

Description of two new species of *Leinendera* Carrera 1945 from Brazil (Diptera, Asilidae, Asilinae)

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Two new species of genus *Leinendera* Carrera 1945 from Brazil, *L. lusitania* sp. nov. and *L. francisii* sp. nov., are described. The habitus, wing and male terminalia are described and illustrated. An identification key for the seven *Leinendera* species is provided.

Keywords: Robber fly, *Asilus* group, Neotropical fauna, taxonomy

Deux nouvelles espèces du genre *Leinendera* Carrera 1945 sont décrites, en provenance du Brésil : *L. lusitania* sp. nov. et *L. francisii* sp. nov. L'habitus, les ailes ainsi que les genitalia mâles sont décrits et illustrés. Une clé dichotomique permettant d'identifier les 7 espèces du genre *Leinendera* est fournie.

Mots clés : Asile, Asilini, faune néotropicale, taxonomie

INTRODUCTION

This work is a continuation of studies on Asilidae kept at the conservatoire of Gembloux Agro-Bio Tech (ULiège, Belgium) (Tomasovic & Braet, 2001 ; Tomasovic, 2002 ; Tomasovic, 2013a ; Tomasovic, 2013b ; Tomasovic, 2014 ; Tomasovic, 2020). Asilinae is the most diverse subfamily in the bosom of Asilidae from Neotropical region with about 68 geni (Camargo *et al.*, 2016) and more than 550 species. In the present work, two new species of genus *Leinendera* Carrera 1945 from South-east Brazil are described and illustrated. A key to species is provided.

MATERIAL AND METHODS

Our four males of genus *Leinendera* come from a batch graciously donated by Dr. Claire Villemant (Hymenoptera : Museum national d'Histoire naturelle, Paris, France). They were captured during a sampling campaign in the period of 23-30 September 2000 in the nature reserve of Linhares, area of 220 km² on the coast of Brazil.

The male genitalia were dissected and glued on a cardboard attached to the pin of the corresponding specimen. The photographs were taken by J. Mignon with a Canon 90d equipped with a Canon EF 100 mm f/2,8L Macro IS USM. The focus bracketing function was used and the image was compiled by stacking with the DPP 4.10 software. For morphological terminology we have followed Geller-Grimm (2007).

SYSTEMATIC

Genus *Leinendera* Carrera 1945

Carrera (1945) found the genus *Leinendera* with the species *L. rubra*. He found similarities in habitus to *Glaphyropyga* Shiner 1866. The species *L. rubra* is retained in the catalogue of Neotropical Asilidae by Papavero (2008). In the key to Neotropical Asilinae, Papavero *et al.* (2009) placed *Leinendera* in the species with anatergite pilose and marginal scutellar bristles absence. Camargo *et al.* (2019) have given the history of the genus as well as a key to the five known species, all from Brazil. They cited three species with marginal scutellar bristles absence, *L. achaeta* Camargo, Vieira, Köhler & Rafael 2016, *L. carreraei* Camargo, Vieira & Rafael 2019 and *L. mnrj* Camargo, Vieira & Rafael 2019, but also two species with marginal scutellar bristles presence *L. rubra* Carrera 1945 and *L. nigra* Vieira 2012.

Leinendera lusitania sp. nov. (Figs. 1-3)

Etymology. *Lusitania* = in reference to ancient Brazilian name.

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Type material

Holotype: 1 ♂, 15-22.xi.2000, Brésil, Espinito Santo, fragment «Mun Sooretama», S.19°11' W40°06', forêt semi-décidue, 36 km NNE Linhares, rec. Grandcolas, Pellens.

Paratype: 1 ♂ same as holotype.

Diagnosis. Face narrow. Pospedicel black, lanceolate with small yellow mark at the lower part, about the same length as the scape; style black and long about the same length as the scape, pedicel and postpedicel together. Mesonotum brown with a central dark strip, setae black. Legs yellow. Abdomen dark, tergites with clear marginal and lateral strip and fines white setae. Genitalia dark or brown.

