Leinendera achaeta sp. n., a new species of robber fly from Brazil (Diptera, Asilidae, Asilinae)

Alexssandro Camargo¹, Rodrigo Vieira², Andreas Köhler³, José Albertino Rafael⁴

¹ Instituto Nacional de Pesquisas da Amazônia–INPA, CBIO–Coordenação de Pesquisas em Biodiversidade, Campus II, CEP 69080–971, Manaus, Amazonas, Brazil. Bolsista CNPq ² Instituto Nacional de Pesquisas da Amazônia–INPA, CBIO–Coordenação de Biodiversidade, CEP 69060–000, Manaus, Amazonas, Brazil. Bolsista FAPEAM–FIXAM ³ Laboratório de Entomologia, Universidade de Santa Cruz do Sul–UNISC, CEP 96815–900, Santa Cruz do Sul, Rio Grande do Sul, Brazil ⁴ Instituto Nacional de Pesquisas da Amazônia–INPA, CBIO–Coordenação de Pesquisas em Biodiversidade, Campus II, CEP 69080–971, Manaus, Amazonas, Brazil

Corresponding author: Rodrigo Vieira (rodrigo08vieira@gmail.com)

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Abstract

The third species of the Neotropical genus Leinendera Carrera, 1945, Leinendera achaeta sp. n., is described from Rio Grande do Sul state, Brazil. The habitus, wing and male terminalia are described and illustrated, and a key to the three Brazilian species is provided.

Keywords

Asilus group, Neotropical, taxonomy

Introduction

Asilinae Latreille, 1802 is the most diverse subfamily of Asilidae, including 179 extant genera, and is distributed in all biogeographic regions, except Antarctica (Geller-Grimm 2004, Londt 2005, Vieira 2012a, Artigas and Vieira 2014, Vieira and Rafael 2014). Sixty-eight genera are recognized in the Neotropical Region, of which 20 occur in Brazil (Papavero 2009, Vieira 2012a, Artigas and Vieira 2014, Vieira and Rafael 2014). Carrera (1945) had distinguished his newly proposed genus
Leinendera through the presence of apical scutellar setae, wing with spots (of dense microtrichia) in apical third, and tergites with lateral marginal macrosetae.

Currently, the two valid species of Leinendera are restricted to the Neotropical Region (Fig. 1): Leinendera rubra Carrera, 1945 (Brazil: Rio de Janeiro and São Paulo states) and Leinendera nigra Vieira, 2012 (Brazil: Rio de Janeiro state) (Vieira 2012b).

In this work, the third species of Leinendera, from Rio Grande do Sul, Brazil, is described and illustrated, and a key to Brazilian species is provided.

Material and methods

This study is based on the examination of specimens housed in the following institutions: CESC–Coleção Entomológica de Santa Cruz do Sul, Santa Cruz do Sul, Brazil and INPA–Instituto Nacional de Pesquisas da Amazônia, Manaus, Brazil. Morphological terminology follows Cumming and Wood (2009), and antennal terminology follows Stuckenberg (1999).

The wing was detached from the body, placed in xylene for 30 minutes and then mounted in Canada balsam between coverslips. After drying, the cover slips were glued to the edge of a piece of thick paper, which was then pinned with the specimen. The techniques of Vieira (2012b) were used to examine the terminalia. After examination and illustration, the detached parts of the terminalia were placed in microvials with glycerin and pinned with their respective specimen.

The label data are cited in full, with the original spellings, punctuation, and dates. Information presented within square brackets are complementary data not included on the labels. Data from the same specimen, but from different labels, are separated by slashes (/). The map was generated with SimpleMappr.

Results

Leinendera Carrera, 1945

Diagnosis. Brown oblique stripe extending from the base of the wing to the base of the fore and mid coxae (Figs 2, 4, 16, 24); wing with spots (of dense microtrichia) in apical third (Figs 6, 7, 18, 26); tergites with lateral marginal macrosetae (Figs 2, 16, 24).

Leinendera achaeta sp. n.

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Figs 2–15

Diagnosis. Apical scutellar macrosetae absent; epandrium elongate, apical 1/3 triangular in lateral view (Figs 8–11); gonocoxite with an indentation on apical third of
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the inner margin (Figs 9, 10); hypandrium with distal margin straight, basal margin rounded (Fig. 12).

