

Description of *Lutzomyia bianchigalatae* n. sp. a Sand Fly Within the Subgenus *Pintomyia* Costa Lima 1932 (Diptera; Psychodidae)

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A new sand fly species is described based on males collected in Bananal, municipality of Mariana and the female from Sabará city, State of Minas Gerais, Brazil. Taxonomic remarks, geographic distribution and the description of new species are presented. The name Lutzomyia (Pintomyia) bianchigalatae is in honour of Dr Eunice Aparecida Bianchi Galati, friend and researcher at the Faculdade de Saúde Pública, Universidade de São Paulo.

Key words: *Lutzomyia (Pintomyia) bianchigalatae* n. sp. - Phlebotominae sand fly

Reviewing the accumulated material on the subgenus *Pintomyia* Costa Lima, 1932 pertaining to the sand fly collection at the Centro de Pesquisas René Rachou, Fundação Oswaldo Cruz, Belo Horizonte, Brazil, we observed that some specimens, remained unclassified. Examining this material an undescribed species was uncovered.

The subgenus *Pintomyia* shows the fifth segment of the long palps, longer than the 3rd + 4th and a longitudinal row of spines in the hind femur. The females present 4 horizontal teeth in the cibarium and 2 or 3 rows of vertical teeth; the body of the espermatheca is capsular and the individual duct is partially or totally sclerotized. The male form shows 4 spines, and a subterminal seta. The paramere is simple and unarmed (Martins et al. 1978, Young & Duncan 1994).

According to with Young and Duncan (1994) five species of sand flies are considered valid for this subgenus: *Lutzomyia fischeri* (Pinto 1926), *Lutzomyia pessoai* (Coutinho & Barretto 1940), *Lutzomyia damascenoi* (Mangabeira 1941), *Lutzomyia gibsoni* (Pifano & Ortiz 1972) and *Lutzomyia christenseni* Young & Duncan 1994. Recently *Lutzomyia mamedei* Oliveira, Afonso, Dias & Brazil was transferred to this subgenus

(Andrade Filho et al. 1999 in press) and *Lutzomyia kuscheli* Le Pont, Martinez, Torres & Dujardim 1998 was also described (Le Pont et al. 1998).

The present description is based on the characters proposed by the Cipa Group (1991).

Male: holotype (measurements are in millimeters). Length 2.4. General coloration is dark brown, including the pleura.

Head (Table I; Fig. 1): ratio head/clypeus 2.26:1. Palpal formula 1.4.2.3.5, with the 5th palpomere longer than the 3rd + 4th. Antennae with proximal prolongation of ascoids short, distal prolongation reaching the middle of flagellomere. Papillae are present in the segments AIII, AIV, AV, AXIV - AXVI; length of the first flagellomeres: AIII - 0.255, AIV - 0.114, AV - 0.110. The ratio AXVI/AXV 0.79:1, and AIII/LE 1.04:1.

Thorax (Table II): coloration of notum and pleura is dark brown, coxae paler than notum. Setae absent from metepimere and metepisterne. Fore and middle femur of equal size, hind femur with longitudinal row of 11 spines (Fig. 2-O).

Abdomen (Table III; Fig. 3): coxite 0.245 long, maximum width 0.076, without tuft of setae. Style 0.117 long with 4 strong spine, placed at different levels, one being apical, one external upper, one external lower and one internal basal. Subterminal seta present. Paramere 0.186 with the basal region more dilated, middle inferior region of the structure having a slight internal curvature ending with the extremity more slender. Lateral lobe 0.235 long, maximum width 0.028, a little thinner than the coxite. Aedeagus simple with a sharp extremity. Genital pump 0.173 long. Genital filaments pump and lightly grooved throughout its extension, measuring 0.697

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TABLE I

Morphometric characteres (in mm) of the head and their appendices of males and females of *Lutzomyia* (*Pintomyia*) *bianchigalatae* n. sp.

