



# *Chrysotus capellarii* sp. nov., the first species of longipalpus group from Colombia (Diptera: Dolichopodidae)

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**Abstract.** *Chrysotus capellarii* Soares & Carvalho-Filho sp. nov. is described and illustrated based on a single specimen collected in the department of Córdoba, Colombia, representing the first record of the *longipalpus* species group from the country (a photographic record is known from Costa Rica). The new species is easily recognized by the long palpus (about 2x longer than eye height) with a wide and oval apical lamella.

**Keywords:** Long-legged flies; new species; Diaphorinae; Neotropical Region.

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*Chrysotus* Meigen, 1824 (MEIGEN 1824) is the largest Diaphorinae genus with over 500 described species worldwide (GRICHANOV 2017), but its limits remain poorly defined (CAPELLARI 2015). However, some efforts were made in reviewing the New World species groups *i.e.*: *mediotinctus* species group (CAPELLARI & AMORIM 2014) and *longipalpus* species group (CAPELLARI 2015). VAN DUZEE (1924) was the first to recognize the *longipalpus* species group composed by four species: *Chrysotus crosbyi* Van Duzee, 1924; *Chrysotus flavus* Aldrich, 1826 (later transferred to *Xanthina* Aldrich, 1902), *Chrysotus longipalpus* Aldrich, 1896 and *Chrysotus sagittarius* Van Duzee, 1924 (later synonymized with *Chrysotus longipalpus*). Currently, the *longipalpus* species group comprises 12 described species that are easily recognized by the males with ornamented, enlarged and/or elongated palpus, besides the male fore basitarsomere with ventroapical swelling (CAPELLARI 2015; RUNYON & CAPELLARI 2018).

It is worth mentioning that the new species described below was first discovered through photographs posted on the Facebook group Diptera in the year of 2015 (see Annex I), from a malaise trap sample collected in Costa Rica (the author of the photograph, Facebook group Diptera in 2015, does not recall the exact location of the sample) and housed at the Natural History Museum, London, United Kingdom. Unfortunately, the specimen was not separated and was never found again.

The purpose of this paper is to describe and illustrate this remarkable new species, representing the first record of the *longipalpus* species group from Colombia.

## MATERIAL AND METHODS

The examined specimen in this study belongs to the Colección Entomología Universidad de la Amazonia (LEUA, Florencia, Caquetá, Colombia). Terminology follows mainly CUMMING & WOOD (2017). Male terminalia has not been dissected because it is virtually identical in this group of species and does not provide reliable characters to separate the species (CAPELLARI 2015). The following abbreviations and terms are used: I, II, III: pro-, meso-, metathoracic legs; MSSC: male secondary sexual character(s) (some features are considered MSSCs on the basis of comparison with other species in the genus, even when females are unknown at present);  $t_{1-5}$ : tarsomeres 1 to 5. Body length was measured from the insertion of the antenna to the tip of abdomen. Wing length was measured from the base to the apex of the wing, both given as ranges. Length of crossvein dm-m/last part of  $M_4 = CuAx$  ratio. Measurements of the leg segments are representative ratios and given according to the following formula: trochanter+femur, tibia, tarsomeres 1/2/3/4/5. Label data of the holotype are cited verbatim in quotation marks (each line separated by a vertical line "|" and each label by semicolon ";"), with annotations in square brackets. Photographs were taken with a Leica MC170 HD digital camera attached to a Leica M165C stereomicroscope. The multiple images were stacked and combined using Leica Application Suite V4.11. The species distribution map was created with SimpleMapp (SHORTHOUSE 2010) using coordinates from the specimen label and the Facebook post.

## RESULTS

**Diagnosis (males).** The *C. longipalpus* species group can be recognized mainly by the following set of characters: Small species (less than 2 mm in length); eyes nearly contiguous below antennae; palpus variously enlarged and ornamented (MSSC) and  $lt_1$  with ventroapical swelling (MSSC); surstylus as a single lobe, with spine at apex and small seta posteriad; apex of phallus with ventral projection at apex [see CAPELLARI (2015) for a complete diagnosis and description].

