



***Tanycarpa broadi* sp. nov., a new Neotropical species of the genus *Tanycarpa* Foerster, 1863 (Hymenoptera: Braconidae: Alysiinae), with a key to the New World taxa**

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Abstract

A new species of alysiine wasp from Brazil, *Tanycarpa broadi* sp. nov., is described and illustrated. A key for determination of all known Neotropical species of *Tanycarpa* is provided.

Key words: Alysiini, parasitoid, Brazil, new species, key

Introduction

The relatively small genus *Tanycarpa* Foerster, 1863 from the tribe Alysiini comprising 25 recent and a single fossil species is distributed in almost all zoogeographical regions except the Afrotropical region (Yao *et al.* 2015; Cerantola *et al.* 2016, Yu *et al.* 2016). The main morphological diagnostic characters of the genus *Tanycarpa* are the first flagellomere not shorter than the second and fore wing vein CU1a arising behind the middle of vein 3-CU1 and vein 3-SR, and approximately equal in length to vein 2-SR (Wharton 2002).

Recently, Yao *et al.* (2015) published a comprehensive key for the identification of Palaearctic and partly the Oriental species of *Tanycarpa*. However, this genus is known not only in the fauna of Old World, but has been recently recorded in the Neotropical region. Dix (2010) described two new *Tanycarpa* species from Colombia, *T. edithae* Dix, 2010 and *T. sarmientoi* Dix, 2010, with the first record of this genus in the Neotropics. Later, Cerantola *et al.* (2016) described *T. itatiaia* Cerantola, Souza-Gessner & Penteado-Dias, 2016 from Brazil.

In this paper, based on material deposited in the Natural History Museum (London), we describe a new species from Brazil, *Tanycarpa broadi* sp. nov. Additionally, a key for the determination for all Neotropical *Tanycarpa* species is provided.

Materials and methods

Studied material was selected from the Entomological collection of the Natural History Museum (London, UK; BNHM). For terminology of morphological features and sculpture as well as for measurements see Peris-Felipo *et al.* (2014); for wing venation nomenclature see van Achterberg (1993); for measurements of the marginal cell see Peris-Felipo and Belokobylskij (2017). Specimens were imaged using a Digital Microscope Keyence® VHX-2000 and edited with Adobe Photoshop® imaging system. Type material is deposited in BNHM and the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia; ZISP).

Taxonomy

Class Hexapoda Blainville, 1816

Order Hymenoptera Linnaeus, 1758

Family Braconidae Nees, 1811

Subfamily Alysiinae Leach, 1815

Tribe Alysiini Leach, 1815

Genus *Tanycarpa* Foerster, 1863

Tanycarpa Foerster 1863: 265; Shenefelt 1974: 1026; van Achterberg 1976: 12; Wharton 1980: 71; 1986: 455; Chen and Wu 1994: 134, Belokobylskij 1998: 198; Wharton 2002: 99; Yao *et al.* 2015: 170.

Acrobela Foerster 1863: 266; Wharton 2002: 99 (as synonym).

Epiclista Foerster 1863: 264; Wharton 1986: 455 (as synonym).

Hypostrapha Foerster 1863: 264; Fischer 1971: 143 (as synonym).

Type species. *Bassus gracilicornis* Nees, 1812, by monotypy.

Diagnosis. First flagellomere longer than second, most flagellomeres without long setae; clypeus moderately small, weakly protruding; anterior tentorial pits moderately small, never reaching eye borders; maxillary palpus slender, longer than height of head. Precoxal sulcus crenulate, distinctly developed and linear, wide and deep; scutellum moderately convex, never with posterior spine; propodeal spiracle small and round, its diameter much shorter than distance between spiracle and anterior margin of propodeum. Fore wing venation complete; vein *r* arising before middle of elongate or often nearly linear stigma; vein 3-SR approximately equal to vein 2-SR; second submarginal cell small; first subdiscal cell closed distally; vein CU1a arising near middle of distal margin of first subdiscal cell, never interstitial. Metasoma weakly compressed; ovipositor sheath with fairly numerous, moderately long setae.

Hosts. Fly larvae from the family Drosophilidae (Yao *et al.* 2015; Yu *et al.* 2016).