Character	Holotype	Males			Females			
		n	X	S	Allotype	n	X	S
Head length	0.242	9	0.238	0.013	0,245	10	0.260	0.073
Interocular distance	0.135	8	0.105	0.018	0,110	8	0.130	0.013
Clypeus lenght	0.107	10	0.106	0.006	0,107	10	0.119	0.007
Labrum lenght	0.224	10	0.206	0.013	0,255	10	0.258	0.010
Flagellomeres:								
AIII	0.255	9	0.234	0.025	0,235	10	0.268	0.019
AIV	0.114	10	0.105	0.008	0,107	9	0.116	0.008
AV	0.110	10	0.105	0.006	0,110	9	0.117	0.006
AXV	0.062	9	0.060	0.004	-	7	0.074	0.008
AXVI	0.055	7	0.057	0.005	-	6	0.092	0.006
Palpal lenght: I	0.041	10	0.037	0.002	0,038	10	0.040	0.003
II	0.142	10	0.119	0.007	0,145	10	0.152	0.010
III	0.169	10	0.157	0.007	0,179	10	0.178	0.008
IV	0.114	10	0.109	0.005	0,117	10	0.129	0.007
V	0.366	10	0.338	0.030	0,030	10	0.415	0.035

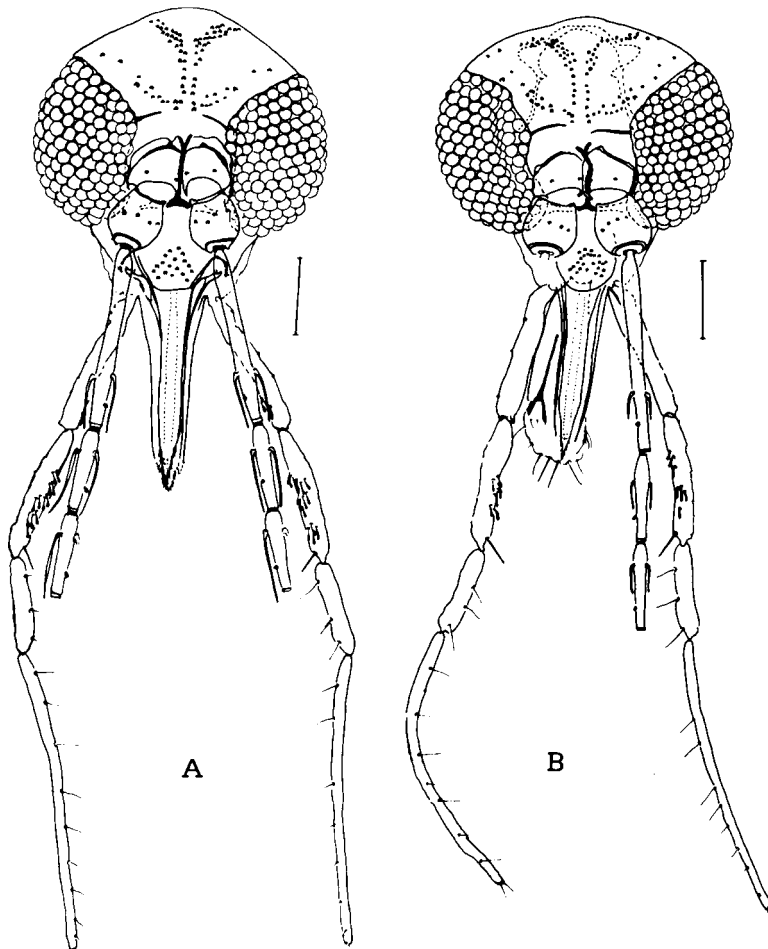
Fig. 1: *Lutzomyia* (*Pintomyia*) *bianchigalatae* n. sp. - A: head (♀); B: head (♂). Bar: 100 μ m.

TABLE II
Morphometric characters (in mm) of the thorax appendices of males and females of *Lutzomyia* (*Pintomyia*) *bianchigalatiae* n. sp.

