SPIXIANA	26	2	159–164	München, 01. Juli 2003	ISSN 0341-8391

Guassutanypus oliveirai, a new genus and species of Macropelopiini from Brazil

(Insecta, Diptera, Chironomidae)

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Oliveira Roque de, F. & S. Trivinho-Strixino (2003): *Guassutanypus oliveirai*, a new genus and species of Macropelopiini from Brazil. (Insecta, Diptera, Chironomidae). – Spixiana **26/2**: 159-164

The male, female, pupa and larva of the new genus and species *Guassutanypus oliveirai* of Tanypodinae-Macropelopiini from the Neotropical region are described and figured.

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Introduction

The fauna of chironomids in tropical South America is very rich in species, but scarcely known (Spies & Reiss 1996). The present work is integrated in a wide research program on Chironomidae distribution in São Paulo State in Brazil (Biota-FAPESP). The larvae, reared in the laboratory to obtain pupae and adult stages, were collected in depositional pool areas of the main channel and in exfiltration areas of the riparian zone of Fazzari Stream, at Federal University of São Carlos (UFSCar), São Carlos-SP, Brazil. Such significant differences in morphology exist, in all life stages, that the specimens cannot readily be associated with any currently recognized genus of the tribe (Fittkau & Roback 1983, Fittkau & Murray 1986, Murray & Fittkau 1989). A description of the pupal exuviae of this genus was given as Tanypodinae Genus 3 in Schneidberg (1985). A complete generic diagnosis for the larva, pupa, female and male adult of *Guassutanypus*, gen. nov. and descriptions of *Guassutanypus oliveirai*, spec. nov. are given in this paper.

The terminology and abbreviations used in the descriptions follow Sæther (1980) and Kowalyk (1985). All measurements are given as median and ranges. L and W are used to indicate length and width.

Guassutanypus, gen. nov.

Type species: *Guassutanypus oliveirai*, spec. nov., by present designation.

Etymology. From the Brazilian indigenous Tupi language (Guassu = large, important), refers to the large size of the imagoes.

Description

Adult male.

Large species; wing length about 3 mm.

Head. Antenna with 13 flagellomeres, fully plumose. Terminal flagellomere with preapical seta (Fig. 2). AR about 2.0. Eye with broad dorsomedial extension. Temporals biserial; orbitals uniserial.

Thorax. Antepronotals well developed; lobes widely separated above. Scutal tubercle and medial scar absent. Posterior anepisternals and postnotals present; preepisternals absent.

Wing. Membrane with dense covering of macrotrichia. Veins yellow brownish, MCu, RM and FCu dark brownish (Fig. 1); C produced beyond R_{4+5}, overreaching section of C shorter than RM length; R_{2+3} distinct; FCu slightly before MCu. Anal lobe well developed.

Legs. Tibial spurs slender, somewhat flattened;

tibial spurs of hind legs with unequal serration; tibial comb present only on hind leg (Figs 4-6); pseudospurs present on tarsomeres 1-2 of fore leg, 1-3 on mid and hind legs. Claws as in fig. 7. Pulvilli small, ½ claw length.

Abdomen. Pale brown; distal-median fields of tergites II-VII with tufts of dark brown, long setae (Fig. 1).

Hypopygium. Tergite IX with setae. Anal point broad sligthly conical. Gonocoxite more or less cylindrical, 2× as long as broad, tapering apically; dorsomedian surface with numerous short setae. Volsellae absent. Gonostylus robust, about 0.5× as long as gonocoxite, broad basally and tapering apically. Phallapodeme distinct (Fig. 3).

Adult female

(similar to male except as follows).

Wing length about 3 mm.

Head. Antenna with 14 flagellomeres; AR about 0.31; eye with dorsomedial extension; temporals biserial; orbitals uniserial.

Genitalia. Gp VIII rounded at caudomesal angle; tergite IX and X setae not discernible (examined specimen damaged); rudiments of GC IX not apparent as caudolateral projections in dorsal view; coxosternapodeme very slighty curved. Postgenital plate triangular; labia apparently with microtrichia. Seminal capsules more than ½ as long as notum, with neck placed asymmetrically.

