

# *Brumptomyia angelae*, a new species of Phlebotominae (Diptera, Psychodidae) of the Atlantic forest of the state of Paraná, Brazil

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*The male of Brumptomyia angelae, sp. nov., a new species of Phlebotominae (Diptera, Psychodidae) of the Atlantic forest of the state of Paraná, Brazil, is described and illustrated. This new taxon is closely related to Brumptomyia ortizi Martins, Silva & Falcão 1971, Brumptomyia nitzulescui (Costa Lima, 1932), and Brumptomyia troglodytes (Lutz, 1922). The male genitalia of these three latter species have also been drawn.*

Key words: *Brumptomyia angelae*, sp. nov. - Brumptomyiina - Phlebotominae - Psychodidae - taxonomy - Atlantic forest

During the entomological surveillance of the Visceral Leishmaniasis Programme in the state of Paraná, Brazil, one male of a new phlebotomine species of *Brumptomyia* França & Parrot, 1921 was captured. This capture took place in November 2005 in the Ilha Rasa locality, municipality of Adrianópolis, 209 m above sea level, at 24° 39' 06" S and 49° 02' 06" W, in a tunnel, situated in secondary Atlantic forest.

In accordance with the classification of Galati (2003a) the genus *Brumptomyia* together with *Oligodontomyia* Galati, 1995 compose the subtribe Brumptomyiina of the Phlebotomini Rondani, 1840 tribe.

Both sexes of Brumptomyiina may be characterized by the more basal position of the external ascoid than the internal one on the 3rd antennomere (AIII); 5th palpomere longer than 3rd, presence of ventro-cervical sensillae, and the setae on the anterior margin of the katepisternum. Male: gonostyle with five spines, the external ones being implanted in a single tubercle. Female: cibarium presenting the anterior teeth in horizontal position in relation to the lumen; spermathecae segmented with very long individual sperm ducts, four or more times the length of the spermathecae. *Brumptomyia* presenting ascoids with posterior prolongation and absence of post-alar seta; males with a row of stout, straight setae in the apical region of the inner side of the gonocoxite and the female cibaria with horizontal anterior teeth in longitudinal rows and the sclerotized area located posterior to the posterior teeth, all of which distinguish it from *Oligodontomyia* (Galati 2003b).

The genus *Oligodontomyia* is composed of three species restricted to the Andean region (Young & Duncan 1994, Leger & Ferte 1996, Le Pont et al. 1997), while *Brumptomyia* is widespread in the Americas, from

Mexico to Argentina (Martins et al. 1978), with 24 species described (Galati 2003a), 14 of them occurring in Brazilian states with Atlantic forest domains (Aguilar & Medeiros 2003, Galati 2003a).

## MATERIALS AND METHODS

The capture was undertaken with a Falcão trap (Falcão 1981). The specimen was clarified in accordance with the method described by Forattini (1973) and mounted on microscope slides in NC medium (Cerqueira 1943). It was measured with a Zeiss® eye-piece calibrated according to a standard Zeiss® scale and drawn with an Olympus® clear chamber. All measurements are given in micrometers. The terminology of the characters follows Galati (2003b). The holotype is deposited in the entomological collection of the Faculdade de Saúde Pública of the Universidade de São Paulo (FSP-USP).

The terminalia of the three species considered closest to this new taxon have been drawn for the purpose of comparison. All the specimens examined were captured in the state of Paraná: *Br. ortizi*: Tibagi municipality, Canyon Quatelá (rocks) 16.XII.2004. *Br. nitzulescui*: Wenceslau Braz municipality, Dr Eno's small farm (forest) 22.II.2006, both species were captured with Falcão traps by the Maringá, Paraná, medical entomology team. *Br. troglodytes*: Ponta Grossa municipality, Vila Velha park 31.I.2006 (18:40 h), captured with a Shannon trap by Rosa-Cruz MF.

*Brumptomyia angelae* sp. nov.  
(Figs 1-12)

*Holotype* (male) - Total body length 4250. Insect predominantly brown.