Character	Holotype	n	Males		Allotype	n	Females	
			X	S			X	S
Wing length	1.916	9	1.891	0.096	2.065	10	2.192	0.105
Wing width	0.595	10	0.551	0.031	0.639	10	0.671	0.036
Alpha	0.411	9	0.412	0.046	0.481	9	0.566	0.054
Beta	0.228	9	0.261	0.029	0.263	9	0.272	0.015
Gamma	0.201	9	0.181	0.024	0.184	9	0.192	0.015
Delta	0.088	9	0.095	0.032	0.175	9	0.190	0.028
R ₅	1.190	9	1.134	0.058	1.243	10	1.321	0.076
Femur front	0.674	9	0.652	0.039	0.691	9	0.747	0.024
Femur middle	0.700	10	0.668	0.040	0.700	7	0.771	0.020
Femur hind	0.761	9	0.715	0.044	0.788	7	0.828	0.020
Tibia front	0.805	9	0.743	0.050	0.814	9	0.862	0.049
Tibia middle	0.963	10	0.921	0.051	1.041	7	1.091	0.040
Tibia hind	1.155	9	1.077	0.077	1.181	7	1.299	0.047
Basitarsus front	0.455	9	0.440	0.030	0.481	9	0.517	0.035
Basitarsus middle	0.560	10	0.515	0.035	0.569	7	0.621	0.021
Basitarsus hind	0.648	9	0.608	0.035	0.674	7	0.720	0.025

with the filaments being 4.03 X the length of the pump. The point of the genital filament is simple.

Female: allotype. Length 2450. General color as in the male.

Head (Table I; Fig. 1): the ratio head/clypeus 2.29:1. Maxillae with a row of 5 external longitudinal teeth. Palpal formula 1.4.2.3.5, with 5th palpomere longer than 3rd + 4th. The Newstead's spines are visible in the second and third palpal segment. Antennae with proximal prolongation of ascoids short and the distal extension, reaching to the apex of the structure. Papilla as in the male. Length of the first flagellomeres: AIII - 0.235, AIV - 0.107, AV - 0.110. The ratio AXVI/AV 1.30:1. Cibarium with 4 equidistant horizontal teeth. Vertical teeth distributed over two rows, lateral teeth absent. Cibarium arch complete. Pigment patch poorly defined.

Thorax (Table II): as in the male. Hind femur with longitudinal row of 8 spines.

Abdomen (Table III; Fig. 3): simple cercus. Spermathecae 0.024 in length by 0.028 in width, measured in the distal extremity, the head of the espermathecae is slightly visible. Individual duct and common duct practically the same size with lengths of 0.076 and 0.073, respectively. In two other females the common duct was larger than the individual duct. Individual duct weakly sclerotized in the middle of the structure until the apical region and lightly dilated in the basal region, gradually tapering. Common duct with homogeneous width.

Types: holotype male collected in the locality of Bananal, municipality of Mariana, State of Minas Gerais, Brazil with Shannon trap (A. Leôncio col.), on 17 April 1966, together with two paratype males. Allotype female collected in the locality of Alto do Cuiabá, municipality of Sabará, State of Minas Gerais, Brazil, with Shannon trap in a forested area (J.E. Silva col.), on 17 February 1969.

Material type: holotype male deposited in the collection of sandflies at the Centro de Pesquisas René Rachou-Fiocruz, Belo Horizonte, Minas Gerais, Brazil, slide number 38830, together with two paratype males, slides numbers 38829 and 38830 A and one allotype female, slide number 42628.

