

First Record of the Subfamily Psychodinae (Diptera: Psychodidae) from Ecuador

Francisco Collantes¹ and Enrique Baquero²

¹Departament of Animal Biology (Zoology), Murcia University, Murcia, Spain;

²Departament of Zoology and Ecology, University of Navarra, Pamplona, Spain

ABSTRACT

This is the first record for the subfamily Psychodinae from Ecuador and a new species belonging to genus *Arisemus*, *A. triconnectus*, is described.

KEYWORDS

Psychodidae, Psychodinae, *Arisemus triconnectus*, new species, Ecuador, Neotropical.

Address correspondence to:

Francisco Collantes Alcaraz

Departamento de Biología Animal (Zoología)
Facultad de Biología, Universidad de Murcia
Campus de Espinardo, 30100 Murcia, Spain

E-mail: Fcollant@fcu.um.es

INTRODUCTION

The family Psychodidae has been known from Ecuador since 1950 (Rodriguez, 1950, quoted in Hashiguchi & Gomez, 1987) through species of the subfamily Phlebotominae, vectors of the leishmaniasis, but there are no records of other subfamilies of Psychodidae.

MATERIAL AND METHODS

The specimens were collected with a Malaise trap situated in a clearing area of the Yasuni rainforest and preserved in 70% ethanol. The trap was working for a single time of 24 hours; 11706 arthropods, principally Diptera (72%), Hymenoptera (10%) and Hemiptera (7%), were captured. The specimens were dissected and put on slides using DPX (Mixture of distyrene (polystyrene), plasticizer (tri-*o*-cresyl phosphate or dibutyl phthalate), and xylene) as embedding medium. A drawing mirror on a Nikon Labophot microscope was used to draw the taxonomically interesting parts.

In the description of male terminalia, the location of parts is relative to the orientation of drawings, not to natural position.

The type material will be deposited in the collection of the University of Murcia, Spain, Departamento de Biología Animal (Zoología) (DBA).

DESCRIPTION

***Arisemus triconnectus* sp. n. (Figs. 1–6)**

Material examined

Holotype. ♂, ECUADOR: Napo, Estación Científica Yasuní (Pontificia Universidad Católica de Ecuador), 00°38'S 76°30'W, Malaise trap, 20/xi/95, E. Baquero & F. Maza leg. (DBA, type No. Ec-2). Paratypes. 3♂ (DBA, types No. Ec-1, Ec-3, Ec-6) with holotype.

Male. The head (Fig. 1) is longer than broad. Eyebridges of 3 facet rows, contiguous. Frons with undivided patch of scars. Vertex without naked midline. No enlarged postocular scars are present. The proportion of palpal segments is 1 : 1.08 : 1.04 : - (last palpomere contracted and wrinkled). Large scape (Fig. 2), 3.3 times length of pedicel, both with dark scales. Flagellum slender; first three flagellomeres fusiform, broader than others and fused. Flagellomeres 4–11 with slight necks, ill-defined and small rims. Flagellomeres 12 and 13 reduced in size, globular and without neck. The last one is lost, but it may be supposed that this segment is reduced too (as in other species of *Arisemus*).

Wing (Fig. 3) 1.94 mm long, about 3 times as long as broad. Slightly brown spots at tip of all longitudinal veins. R_s pectinate; radial and medial forks on the same level, basal of centre of wing, and complete. R_{2+3} very short, reduced to short stump anterior of the fork. CuA^2 not expanded.

Terminalia (Fig. 4). with coxite shorter than style; the coxite shows a patch of scars on the outer side and three to four setae in the inner side. Style with a patch of scars in the broad base and slender distal half, with two short setae at the tip. Hypandrium sclerotised with slightly open V-shape. Gonocoxal apodemes (Fig. 5) broad, large, joined at the midline, with medial keel connected to aedeagus. Right rounded parbasal process (pbp). Aedeagal complex asymmetrical, with three distinctive pieces. On the left side a spatula-shaped piece (ssp), perhaps the paramere. On its inner side (following its margin) a pointed element (pe). On the outer side, the piece continues as a plate which runs over it and joins the hypandrium. This plate also continues below the piece to the right parbasal process. The aedeagus (ae), with hooked attenuated tip and, in part, below the left element, is in the middle of the aedeagal complex, arising from a basal ring. Cercopod with single retinaculum (Fig. 6).

