

**A new Brazilian species of *Psychoda* Latreille, 1796
(Diptera, Psychodidae) collected in a bromeliad**

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Abstract: A new species of *Psychoda* Latreille is described from Brazil. It is the first species of the genus to be collected in a bromeliad. The number of known *Psychoda* species from Brazil has increased to seven with this description of *Psychoda romeroi* sp. nov.

Keywords: *Psychodinae, Psychoda, Neotropical Region, Brazil, new species, bromeliad.*

BRAVO, F., LOPES, P.S. & BASTOS, S. **Espécie nova de *Psychoda* Latreille, 1796 (Diptera, Psychodidae) do Brasil coletada em bromélia.** *Biota Neotrop.* 10(2): <http://www.biotaneotropica.org.br/v10n2/pt/abstract?article+bn04110022010>.

Resumo: Uma nova espécie brasileira de *Psychoda* Latreille, 1796 (Diptera, Psychodidae) coletada em bromélia. É descrita, pela primeira vez, uma nova espécie de *Psychoda* Latreille coletada em bromélia. O número atual de espécies brasileiras de *Psychoda* aumentou para sete com a descrição de *Psychoda romeroi* sp. nov.

Palavras-chave: *Psychodinae, Psychoda, Região Neotropical, Brasil, nova espécie, bromélia.*

Introduction

Some species of bromeliads, an essentially American plant group, contain rich insect faunas that include species of aquatic Diptera (see Kitching 2000 for a revision of this subject). Psychodid larvae have been observed in abundance in bromeliad phytoltemata (Frank & Lonibos 2009). Few species of Psychodidae have been collected in bromeliads. Frank et al. (2004) studied the Diptera fauna associated with bromeliads in Florida and reported 190 larvae and pupae of *Alepia* Enderlein, 1937, but did not provide specific identifications. Knab (1914) described three species: *Philosepedon fumata* (Knab, 1914) from Mexico; *Neurosystasis amplipenna* (Knab, 1914) from Cuba; and *Alepia tricolor* (Knab, 1914) from Panama. Three other species of *Alepia* have been described in association with bromeliads: *Alepia symmetrica* Wagner & Hribar, 2005 from Florida Keys; *Alepia zavortinki* Wagner, Richardson & Richardson, 2008 from Puerto Rico; and *Alepia vaga* Wagner & Svensson, 2006 described from Sweden, although the adults probably emerged from a bromeliad imported from Brazil (Wagner & Hribar 2005, Wagner & Svensson 2006, Wagner et al. 2008).

The genus *Psychoda* Latreille, 1796 currently comprises 59 species in the Neotropical Region (Bravo et al. 2006, Cordeiro & Bravo 2008), six of them from Brazil. In the present paper, a new species of *Psychoda* is described from the State of São Paulo, Brazil, based on a single imago and his pupal exuviae sent us by Gustavo Romero.

