

Micropygomyia (Sauromyia) petari, a new species of Phlebotominae (Diptera, Psychodidae) from Vale do Ribeira, São Paulo State, Brazil

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ABSTRACT. *Micropygomyia (Sauromyia) petari* sp. nov. (Diptera, Psychodidae, Phlebotominae) from speleological province of the Vale do Ribeira, São Paulo State, Brazil, is described and illustrated. This new taxon belongs to *oswaldoi* series.

KEYWORDS. *Micropygomyia (Sauromyia) petari* sp. nov.; Phlebotominae; Psychodidae; taxonomy; Vale do Ribeira.

INTRODUCTION

The new phlebotomine species of *Micropygomyia* Barretto, 1962 was captured during ecological study that was carried out between January 2001 and December 2002, in an Atlantic forest reserve, 260 - 890 m above sea level, 24° 16' - 24° 32' S, 48° 25' - 48° 42' W, in caves and the surrounding forested areas, in the speleological province of the Vale do Ribeira situated at the Serra de Paranapiacaba, in the south of São Paulo State, Brazil.

This reserve is located in a transitional area between dense umbriferous submontane forest and mixed umbriferous submontane forest (VELOSO *et al.* 1991), with calcareous rock formation containing large caves.

BARRETO (1962) created the subgenus *Lutzomyia* (*Micropygomyia*) for the *cayennensis* species-group Fairchild, 1955. GALATI (1995) raised up *Micropygomyia* to genus level, within the subtribe Sargentomyiina, in which included the subgenera: the monospecific *M. (Silvamyia)* Galati 1995, *M. (Coquillettomyia)* Galati, 1995 and *M. (Sauromyia)* Artemiev, 1991. She divided this later into the *atroclavata* series Fairchild, 1955 and the *oswaldoi* series Barretto, 1962. This series when created by BARRETO (1962) was included in the subgenus *Lutzomyia (Helcocyrtomyia)* Barretto, 1962. MARTINS *et al.*

(1978) and DIAS *et al.* (1991) accepted these groupings proposed by BARRETO (1962) and THEODOR (1965), LEWIS *et al.* (1977) and YOUNG & DUNCAN (1994) adopted the *oswaldoi* species-group, also within the genus *Lutzomyia*.

Both sexes of *Micropygomyia* may be characterized as follows: 5th palpomere longer than 3rd; and the 2nd palpomere equivalent to or slightly shorter than the 4th; Newstead's spines grouped in the basal half of the 3rd palpomere, absence of papilla on the antennomere AV; ventrocervical sensillae present and setae on the anterior margin of katepisternum absent. Male: gonostyle with three, four or five major spines and absence of pre-apical seta; gonocoxite with or without tufts of setae; lateral lobes with round tip and thinner than gonocoxite; simple paramere; presence of tergal at least on some tergites. Female: hypopharynx with poorly delineated teeth; lacinia with external teeth disposed in a single and longitudinal or transversal row, cibarium with four or more posterior horizontal teeth and incomplete sclerotised arch; pharynx armed or not; common duct of spermathecae absent or short, individual ducts long and spermathecae with annulation or vesicular.

The subgenus *M. (Sauromyia)* is characterized by males having AIII shorter than the head length; style with four or five major spines implanted on the apical middle, gonocoxite with or without tufts of setae on its basal region. Females with

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four posterior (horizontal) teeth; the ascoids' tips extend beyond the middle of AIV. Males with gonostyle having five spines and females without strong sclerotised transversal striation on the pharynx are included in the *oswaldoi* series and gonostyle with four spines and pharynx with strong sclerotized transversal striation in the *atroclavata* series.

The captures have been undertaken with black and/or white modified Shannon traps (GALATI *et al.* 2001) and with automatic light traps (NATAL *et al.* 1991) modified (ALTM), in which the collection chamber is external and linked to the body of the trap by a cotton sleeve *ca.* 20 cm long, with a plastic casing.

After clearing by the method described by FORATTINI (1973) and mounting on microscope slides in NC medium (CERQUEIRA 1943), the specimens were measured with a Zeiss® eye-piece calibrated according to a standard Zeiss® scale and drawn with an Olympus® camera lucida. All measurements are given in micrometers. The measurements of paratypes are given in parentheses. The species nomenclature follows GALATI (1995). The type material is deposited in the entomological collection of the Faculdade de Saúde Pública da Universidade de São Paulo (FSP/USP).

Micropygomyia (Sauromyia) petari sp. nov.

(Figs. 1-16)

Holotype (male): total body length 2690 (2727 ± 167; n = 4). Predominantly pale brown, with pronotum and mesonotum dark brown and the basal part of katapisternum and katepimerum slightly light brown.

