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Oliveiriella almeidai (Oliveira, 1946), gen. nov., comb. nov., from South America with description of the pupae

(Insecta, Diptera, Chironomidae, Orthoclaadiinae).

Sofia Wiedenbrug and Ernst Josef Fittkau

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The new genus *Oliveiriella*, from South America is erected for the species *Spaniotoma* (*Stictocladius*) *almeidai* Oliveira, 1946. The type species is *Oliveiriella almeidai* (Oliveira), by monotypy. Diagnoses and descriptions are given for the adult male and pupa.

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Introduction

The species *Spaniotoma* (*Stictocladius*) *almeidai* was described by Oliveira (1946) and included in the subgenus *Stictocladius* Edwards, 1931, mainly because of the wing markings. Recently, *Spaniotoma* has been treated as a nomen dubium (Ashe 1983). Brundin (1956) transferred the entire subgenus *Stictocladius* to *Diplocladius* Kieffer, 1908. Cranston et al. (1989: 191) considered that *Stictocladius* is unrelated to *Diplocladius*. Spies & Reiss (1996) regarded *Stictocladius* as a genus, but listed *Spaniotoma* (*Stictocladius*) *almeidai* as an unplaced valid species in Orthoclaadiinae.

Pupal exuviae of this species have been found in Rio Grande do Sul (Brazil), and material from the Zoologische Staatssammlung shows that this species also occurs in Peru and Ecuador.

The new genus *Oliveiriella* is here erected for this species, and generic diagnoses are given for the adult male and pupa.

The terminology used in this publication follows that of Saether (1980).

Oliveiriella, gen. nov.

Type species: *Oliveiriella almeidai* (Oliveira, 1946: 279), by monotypy.

Generic diagnosis

Adult male. Head. Eye hairy. Antenna with 12 flagellomeres. Temporals divided into inner and outer verticals. Postorbitals absent. Palp 5-segmented.

Thorax. Antepronotals absent. Dorsocentrals small, decumbent, and uniserial. Acrostichals weak, starting near the antepronotum. Prealars not extending anterior to level of median anepisternum, scutellars in a single, transverse row.

Wings. Costa extended beyond R_{4+5} . R_{2+3} ending closer to R_1 than to R_{4+5} .

Abdomen. With few setae on the tergites. Anal point absent. Superior volsella absent, inferior

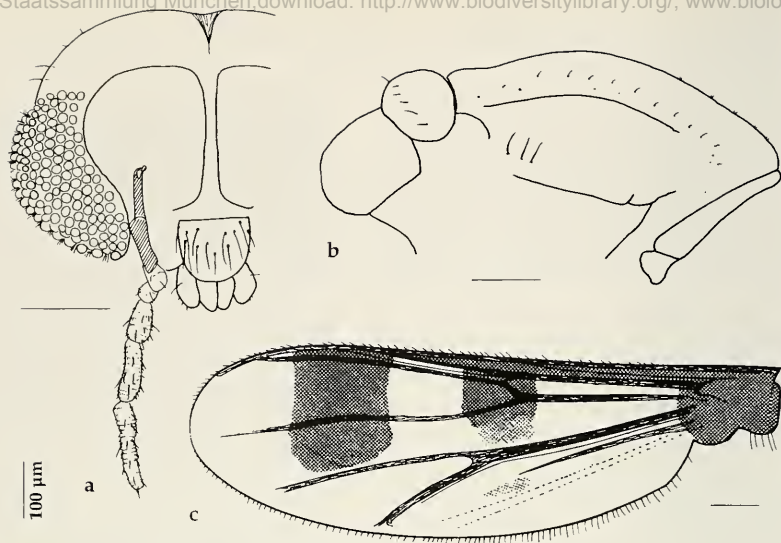


Fig. 1. *Oliveiriella almeidai*. a. Head. b. Thorax. c. Wing.

voilsella present. Gonostylus simple, crista dorsalis present, ending apically in a strong tooth. Megaseta present.

