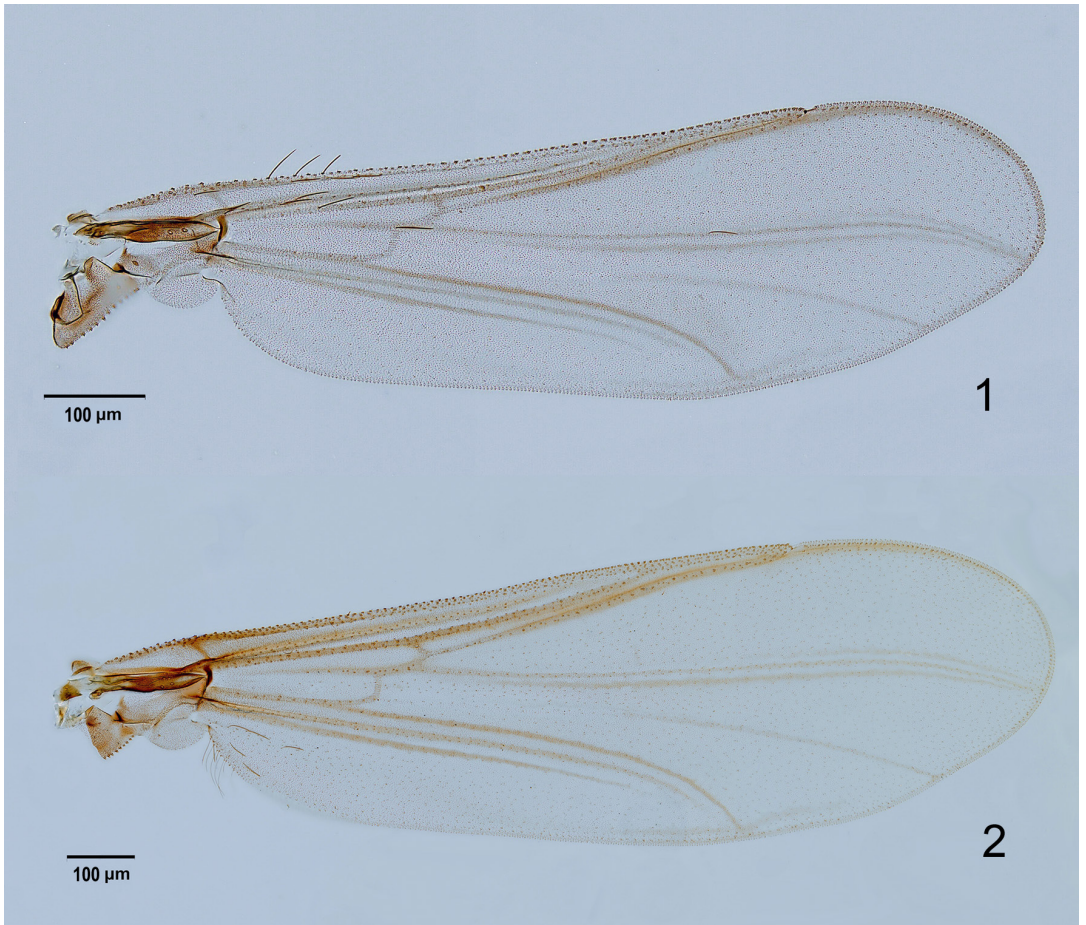


FIGURE 1-2. 1. *Nilotanypus pusillus* n. sp. male, wing. 2. *Nilotanypus urubici* n. sp. male, wing. (Photo Hege Avsnes Dale).

Female and immatures. Unknown.

Distribution. Only known from the type locality in Mato Grosso State, Brazil.

Nilotanypus urubici n. sp. (Figures 2, 5–11)

Type material: Holotype male: Santa Catarina State, Urubici, São Joaquim National Park, Morro da Igreja, Rio Pelotas tributary, 1670 m a.s.l., 28°07'37"S 49°28'47"W, Malaise trap, leg. L.C. Pinho & L.E.M. Bizzo. Paratypes: 4 males as holotype. (MZUSP, ZMBN).

Etymology: Named after the municipality where the species was collected. The name is to be regarded as a noun in apposition.