Description

Male holotype (Figs. 1, 2)

Face. Narrow with white tomentum, mystax bushy with white setae and a few fine and black setae above. Antenna, scape and pedicel yellow with black setae, scape two time longer than the pedicel, postpedicel black, lanceolate with small yellow mark at the lower part, about the same length as the scape, style black, long about the same length as the scape, pedicel and postpedicel together. Frons with brown tomentum. Palpus black with long, fine and black setae. Proboscis black with ventral and white setae. Occiput white tomentum and with black postocular bristles.

Thorax. Anteppronotum and postpronotum with greyish tomentum and white fine setae, scutum dark brown dorsally and brown laterally and with sparse fine and black setae, scutellum brown, the ring with grey tomentum. Chaetotaxy, bristles black: 2 notopleural, 2 supra-alar, 2 postalar, 8 pairs of dorsocentral, 2 scutellar. Pleura brown with grey tomentum, anepisternum, proepimeron, katepisternum darker, katatergal and metepisternal with longs and fines setae, anatergal hairs black.



Figure 1: *Leinendera lusitania* sp. nov., male. Habitus, lateral view.



Figure 2: *Leinendera lusitania* sp. nov., male. Habitus, dorsal view

Wings. Clear with brown veins microtrichia lighten on the wing apex with small brown patch. Cross vein r-m passes below middle of discal cell. Halter pale yellow.

Legs. Coxae with grey tomentum and white setae. Femora, tibia and tarsi yellowish. Femora with some short black setae and very fines and longs white setae on the ventral part. Tibias with longs and fines black setae, shooter and stout to apex. Tarsomeres with black bristles, the 1st tarsomere long.

Abdomen. Tergites with a white strip on posterior and lateral margin, short discal black setae on the centre they are laterally more longer and white and black. Sternites black with white posterior margin, and long and fine black or white setae.

Male genitalia. (Fig. 3) Black. Epandrium elongate, broader in the apical part with rounded apex, dorsal margin with numerous small denticles on the half posterior apex. Gonocoxites short, triangular with rounded apex, dististylus slender curved, widening apically with an apical corner. Aedeagal sheath subtriangular in lateral view endophallus very short. Apodeme slender.

Female. Unknown.



Figure 3: *Leinendera lusitania* sp. nov., male. Genitalia.

Leinendera francisii sp. nov. (Figs. 4-6)

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Etymology. In gratitude to Prof. F. Francis, University of Liège, Gembloux Agro-Bio Tech, Functional and Evolutionary Entomology, founder of Hexapoda Museum in the city of Waremme, dedicated for its entire engagement to entomology.

Type material.

Holotype: 1 ♂, Brésil, Espinito Santo, Res. de Linhares, CVRD, 40 km NNE Linhares, S.19°08' W40°03', Forêt semi-décidue, 15-20.iv.2000

Paratype: 1 ♂ same as holotype.

Diagnosis. Face narrow. Postpedicel brown, lanceolate with small yellow mark at the lower part, shorter than the scape; style black longer than the scape, pedicel and postpedicel together. Mesonotum central darker, greyish laterally, setae black. Legs yellow. Abdomen grey brown, with yellowish chaetotaxy, tergites pale. Genitalia dark or brown.



Figure 4: *Leinendera francisii* sp. nov., male. Habitus, lateral view.



Figure 5: *Leinendera francisii* sp. nov., male. Habitus, dorsal view.

Description

Male holotype. (Figs. 4, 5)

Head. Face and frons narrow with white tomentum, mystax not condensed with fine and long white setae. Antenna, scape and pedicel yellow with black setae, scape two time longer than pedicel, postpedicel brown, lanceolate with small yellow mark at lower part, shorter than the scape, style black, longer than the scape, pedicel and postpedicel together. Palpus brown with long, fine and white setae. Proboscis black with white setae to the ventral part and to apex. Occiput with white tomentum and with white postocular bristles.

Thorax. Anteppronotum and pospronotum with greyish tomentum and white fine setae, scutum greyish with a brown stripe on the middle, scutellum grey. Chaetotaxy, bristles long, fine and black: 2 notopleural, 2 supra-alar, 2 postalar, 6 pairs of dorsocentral, 2 scutellar. Pleura with grey tomentum, katatergal and metepisternal setae long and fine, black anatergal hairs.