***Tanycarpa broadi* Peris-Felipo, sp. nov.**

(Figs 1, 2)

Type material. Holotype: female, Brazil, Nova Teutonia, viii.1935, 27°11'B 52°23'L, F. Plaumann leg. (BMNH: B.M. 1937–47).

Paratypes: 1 female, same data as holotype (ZISP); 2 males, same data as holotype but, viii.1935 and 10.x.1935 (BNHM); 2 males, same data as holotype but, 10.vii.1937 (B.M. 1937–656) (BNHM).

Description. Female (holotype). *Head.* In dorsal view, 1.8× as wide as long, 1.4× as wide as mesoscutum, smooth, with temple rounded behind eyes (Fig. 1F). Eye in lateral view 1.3× as high as wide and 2.0× as wide as temple medially (Fig. 1B). POL 1.3× to OD; OOL 2.5× OD (Fig. 1F). Face 1.4× as wide as high, with sparse setae; inner margins of eyes subparallel (Fig. 1E). Clypeus 1.8× as wide as high, slightly concave ventrally (Fig. 1E). Paraclypeal fovea short, not reaching half distance between clypeus and inner border of eye (Fig. 1E). Mandible almost parallel-sided, 1.5× as long as its maximum width (Fig. 1C). Upper tooth very small; middle tooth rather narrow, directed weakly upwards; lower tooth wide, with a few long outstanding curved setae (Fig. 1C). Antenna 24-segmented, 1.4× as long as body (Fig. 1D). Scape 1.8× as long as pedicel. First flagellomere 6.8× as long as its apical width, 1.3× as long as second segment. Second flagellomere 4.8×, third flagellomere 3.6×, fourth to sixth flagellomeres 3.4×, seventh to 23rd flagellomere 2.6–2.8× and 24th (apical) flagellomere 2.8× as long as their maximum width (Fig. 1D).

Mesosoma. In lateral view 1.3× as long as high (Fig. 2A). Mesoscutum (dorsal view) about as long as its maximum width, smooth (Fig. 2B). Notauli in horizontal surface of mesonotum mainly absent (Fig. 2B).

Mesoscutal pit present, subround (Fig. 2B). Prescutellar depression smooth, without lateral carinae, $1.3\times$ as long as its maximum width (Fig. 2B). Precoxal sulcus, crenulate, not reaching anterior and posterior margins of mesopleuron (Fig. 2A). Posterior mesopleural furrow smooth (Fig. 2A). Propodeum mainly smooth, with pentagonal areola (Fig. 2C). Propodeal spiracles small, its diameter $0.3\times$ as large as distance from spiracle to anterior margin of propodeum (Fig. 2C).

Wings (Fig. 2F). Length of fore wing $2.7\times$ its maximum width. Marginal cell ending on apex of wing, $3.7\times$ as long as its maximum width. Vein r longer than pterostigma width. Vein SR1 $3.7\times$ as long as vein 2-SR. Vein 3-SR $1.1\times$ as long as vein 2-SR and $3.9\times$ as long as vein r. Second submarginal cell $1.8\times$ as long as its maximum width. First subdiscal cell $4.4\times$ as long as its maximum width. Hind wing $4.3\times$ as long as its maximum width.