Pupae

Cephalothorax. Frontal setae present on prefrons. Ocular field with 2 postorbitals. 2 median and 1 lateral anteprenotal, 1 prealar. 3 precorneals, 2 pairs of dorsocentrals. Wing sheath without pearl row.

Abdomen. Tergites II to V with distal rows of conspicuous hooklets. VI with a strong row of spines on posterior margin. Shagreen absent on tergite I, reduced on tergite II, and occupying a larger field from tergites III to VI. Pedes spurii B absent. 1 lateral seta on segment I. Segments II to V with two lateral setae and an additional fine seta ventrally.

Anal lobe. 3 reduced anal macrosetae, 2 near the apex and the third located in the proximal 1/2. Internal anal lobe margin with 1 seta, difficult to see. Fringe absent.

Etymology. Named after Prof. Sebastião José de Oliveira who first described the species, and is motivating a new generation of chironomidologists in Brazil.

Systematics

Oliveiriella, gen. nov. differs from *Diplocladius* sensu Brundin (1956) by having a simple, not bifurcate gonostylus. In the key to the Chironomidae of the Holarctic region (Cranston et al. 1989) the males of *Oliveiriella* key to *Cricotopus* van der Wulp. The new genus definitely belongs in the "*Cricotopus-Reihe*" as defined by Hirvenoja (1973). The imaginal stage is closer to *Cricotopus* than the pupa. The combination: prealars not extending anterior to level of median anepisternum (i.e., n_3 of Hirvenoja 1973 absent), reduced chaetotaxy of abdominal tergites, anal point absent, and crista dorsalis with a strong conical tooth on the distal part, allows the differentiation of both genera in the imaginal stage.

The pupa of *O. almeidai* differs from *Cricotopus* by: presence of hooklet rows on segments III to V, presence of setae on the internal anal lobe margin, and reduction and location of the macrosetae.

The "Genus 5" described by Roback & Coffman (1983) based on pupal exuviae from Venezuela may be identical to *Oliveiriella*, but their specimens possibly represent a different species.

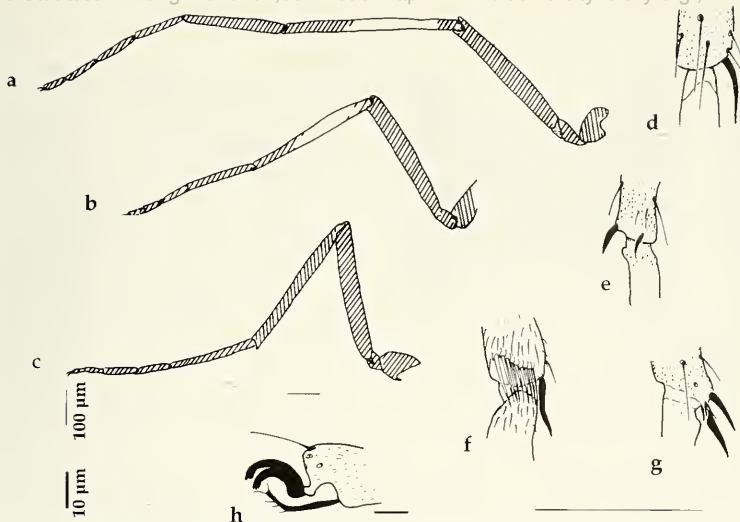


Fig. 2. *Oliveiriella almeidai*. a. Fore leg. b. Mid leg. c. Hind leg. d. Fore tibial spur. e. Mid tibial spur. f, g. Hind tibial spur. h. Distal part of tarsomere 5.

Oliveiriella almeidai (Oliveira), comb. nov.

Spaniotoma (*Stictocladus*) *almeidai* Oliveira, 1946.

Diagnosis. See diagnosis for the genus.

Description (Measurements given as means in μm).

Male. Length: Thorax 698 (n=2); Abdomen 1102 (n=1).