Head (Fig. 1): length 330 (326 ± 17; n = 4); width 280 (284 ± 14; n = 3). Eyes: length 153 (152 ± 5; n = 4); width 80 (91 ± 4; n = 4) (frontal view). Interocular distance 115 (113 ± 5; n = 3). Interocular suture separated from antennal suture. Clypeus length 118 (114 ± 11; n = 4). Antennomere lengths: AIII 270 (281 ± 12; n = 4), AIV 115 (121 ± 8; n = 4), AV 120 (123 ± 7; n = 4), AXV 56 (50; n = 1) and AXVI 55 (54; n = 1). Antennal formula AIII 2, AXIV-AXV 1, AXVI 0; ascoids simple and short, those on AIV reaching the middle of the segment (Fig. 4); papilla absent on AV (Fig. 5) and AXIII. Length of the palpomeres: I 30 (31 ± 5; n = 4), II 113 (119 ± 8; n = 3), III 155 (161 ± 8; n = 3), IV 120 (128 ± 6; n = 3), V 315 (335; n = 1). Palpal formula: 1.2.4.3.5. Newstead's spines (about 3) on median third of palpomere III (Fig. 3) and absent (0, 1, 2; n = 4) from palpomere II. Labroepipharynx 162 (159 ± 11; n = 4) long. Labial sutures united.

Cervix: ventrocervical sensillae present.

Thorax: mesonotum length 450 (466 ± 35; n = 4). Pleura with 4 (2-5 proepimeral setae; n = 4) and 12 (9-13; n = 4) upper anepisternal setae. Setae absent on the anterior katapisternum margin. Suture between katepimerum and metepisternum absent. Wing (Fig. 13): length 1680 (1740 ± 101; n = 4), width 420 (429 ± 37; n = 4). Length of vein sections: *alpha* 350 (368 ± 22; n = 4), *beta* 250 (278 ± 26; n = 4), *gamma* 300 (278 ± 43; n = 4), *delta* 90 (115 ± 21; n = 4), *pi* 140 (153 ± 12; n = 4), R₅ 1130 (1185 ± 75; n = 4). Length of femora, tibiae, basitarsi and tarsi II+III+IV+V: foreleg 690 (710 ± 85; n = 2), 820 (833 ± 95; n = 2),

490 (500 ± 71; n = 2), 610 (585 ± 92; n = 2); midleg 670 (650; n = 1), 950 (910; n = 1), 560 (530; n = 1), 650 (590; n = 1); hindleg 740 (700; n = 1), 1150 (1100; n = 1), 640 (610; n = 1), 680 (640; n = 1).