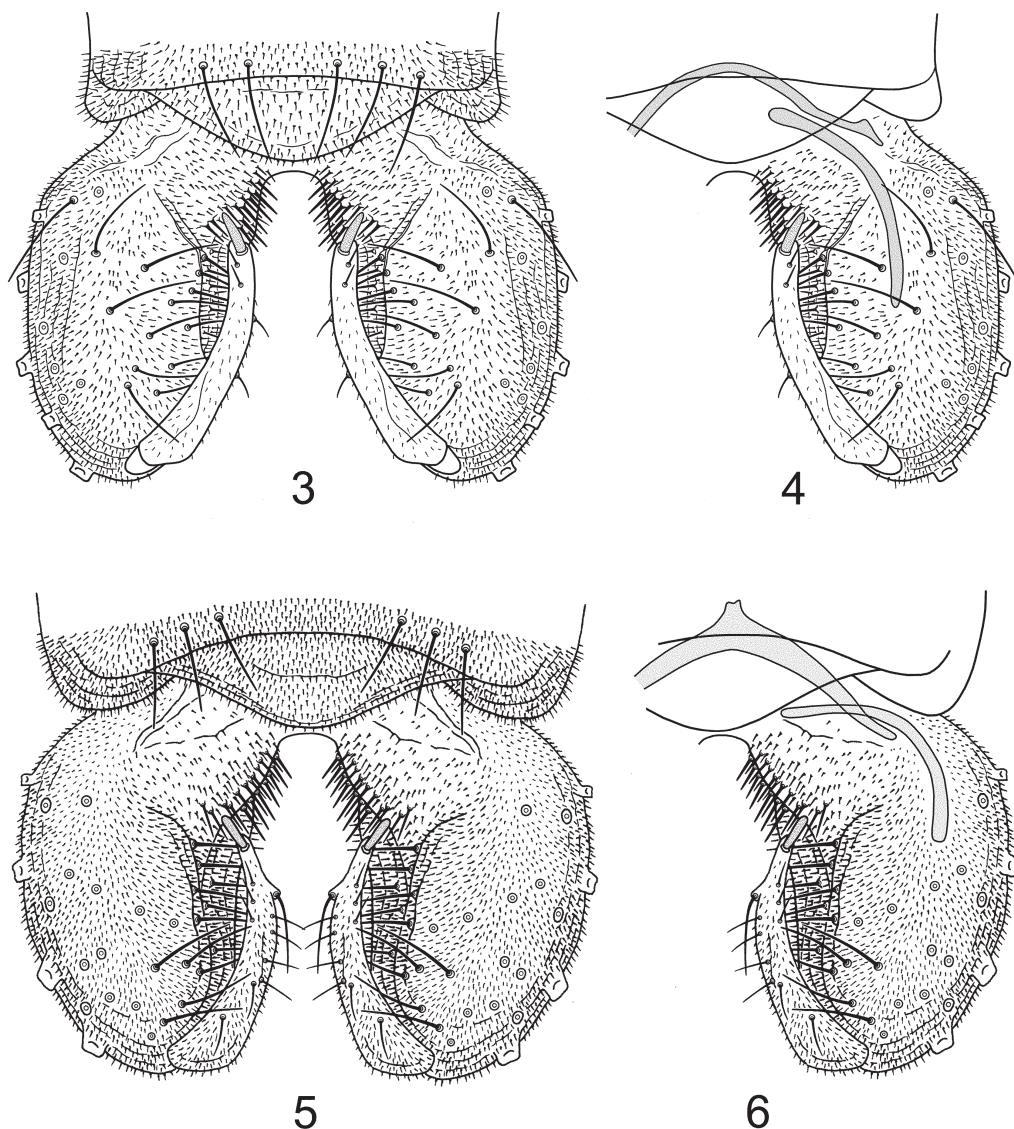
Diagnostic characters: The combination of pseudospurs on mid ta_1 - ta_3 , an antennal ratio

of 0.38–0.42, and the pale brown to colorless abdomen, will separate the species from all other species in the genus.

Description: Male (n = 4–5, if not otherwise stated). Total length 1.97–2.20, 2.12 mm. Wing length 1.17–1.28, 1.22 mm. Total length / wing length 1.68–1.76, 1.72. Wing length / length of profemur 3.05–3.39, 3.25.

Coloration. Head, antenna and thorax brown; palpomeres pale brown to nearly colorless; legs pale brown; abdomen inclusive hypopygium pale brown to nearly colorless, wing membrane colorless.

Antenna (Figure 7). Antennal ratio (AR) = 0.38–0.42, 0.40. Ultimate flagellomeres 164–180, 171 µm long, apical seta 56–68 (2) µm long.



