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Argentinean Species of *Chalarus* Walker (Diptera: Pipunculidae): New Records and Description of *Chalarus tani* n. sp.

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Abstract
The Argentinean species of *Chalarus* Walker were studied. Pipunculidae adults belonging to four species, *Chalarus chilensis* Collin, *Chalarus triramosus* Rafael, *Chalarus absonus* Rafael and *Chalarus tani* n. sp. were described based on two male specimens collected in the La Rioja and Tucuman Provinces, northwestern region of Argentina. *Chalarus absonus* is recorded for the first time in Argentina. New distributional data and an identification key to the adult males of the Argentinean representatives are provided including figures.

Introduction

Over 1,400 Pipunculidae (big-headed flies) species have been described worldwide and it is estimated that well over 2,000 species exist (Skevington & De Meyer 2004, Skevington unpublished database). Most big-headed flies that have been studied are endoparasitoids of leafhoppers and planthoppers, including Cicadellidae, Cercopidae, Delphacidae, Membracidae, Issidae, Cixiidae, and Flatidae (Waloff & Jervis 1987); the exception being *Nephrocerus* Zetterstedt which has been found parasitizing adult Tipulidae (Koenig & Young 2007). So far, *Chalarus* Walker species have exclusively been found as parasitoids of the Typhlocybinae (Kehlmaier & Assmann 2008). *Chalarus* Walker is globally distributed and contains 42 described species (Kehlmaier 2010, Kehlmaier & Assmann 2010). Rafael (1990) revised the Neotropical species of *Chalarus* and listed nine species, describing five new ones and providing a key for specific identification. Until now, the genus was represented in Argentina by only two species, *Chalarus chilensis* Collin and *Chalarus triramosus* Rafael (Rafael 1990, De Meyer 1996).

This paper is a result of the study of specimens deposited in the entomological collections of the Fundación e Instituto Miguel Lillo (IMLA), San Miguel de Tucumán, Tucumán, Argentina. Dissected structures were macerated in hot 85% lactic acid and examined in glycerin on excavated slides. After examination, detached parts were placed in microvials with glycerin and pinned with their associated specimen. Morphological terminology follows Kehlmaier & Assmann (2008), Rafael & Skevington (2010). The genitalia were photographed using a LEICA DFC 295 camera attached to a LEICA M205C stereomicroscope. Photographs were taken of each structure at different focus levels and later combined using the Leica Application Suite LAS V3.6 digital image processing software. Images were processed in JPEG format using Adobe Photoshop CS4 (Adobe Co.).

Chalarus absonus Rafael

Chalarus absonus Rafael 1990: 47, Figs 1, 2, and 3.
Geographical records: Brazil (São Paulo and Paraná); Argentina (Tucumán, new record).
Material examined: Argentina, Tucumán, Las Tipas, 26°37′ 53″ S–65°23′03″ W; 970 m asl, 10 January 2009, E.G. Virla (one male, IMLA). Argentina, Tucumán, Villa Padre Monti, 17 January to 7 February 1948, R. Golbach (five males, IMLA). Terminalia in microvial with glycerin, pinned with their associated specimen.

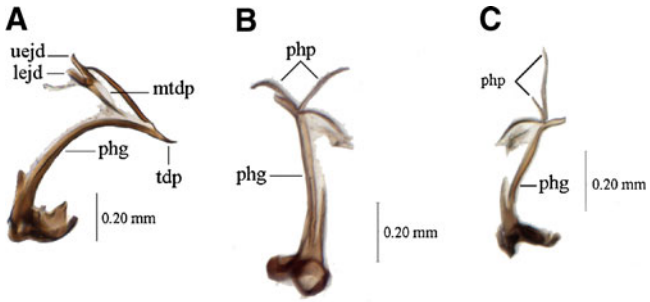

Fig 1 Male genitalia of *Chalarus*: **a** *C. triramosus*; **b** *C. chilensis*; **c** *C. absonus* Abbreviations: *lejd* lower ejaculatory ducts, *mtdp* membranous tip of distiphallus, *phs* phallic shaft, *php* phallic processes, *tdp* tip of distiphallus, *uejd* upper ejaculatory duct.