*Head* (Fig. 1) - Length 425; width 435. Eyes: length 275; width 168 (frontal view). Interocular distance 110. Interocular suture united to the antennal suture. Clypeus length 125. Antennomere lengths: AIII 388, AIV 187, AV 178, AXV 85, AXVI 63. Antennal formula AIII-AXV 2, AXVI 0 (Figs 2-8); ascoids with short posterior spur, the anterior prolongation on AIV going beyond the middle of the segment (Fig. 3); AIII with two papillae, pre-ascoidal and pre-apical position (Fig. 2); the papilla

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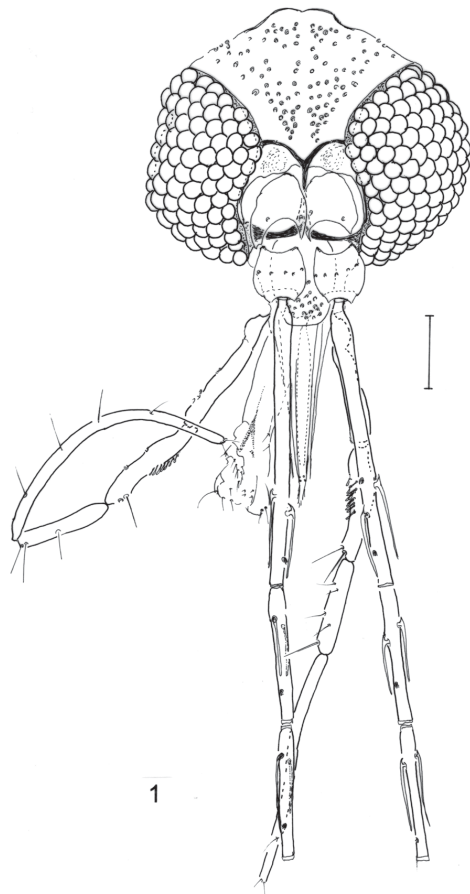


Fig. 1: *Brumptomyia angelae* sp. nov. (holotype male). Head, frontal view. Bar = 100  $\mu$ m.

present on AV (Fig. 4) and AXIII (Fig. 5). Length of the palpomeres: I 38, II 135, III 150, IV 135, V 365. Palpal formula: 1.(2.4).3.5. Newstead's spines in the median region of palpomere III (Fig. 9) and absent from palpomere II. Labrum-epipharynx 242 long. Labial sutures united.

*Cervix* - Ventrocervical sensillae present.

*Thorax* - Mesonotum length 780. Pleura with 5 proepimeral setae and 12 upper anepisternal setae. Setae present on the anterior katapisternum margin. Suture between katapisternum and metepisternum incomplete. Wing (Fig. 10): length 2480, width 830. Length of vein sections: *alpha* 700, *beta* 250, *gamma* 400, *delta* 350, *pi* 40,  $R_5$  1520. Length of femora, tibiae, basitarsi, and tarsi II+III+IV+V: foreleg 900, 1090, 660, 850; midleg 920, 1330, 690, 870; hindleg 1040, 1550, 870, 940.

*Abdomen* - 1900 long. Tergites without tergal papillae. Terminalia (Fig. 12): gonostyle 462 long, with 5 major spines; the spines having the following disposition: two apical, the upper and lower external being implanted in the apex of a single tubercle situated in the median region of the structure, the internal one being implanted between the apical and the tubercle, but closer

to this latter. Gonocoxite (700 long  $\times$  88 wide) has a basal tuft of many setae, the proximal ones of which are thicker and shorter than the distal. A row of eight sclerotized stout, straight setae (being the most apical thinner than the others) present in the apical region, the more basal ones being beyond and separated from the distal part of the basal tuft. Paramere simple with the apical part curving towards the gonocoxite; dorsal margin length 275 with setae implanted in part of its apical third, with a glabre area between this set of setae and the apical one; the ventral margin length 410 having a clear pre-apical elbow where a deviation towards the gonocoxite occurs; presence of a set of setae implanted between the beginning of the 3rd and that of the 4th apical areas. Aedeagus conical, but with the apex bifid, dorsal margin length 145, and ventral margin length 267. Lateral lobe length 650; width 37. Pump: 205 long; piston length 163 and chamber length 52. Ejaculatory filaments 1454 long, 7.1 times the length of the genital pump. Tip of genital filaments simple (Fig. 11). Cercus 270 long.

*Type-material* - Holotype male: BRAZIL, Paraná, Adrianópolis, Ilha Rasa (tunnel); captured with Falcão trap (18 - 06 h) by Santos DR, 29/20.11.2005 (FSP-USP).

*Etymology* - With the name *Brumptomyia angelae* we wish to honor Mrs Angela Cristovalina Pernier dos Santos, DR Santos's wife, for her understanding of and respect for entomological study.