Wings. Hyaline with brown veins and with dense microtrichia at wing apex, 4th radial cell narrow, cross vein r-m passes below middle of discal cell. Halter, pale, whitish knob, with brown strip laterally.

Legs. Yellowish. Coxae with grey tomentum and white setae. Femora I-II with long, fine and yellowish setae on the ventral part, on the III they are black. Tibias with yellow bristles to apex, tibiae I-II with long and fine yellowish setae, on the III they are black. Tarsomeres with black bristles, the 1st tarsomere long.

Abdomen. Tergites brown with grey margin, covered by very short, fine, yellow setae, and some long, fine and yellow setae laterally. Sternites grey-yellowish with fine, long and white setae.

Male genitalia. (Fig. 6) Black. Epandrium elongate, with rounded apex, the dorsal margin with numerous stout distinct denticles. Gonocoxites short, triangular, dististylus slender curved with long pointed apex. Aedeagal sheath short, very wide, and large, rounded, dorsal apical processes above the very short endophallus. Apodeme slender.

Female. Unknown



Figure 6: *Leinendera francisii* sp. nov., male. Genitalia.

Identification key to males of *Leinendera* Carrera 1945

1. Marginal scutellar macrosetae absent..... 2
- Marginal scutellar macrosetae present..... 4
2. Postpedicel reddish to dark brown and black; mesonotum dark brown; epandrium rounded apically; hypandrium with proximal and distal margin straight..... 3
- Postpedicel completely yellow; mesonotum brown; epandrium triangular apically; hypandrium with proximal margin rounded and distal margin straight..... *L. achaeta*
3. Postpedicel long, about two times the length of scape and pedicel combined, stylus short, almost 1/6 of postpedicel length; golden yellow mesonotal stripes straight on the inner margin anteriorly;

- epandrium cheliform..... *L. carrerai*
 Postpedicel short, about the same length of scape and pedicel combined, stylus long, almost half of postpedicel length; yellowish grey mesonotal stripes with a slight curve on the inner margin anteriorly; epandrium digitiform..... *L. mnrj*
 4. Postpedicel 3 time longer than the style..... 5
 - Postpedicel short, lanceolate, shorter than the style; long style..... 6
 5. Lower facial margin with black projection; base of cell r4 narrow; epandrium with apex backward directed; gonocoxite sub-quadrangular with a projection on the external margin; subepandrial sclerite with a basal plate; aedeagus strongly curved upward, and apex straight..... *L. nigra*
 - Lower facial margin without a black projection; base of cell r4 slightly narrow; epandrium with apex inwardly curved; gonocoxite sub-quadrangular with a median keel backward directed; subepandrial sclerite simple, without projections; aedeagus curved upward and apex forming a hook..... *L. rubra*
 6. Mystax bushy with white setae. Palpus black with long, fine and black setae. Wings with brown veins and small brown patch (on transversal veins). Epandrium elongate, broader in the apical part with rounded apex..... *L. lusitania* sp. nov.
 - Mystax not condensed with fine and long white setae. Palpus brown with long, fine and white setae. Wings hyaline, microtrichia on posterior margin. Epandrium elongate, with rounded apex, the dorsal margin with numerous distinct denticles..... *L. francisii* sp. nov.

DISCUSSION

The seven species of *Leinendera* are located in narrow strip dense of coastal semi-deciduous rainforest over 3000 km on Brazil's Atlantic coast between Natal and Rio Grande (Huetz de Lempis, 1994, p. 141, fig. 65).

We find that the genus has a fairly homogeneous habitus but nevertheless shows some differences both in their morphologies and in the genitalia. If the aedeagus of *L. lusitania* is similar to that of *L. achaeta*, *L. carrerai* and *L. mnrj* and in particular reminds us those of Palearctic region for the genus *Erax* Scopoli 1763 (Theodor, 1980, p. 328, fig. 586), for *L. francisii* it's close to the species *Satanas gigas* (Eversmann 1855) (Theodor, 1976, p. 145, fig. 348).

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