Etymology

'tri-' L, three, 'connectus' L, fused and continued in an alone unit; refers to the first three fused and connected flagellomeres.

Diagnosis

First three fused flagellomeres. Aedeagal complex with a lateral spatula-shaped piece and pointed and very hooked aedeagus.

Habitat

The specimens were collected in a 50 x 50 m clearing in a tropical rainforest, on a hillside north of the Yasuní Biological Station (Pontifical Catholic University of Ecuador), at an altitude of 280 m. Humidity was 90%.

DISCUSSION

The males of 13 species belonging to genus *Arisemus* are known (Table 1). All occur in the Neotropics: Cuba (Botosaneanu & Vaillant, 1970), Jamaica (Dyar, 1926; Satchell, 1955), Nicaragua (Collantes & Martínez-Ortega, 1999), Costa Rica (Quate, 1996), Panama (Rapp, 1945) and Colombia (Wagner, 1994).

At first glance, they can be separated in two groups: with simple or forked style, respectively (Table 1). The forked style seems to be a secondary and independent differentiation. That this character originated more than once in the genus *Arisemus* is suggested by the very different structure of the forked styles.

On the other hand, 7 males show an aedeagal complex with similar arrangement: *A. atrasetus*, *A. grabahamana*, *A. guhli*, *A. lepidotos*, *A. salazari*, *A. stylofurcatus*, and the new species. All have a short parbasal process, a lateral and broad piece, with a pointed element in the inner side, and a curved and pointed aedeagus, which arises from a basal ring. We believe that the similar arrangement of the aedeagal complex is more important than the simple or forked styles as criterion for establishing the relationship in *Arisemus*.

The new species can be distinguished from its related species, *A. atrasetus*, *A. grabahamana*, *A. guhli*, *A. lepidotos*, *A. salazari*, *A. stylofurcatus*, by the first three fused flagellomeres. Another important character is the lateral spatula-shaped piece and the strongly hooked aedeagus.