Head (Fig. 1a). Color: Head dark brown, almost black, antennae with flagellomeres light brown; plume light brown, pedicel dark brown, buccal parts light brown (Oliveira 1946). Eye hairy. Interocular distance 115 (n=3). Outer verticals 2, inner verticals 2. Mean AR=0.79 (n=2). Antenna without subapical setae. Antennal flagellomere length: 1st-11th 223 (n=2), 12th 165 (n=3). Clypeus rectangular, with 12 setae. Palpal segment lengths: 46, 46, 75, 113, 174; (n=3). CP=0.50.

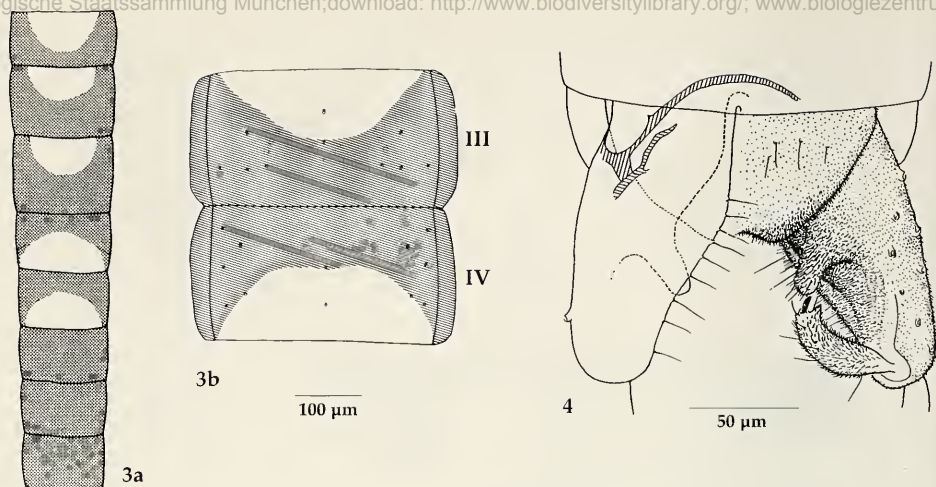
Thorax (Fig. 1b). Color: Shiny dark brown; mesonotum shiny brown; "median part" darker and the rest lighter; scutellum dark brown; postnotum and pleura dark brown (Oliveira 1946). Acrostichals 10, prealars 3, dorsocentrals about 12, decumbent uniserial; scutellars 12, uniserial; anteprenotal setae absent.

Wing (Fig. 1c). Length 1094, width 400; (n=2). With 2 anterior brown areas not reaching M_{3+4} and a small spot in the anal cell, wing basally darkened, veins brown. VR 1.29 (n=1). Costa extended beyond R_{4+5} , R_{2+3} ending at about $\frac{1}{3}$ distance from R_1 to R_{4+5} , R_{4+5} ending distal to M_{3+4} , FCu distal to RM. Cu slightly curved. Squama with 5 setae.

Legs (Fig. 2). With a white ring on fore and mid tibiae covering at least half of each tibia. 1 tibial spur present on fore leg, 2 spurs of mid tibiae unequal in size, pulvilli absent.

Leg segment lengths (n=1):

	Fe	Ti	Ta1	Ta2	Ta3	Ta4	Ta5
Fore	307	412	214	112	86	68	49
Mid	281	289	139	49	52	30	34
Hind	293	307	180	82	67	37	41



Figs 3-4. *Oliveiriella almeidai*. 3a. Abdomen. 3b. Segments III and IV. 4. Hypopygium.

Leg proportions:

	LR (n)	Bv (n)	Sv (n)
Fore	0.55 4	2.91 2	2.46 2
Mid	0.51 4	3.83 2	3.73 2
Hind	0.72 2	3.60 2	2.82 2

Abdomen (Fig. 3). Color. Tergites black; I shiny, from II to VII divided into a shiny apical and a velvety basal part; Sternites dark brown (Oliveira 1946). Tergites. I-III: with a whitish semi-circle from the anterior margin to about the middle of the tergite. IV-V: with a whitish semi-circle from the posterior margin to about the middle of the tergite.