For the inclusion of *Chrysotus capellarii* sp. nov., the key of RUNYON & CAPELLARI (2018) is modified as follows:

- 7 Palpus 2x longer than eye height, with wide and oval apical lamella (Figure 1A, B)..... *Chrysotus capellarii* sp. nov.
- Palpus as long or slightly longer than eye height, lacking apical lamella.....8
- 8 Palpus entirely bright silvery, relatively short (length  $\leq$  2X width) and often truncate apically; nearly bare of hairs or setae (RUNYON & CAPELLARI 2018, Figures 1, 2) .....9
- Palpus never entirely bright silvery, but often brightly yellowish; relatively long (length  $>$  2.5x width), either uniformly narrow or only gradually tapering towards apex; with hairs or setae scattered over much of surface ..... 10
- 9 Arista-like stylus slightly broadened, feathered, and white at apex (RUNYON & CAPELLARI 2018, Figure 1).....  
..... *Chrysotus plumarista* Runyon & Capellari, 2018
- Arista unmodified (Figure 1B) ..... 10
- 10 Palpus oblong (CAPELLARI 2015, Figure 1B); antenna entirely brown; coxae and pleuron brown .....  
..... *Chrysotus crosbyi* Van Duzee, 1924
- Palpus distinctly truncate apically and pointed laterally (RUNYON & CAPELLARI 2018, Figure 2); postpedicel yellow ventrally; coxae and pleuron mostly yellow .....  
..... *Chrysotus mystax* Runyon & Capellari, 2018
- 11 Palpus uniformly narrow and straight ..... 12
- Palpus tapered towards apex ..... 13
- 12 Antenna brown; palpus brown with silvery tip (CAPELLARI 2015, Figure 1H); coxa I brown, femur I yellow .....  
..... *Chrysotus zumbadoi* Capellari, 2015
- Antenna yellow; palpus yellow, bright silvery (CAPELLARI 2015, Figure 1G); coxa and femur I whitish yellow.....  
..... *Chrysotus xiphostoma* Robinson, 1975
- 13 Palpus sub-triangular with rounded apex, entirely yellow (CAPELLARI 2015, Figure 1C).....  
..... *Chrysotus longipalpus* Aldrich, 1896
- Palpus narrow throughout, pointed, basal half yellow with apical half brownish and silvery pruinose (CAPELLARI 2015 Figure 1E) ..... *Chrysotus neopedionomus* Capellari, 2015

***Chrysotus capellarii* Soares & Carvalho-Filho sp. nov.**

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(Figure 1)

**Type examined material. HOLOTYPE** ♂ (Figure 1) labelled as: "COLOMBIA, Córdoba, Paso Nuevo [ca 9°19'35.7"N 76°05'17.2"W] | vegetation at the edge of the beach | sweeping, 22.vi.2023, Y. Ramos- | Pastrana col." "HOLOTYPE | *Chrysotus capellarii* | Soares & Carvalho-Filho [red label]". Specimen in good condition, not dissected, left  $llt_{2-5}$ ,  $lllt_{2-5}$  and right  $lllt_{3-5}$  broken off.

**Diagnosis (males).** Antenna wholly dark brown (Figures 1A, B). Palpus long and narrow, about 2x longer than eye height, silvery, somewhat translucent and covered with short pubescence, ending in a wide and oval black lamella (Figures 1A, B). Femora I and II yellow with basal 1/2 brownish, femur

III yellow with apical 1/2 brownish (Figures 1A, B).