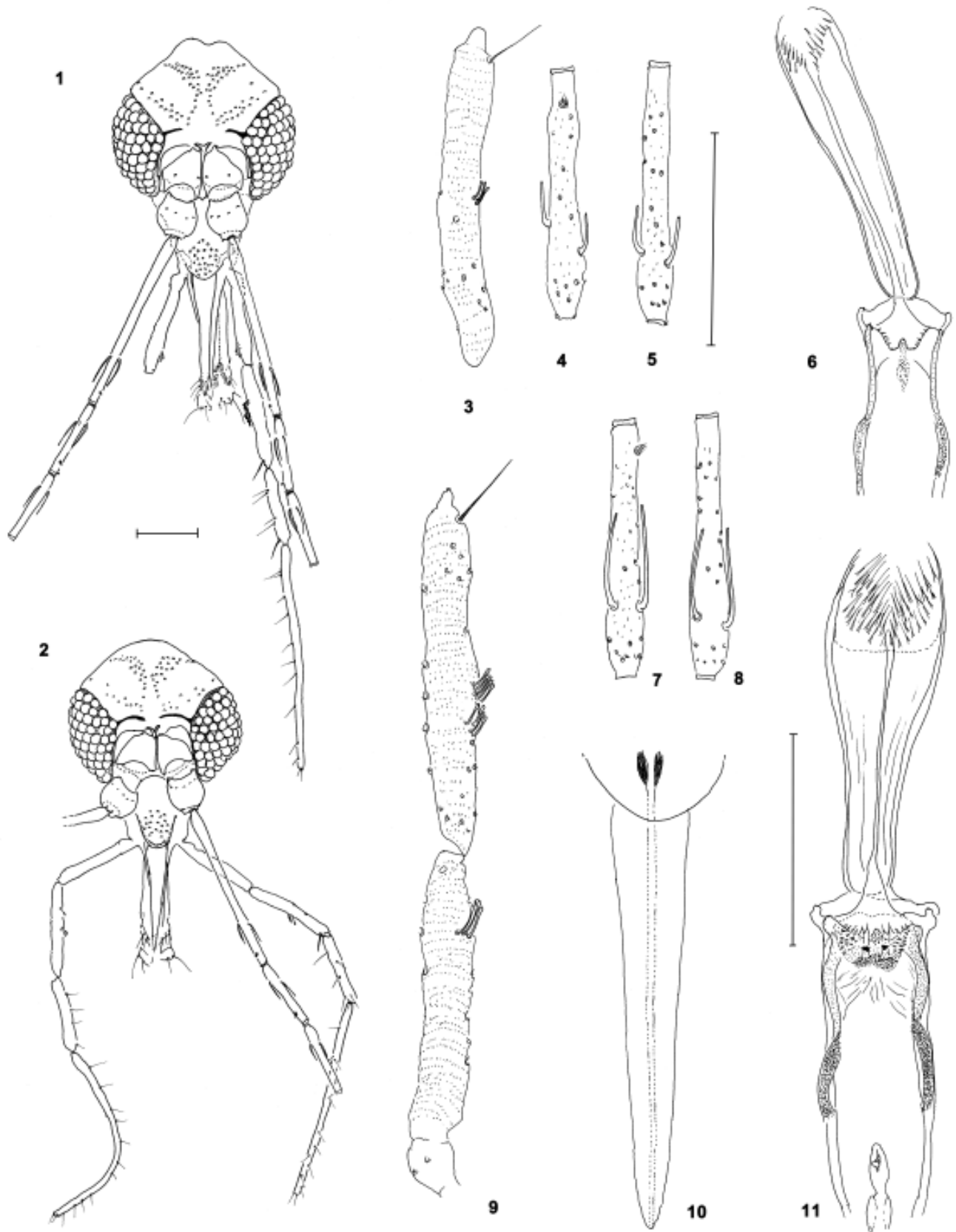
Abdomen 1520 (1527 ± 120; n = 4) long. Tergites III-VII with tergal papillae. Terminalia (Fig. 14): gonostyle 112 (119 ± 8; n = 4) long, with 5 major spines; the spines having the following disposition: two apical, the upper external on the 5th apical part of the structure, the lower external and the internal beyond the middle of the structure. Gonocoxite (218 long x 42 wide) (212 ± 11 x 46 ± 7; n = 4) with 2 (2-4; n = 4) basal isolated setae. Paramere simple and digitiform; dorsal margin length 162 (158 ± 7; n = 4) and the ventral margin length 172 (180 ± 7; n = 4) with setae in the apical half. Conical aedeagus, dorsal margin length 92 (87 ± 6; n = 4) and ventral margin length 55 (52 ± 9; n = 4). Lateral lobe length 185 (195 ± 5; n = 4); width 18 (21 ± 2; n = 4). Genital pump: 133 (147 ± 5; n = 4) long; piston length 118 (116 ± 4; n = 4) and chamber length 45 (47 ± 5; n = 4). Genital filaments length 345 (354 ± 20; n = 4) or 2.59 (2.41 ± 0.1; n = 4) times the length of genital pump. Tip of genital filaments simple and bevelled (Fig. 15). Cercus 138 (141 ± 8; n = 4) long.

Paratype (female): total body length *ca.* 2540 (2536 ± 176; n = 8). General coloration as in the male.