**Male. Holotype.** Body: Slender (Fig. 2). Head: Antenna (Fig. 5) with yellow scape and pedicel, with brown and yellow setae; yellow postpedicel with brown apex, and 16 times the length of first element of the stylus; stylus brown; second element of stylus five times the length of the first element. Vertex (Fig. 3) golden tomentose; ocellar tubercle brown tomentose with two brown, short, proclinate, ocellar setae; face and frons golden tomentose (Fig. 3), face moderately narrow (Fig. 3), lower facial margin silvery tomentose; gena dark-brown; pale yellow mystacial macrosetae (Figs 3, 4); occiput golden-brown tomentose; yellow occipital setae; 4-6 light brown postocular macrosetae; brown palpus with brown setae; apical setae of palpus longer than others;

**Figure 1.** Distribution of *Leinendera* species.
Figures 2–7. *Leinendera achaeta* sp. n. (2–6 Holotype male.). **2** Habitus, lateral view **3** Head, frontal view **4** Head & thorax, lateral view **5** Antenna, lateral view **6** Wing **7** Paratype wing. Abbreviations: pp: postpedicel.
light brown labrum, lacinia and postmentum, black labella and prementum; yellowish labial setae.

Thorax (Figs 2, 4). Antepronotum and postpronotum brown and golden tomentose; brown mesonotum; brown paramedian stripe, darker on anterior half; presutural and postsutural spots brown tomentose, area between spots grey tomentose; mesonotum grey tomentose laterally; brown scutellum with impressed rim, silvery tomentose; pleuron silvery tomentose with brown oblique stripe extending from base of wing to base of fore and mid coxae (Fig. 4). Chaetotaxy: Brown acrostichal setae; two brown notopleural macrosetae; one brown supra-alar macroseta and 1 brown supra-alar seta; one brown postalar macroseta; four brown, dorsocentral, presutural setae; four brown, dorsocentral, postsutural setae; apical scutellar macrosetae absent; one short, brown, discal scutellar seta; yellowish anatergal and katatergal setae; posterior meron + metanepisternum with yellow macroseta and pale yellow tuft of small setae on posterior margin.

Wing (Figs 6, 7). Hyaline basal 2/3, apical 1/3 extending to anal margin reaching anal cell with dense brown microtrichiae; dark brown veins; $R_{2+3}$ slightly sinuous at the level of the $R_3$ and $R_5$ bifurcation; cell r4 narrower basally; without costal dilatation; $R_4$ and $R_5$ bifurcation beyond level of the discal cell apex; crossvein r-m before level of discal cell middle (Obs. the additional r-m on figure 6 is an anomaly); microtrichia on posterior margin arranged in two divergent planes; pale-yellow halter.

Legs (Figs 2, 4). Narrow, yellow; apex of all femora with dark brown ring. Chaetotaxy: Hind trochanter with 1 yellow macrosetae; fore femur with 4 yellow setae ventrally; mid femur with 1 yellow anterior macrosetra, 2–3 yellow macrosetae anteroven-trally, 2–3 yellow macrosetae posteroventrally and 1 yellow, posterior, preapical macroseta; hind femur with 2 yellow anterior macrosetae, 2–3 dorsal preapical macrosetae and 3 yellow macrosetae posteroventrally; fore tibia with 3 yellow long macrosetae laterally; mid tibia with 4 yellow long macrosetae anteroven-trally, 1 yellow posterior macroseta and 2 yellow macrosetae poseroventrally; hind tibia with 3 yellow anterior setae, 2 yellow posterior setae, 1 yellow anteroventral seta and 3 yellow poseroventral setae; tarsomere with yellow setae and macrosetae; yellow empodium and pulvillus; claws with light brown half and black apical half.

Abdomen (Fig. 2). Brown. Dark brown tergites, except I–III light brown laterally; tergites III–VI with silvery tomentose spots laterally; tergites with yellow, lateral, marginal macrosetae. Light brown sternites, except dark brown V–VI.

Terminalia (Figs 8–15). Light brown. Epandrium elongate, apical 1/3 triangular in lateral view (Figs 8–11); hypandrium with distal margin straight, proximal margin rounded (Fig. 12); gonocoxite with an indentation on apical third of inner margin (Figs 9, 10); gonostyle tapered and with rounded apex (Fig. 13); apex of subependrial sclerite rounded (Fig. 14); ejaculatory apodeme narrow in lateral view (Fig. 15), aedeagal sheath subtriangular in lateral view (Fig. 15).