The following material was also examined:

Brazil - State of Minas Gerais: Belo Horizonte (Barreiro de Cima) - J. E. Silva col., 1 ♂, 15 December 1958 (slide no. 8504); 1 ♂, 26 January 1959 (slide no. 9187); 1 ♂, 29 December 1959 (slide no. 13618); 1 ♂, 14 January 1960 (slide no. 13714); 2 ♂♂, 24 November 1961 (slide no. 26381 and 26382); 1 ♀, 25 October 1965 (slide no. 35116); (Jardim Zoológico) - T. L. Godoy col., 1 ♀, 12 May 1959 (slide no. 10245); (Parque das Mangabeiras) - J. E. Silva col., 1 ♂, 22 February 1968 (slide no. 42451); 1 ♀, 11 March 1968 (slide no. 42564 E); Caeté - J. E. Silva col., 1 ♀, 02 May 1962 (slide no. 28146); Caratinga (Córrego. Barracão) - A. R. Falcão col., 1 ♀, 25 May 1975 (slide no. 50346); 1 ♀, 04 June 1975 (slide n° 50346); Sabará (Alto do Cuiabá) - J. E. Silva col., 1 ♀, 16

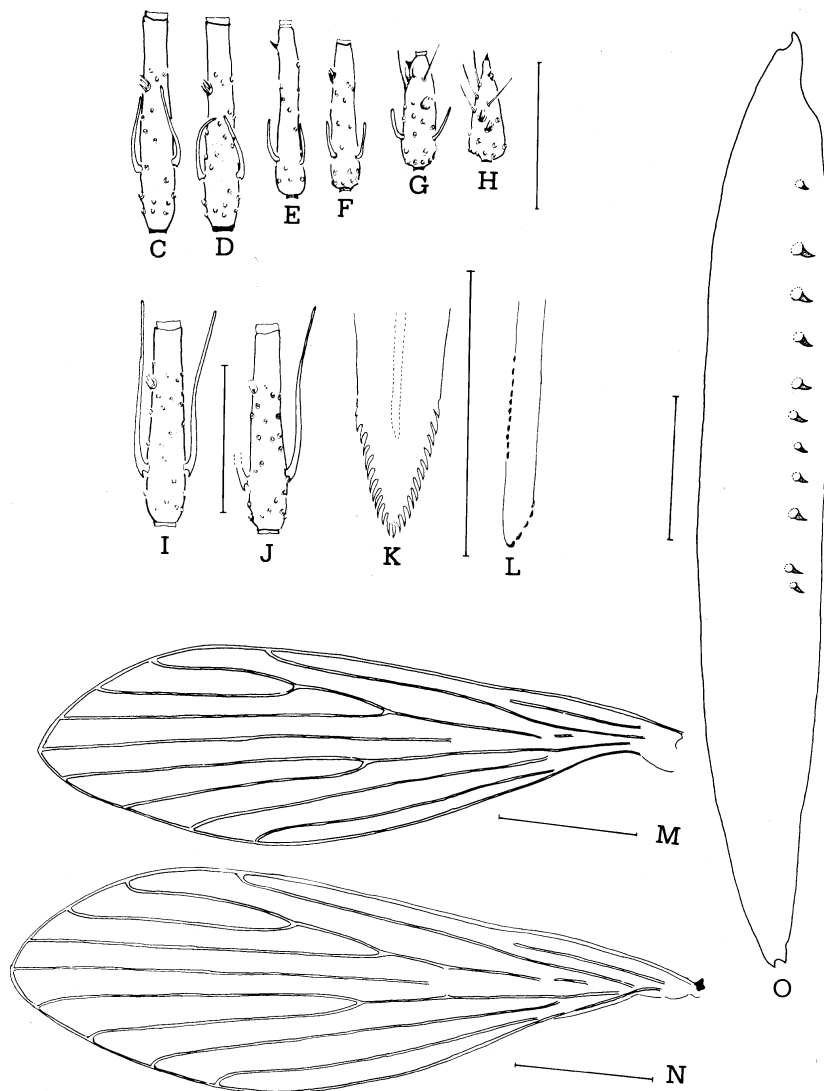


Fig. 2: *Lutzomyia bianchigalatae* n. sp. - C: AIV (σ); D: AV (σ); E: AXIII (σ); F: AXIV (σ); G: AXV (σ); H: AXVI (σ); I: AIV (f); J: AV (f); K: hypopharynx (f); L: maxillae (f). Bar: 100 μm . M: wing (σ); N: wing (f). Bar: 400 μm . O: hind femur (σ). Bar: 100 μm .