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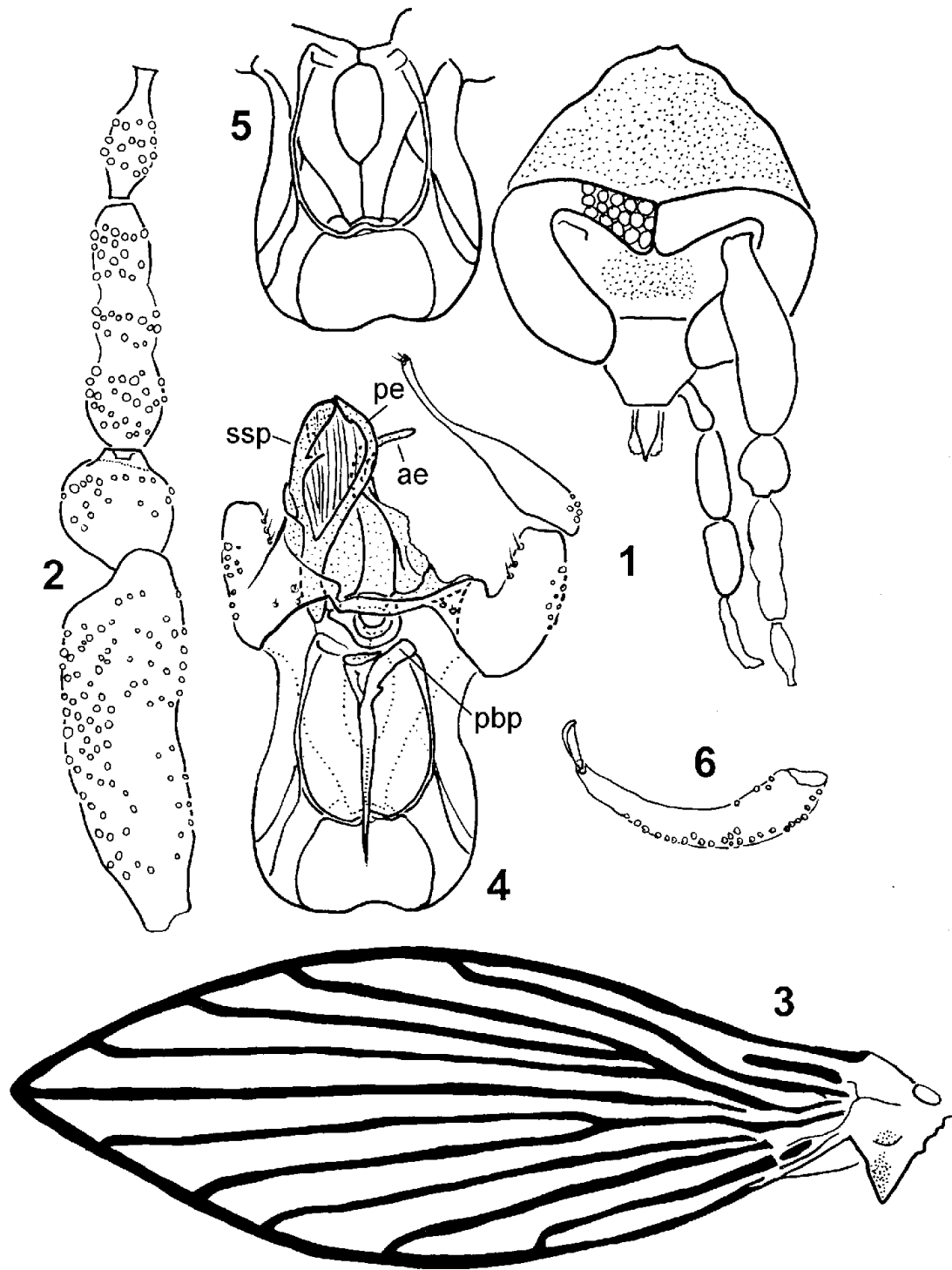
Table 1. Species of *Arisemus*, grouped by the simple or forked style. Group 1: style simple; Group 2: style forked.

GROUP 1

<i>A. boxi</i> (Satchell, 1955)	Jamaica, Colombia
<i>A. grabahmana</i> (Dyar, 1926)	Jamaica
<i>A. martinezi</i> Wagner, 1994	Colombia
<i>A. obandoi</i> Wagner, 1994	Colombia
<i>A. roessleri</i> Wagner, 1994	Colombia
<i>A. salazari</i> Quate, 1996	Costa Rica
<i>A. spilotos</i> Quate, 1996	Costa Rica

GROUP 2

<i>A. atrasetus</i> (Rapp, 1945)	Panama
<i>A. guhli</i> Wagner, 1994	Colombia
<i>A. hexadactylus</i> Botosaneanu & Vaillant, 1970	Cuba
<i>A. lepidotos</i> Quate, 1996	Costa Rica
<i>A. stylofurcatus</i> (Collantes & Martinez-Ortega, 1999)	Nicaragua
<i>A. tetradactylus</i> Botosaneanu & Vaillant, 1970	Cuba



Figures 1-6. *Arisemus triconnectus*, sp. n.: (1) Head; (2) Base of antenna; (3) Wing; (4) Gonopods and aedeagal complex seen from above; (5) Gonocoxal apodemes and aedeagal apodeme; (6) Cercopod. Abbreviations: ae, aedeagus; pe, pointed element; pbp, right rounded parabasal process; ssp, spatula-shaped piece.