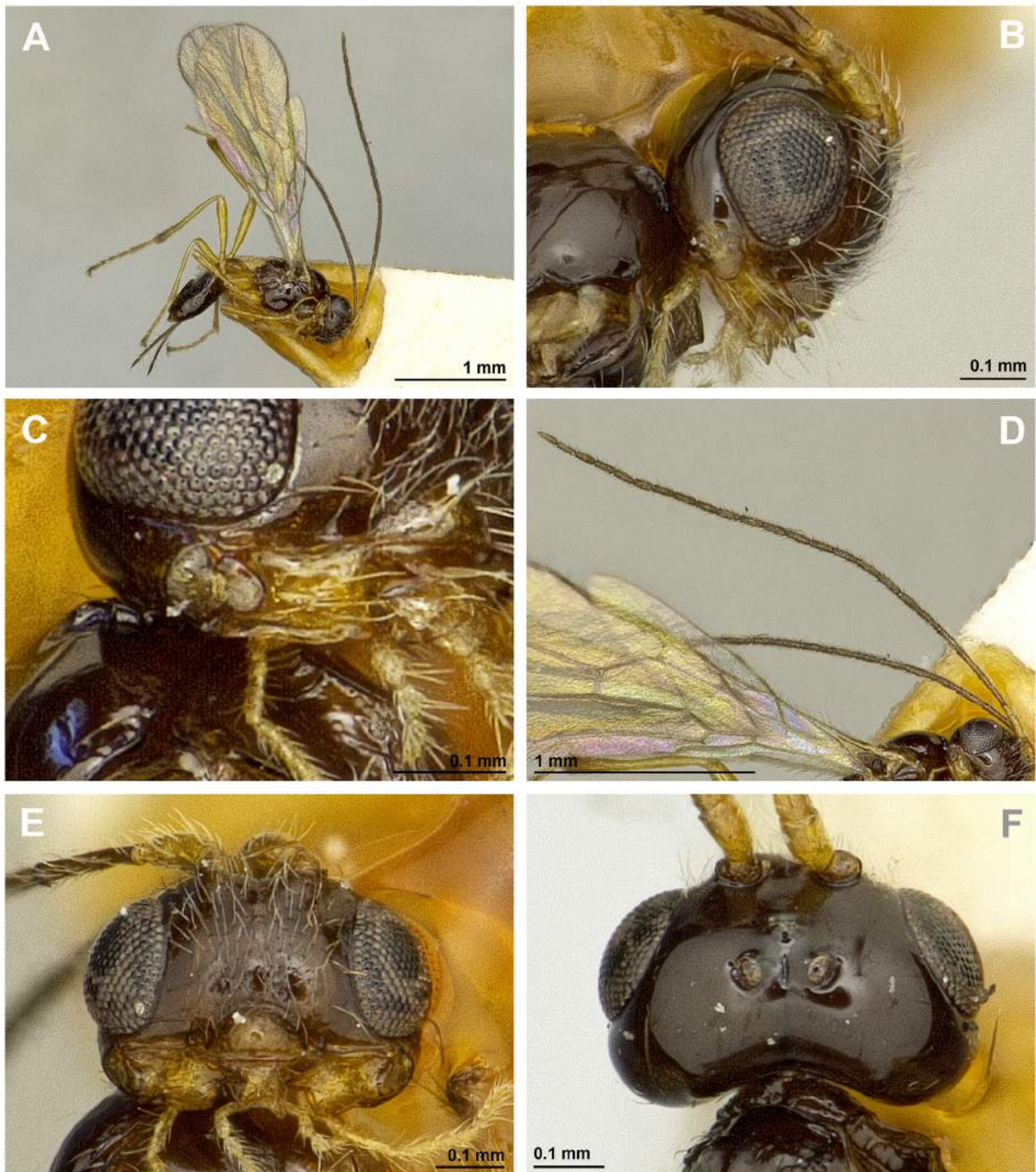


FIGURE 1. *Tanycarpa broadi* Peris-Felipo, **sp. nov.** (female, holotype). **A.** Habitus, lateral view. **B.** Head, lateral view. **C.** Mandible. **D.** Antenna. **E.** Head, front view. **F.** Head, dorsal view.