June 1964 (slide no. 33347); State of Esp3rito Santo: Linhares (Soretama) - J. E. Silva col., 1 f , 15 May 1965 (slide no. 35563); State of Rio de Janeiro: Parque Nacional da Serra dos Org3os - Rodrigues col., 1 f , 12 July 1983 (slide no. 6960); Itagua3 - G. M. Aguiar col., 1 f , 01 April 1984 (slide no. 750); State of Paran3: Barras3polis - J. E. Silva col., 1 σ , 21 December 1967 (slide no. 40671)

Locality type: Bananal, municipality of Mariana, State of Minas Gerais, Brazil.

REMARKS

Taxonomic discussion: among the species comprising the subgenus *Pintomyia* the males of *L. (P.) bianchigalatae* n. sp. differ from those *L. (P.)*

peessoai and *L. (P.) damascenoi* in terms of the position of spines in the styles and by the absence of tufts of bristles on the coxite. *L. (P.) bianchigalatae* n. sp. showed the same arrangement of spines styles of *L. (P.) fischeri*, *L. (P.) kuscheli* and *L. (P.) christenseni*, but differs from the latter with regard to the styles spines, which are more robust, the absence of bristles on the coxite and the appearance of the paramere. *L. (P.) kuscheli* can be differentiated by the absence of bristles on the coxite and paramere. *L. (P.) fischeri* is the species most similar to *L. (P.) bianchigalatae* n. sp.. In the original description of *L. (P.) fischeri*, Pinto (1926) noted the presence of three bristles on the coxite. Coutinho and Barretto (1940) redescribed the spe-