Material and Methods

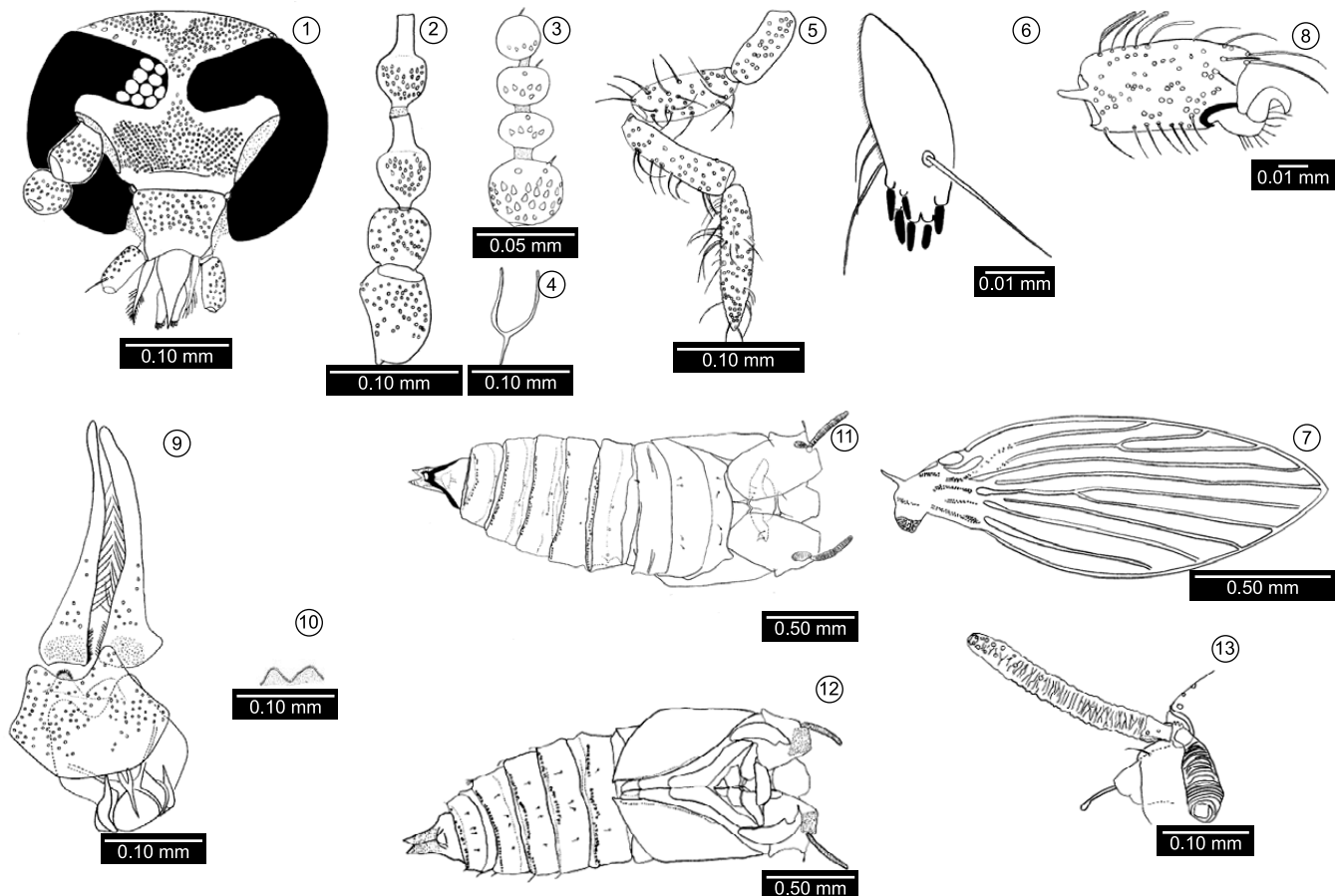
Morphological studies of the adult and his pupal exuviae were based on slide-mounted. The adult and his pupal exuviae were mounted in independent slides and they received the same museum number. Slides were prepared using potassium hydroxide to clear specimens and Canada balsam as a mounting medium. Morphological terminology follows that of McAlpine (1981). Terminology specific to Psychodidae follows Duckhouse (1990), Bravo (2006) and Curler & Moulton (2008). The adult and pupal exuviae were deposited in the *Coleção Entomológica Prof. Johann Becker do Museu de Zoologia da Universidade Estadual de Feira de Santana, Brazil* (MZUEFS).

Results

Psychoda romeroi Bravo, Lopes & Bastos, sp. nov. (Figures 1-13)

Material examined. Type material. BRAZIL, São Paulo, Ilha do Cardoso, 29.I.2008, Srisvastava, D. & Romero, G. leg., holotype female with pupal exuviae mounted in Canada balsam (#44595, MZUEFS).