Chaetotaxy of tergites: III: median setae 2, lateral setae 4. IV: median setae 2, lateral setae 5. VII: basal setae 5, setae along posterior margin 4. VIII: scattered setae 16.

Hypopygium (Fig.4). Lengths. Gonocoxite 204, gonostylus 82, (n=5), both white. Tergite with 4 setae on each side, in a staggered row. Anal point absent. Inferior volsella cylindrical, ventrally without setae, apically rounded. Ventral median edge of gonostylus with a row of about 10 medially directed, longer setae. Crista dorsalis ending in a strong, conical tooth. Megaseta present.

Pupa

Color. Light brown, segments II-VI with a darker anterior transverse band restricted to the region between the lateral muscle marks.

Length. Thorax 830 (770-936, n=10); abdomen 1661 (1434-1918, n=10).

Cephalothorax (Figs 5a, b). Setae: frontals on prefrons, postorbitals 2, median anteprenotals 2, lateral anteprenotal 1, prealar 1, precorneals 3, dorsocentrals 4 in two pairs. Thoracic horn simple, apex blunt, with sparse and very small spines; Length 181 (136-242, n=10). Thorax extensively granulated. Cephalic tubercles absent.

Abdomen. Pedes spurii B absent. Setae of segments I-VIII:

	I	II	III	IV	V	VI	VII	VIII
dorsals	4	4	4+1pit ¹	5	5	5	5	2
laterals ²	1	3	3	3	3	3	3	3
ventrals	0	3	3+1pit ¹	3+1pit ¹	4	4	4	1
O _d setae	0	1	1	1	1	1	1	1

¹ Segments III and IV with additional dorsal and/or ventral setal pits not bearing setae in the specimens examined.

² Segments from II-V with 2 very strong lateral setae on small tubercles and a third thinner seta ventrally.

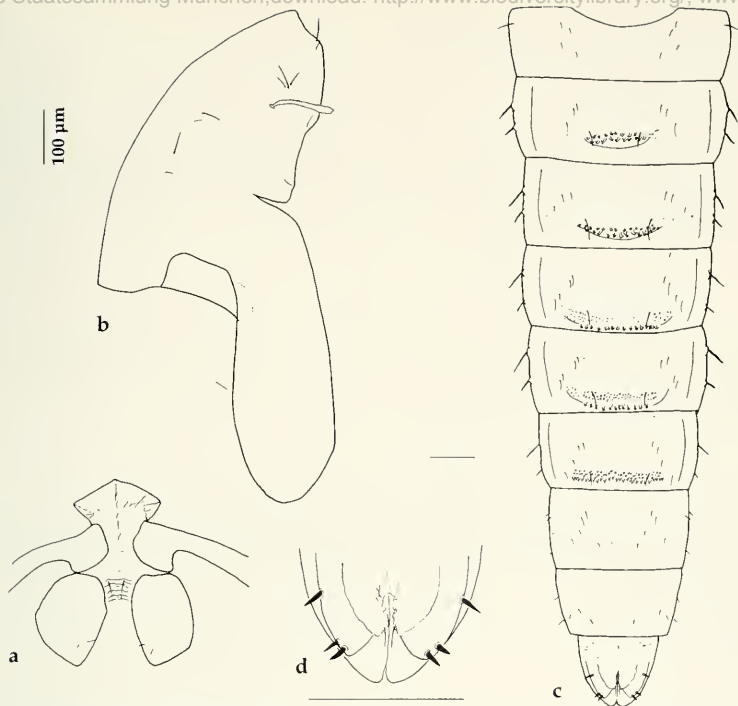


Fig. 5. *Oliveiriella almeidai*. a. Frontal apotome. b. Thorax. c. Tergites. d. Distal part of the anal lobus.