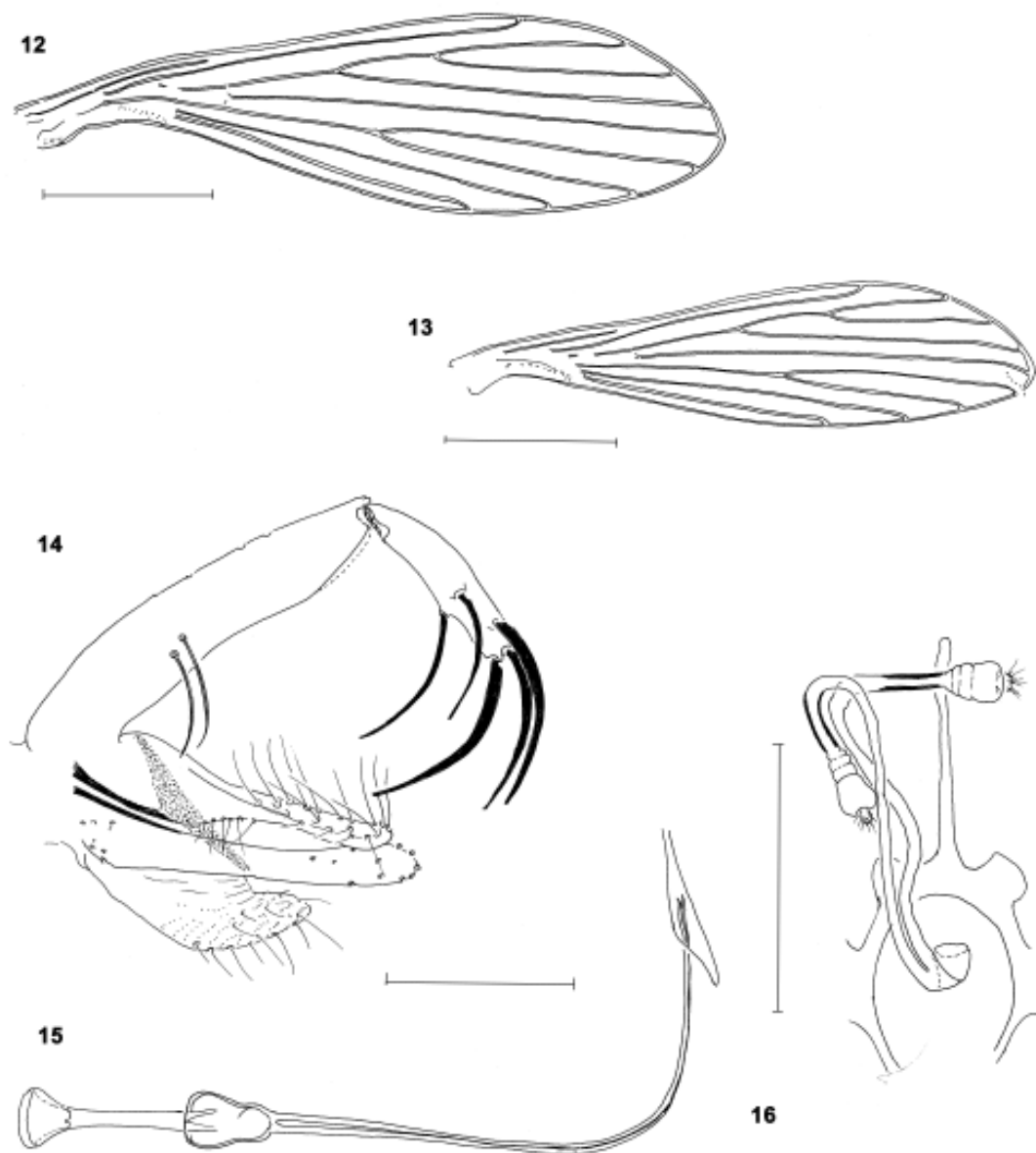
Head (Fig. 2): length 380 (370 ± 13; n = 10); width 295 (308 ± 13; n = 10). Eyes: length 170 (168 ± 8; n = 10); width 88 (92 ± 7; n = 10) (frontal view). Interocular suture separated from antennal suture. Interocular distance 128 (134 ± 6; n = 10). Clypeus 145 (135 ± 5; n = 10) long. Flagellomeres: AIII 293 (283 ± 13; n = 6), AIV 120 (116 ± 7; n = 6), AV 125 (120 ± 6; n = 6), AXV and AXVI missing. Ascoids simple and short, those on AIV not reaching the papilla level (Fig. 7). Papilla absent on AV (Fig. 8). Palpomere lengths: I 30 (31 ± 1; n = 10), II 138 (124 ± 8; n = 6), III 175 (167 ± 7; n = 6), IV 130 (133 ± 12; n = 6), V 360 (353 ± 42; n = 4). Palpal formula: 1.2.4.3.5. or 1. (2.4).3.5. Newstead's spines (about 10) distributed in two sets a little before the middle of palpomere III and about 4-5 near the top of palpomere II (Fig. 9). Labroepipharynx 185 (187 ± 10; n = 10) long. Cibarium (Fig. 11) with many reduced anterior teeth situated laterally and two more developed ones in the central part; four posterior (horizontal) teeth, many lateral greatly reduced teeth and a highly sclerotized projection, covered by reduced teeth between the innermost posterior teeth; pigment patch and posterior bulge well developed; arch incomplete. Pharynx (Fig. 11) armed. Labial sutures united. Maxilla: lacinia with 8 external teeth disposed in a longitudinal row and about 15 internal teeth. Hypopharynx (Fig. 10) with apicolateral teeth poorly delineated.

Cervix: ventrocervical sensillae present.