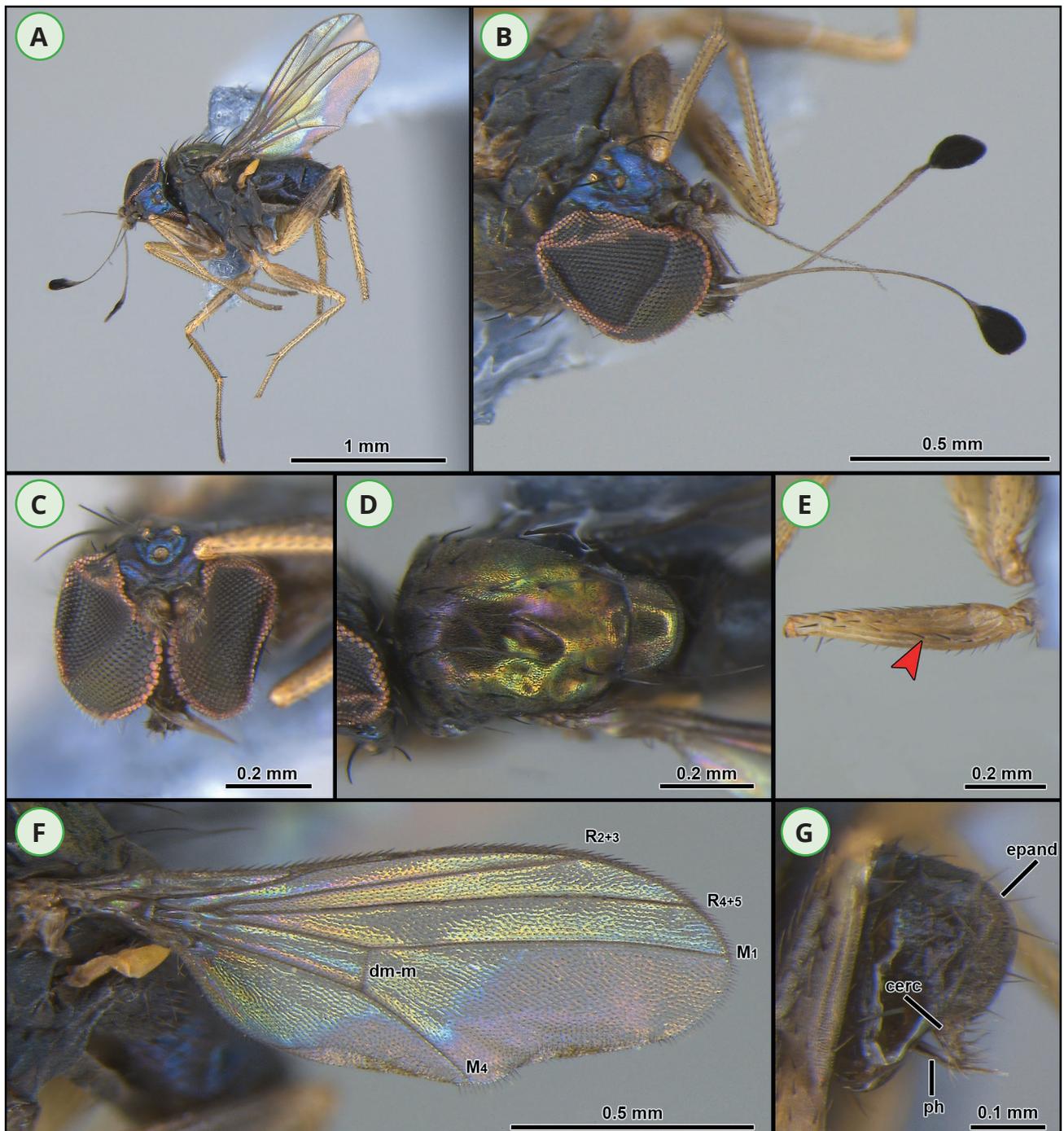
**Description of male** (Figure 1). Body length, 1.4 mm. Wing length, 1.4 mm, width, 0.5 mm. **Head:** Frons rectangular, 1.5x wider than high, dark metallic green, with strong bluish-purple reflections (Figures 1A, B); face dark brown, narrower than anterior ocellus at narrowest point (Figure 1C); antenna wholly dark brown, postpedicel subtriangular, covered with long pale pubescence; arista-like stylus covered with short microtrichia, slightly longer than eye height (Figures 1B, C); proboscis dark brown covered with short pale setae; palpus long and narrow, about 2x longer than eye height, silvery, somewhat translucent and covered with short pubescence, ending in a wide and oval black lamella, about 1/5 as long as the total length of palpus (MSSC) (Figures 1A, B). **Thorax:** Mesonotum and scutellum mostly metallic green with weak coppery and purple reflections, acrostichals setae short, biseriate, ending at level of the third posterior dorsocentral seta, five pairs of strong dorsocentrals setae increasing in length posteriorly (Figures 1A, D); pleuron dark brown with weak greenish reflections, metepimeron concolor with pleuron (Figure 1A). **Wing** (Figure 1F): Membrane hyaline, veins pale brown; CuAx: 0.3. Halter yellow, calypter brownish at apex. **Legs** (Figures 1A, E) I: 56, 54, 25/10/8/6/5. II: 65, 65, 30/15/10/6/5. III: 70, 73, 17/20/?/?/? (all  $llt_{3-5}$  broken off). Legs yellow except all brown coxae, basal 1/2 of femora I and II, apical half of femur III and  $llt_{3-5}$  brown,  $lt_{2-5}$  and basal 1/2 of tibia III dark yellow. **Chaetotaxy:** Setae on coxae black. Femur II with 1-2 anterior preapical seta, with ventral row of short and slender setae from base to basal 1/2, posteroventral row of conspicuous setae from base to apex (Figure 1E). Tibia II with 1 short anterodorsal seta at basal 1.5/6, 1 anterior and 1 ventral conspicuous setae at apex. Femur III with 3 strong anteroventral preapical setae, with ventral row of short and slender setae from base to apical 2/3, 1 long posteroventral preapical seta. Tibia III with 3 short dorsal setae at: 2/6, 4/6 and apex, 1 anteroventral and 1 ventral apical short setae.  $llt_{1-2}$  with ventral row of short and erect setae. **Abdomen** (Figure 1A). Dark brown with bluish and purple reflections. **Hypopygium** (Figure 1G): Capsule and cercus brownish, both covered with brownish setae.