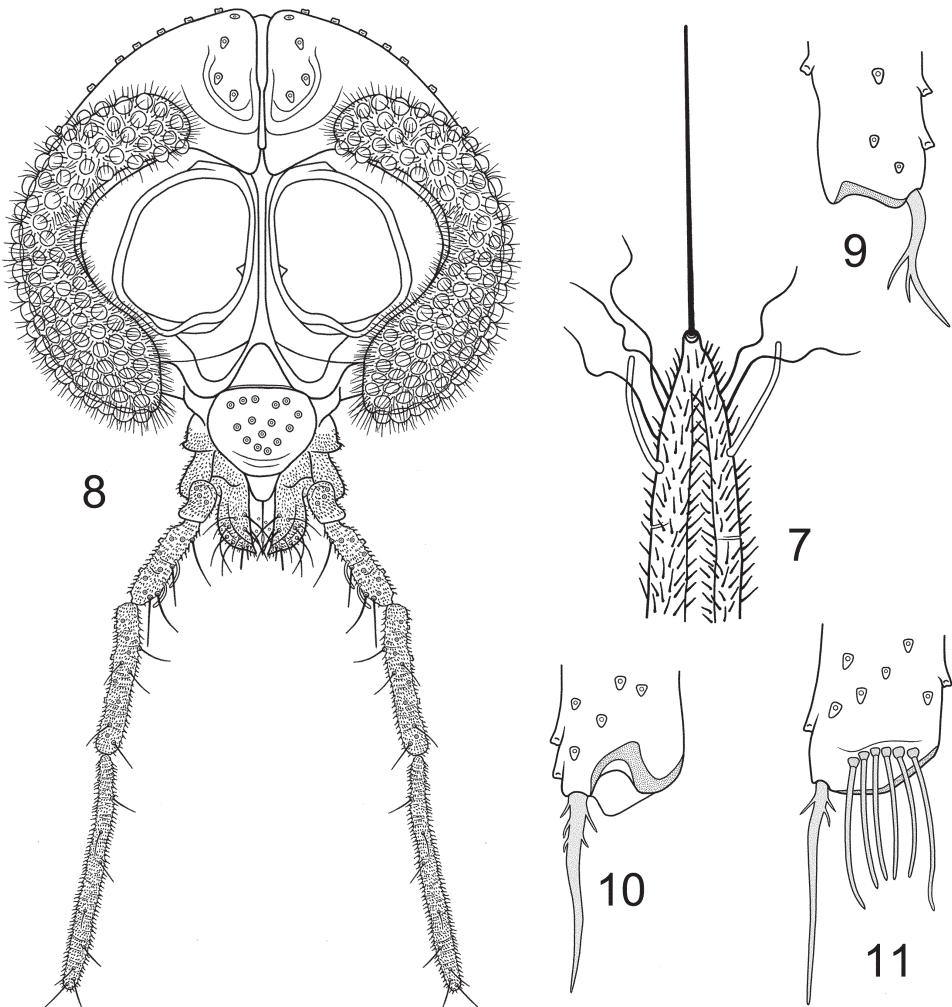
FIGURES 3–6. 3. *Nilotanypus pusillus* n. sp. male, hypopygium, dorsal view. 4. *Nilotanypus pusillus* n. sp., left side of hypopygium, showing the apodemes. 5. *Nilotanypus urubici* n. sp. male, hypopygium, dorsal view. 6. *Nilotanypus urubici* n. sp., left side of hypopygium, showing the apodemes.

Head (Figure 8). Temporal setae 13–14, 13, including 3 strong frontals, 3–4, 3 inner verticals, 4–5, 4 outer verticals and 2–3, 2 postorbitals. Clypeus with 15–19, 16 setae. Tentorium 102–112, 109 μm long, 18–23, 20 μm wide. Palp segment lengths (in μm): 27–29, 28; 28–30, 29; 55–65, 61; 97–101 (3); 155–181 (3). Third palpomere with 1–2 sensilla along inner margin, longest 21 μm long.

Thorax. Anteprenotals 3–4, 4; dorsocentrals 28–33, 31, starting close to anteprenotum, irregularly biserial in front; acrostichals 28–39, 32, starting close to anteprenotum, biserial; prealars 13–16, 15 in two groups, anterior group with 7–10, 8 setae, posterior group with 6–7, 7 setae; supraalar 1; prescutellum with 1 strong seta; anterior border of mesonotum with curved row of 9–11, 10 tubercles. Scutellum with posterior row

TABLE 2. Lengths (in μm) and proportions of legs of *Nilotanypus urubici* n. sp., male (n = 4–5, if not otherwise stated). LR = Leg ratio, BV = “Bein-Verhältnis”, SV = “Schenkel-Schiene-Verhältnis”, BR = Bristle ratio.