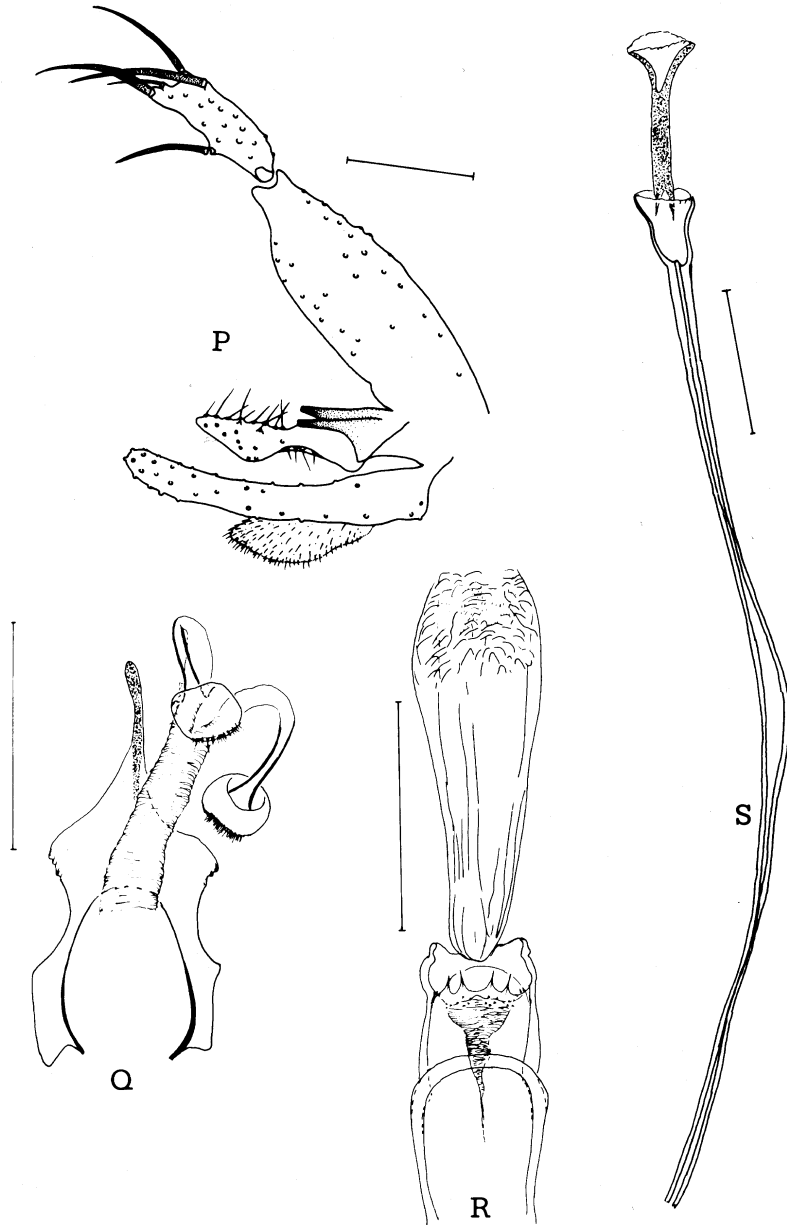


Fig. 3: *Lutzomyia bianchigalatae* n. sp. - P: genitalia (σ); Q: espermathecae (f); R: pharynx and cibarium (f); S:genital pump and filament (σ). Bar: 100 μm .

cies emphasising the presence of two to four bristles. In the material examined from various regions of Brazil we observed the presence of one to four bristles, however *L. (P.) bianchigalatae* n. sp. differed from *L. (P.) fischeri* due to the absence of basistyle bristles.

The females can be distinguished from the other species by the espermathecae that are attached to its distal extremity, becoming wider resembling a rectangular shape.

The correlation between the sexes was established based on genetal and extra-genetals characters, including the pattern of thorax color and the palpal formula. Both males and females were captured in the same area in the absence of any other unknown species.

Geographic distribution: *L. (P.) bianchigalatae* was captured in most of the southeastern states of Brazil. In State of Minas Gerais it occurred in the metropolitan area of Belo Horizonte, Ouro Preto,

TABLE III
Morphometric characters (in mm) of the abdomen of males and females of *Lutzomyia* (*Pintomyia*) *bianchigalatae* n. sp.

Character	Holotype	n	Males		Allotype	n	Females	
			X	S			X	S
Genital pump	0.173	10	0.165	0.008	-	-	-	-
Piston length	0.138	10	0.133	0.006	-	-	-	-
Genital filament	0.697	10	0.667	0.028	-	-	-	-
Coxite length	0.245	10	0.234	0.009	-	-	-	-
Paramere length	0.186	10	0.177	0.0012	-	-	-	-
Lateral lobe length	0.235	10	0.215	0.016	-	-	-	-
Style length	0.117	10	0.114	0.007	-	-	-	-
Coxite width	0.076	10	0.073	0.007	-	-	-	-
Lateral lobe width	0.028	10	0.024	0.003	-	-	-	-
Cercus length	-	-	-	-	0.166	10	0.143	0.008
Espermathecae length	-	-	-	-	0.024	10	0.023	0.002
Espermathecae width	-	-	-	-	0.028	10	0.030	0.002
Individual duct length	-	-	-	-	0.076	5	0.092	0.012
Common duct length	-	-	-	-	0.073	2	0.140	0.018

Sabar and Caratinga, in addition to the locality type, Mariana. The species was also registered in the State of Rio de Janeiro (Parque Nacional da Serra dos rgos, Itagua, Paracambi, Parque Nacional da Bocaina, Angra dos Reis and Paraty), State of So Paulo (Ubatuba and Picinguaba - District of Ubatuba; Parque Estadual da Serra do Mar), State of Esprito Santo (municipality of Linhares), State of Paran, (southern region in the municipalities of Barraspolis, Morretes - Serra da Gramma, Jussara - Fazenda Palmital, Cianorte and Foz do Iguau - Parque Nacional do Iguau).

Its interesting to emphasize that the species is highly anthrophilic avidly feeding on man even in the presence of other baits. Seventy four percent of 508 sandflies collected by one of us (GMA) were captured using human bait, the remaining 26% were distributed among light trap of Falco (1981) and Shannon trap (1939), resting on inner and outer domestic walls and a small percentage in domestic pens.

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