Tergites (Fig. 5c). I: bare. II: with posterior-median mound bearing 16-34 hooklets ($m=21$, $n=10$) in two rows; small shagreen patches laterally contiguous with the hooklet rows. III: about 26 hooklets (23-28, $n=10$) in two rows also on a mound, shagreen as on II. IV: about 15 hooklets (13-18, $n=10$) in a single row; 2 patches of shagreen, the first just anterior to the hooklets, and the second in the middle of the tergite. V: about 14 hooklets (11-18, $n=10$) in a single row, shagreen same as in IV. VI: hooklets absent, but up to 3 rows of spines present, the posterior one with stronger spines. VII: with anterior shagreen band and a small patch of shagreen postero-medially. VIII: two more or less separated, anterolateral patches of very fine shagreen. IX: 2 patches on the anterior margin laterally and another on the anterior margin medially. V and VI occasionally with shagreen on the paratergites.

Sternites. I: bare. II: fine shagreen on the anterior half and a small patch of small spines in the center. III: fine shagreen along the lateral muscle marks slightly expanded anteriorly and connected to a shagreen band along the posterior margin. IV: shagreen covering tergite except anterior margin. V: same as in IV. VI: shagreen same as in IV but more concentrated toward posterior margin. Conjunctives from VI/VII with lateral patches of fine spines (Pedes spurii A?). VII and VIII: Patches of fine shagreen antero-laterally, on VII patches connected by very sparse shagreen.

Anal lobe (Fig. 5d). 3 very short and thick anal macrosetae, 2 near the apex and the third located in the proximal $\frac{1}{2}$. Median anal lobe margins with 1 small seta each, which may be difficult to see. Fringe absent.

Male genital sac overreaching the anal lobe, apically rounded.

Ecology and distribution. All pupal specimens collected from clear-water, lotic habitats of montane or submontane streams in southern to southeastern Brazil, and from the eastern slopes of the Andes in Ecuador and Peru.

Types. Holotype: ♂, allotype: ♀, Itatiaia, Estado do Rio de Janeiro, Brazil, 21.X.1940, leg. Barreto, at Coleção Entomológica do Instituto Oswaldo Cruz (FIOCRUZ).

New material (deposited in the Zoologische Staatssammlung, München, Germany and Coleção Entomológica do Instituto Oswaldo Cruz, Rio de Janeiro, RJ, Brazil): **Imagines:** 5♂♂, Arroio dos Carros, Taquara, RS, Brazil, XII/1994, leg. Fittkau & Wiedenbrug; 1♂, Rio Mazomba, Itaguaí, RJ, Brazil VIII/1989, leg. B. Stumpp; 1♀, Rio Cascatinha, Caledonia (Represa), Nova Friburgo, RJ, Brazil, VIII/1995, leg. E. J. Fittkau; 1♂, Upper Ucayali, Peru, VI/1979, leg. E. J. Fittkau; 1♂, Rio Aguarico near San Pedro, Pr. Napo, Ecuador, VI/1977, leg. W. Schacht. **Pupal exuviae:** 36, Arroio dos Carros, Taquara, RS, Brazil, XII/1994, leg. Fittkau & Wiedenbrug; 7, Rio Mazomba, Itaguaí, RJ, Brazil VIII/1989, leg. B. Stumpp; 1, Rio Azul near mouth of Rio Tallumayo, Peru, V/1963, leg. E. J. Fittkau; 1, Rio Chanchamayo, Mercedes, Peru V/1963, leg. Fittkau.

Resumo

O novo gênero *Oliveiriella*, da América do Sul, foi estabelecido para a espécie *Spaniotoma (Stictocladius) almeidai* Oliveira, 1946. São apresentadas diagnoses e descrições para o macho adulto e pupa. A espécie tipo é *Oliveiriella almeidai* (Oliveira).

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