Pupa (exuviae).

Large, abdomen nearly 6 mm long.

Cephalothorax. Interantennal area of frontal apotome (Fig. 11) with structure blister-like; thoracic horn long, narrow, approximately 3× as long as broad and arising from a distinct tubercle; external membrane with pointed spines; respiratory atrium very sinuate, not filling the entire horn lumen, connected directly to the plastron plate (Fig. 10). Plastron plate well developed, oval and plain, reaching 0.25× horn length. Basal lobe and thoracic comb absent. Thoracic setae Dc_1, Dc_2 and Dc_3 simple; Dc_1 2× as long as Dc_2; Dc_3 3× as long as Dc_2.

Abdomen (Fig. 8). Broad, elongate scar present on tergite I; abdominal shagreen spines simple, sharp and scattered on anterior segments, dense on posterior segments.

Anal lobe (Fig. 9) asymmetrical, a little less than 2.5× as long as broad; outer and inner borders fringed with seta-like spinules; anal macrosetae originate in basal ½; without adhesive sheaths, as long as LS setae of segment VIII. A small elevation in middle of medial anal lobe border. Genital sacs about half as long as anal lobes.

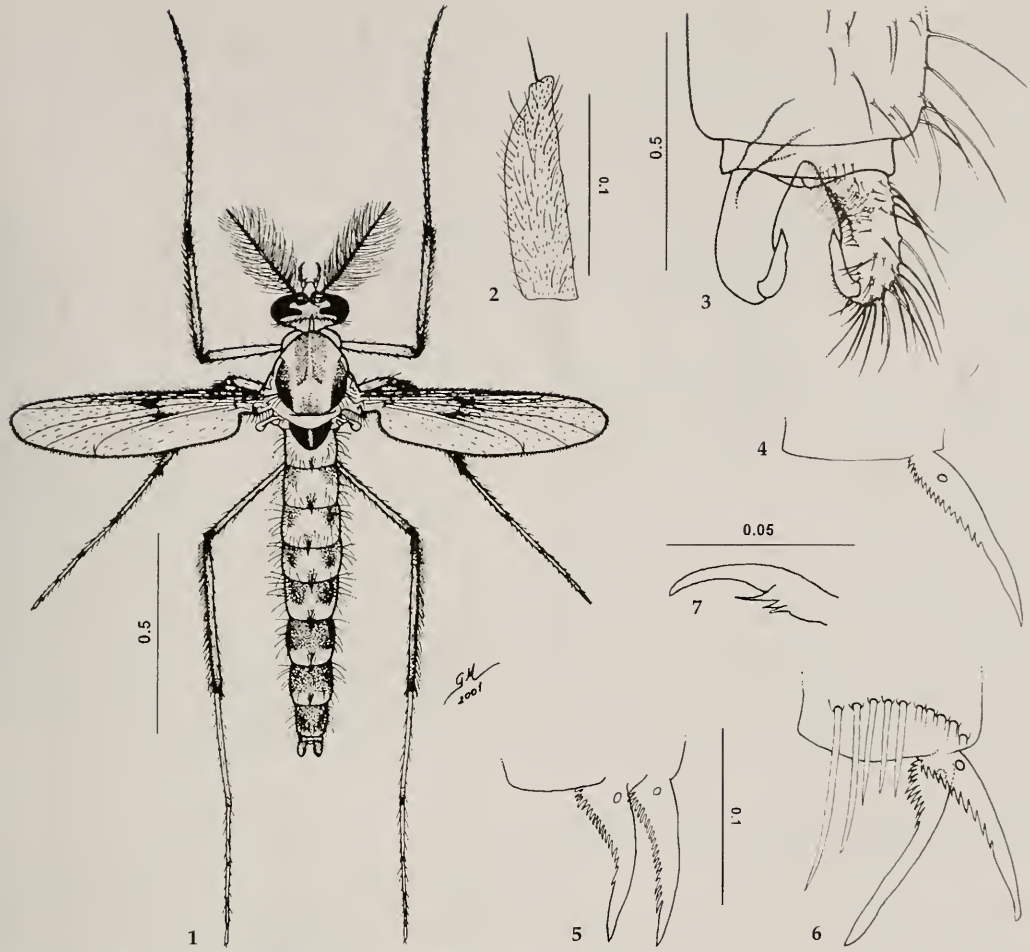
Fourth instar larva

Large, about 10 mm long. Head capsule rounded-oval; cephalic index about 1; median suture not distinct; cephalic setae as in Fig. 16. Antenna (Fig. 15) about ⅓ of head length; antennal ratio about 5; ring organ ¾ from antennal base; antennal blade about as long as flagellum; accessory blade ½ of length of antennal blade; style extending somewhat beyond apex of segment 3. Mandible (Fig. 13) slender, moderately curved; apical tooth brownish, 2× as long as basal width and ¼ length of mandible; basal tooth moderately large, with apically directed, cristate inner point; seta subdentalis not discernible; ventrolateral setae simple. Basal segment of maxillary palp about 3× as long as wide, with ring organ between proximal and middle ⅓. Dorsomentum (Fig. 14) with 9 teeth on each side and one small, rounded lobe extending almost to midline, outermost tooth very small, innermost tooth fused to the dorsomental apex. M appendage with labial vesicles broadly sagittate; pseudoradula band uniformly granulose extending to base of M appendage, sligthly larger in distal ⅓. Ligula (Fig. 12) with 5 teeth; tooth row deeply concave; outer tooth 2× as long as middle-tooth, point of inner tooth distally out-curved. Paraligula unequally bifid, more than ½ length of the ligula. Pecten hypopharyngis with up to 20 similarly shaped teeth, apical tooth not conspicuously larger than teeth of inner ½.