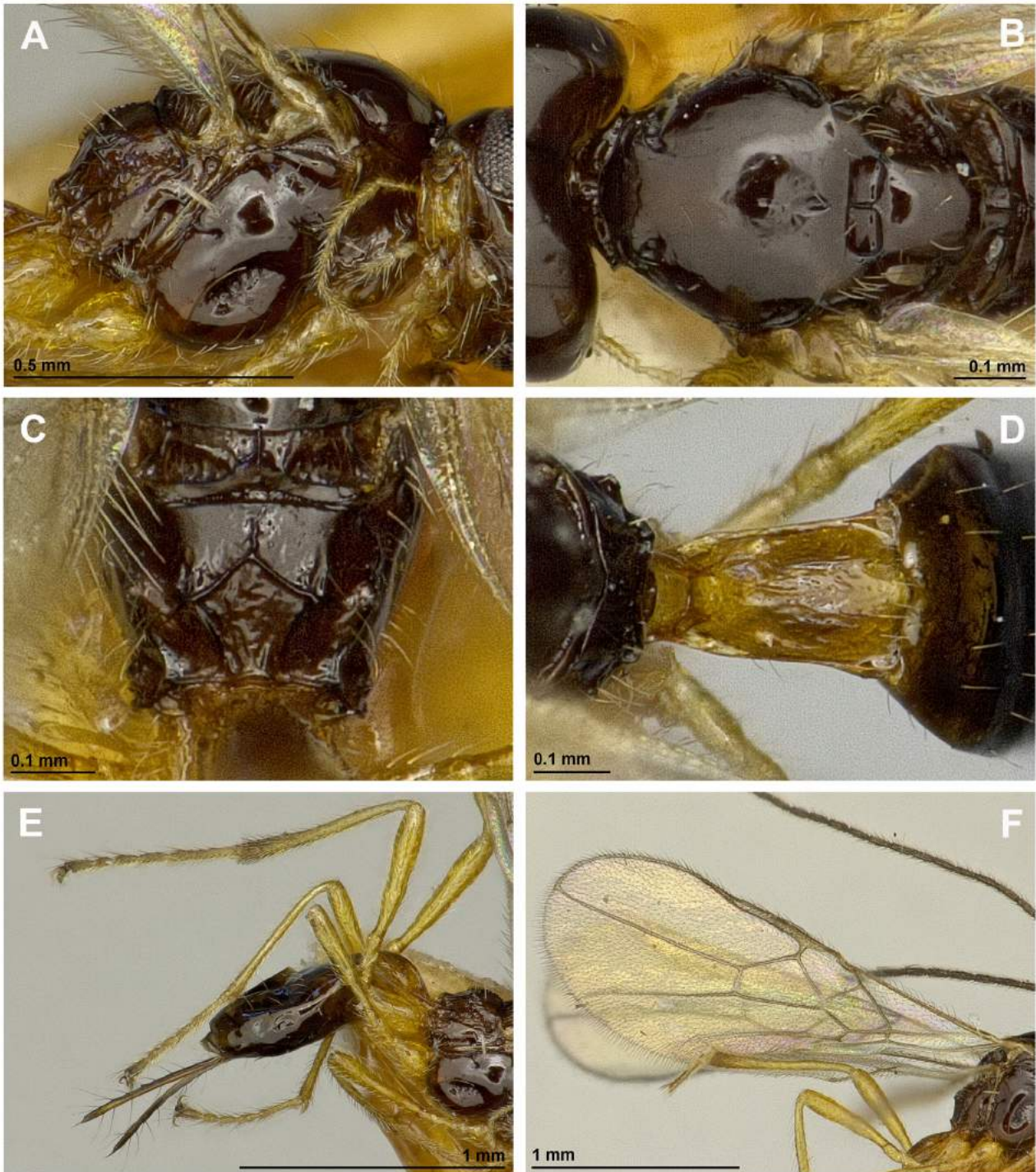


FIGURE 2. *Tanycarpa broadi* Peris-Felipo, **sp. nov.** (female, holotype). **A.** Mesosoma, lateral view. **B.** Mesoscutum, dorsal view. **C.** Propodeum, dorsal view. **D.** First metasomal tergite, dorsal view. **E.** Hind leg, metasoma and ovipositor, lateral view. **F.** Fore wing.

Legs (Fig. 2E). Hind femur 4.8× as long as its maximum width. Hind tibia weakly widened to apex, 10.0× as long as its maximum subapical width, about as long as hind tarsus. First segment of hind tarsus 2.2× as long as second segment.

Metasoma. First tergite roundly widened towards apex, 1.5× as long as its maximum subapical width, almost smooth basally and apically, rugulose medially (Fig. 2D). Ovipositor 2.3× as long as first tergite, 0.7× as long as metasoma, 1.1× as long as hind femur (Fig. 2E).

Colour. Body, flagellomeres and pterostigma brown to dark brown. Mandible, legs, first metasomal tergite, scapus and pedicel light yellow. First metasomal tergite paler than other tergites. Wings almost hyaline.