Diagnosis. Frons and vertex pilose with small glabrous, V-shaped area at the apex of the head; labellum with six teeth, four apical and two subapical; medial fork basad of radial fork; M_1 , CuA_1 and CuA_2 not reaching the margin of the wing; genital digit absent.



Figures 1-13. *Psychoda romeroi* Bravo, Lopes & Bastos, sp. nov., female. 1. Head. 2. Antenna: scape, pedicel and basal flagellomeres. 3. Antenna: flagellomeres 11-14, flagellomeres 11, 13 and 14 with spine. 4. Ascoid. 5. Palpus. 6. Labellum. 7. Wing. 8. Fore disitarsus. 9. Female terminalia, ventral view. 10. Bilobate structure on the internal face of plate. 11. Pupa, dorsal. 12. Pupa, ventral. 13. Pupa, respiratory horn.

Description. Female. Head width, 0.29 mm; head height from base of clypeus to vertex, 0.30 mm; palpus length, 0.23 mm; wing length, 1.31 mm; wing width, 8.1 mm; cercus length, 0.02 mm. Frons and vertex pilose (Figure 1); vertex with small glabrous, V-shaped area at the apex of the head (Figure 1); four postocular alveoli (Figure 1); hair patch of the frons extends to the second facet row (Figure 1); eye bridge with four facet rows (Figure 1); eyes separated by 1.7 facet diameters (Figure 1). Interocular suture absent (Figure 1). Antenna with 14 flagellomeres, 1st-10th nodiform (Figure 2), 12th-14th reduced, not fused (Figure 3), 11th-13th with short neck; 14th subspherical (Figure 3); flagellomeres 11, 13 and 14 with spine (Figure 3); ascoids Y-shaped (Figure 4); scape cylindrical, 1.5 times as long as the pedicel (Figure 2); pedicel subspherical (Figure 2). Palpus formula = 1.0:1.1:1.3:1.7 (Figure 5). Labellum with six teeth of the same length, four apical and two subapical, with four long bristles, three of them lateral (Figure 6). Wing (Figure 7): Sc short, wide, not reaching the base of Rs; base of R₁ and R₂ incomplete; medial fork basad of radial fork; M₁, CuA₁ and CuA₂ not reaching the wing margin. Fore distitarsus with a small, dorsal and apical projection (Figure 8). Female terminalia (Figures 9, 10): cercus long, 2.5 times as long as the length of subgenital plate; subgenital plate with distal margin arched; bilobate structure on the internal face of plate (Figure 10); genital digit absent; spermatheca as shown in Figure 9.

Pupa (Figures 11-13). Color light brown; Body ovoid from dorsal view; tips of legs not extending beyond the apices of the wing covers; respiratory horn eight times as long as its central width, with irregular double rows of pits extending one-quarter of the way down from the tip of the horn; few pits in the basal three-quarters of the horn. Dorsal and ventral surfaces with few microtrichia. Distal margin of abdominal tergites and sternites with minute spiniform tubercles.

Male. Unknown.

Etymology. The species epithet is dedicated to Gustavo Romero who collected and sent us the specimen.

Biological notes. According to Gustavo Romero (pers. comm.), the specimen emerged from water spilled and stored, for ecological study, of *Quesnelia arvensis* (Vell.) Mez, an endemic bromeliad of the Atlantic Coastal Forest distributed from Rio de Janeiro State to Paraná State (Vieira 2006).

Discussion

The features that distinguish the new species *P. romeroi* from other Neotropical species are the presence of six long teeth and two bristles on the labella. The cosmopolitan species *Psychoda cinerea* Banks, 1894, has six teeth on the labella, with five of them being long and one short (Duckhouse 1966: Fig. 204). Also *P. cinerea* has five long bristles on the labella, not four as in the new species described here. The Nearctic species *Psychoda tothastica* Quate, 1955 lost the genital digit as the new species here describe, but *P. tothastica* has five teeth, and three long bristles on the labella, and the eyes are separated by distance equal to one facet diameter, whereas *P. romeroi* sp. nov. has six teeth and four long bristles on the labella and the eyes are separated by distance equal to 1.7 facet diameter.