Body with sparse fringe of swim-setae. Procercus large, with 13 anal setae. Posterior parapod with 14 claws. 4 anal tubules.

Differential diagnosis. Adult males of *Guassutanypus* may be distinguished from other Macropelopiini except *Fittkauimyia* and *Brundiniella* by the absence of preepisternal setae, from *Fittkauimyia* by the absence of a scutal tubercle, and from *Brundiniella* by the presence of T IX setae. The pupa of *Guassutanypus* differs from all other genera of the tribe by the unique thoracic horn, and from the generally similar *Alotanypus* by the absence of strap-like pigmented bands from tergites III-VII. The larva *Guassutanypus* closely resembles *Alotanypus* in the common possession of simple ventrolateral setae on the mandible, but differing of this by presence of the inner lobe of dorsomentum and by the ring organ situated between proximal and middle ⅓ of basal segment of maxillary palp. When comparing larval dorsomentum structure using Trivinho-Strixino & Strixino (1995), *Alotanypus* differs from *Guassutanypus* in the number of teeth and in the feature of inner tooth of dorsomental plate.

The pupa of *Guassutanypus* agrees all characteristics with Tanypodinae Genus 3 described by Schneidberg (1985). According to that author, the very sin-



Figs 1-7. *Guassutanypus oliveirai*, spec. nov., ♂ imago. **1.** General dorsal view. **2.** Apex of antenna. **3.** Hypopygium. **4.** Fore tibial spur. **5.** Mid tibial spur. **6.** Hind tibial spur. **7.** Tarsal claw.

uate respiratory atrium not filling the entire horn lumen and connected directly to the plastron plate is unique in Macropelopiini. The presence of the small elevation in middle of anal lobe border is considerate by the same author as a probable sensitive pore. Several characters were considered plesiomorphic, for example the short and rounded genital sacs and the chaetotaxy of the tergites, whereas the reduced form of the anal lobe, was regarded as apomorphic.