#### TAXONOMIC DISCUSSION

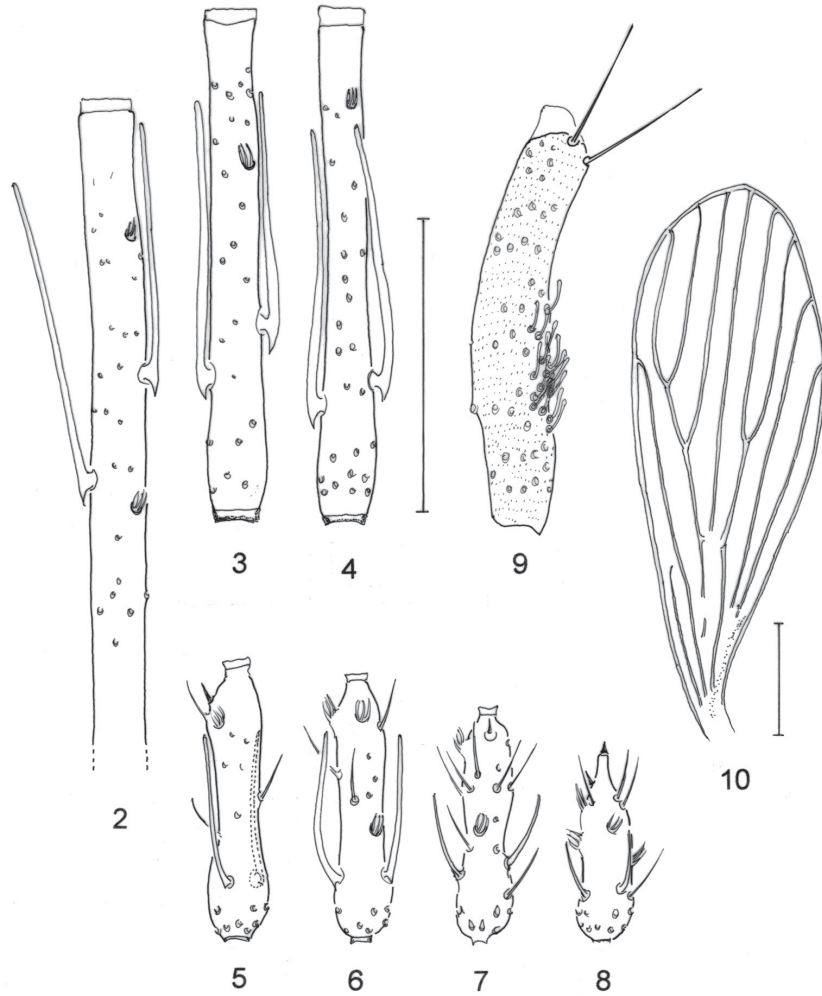
As occurs in some other species of *Brumptomyia*, the new taxon, *Br. angelae* sp. nov., has a gonostyle with two apical spines, the internal one implanted between the apical and the tubercle, the gonocoxite having stout and sclerotized setae in the apical region and the basal tuft of setae arranged in a longitudinal disposition and is thus more closely related to *Br. ortizi* Martins Silva & Falcão, 1971, *Br. nitzulescui* (Costa Lima, 1932), and *Br. troglodytes* (Lutz, 1922).

The new species differs from *Br. ortizi* in that in this latter species, the most proximal of the apical setae of the gonocoxite is located practically at the same level as the setae of the apical area of the basal tuft; the apex of the paramere clearly goes beyond the middle of the lateral lobe, and also because on the gonostyle the internal spine is implanted at the same level of the tubercle having the two external spines (Fig. 13).

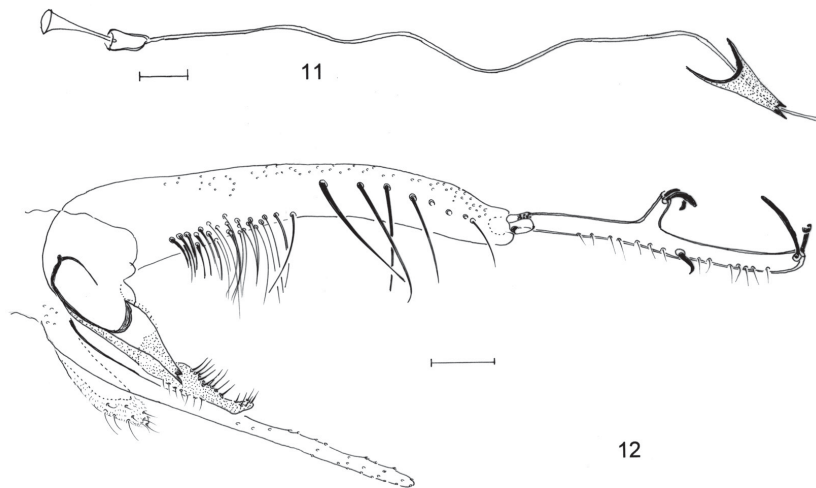
It is possible to differentiate *Br. angelae* sp. nov. from *Br. nitzulescui* because in this latter, the stoutest setae of the basal tuft of the gonocoxite are in a more apical position and also because of the aspect of its paramere without the elbow in the pre-apical region of the ventral margin and the aedeagus is not bifid (Fig. 14).