P. romeroi sp. nov. is the first species of the genus *Psychoda* to be found in a bromeliad, however, at least two other species of

Psychoda, *P. savaiiensis* Edwards, 1928 and *P. parsivena* Quate, 1959, are associated with other species of phytotelmata (Kitching 2000). With the description of this species, the number of known *Psychoda* species from Brazil has increased to seven.

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References

- BRAVO, F. 2006. The taxonomy of Neotropical Brunettiina (Diptera, Psychodidae, Psychodinae, Mormiini), with descriptions of ten new species from Brazil and comments on the generic classification of the subtribe. *Zootaxa* 1134:1-28.
- BRAVO, F., CORDEIRO, D. & CHAGAS, C. 2006. Two new species and new records of *Psychoda* Latreille (Diptera: Psychodidae: Psychodinae) from Brazil, with comments on supraspecific classification of the genus. *Zootaxa* 1298:1-15.
- CORDEIRO, D. & BRAVO, F. 2008. A new species of viviparous moth fly (Diptera, Psychodidae, Psychodinae) from the Brazilian Amazon. *Biota Neotrop.* 8(2):115-119.
- CURLER, G.R. & MOULTON, J.K. 2008. A review of the Nearctic species of the genus *Eurygarka* Quate (Diptera: Psychodidae). *Zootaxa* 1740:28-36.
- DUCKHOUSE, D.A. 1966. Psychodidae (Diptera, Nematocera) of Southern Australia: subfamily Psychodinae. *Trans. R. ent.Soc. Lond.* 118(6):153-220.
- DUCKHOUSE, D.A. 1990. The Australasian genera of Pericomoid Psychodidae (Diptera) and the status of related Enderlein genera in the Neotropics. *Invertebr. Taxon.* 3(6):721-746.
- FRANK, J.H. & LOUNIBOS, L.P. 2009. Insects and allies associated with bromeliads: a review. *Terrestrial Arthropod Reviews* 1(2):125-153.
- FRANK, J.H., SREENIVASAN, S., BENSCHOFF, P.J., DEYRUP, M.A., EDWARDS, G.B., HALBERT, S.E., HAMON, A.B., LOWMAN, M.D., MOCKFORD, E.L., SCHEFFRAHN, R.H., STECK, G.J., THOMAS, M.C., WALKER, T.J. & WELBOURN, W.C. 2004. Invertebrate animals extracted from native *Tillandsia* (Bromeliales: Bromeliaceae) in Sarasota County, Florida. *Florida Entomol.* 87(2):176-185.
- KITCHING, R.L. 2000. Food webs and container habitats: the natural history and ecology of Phytotelmata. Cambridge University Press, Cambridge.
- KNAB, F. 1914. New moth-flies (Psychodidae) bred from Bromeliaceae and other plants. *Proc. U. S. Natl. Mus.* 46:103-106.
- VIEIRA, C.M. 2006. *Quesnelia* Gaudich (Bromelioideae: Bromeliaceae) do estado do rio de Janeiro, Brasil. *Pesqui. Bot.* 57:7-102.
- WAGNER, R. & HRIBAR, L.J. 2004. Moth flies (Diptera: Psychodidae) from the Florida Keys with the description of a new *Alepiea* species. *Stud. Dipterol.* 11(2):505-511.
- WAGNER, R. & SVENSSON, B.W. 2006. The exceptional discovery of a new Neotropical moth fly in Sweden (Diptera: Psychodidae). *Stud. Dipterol.* 13(1):99-102.
- WAGNER, R., RICHARDSON, B.A. & RICHARDSON, M.J. 2008. A new psychodid species from Puerto Rico tank bromeliads. *Stud. Neotrop. Fauna Environ.* 43(3):209-216.

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