Guassutanypus oliveirai, spec. nov.
Figs 1-16

Types. Holotype: ♂ imago with pupal and larval exuviae, slide-mounted in Euparal, Brazil, São Paulo, São Carlos, Fazzari Stream (21°59'S, 47°54'W), 24/02/2000. F. O. Roque. – Paratypes: 3♂ imagoes, 1♀ imago with associated pupal and larval exuviae, as holotype except 12/02/1999; 2 larvae, slide-mounted in Hoyer's, as holotype except, 29/03/2001, L. S. Correia. The holotype and most paratypes are deposited in the Laboratory of Aquatic Entomology collection of Universidade Federal de São Carlos (UFSCar), São Paulo, Brazil; 1♂ paratype in Zoological Museum of São Paulo State, São Paulo, Brazil; 1♂ paratype in Zoologische Staatssammlung, Munich, Germany.

Etymology. Named in honour of Dr. Sebastião de Oliveira, Curator of the Coleção Entomológica do Instituto Oswaldo Cruz, Departamento de Entomologia-FIOCRUZ, who has contributed much to the knowledge of Neotropical Chironomidae and is motivating a new generation of chironomidologists in Brasil.

Description
(generic characters mostly not repeated)

Male adult (n=4) (Figs 1-7)

Color (in alcohol). Head brownish. Antennal pedicel brown, flagellomeres and plume brownish. Thorax straw-colored with brown mesonotal stripes, medial vittae brownish, the lateral dark brown; scutellum straw; postnotum dark brown; sternum brownish. Legs brownish, femora darkened apically; tibiae darkened apically and basally; tarsomeres darkened apically. Abdomen, light brown with brownish ornamentation and dark tufts of setae on tergites.

Head. Antenna L=1.68 mm (1.50-1.80), pedicel 0.54 mm (0.51-0.57), flagellum=1.13 mm (0.99-1.23). AR=2.08 (1.94-2.16). Pedicel with 6-9 lateral and 4 anteroventral setae; lengths of palpomeres 2-5=93 µm (88-96), 184 µm (172-196), 214 µm (196-232), 366 µm (356-380).

Thoracic setal count: Antepronotals 10-13; acrostichals 60; posterior anepisternals 1-2; dorsocentrals 22-25, more or less uniserial; prealars 9-12; scutellars 22-26; postnotals 4-6.

Wing. L=3.17 mm (2.92-3.32), W=0.88 mm (0.84-0.92), VR=0.849 (0.827-0.875).

Legs. Segment lengths in µm as in Tab. 1.

Abdomen. L=6.74 mm (6.60-6.96). Distal fields of tergites II-VII with tufts of dark brown long setae (Fig. 1).

Hypopygium (Fig. 3). Gonocoxite length 260 µm (240-270), gonostylus 140 µm (135-150). Tergite IX with 14-16 irregularly distributed setae.

Female adult (n=1)

Color as male except the brownish abdominal ornamentation.

Head. Antennal flagellomeres 1-14=72, 48, 48, 52, 52, 52, 60, 56, 56, 56, 56, 60, 64, 164 µm. Palpomeres 2-5=88, 160, 196, 352 µm.

Thorax. Thoracic setal count: Antepronotals 8; acrostichals 60, irregularly biserial between the vittae; dorsocentrals 34; prealars 19, multiserial; posterior anepisternals 3; scutellars 28; postnotals 6.

Wing. L=2.56 mm, W=0.92 mm. VR=0.87.

Legs. Segment lengths in mm as in Table 1.

Pupal exuviae (n=2) (Figs 8-11)

Color. Brownish; thorax with ornamentation; conjunctives pale. Body length of female exuviae =7.48 mm; thoracic horn L=0.48 mm, W=0.24 mm. Body length of male exuviae = 7.92 mm; thoracic horn L=0.68 mm, W=0.2 mm. Abdominal chaetotaxy as in Tab. 2.