| | fe | ti | ta ₁ | ta ₂ | ta ₃ | ta ₄ |
|----------------|-----------------|---------------|-----------------|-----------------|-----------------|-----------------|
| p ₁ | 368–392 (2) | 288–340 (2) | 212 (1) | 112 (1) | 96 (1) | 84 (1) |
| p ₂ | 484–536, 512 | 296–340, 319 | 380–384 (2) | 152–156 (2) | 124–128 (2) | 80–84 (2) |
| p ₃ | 424–472, 446 | 392–440, 417 | 452 (1) | 212 (1) | 168 (1) | 108 (1) |
| | ta ₅ | LR | BV | SV | BR | |
| p ₁ | 72 (1) | 0.61 (1) | 3.26 (1) | 3.33 (1) | 4.00 (1) | |
| p ₂ | 64–68 (2) | 1.12–1.13 (2) | 2.91–2.96 (2) | 2.27–2.31 (2) | 4.20 (1) | |
| p ₃ | 64 (1) | 1.01 (1) | 2.45 (1) | 2.03 (1) | 4.40 (1) | |



FIGURES 7–11. *Nilotanypus pusillus* n. sp., male. 7. Terminal antennal flagellomere. 8. Head. 9. Tibial spur of fore leg. 10. Tibial spur of mid leg. 11. Tibial spur and comb of hind leg.



FIGURE 12. The small stream at Nova Xavantina, Mato Grosso State, Brazil, where *Nilotanypus pusillus* n. sp. was collected.



FIGURE 13. The stream on Morro da Igreja, Santa Catarina State, Brazil, where *Nilotanypus urubici* n. sp. was collected.



FIGURE 14. View of the mountain range Serra Geral in Santa Catarina State, Brazil from the top of Morro da Igreja.

of 7–9, 8 strong setae, uniserial and 10–14, 13 weak, scattered, anterior setae.

Wing (Figure 1). Venarum ratio (VR) = 0.66–0.68, 0.67. Wing membrane and veins densely covered with setae. Brachiolum with 2 setae. Squama with 15–19, 18 setae.

Legs (Figures 9–11). Width at apex of fore tibia 28–33 (2) μm , of mid tibia 28–34, 30 μm , of hind tibia 30–36, 32 μm . Spur of fore tibia 36–40 (2) μm long, of mid tibia 47–50, 48 μm long, of hind tibia 50–54, 52 μm long. Fore and hind tarsi apparently without pseudospurs; pseudospur of mid ta₁ 41–44 (2) μm long, of mid ta₂ 47–48 (2) μm long, of mid ta₃ 39 (1) μm long. Comb of hind tibia with 5–6, 6 setae, longest seta 35–39 (3) μm long, shortest 28–32 (3) μm long. Length (in μm) and proportion of legs as in Table 2.

Hypopygium (Figures 5–6). Tergite IX with concave posterior margin, with 4–9, 7 setae; 2–4 on each side. Anal point broadly rounded. Gonocoxite 72–99, 85 μm long, 41–49, 45 μm wide. Gonostylus 44–65, 55 μm long, megaseta 7–10, 8 μm long. Hypopygium ratio (HR) = 1.41–1.71, 1.56. Hypopygium value (HV) = 3.39–3.77 (3).

Female and immatures. Unknown.

Distribution. Only known from the type locality in Santa Catarina State, Brazil.

Discussion

In the key to the males of the *Nilotanypus* species (Cheng & Wang 2006), both species will go to couplet 2 – pseudospurs present. The only other species with pseudospurs on mid tarsus is *N. fimbriatus*, a North American species with a wing length of 1.09–1.47 mm, an antennal ratio of 0.58–0.71 and a uniformly brown abdomen (Roback 1971). The species is distinctly larger than *N. pusillus* n. sp. with a wing length of only 0.81 mm and it has a higher antennal ratio than *N. pusillus* n. sp. with an antennal ratio of 0.45. It can easily be separated from *N. urubici* n. sp. on the coloration of the abdomen as *N. urubici* n. sp. has a pale brown to nearly colorless abdomen. *Nilotanypus fimbriatus* also have a higher antennal ratio than *N. urubici* n. sp. with an antennal ratio of 0.38–0.42.

The larvae of *Nilotanypus* inhabit flowing

waters, especially with sandy beds, where they can be the dominant Tanypodinae (Cranston & Epler 2013). *Nilotanypus pusillus* n. sp. was collected in a light pan trap (Calor & Mariano 2012) at a slow flowing stream with sandy substrate (Figure 12) in the Cerrado biome in Mato Grosso State. The *Nilotanypus urubici* n. sp. specimens were collected in a Malaise trap at a fast-flowing stream with predominant rocky substrate at 1670 m altitude in the mountain range Serra Geral in Santa Catarina State (Figure 13). The area (Figure 14) is part of the Brazilian Pine Forest subregion of the Atlantic Forest biome (Silva & Casteleti 2003).

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