**Length:** Body length 11.9 mm; wing length 10.9 mm.

**Holotype condition:** Right postpedicel and right hind tarsus lost. Detached wing mounted on microslides, terminalia placed in microvial with glycerin, both pinned with the specimen.
Figures 8–15. *Leinendera achaeta* sp. n. Holotype male. 8 Terminalia, dorsal view 9 Terminalia, ventral view 10 Epandrium, gonocoxite and gonostylus 11 Terminalia, lateral view 12 Hypandrium 13 Gonocoxite and gonostylus 14 Subepandrial sclerite 15 Aedeagus. Abbreviations: aed: aedeagus; cerc: cercus; ej apod: ejaculatory apodeme; epand: epandrium; gonn: gonocoxite; gonst: gonostylus; hypd: hypandrium; sub scl: subepandrial sclerite.
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Figures 16–23, Leinendera nigra Vieira, 2012. Holotype male (modified from Vieira 2012). 16 Head, lateral view 17 Head, frontal view 18 Wing 19 Terminalia, dorsal view 20 Subepandrial sclerite 21 Gonocoxite and gonostylus 22 Hypandrium 23 Aedeagus. Abbreviations: aed: aedeagus; cerc: cercus; ej apod: ejaculatory apodeme; epand: epandrium; goncx: gonocoxite; gonst: gonostylus; hypd: hypandrium; sub scl: subepandrial sclerite.
Variation (n = 2): Size. Body length 11.5–12.4 mm; wing length 10.1–10.5 mm. Face silvery tomentose; mid femur with 1–3 yellow anterior macrosetae; mid tibiae with 3 yellow long macrosetae anterovertrally.

Female: Unknown.

Etymology. From the greek achaeta, a = absent and chaeta = bristles, referring to the absence of apical scutellar macrosetae.

Biology. All specimens of L. achaeta sp. n. were collected with Malaise traps placed in tobacco, Nicotiana tabacum L., plantations. The vegetation surrounding the tobacco plantations was composed mainly by grasslands and shrubs of small to medium size. No information about the prey is known.

Discussion. Differs from the other two species of Leinendera by the absence of apical scutellar macrosetae and characters of the terminalia (Figs 2–15). When describing Leinendera, Carrera (1945) mentioned that the genus was distinct from Glaphyropyga by the presence of apical scutellar setae. However, that author described the taxon based on a single species and, with the inclusion of L. achaeta sp. n., this character can no longer be used in the diagnosis of the genus. Regardless, L. achaeta sp. n., L. nigra Vieira, 2012 and L. rubra Carrera, 1945 have a brown oblique stripe extending from the base of the wing to the base of the fore and mid coxae (Figs 16, 24), which could be used as a new diagnostic character for the genus, since it does not occur in any other closely related genus of Asilinae.

Type material. Holotype: BRAZIL, RS [Rio Grande do Sul], Santa Cruz do Sul, Premium 08/09, 21.02.2009, Armadilha de Malaise / N: 34378 L: 6 P: H: / Holotype Leinendera achaeta Vieira, Camargo, Köhler & Rafael sp. nov. (male INPA).

Paratypes: BRAZIL, RS [Rio Grande do Sul], Lagoão, 08.03.2009, Armadilha de Malaise / N: 29577 L: 108 Lote álcool: 23120 P: H: / Paratype Leinendera achaeta Vieira, Camargo, Köhler & Rafael (1 male CESC); BRAZIL, RS [Rio Grande do Sul], Vera Cruz, CTA 28.11.2008, Armadilha de Malaise / N: 29657 L: 143 Lote álcool: 16444-15 P: H: / Paratype Leinendera achaeta Vieira, Camargo, Köhler & Rafael (1 male CESC).

Distribution. Brazil: Rio Grande do Sul state.

Identification key to males of Leinendera

1 Apical scutellar macrosetae present ................................................................. 2
– Apical scutellar macrosetae absent........................................................................

........................................L. achaeta sp. n. (Brazil: Rio Grande do Sul state)

2 Lower facial margin with black projection (Fig. 17); base of r4 narrow (Fig. 18); epandrium with apex backward directed (Fig. 19); gonocoxite subquadricular with a projection on the external margin (Fig. 20); subependrial sclerite with a basal plate (Fig. 20); hypandrium with a tuft of short yellow setae on the middle (Fig. 22); aedeagus strongly downcurved (Fig. 23)........

........................................L. nigra Vieira, 2012 (Brazil: Rio de Janeiro state)
Figures 24–31. *Leinendera rubra* Carrera, 1945. Ordinary specimen male (modified from Vieira 2012).  
24 Head, lateral view 25 Head, frontal view 26 Wing 27 Terminalia, dorsal view 28 Subepandrial sclerite 29 Gonocoxite and gonostylus 30 Hypandrium 31 Aedeagus. Abbreviations: aed: aedeagus; cerc: cercus; ej apod: ejaculatory apodeme; epand: epandrium; goncx: gonocoxite; gonst: gonostylus; hypd: hypandrium; sub scl: subepandrial sclerite.
– Lower facial margin without a black projection (Fig. 25); base of r4 slightly narrow (Fig. 26); epandrium with apex inward curved (Fig. 27); gonocoxite subquadrangular with a median keel backward directed (Fig. 28); subepandrial sclerite simple, without projections (Fig. 29); hypandrium with setae arranged along entire posterior margin (Fig. 30); aedeagus upcurved (Fig. 31). ................. \textit{L. rubra Carrera, 1945} (Brazil: Rio de Janeiro and São Paulo states)

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