Larvae (n=4) (Figs 12-16)

Head capsule L=1.29 mm (1.22-1.44); W=1.19 mm (1.16-1.20). Antenna L=406 µm (372-448); antennal ratio 7.4 (6.7-8.1); segment 1 L=341 µm (324-356), W=46 µm (44-48); ring organ at 249 µm (240-260) from base; segments 2-4: 33 µm (32-36), 9 µm (8-12), 4 µm; antennal blade L=52 µm (48-56); accessory blade L=16 µm. Mandible L=244 µm (240-252). Basal segment of maxillary palp 78 µm (76-80); ring organ at 29 µm (28-32) from base. Dorsomentum W=200 µm (192-208). Ligula L=129 µm (120-144), W=89 µm (88-92). Paraligula L=68 µm (64-72).

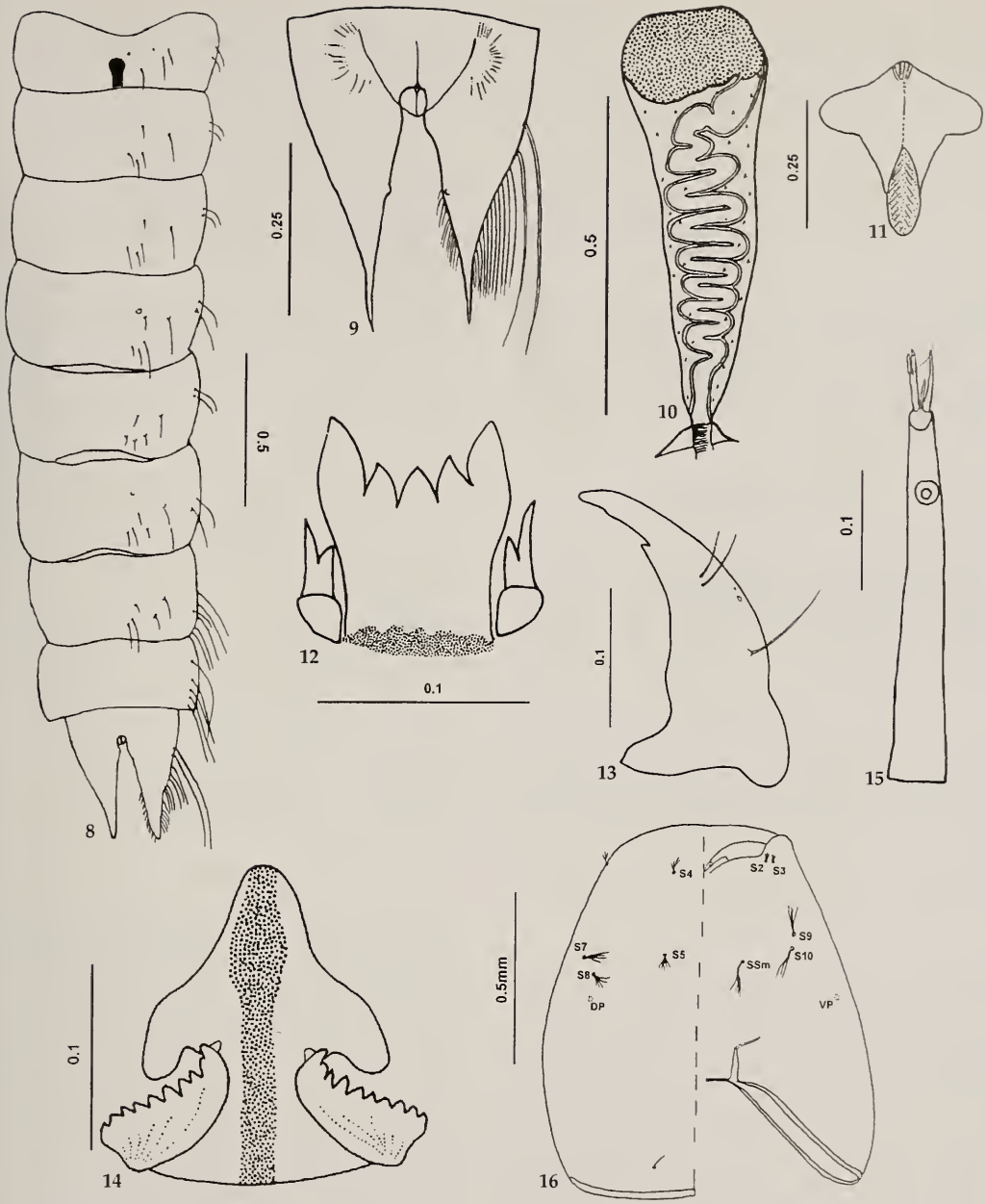
Procercus L=398 µm (360-400).