**Female.** Unknown.

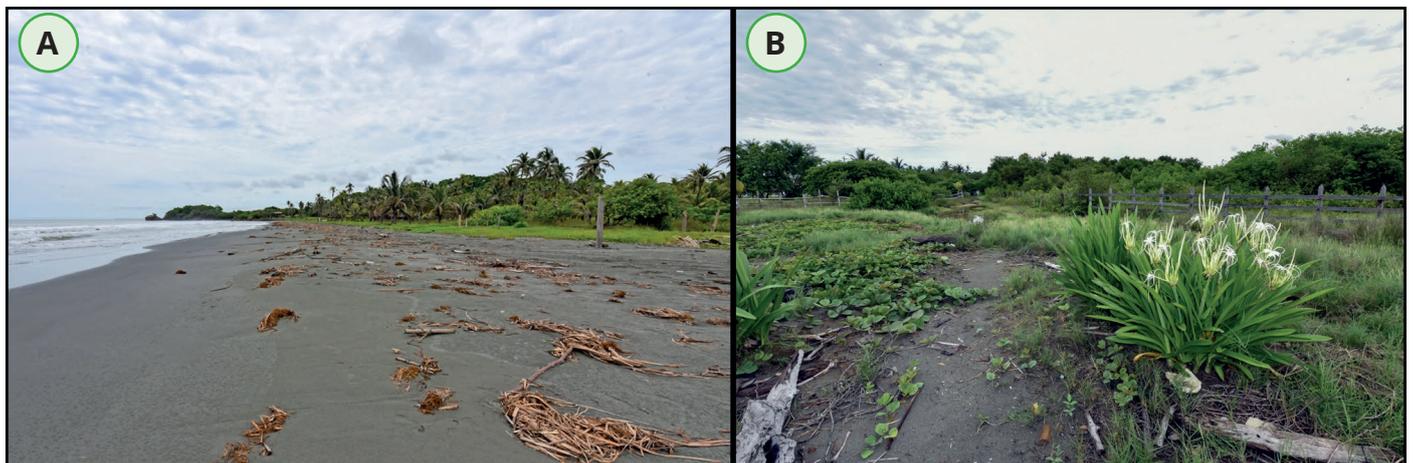
**Etymology.** Named after Dr. Renato Soares Capellari (Instituto Federal de Educação, Ciência e Tecnologia de São Paulo-IFSP, Brazil) for his essential contribution to the knowledge of Neotropical Dolichopodidae, including his review of the *C. longipalpus* species group.

**Remarks.** The *longipalpus* species group of *Chrysotus* presents a wide range of male palpus shapes, including species with a long and homogeneously narrow palpus (i.e., *Chrysotus xiphostoma* Robinson, 1975 and *Chrysotus zumbadoi* Capellari, 2015), somewhat wide and oval (i.e., *C. crosbyi*), wide basally and abruptly narrowing towards apex (i.e., *Chrysotus coquitos* Capellari, 2015; *Chrysotus miripalpus* Parent, 1928 and *Chrysotus pachystoma* Capellari, 2015). However, *C. capellarii* sp. nov. presents a unique and apomorphic condition, with the palpus extremely long (about 2x longer than eye height), and largely transparent (palpus opaque in the other species) and with a wide apical lamella (the only known species in the group with this characteristic), besides the femora I and II yellow with basal 1/2 darkened. All these mentioned characters prevent us from establishing any close phyletic relationship of *C. capellarii* sp. nov. with the other species in the group.

**Natural history.** The holotype was collected at a height of about 40 cm from the ground on a leaf of a low tree in an herbaceous coastal sand-dune habitat of an Atlantic oceanic beach (Figures 2A, B).