*Br. angelae* sp. nov. can be distinguished from *Br. troglodytes* because this latter species presents parameres which narrow abruptly in the pre-apical region at the expense of the ventral margin, in such a way as to form a digitiform apical process (Fig. 15).

With the description of this new species, *Brumptomyia* is now seen to consist of 25 species, 15 of them in Atlantic domains, 11 of which in the state of Paraná:



Figs 2-10: *Brumptomyia angelae* sp. nov. (holotype male). 2: antennomere III; 3: antennomere IV; 4: antennomere V; 5: antennomere XIII; 6: antennomere XIV; 7: antennomere XV; 8: antennomere XVI; 9: palpomere III. Bar = 100  $\mu$ m. 10: wing. Bar = 500  $\mu$ m.



Figs 11-12: *Brumptomyia angelae* sp. nov. (holotype male). 11: ejaculatory pump and ducts and aedeagus; 12: terminalia. Bar = 100  $\mu$ m.

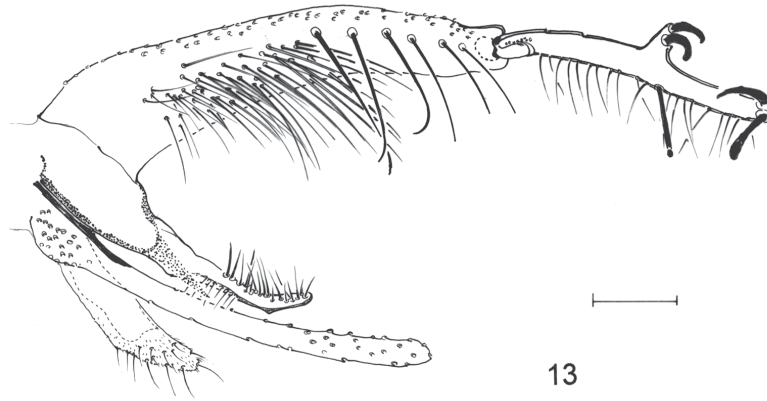
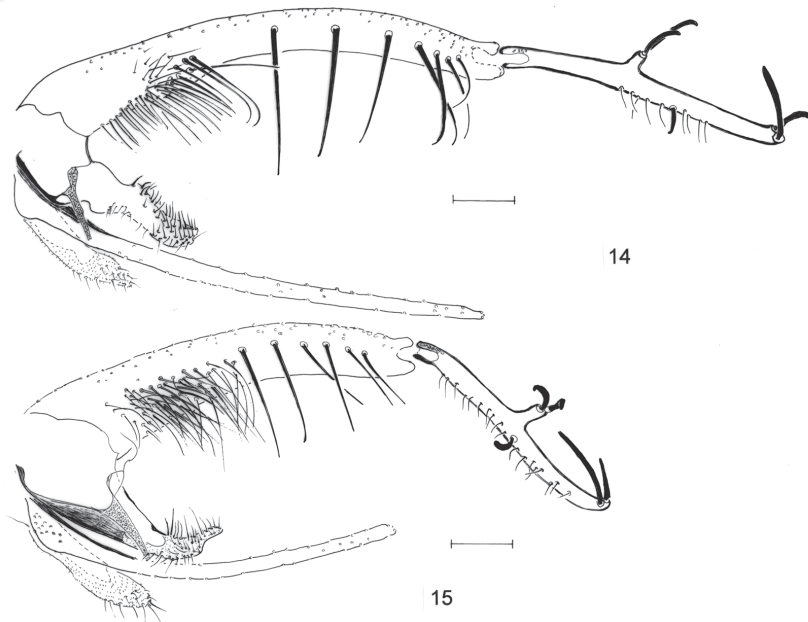


Fig. 13: *Brumptomyia ortizi* Martins, Silva & Falcão, 1971. Terminalia. Bar = 100  $\mu$ m.



Figs 14-15: 14: *Brumptomyia nitzulescui* (Costa Lima, 1932); 15: *Brumptomyia troglodytes* (Lutz, 1922). Terminalias. Bar = 100  $\mu$ m.

*Br. angelae* sp. nov., *Br. avellari* (Costa Lima, 1932), *Br. brumpti* (Larrousse, 1920), *Br. cardosoi* (Barretto & Coutinho, 1941) *Br. cunhai* (Mangabeira, 1942), *Br. galindo* (Fairchild & Hertig, 1947), *Br. guimaraesi* (Coutinho & Barretto, 1941), *Br. mangabeirai* (Barretto & Coutinho, 1941), *Br. nitzulescui*, *Br. ortiz*, and *Br. troglodytes*.

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