Ecological Notes

Fazzari Stream is a first-order stream, located in Cerrado area, its main channel is perennial and shows low water flow (2.8-15 $cm \cdot s^{-1}$), low depth (<30 cm), high dissolved oxygen levels (>6 $mg \cdot l^{-1}$), and great amounts of detritus (leaves, fruits, stems and roots). The pools of the exfiltration areas show widely fluctuating hydrology, great amounts of detritus, low dissolved oxygen levels (1.19-1.17 $mg \cdot l^{-1}$),

Tab. 1. Leg segments of *Guassutanypus oliveirai*, spec. nov. A. ♂ imago. B. ♀ imago.

♂ imago	fe	ti	ta_1	ta_2	ta_3	ta_4	ta_5	LR
PI	1640 (1600-1680)	2067 (2040-2080)	1440 (1400-1480)	813 (760-880)	547 (480-600)	347 (320-360)	213 (200-240)	0.70 (0.67-0.71)
PII	1800 (1640-1920)	2120 (1880-2320)	1227 (1120-1360)	680 (600-720)	427 (440-400)	267 (240-280)	160	0.58 (0.55-0,60)
PIII	1853 (1640-2000)	2200 (1800-2440)	1480 (1280-1640)	760 (560-920)	547 (480-600)	347 (320-360)	200	0.67 (0.64-0.71)
♀ imago	**fe**	**ti**	**ta_1**	**ta_2**	**ta_3**	**ta_4**	**ta_5**	**LR**
PI	1440	1800	1200	560	400	240	160	0.67
PII	1640	1880	1080	520	360	240	120	0.57
PIII	1680	2000	1400	640	440	280	160	0.70



Figs 8-16. *Guassutanypus oliveirai*, spec. nov. **8-11.** Pupa. **8.** Abdomen, dorsal. **9.** Anal lobe and male genital sacs. **10.** Thoracic horn. **11.** Interantennal area. Larva. **12-16.** Larva. **12.** Ligula. **13.** Mandible; **14.** Dorsomentum and M appendage. **15.** Antenna. **16.** Head capsule; left: dorsal, right: ventral; positions of cephalic setae and sensory pores.

low depth (< 15 cm), acidic water (pH 4.21-4.35) and low water flow (< 0.5 cm·s^{-1}). More information about Fazzari Stream will be given in Roque & Trivinho-Strixino (in press).

The pupae described by Schneidberg (1985) were collected by E. J. Fittkau during a research program supported by the Instituto Nacional de Pesquisas do Amazonas and the Max-Planck-Institut für Lim-

Tab. 2. Pupal abdominal chaetotaxy of *Guassutanypus oliveirai*, spec. nov.

	I	II	III	IV	V	VI	VII	VIII
O		2	2	2	2	2	2	2
D	4	5	5	5	5	5	5	
V	2		1	2	2	2	2	
L	2	2	2	2	2	2	1	
LS							5	5

nologie in the igarapés of Barro Branco and in the Paru de Oeste River, Amazonas, Brazil. The presence of *Guassutanypus* in southern (São Carlos) and north Brazil suggests that the genus has a wide distribution in Brazil.

Acknowledgments

We thank Gláucia Marconato for drawing figure 1. This work was partially supported of by the State of São Paulo Foundation (FAPESP) within the BIOTA/ FAPESP – The Biodiversity Virtual Institute Program (www.biotasp.org.br).

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