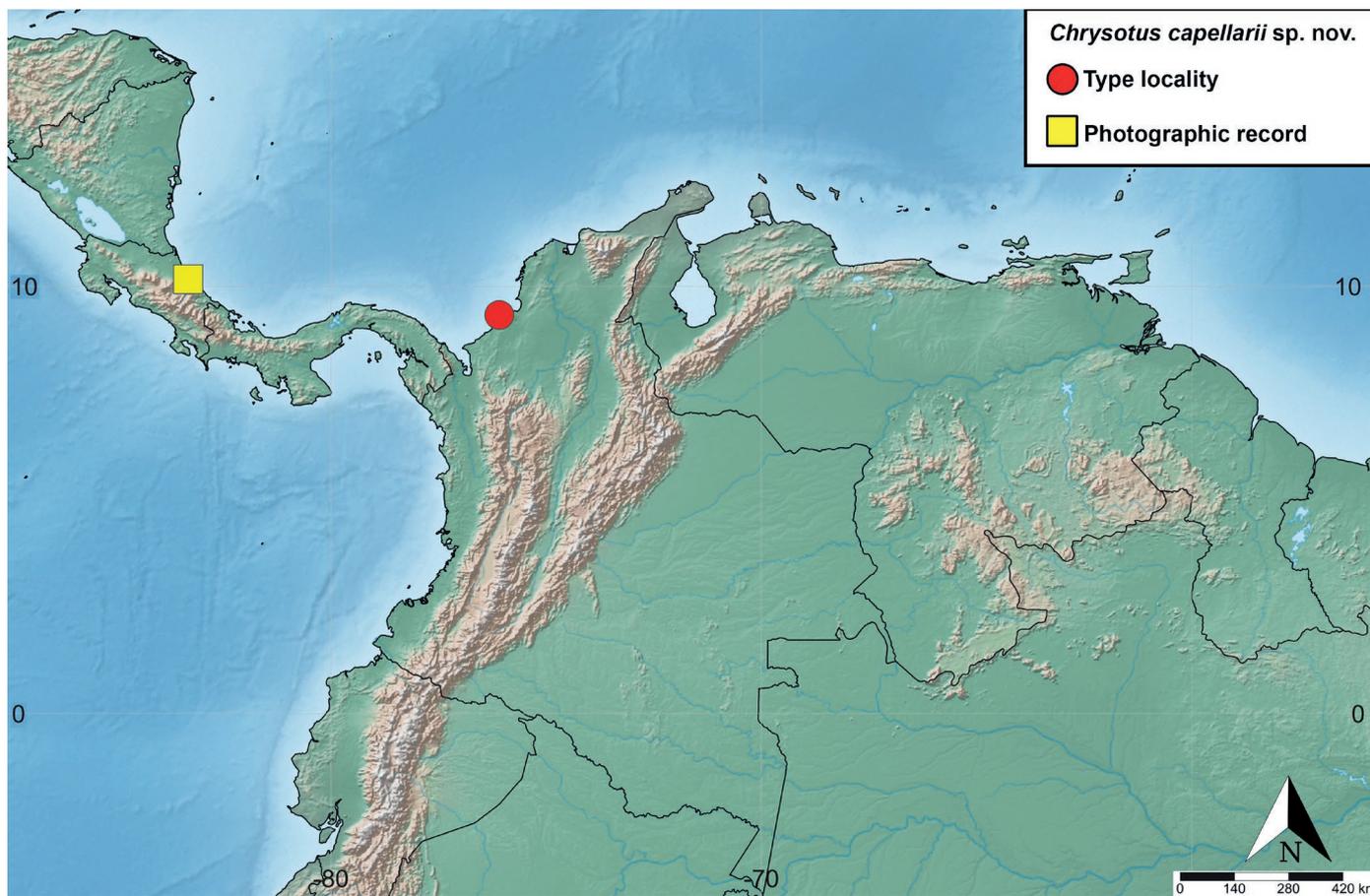
**Figure 1.** *Chrysotus capellarii* Soares & Carvalho-Filho **sp. nov.** **A.** Habitus, lateral view; **B.** Head and palpus; **C.** Head, anterior view; **D.** Thorax, dorsal view; **E.** Femur II, posterior view (arrow pointing the posteroventral row of setae of femur II); **F.** Left wing, anterior view; **G.** Terminalia, left lateral view. Abbreviations: cerc = cercus; dm-m = discal medial crossvein; epand = epandrium;  $M_1$  = first branch of media;  $M_4$  = fourth branch of media; ph = phallus;  $R_{2+3}$  = second branch of radius;  $R_{4+5}$  = third branch of radius.