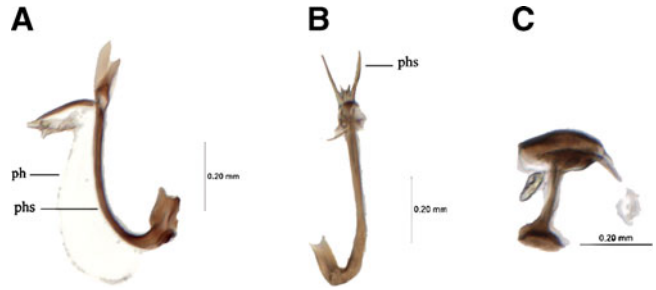

Fig 2 Genitalia of *Chalarus tani* n. sp., holotype male. **a** Lateral view. **b** Frontal view. **c** Ejaculatory apodeme. Abbreviations: *ph* phallus, *phs* phallic shaft, *php* phallic processes.

Chalarus chilensis Collin

Chalarus spurius chilensis Collin, 1931: 52, Fig. 14; Aczél 1948: 50; 1952: 239; Hardy, 1954: 2 (part.); 1965b: 2 (part.); 1966: 1. *Chalarus chilensis* Rafael, 1988: 2, Figs. 1–6, 18 (redescribed). *Geographical records*: Brazil (São Paulo, Paraná, and Santa Catarina); Argentina (Rio Negro: Bariloche, La Rioja, new record, and Tucumán, new record); Chile.
Material examined: Argentina, La Rioja, Santa Cruz, 28°28′16″ S–67°41′25.8″ W, 28 July 2001, E. G. Virla (three males, IMLA). Argentina, Tucumán, Villa Padre Monti, 17 January to 7 February 1948, R. Golbach (eight males, IMLA). Argentina, Tucumán, La Cavera, 23–28 November 1951. M. Aczél and R. Golbach (one male, IMLA).

Chalarus tani n. sp.

Description, holotype male

Head: Brown and retracted; frons brown, gray pruinescent next to antenna, with two pairs of fronto-orbital setae; yellow antenna, pedicel with two dorsal and one ventral bristles. Ocellar tubercle with convergent bristles. Face slightly wider than frons, both gray pruinescent near base of antenna.

Thorax: Dark brown with brown pruinescence. Acrosthicals shorter than remaining thoracic bristles. Scutellum pruinescent with apical bristles longer. Yellow postpronotal lobes. Pleuron without bristles. Legs yellow, except coxae and femora pale brown; pulvilli yellow, shorter than claw, around half the lenght of the last tarsomere. Wing with pale brown pterostigma occupying more than half of the third costal section; microtrichia uniformly distributed along wing blade; vein M_1 with inconspicuous appendix from transversal r-m vein (Fig 3a).

Abdomen: Dark brown; genitalia with curved phallic shaft and membranous tip of distiphallus, with three very short ejaculatory ducts at apex (Fig 2a). Phallic processes symmetrical, subapical, flattened, and slightly shorter than the membranous tip of distiphallus (Fig 2a, b). The tip of distiphallus consisting of two small lobes between phallic processes (Fig 2b). Ejaculatory apodeme as in Fig 2c. Surstyli and gonopods are symmetrical, surstyli with apex rather rounded, almost truncate and gonopods with apex rather acuminate (Fig 3b).

Body length, 2.0 mm; wing length, 2.68 mm; wing width, 0.89 mm.