Length. Body 2.0 mm, fore wing 2.4 mm, hind wing 1.7 mm.

Variation. Body 1.9–2.1 mm, fore wing 2.3–2.5 mm, hind wing 1.6–1.7 mm. Head in dorsal view 1.7–1.8× as wide as long. Mandible 1.4–1.5× as long as its maximum width. First metasomal tergite 1.5–1.6× as long as its apical width.

Male. Body length 1.7–1.8 mm; length of fore wing 2.0–2.2 mm; length of hind wing 1.3–1.4 mm. Antenna 24–25 antennomeres. First flagellomere 7.0× and second flagellomere 5.0× as long as their maximum width respectively. Hind femur 5.0× as long as its maximum width. Otherwise similar to female.

Etymology. Named in honor Dr Gavin Broad, curator of Hymenoptera collection in the Natural History Museum of London (UK) for his great help during our study of Braconidae.

Comparative diagnosis. This new species is similar to *T. edithae* Dix, 2010 from Colombia (Dix 2010) and *T. itatiaia* Cerantola, Souza-Gessner and Pentead-Dias, 2016 from Brazil (Cerantola *et al.* 2016). *Tanycarpa broadi* sp. nov. differs from their in having the first flagellomere 6.8–7.0× as long as its maximum width (5.3–5.5× in *T. edithae* and *T. itatiaia*) and second flagellomere 4.8–5.0× (3.2–4.0× in *T. edithae* and *T. itatiaia*), vein 3-SR about 4.0× as long as vein r (5.4 and 2.5× in *T. edithae* and *T. itatiaia*, respectively), vein SR1 3.7× as long as vein 2-SR (3.3 and 3.2× in *T. edithae* and *T. itatiaia*, respectively), clypeus 1.8× as wide as high (2.4 and 2.9× in *T. edithae* and *T. itatiaia*, respectively), eye in lateral view 2.0× as wide as temple medially (1.5× in *T. itatiaia*) and hind femur 4.8× as long as its maximum width (4.1–4.3× in *T. itatiaia*).

Key to the New World species of *Tanycarpa*

1. Mandible 1.8× as long as its maximum width. Hind femur 4.1–4.3× as long as its maximum width. Eye in lateral view 1.5× as wide as temple medially. Fore wing vein 3-SR 2.5× as long as vein r. Body length 2.0–2.8 mm. Brazil. ***T. itatiaia*** Cerantola, Souza-Gessner and Pentead-Dias
- Mandible 1.4–1.5× as long as its maximum width. Hind femur 4.8–5.6× as long as its maximum width. Eye in lateral view 1.9–2.0× as wide as temple medially. Fore wing vein 3-SR 3.9–5.4× as long as vein r **2**
- 2(1). Second flagellomere 4.8–5.0× as long as its maximum width. Fore wing vein 3-SR 3.9–4.0× as long as vein r. Body length 1.9–2.1 mm. Brazil. ***T. broadi*** Peris-Felipo, sp. nov.
- Second flagellomere 3.2–4.2× as long as its maximum width. Fore wing vein 3-SR 4.5–5.4× as long as vein r **3**
- 3(2). Fore wing vein 3-SR 4.5× as long as vein r. First flagellomere 6.0–6.4× as long as its maximum width. Mesoscutal pit elongate. First metasomal tergite with median carinae. Body length 1.8 mm. Colombia. ***T. sarmientoi*** Dix
- Fore wing vein 3-SR 5.4× as long as vein r. First flagellomere 5.4–5.5× as long as its maximum width. Mesoscutal pit round. First metasomal tergite without median carinae. Body length 1.2 mm. Colombia. ***T. edithae*** Dix

Acknowledgments

We are very thankful to Dr Gavin Broad, the Natural History Museum (London, UK) for his kindness during our stay in London and Dr John Jennings (The University of Adelaide, Australia) for his useful comments of the first version of manuscript. Also, we want to thank Isabelle Zuecker, Mirjam Luzzi and Matthias Borer (Naturhistorisches Museum Basel, Switzerland) for their kindness and help during our work with the photosystem.

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