Thorax: mesonotum 555 (546 ± 31; n = 10) long. Pleurae with 5, 7 (2-8; n = 10) proepimeral setae, 10 (8-16; n = 10) upper anepisternal setae and without metaepisternal setae (0, 1, 2; n = 10). Setae absent on the anterior katapisternum margin. Suture between katepimerum and metaepisternum absent. Wing (Fig. 12): length 1990 (1920 ± 121; n = 9) and width 580 (539 ± 23; n = 8). Length of vein sections: *alpha* 550 (453 ± 47; n = 9), *beta* 270 (281 ± 25; n = 9), *gamma* 310 (301 ± 29; n = 9), *delta* 240 (184 ± 27; n = 9), *pi* 130 (146 ± 13; n = 9), R₅ 1380 (1311 ± 78; n = 9).



Figs. 1-11. *Micropygomyia petari* sp. nov. Head, frontal view: 1, holotype male; 2, paratype female. **Figs. 3-6.** Holotype male: 3, palpomere III; 4, antennomere IV; 5, antennomere V; 6, cibarium and pharynx. **Figs. 7-11.** Paratype female: 7, antennomere IV; 8, antennomere V; 9, palpomeres I, II and III; 10, hypopharynx; 11, cibarium and pharynx. Bar = 100 μ m.



Figs. 12-16. *Micropygomyia petari* sp. nov. Wings: **12**, paratype female; **13**, holotype male. **Figs. 14-15.** Terminalia, holotype male: **14**, genitalia; **15**, aedeagus, genital pump and filaments. **Fig. 16.** Paratype female: genital fork and spermathecae. Bar = 100 μ m.

Length of femora, tibiae, basitarsi and tarsi II+III+IV+V: foreleg 800, 920, 530, 670; midleg 810, 1080, 600, tarsi II+III+IV+V missing; hindleg 880, 1300, 710, 760.

Abdomen length 1540 (1530 \pm 131; n = 9). Tergite VIII with 9 (8-15; n = 9) setae.

Spermathecae (Fig. 16) with 3-4 annuli (33 long x 24 wide) with a wider apical ring; smooth individual ducts, 221 long x 7 wide and more sclerotised close to spermathecae; smooth common duct, 20 long x 18 wide. Cercus 140 (144 \pm 13; n = 9) long.

Holotype male. BRAZIL, *São Paulo*, Iporanga (Parque Estadual Turístico do Alto Ribeira - PETAR): in front of Santana cave,

16.XII.2001, black Shannon trap: 18h - 22h (FSP/USP). Paratypes, 4 males and 11 females (FSP/USP): 1 female, *ibidem*, 16/17.XII.2001, ALTm; 10 females and 2 males: on the track to Morro Preto cave: 1 female, 19/20.II.2001; 3 females, 1 male, 22/23.IV.2001; 1 female, 26/27.V.2001; 1 female, 24/25.VI.2001; 1 female, 1 male, 23/24.IX.2001; 2 females, 28/29.X.2001; 1 female, 24/25.XI.2001; 1 female, 16/17.XII.2001, ALTm. Ribeirão Grande (Parque Intervales), 1 male, 18.III.2001, in front of Minotauro cave, Shannon trap 19h - 21h; Colorida cave, 14/15.II.2001, ALTm. The type material was captured by E. A. B. Galati, A. M. Marassá, R. M. Gonçalves- Andrade and A. Galati.

TAXONOMIC DISCUSSION

The characteristics described above allowed us to include this new species in *Micropygomyia* (*Sauromyia*), *oswaldoi*

series, in accordance with GALATI (1995). Among the 19 species belonging to *oswaldoi* series, *M. petari* sp. nov. is very close to *M. oswaldoi* and to another species, both sexes of which were erroneously identified and redescribed by DIAS *et al.* (1989) as *Micropygomyia ferreirana* (Barretto Martins & Pellegrino, 1956) (GALATI *et al.* 2002). The presence of spines in the pharynx of both sexes of *M. petari* permits us to distinguish it from *M. oswaldoi*. From the taxon considered as *M. ferreirana* by DIAS *et al.* (1989) in both sexes, it is possible to differentiate *M. petari* by the length of AIII, which in the males of that species measures 239 ± 10 ; $n = 4$; and in the females: 220 ± 11 ; $n = 4$, thus shorter than that of *M. petari* (281 ± 12 ; 283 ± 13 , respectively) and further by the greater length of the gonocoxite (259 ± 3), which in *M. petari* is 212 ± 11 .

The association between male and female was based on the genital and extra-genital characteristics, coloration patterns and also on the fact that they were the unique representatives of the *oswaldoi* series in the captures made.

The name *Micropygomyia petari* alludes to the abbreviation of the Parque Estadual Turístico do Alto Ribeira (PETAR).

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