Female: unknown

Distribution: Argentina (La Rioja, Tucumán)

Material examined (holotype male): Argentina, La Rioja, Santa Cruz, 28°28′16″ S, 67°41′25.8″ W; 1,700 m asl, 1 January 2001, E. G. Virla (IMLA). Paratype male, same data as holotype (IMLA). Argentina, Tucumán, Villa Padre Monti, 17 January to 7 Febraury 1948, R. Golbach (one male, IMLA). Argentina, Tucumán, Quebrada la Toma, 21 July 1950, R. Golbach (two males, IMLA).

Holotype condition: Terminalia in microvial with glycerin, pinned with their associated specimen.

Etymology: The specific name is in honour of Estanislada, grandmother of the senior author.

Diagnosis: At present, *C. tani* n. sp. and *Chalarus xanthopodus* Rafael (1990), described from Rio de Janeiro, Brazil, are the only Neotropical species characterized by yellow antennae and predominantly yellow legs. Whereas *C. xanthopodus* is only known from the female and thus *C. tani* might eventually turn out to be its missing partner,

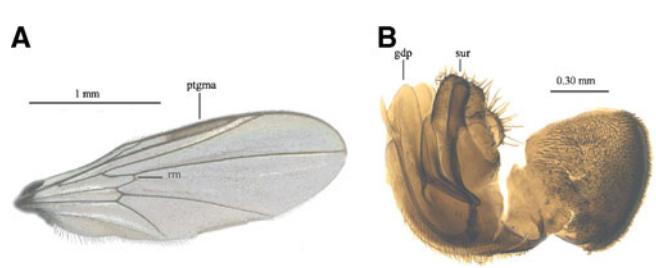

Fig 3 Terminalia and wing of *Chalarus tani* n. sp., holotype male. **a** Wing. Abbreviations: *ptgma* pterostigma; *rm* transversal vein r-m. **b** Terminalia. Abbreviations: *gpd* gonopod, *sur* surstylus.

we decided to describe it as new because *C. tani* presents two pairs of fronto-orbital setae; thorax with no shiny black spot posterolaterally; all coxa and femora are pale brown; vein M_1 with inconspicuous appendix from transversal r-m vein and abdomen entirely dark brown. *Chalarus xanthopodus* has no fronto-orbital setae; thorax with shiny black spot posterolaterally; only fore- and mid-coxa brown; vein M_1 with no appendix from transversal r-m vein and abdomen shinning black, except tergites 3–6 gray-brown pruinescent basally. From other Neotropical males, *C. tani* can be differentiated by the key characters presented below.

Chalarus triramosus Rafael

Chalarus spurius; Hardy, 1965a: 188 (part.); 1965b: 2 (part.)
C. spurius chilensis Hardy, 1965b: 2 (part.)
C. triramosus Rafael 1990: 50, Figs. 14 and 15.
Geographical records: Brazil (São Paulo and Paraná); Argentina Tucumán: Villa Padre Monti and La Rioja (new record).
Material examined: Argentina, La Rioja, Santa Cruz, 28°28′ 16″ S–67°41′25.8″ W 28 July 2001, E.G. Virla (two males, IMLA). Argentina, Tucumán, Villa Padre Monti, 17 January to 7 February 1948, R. Golbach (18 males, IMLA). Argentina, Tucumán, Quebrada la Toma, 21 July 1950, R. Golbach (two males, IMLA).

Identification key to Argentinean *Chalarus* based on male genitalia

1. Phallic guide without phallic processes (Fig 1a)..... ..... *C. triramosus* Rafael
   Phallic guide with phallic processes (Figs 1b, c and 2a, b).....2
2. Phallic guide with symmetrical phallic processes (Fig 1b and 2a, b).....3
   Phallic guide with asymmetrical phallic processes (Fig 1c).....*C. absonus* Rafael
3. Phallic processes slender, elongated, longer than membranous tip of distiphallus (Fig 1b).....*C. chilensis* Collin
   Phallic processes short, rather flattened, slightly shorter than membranous tip of ditiphallus (Fig 2a)... .....*C. tani* n. sp.

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