**Figure 2.** Collection site and habitat of *Chrysotus capellarii* Soares & Carvalho-Filho **sp. nov.** **A.** Beach in the Atlantic coast of Paso Nuevo, department of Córdoba; **B.** Vegetation type where the holotype was collected.

**Distribution.** The new species is known to occur only in the type locality in Córdoba, Colombia and as mentioned in the introduction, this species has also been collected in Costa

Rica, demonstrating a wide distribution across the Atlantic Coast (Figure 3).



**Figure 3.** Known geographic distribution of *Chrysotus capellarii* Soares & Carvalho-Filho sp. nov.

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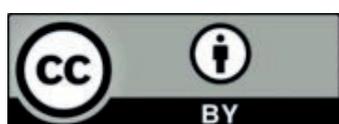
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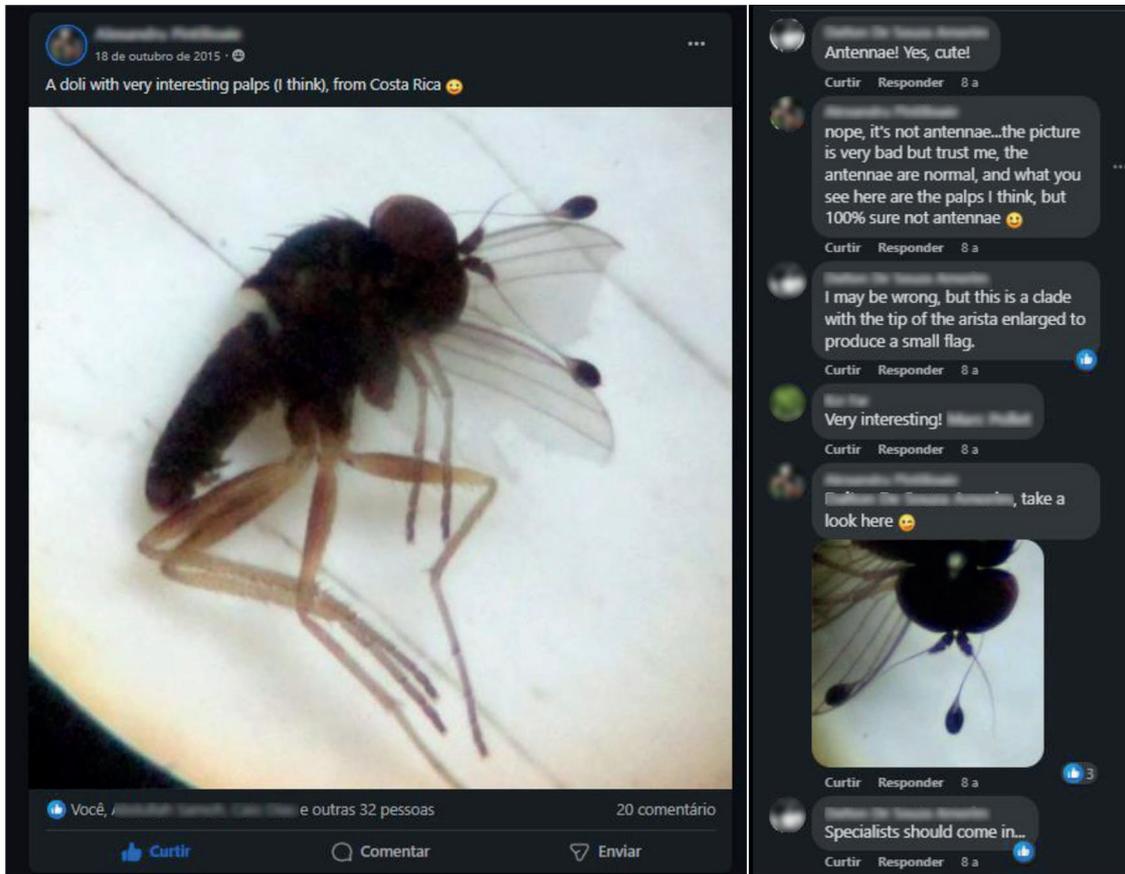
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Annex I. Original post on Facebook group "Diptera".