# New species of *Chelonus (Microchelonus)* Szépligeti, 1908 (Hymenoptera: Braconidae: Cheloninae) from Brazil

*Nascimento, AR.*[a]* and Penteado-Dias, AM.*[b]*

[a]Programa de Pós-graduação em Ecologia e Recursos Naturais, Universidade Federal de São Carlos – UFSCar, Rod. Washington Luís, Km 235, CP 676, CEP 13565-905, São Carlos, SP, Brazil

[b]Departamento de Ecologia e Biologia Evolutiva, Universidade Federal de São Carlos – UFSCar, Rod. Washington Luís, Km 235, CP 676, CEP 13565-905, São Carlos, SP, Brazil

*e-mail: andre110479@yahoo.com.br, angelica@ufscar.br

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(With 12 figures)

## Abstract

*Chelonus (Microchelonus) murici* sp. nov. (Hymenoptera: Braconidae: Cheloninae) is described in this work. It was reared from an unknown host in murici fruits, *Byrsonima verbascifolia* (L.) Rich. ex A. L. Juss. (Malpighiaceae), a species from the Brazilian savannah whose fruits are widely consumed by the population in northern Brazil. The adult of this new species is illustrated.

*Keywords: Byrsonima verbascifolia,* savannah, murici, parasitoid.

# Nova espécie de *Chelonus (Microchelonus)* Szépligeti, 1908 (Hymenoptera: Braconidae: Cheloninae) do Brasil

## Resumo

*Chelonus (Microchelonus) murici* sp. nov. (Hymenoptera: Braconidae: Cheloninae) é descrita neste trabalho. Os espécimes foram obtidos de hospedeiros não conhecidos em frutos de murici, *Byrsonima verbascifolia* (L.) Rich. ex A. L. Juss. (Malpighiaceae), uma espécie vegetal do cerrado brasileiro, cujo fruto é muito consumido pelo povo do nordeste do Brasil. O adulto desta nova espécie é ilustrado.

*Palavras-chave: Byrsonima verbascifolia,* cerrado, murici, parasitoide.

## 1. Introduction

The family Cheloninae is characterised as having a gastral carapace formed by the fusion of 1-3 tergites, covering the rest of the gaster (Shaw, 1997).The genus *Microchelonus* Szépligeti 1908 (Hymenoptera: Braconidae: Cheloninae) is cosmopolitan, koinobiont egg-larval endoparasitoid of Lepidoptera, as Tortricidae, Gelechiidae and others, in concealed situations (Shaw, 1997). This genus has as distinctive features 16 antennomeres in the female and a foramen at the apex of the carapace, in the male. This carapace foramen is present in the female of some species as a small and circular opening (McComb, 1968; Papp, 1999; 2010).

There are 25 *Chelonus (Microchelonus)* species known from the Neotropical region (Papp, 2010) and very little information about their hosts is available (McComb, 1968; Marsh, 1979).

*Byrsonima verbascifolia* (L.) Rich. ex A. L. Juss. (Malpighiaceae), popularly known in Brazil as "murici" (Lorenzi, 1998) is a typical Brazilian savannah plant with high densities in the centre west (Aoki and Santos, 1982) and north of Brazil (Miranda et al., 2003; Barbosa and Fearnside, 2004). The geographical range of this species extends from Cuba (Kubitzky, 1979) to the state of Parana in Brazil (Almeida et al., 1998). Their drupe-like fruits are sold and consumed in natura by the population in northern Brazil (Gusmão et al., 2005).

Diniz and Morais (2002), studying the Lepidoptera fauna occurring in *B. verbascifolia,* have found an Arctiidae polyphagous species *Fregela semiluna* (Walker, 1854) in their reproductive parts, but have not specified if it is on the flowers or inside the fruits. Andrade et al. (1999), studying three *Byrsonima* species, recorded 21 species of Lepidoptera feeding on leaves of *B. verbascifolia,* nine of them exclusively on this plant.

Although the herbivorous host is not identified in this work , what is reported herein as new are the interactions inside fruits of the *B. verbascifolia* and a description of a new Neotropical species of *Chelonus* (*Microchelonus),* and the reporting of new morphological features is provided. Studying the material deposited in the DCBU collection of the Departamento de Ecologia e Biologia Evolutiva, Universidade Federal de São Carlos, SP, Brazil, from the different localities, we have registered several new occurrence of species in Brazilian fauna of Braconidae and Ichneumonidae (Loffredo and Penteado-Dias, 2008a,b; Onody et al., 2009; Castro et al., 2010, 2011).

## 2. Material and Methods

The material was collected in a Brazilian savannah in the county of São Carlos (São Paulo state, southern Brazil, 22° 30' S and 47° 30' W). On February 10th, 2008, the fruits studied were collected from two plants of *B. verbascifolia* and preserved in plastic jars covered with nylon cloth. The insect adults obtained were collected on March 20th, 2008 and identified. Despite efforts in new collections during the rainy season of 2009 and 2010, no other specimens of this species have been obtained from the fruit of this plant. The description and morphometric measures of this new species follow Papp (1999) and were made using a stereomicroscope.

The material is deposited in the DCBU Collection (Departamento de Ecologia e Biologia Evolutiva da Universidade Federal de São Carlos, São Carlos, SP, Brazil).

*Chelonus (Microchelonus) murici* sp. nov. Nascimento & Penteado-Dias.

Material examined – Holotype (1 ♀): Brazil, São Paulo, São Carlos,Universidade Federal de São Carlos, in fruits of *Byrsonima verbascifolia* (L.) Rich. ex A. L. Juss. A.R. Nascimento col. 20.III.2008. Host unknown (DCBU).

*Etymology:* The name of the new species refers to the popular name of the host plant where the specimen was reared.

Holotype (♀) – Body 4.6 mm long (Figure 1). Antenna as long as the head and the mesosoma combined; 16 antennomeres; scapus 2.0 times as long as wide apically; first flagellomere 3.2 as long as wide apically, second flagellomere 2.4 times and third 2.1 times as long as wide apically, further flagellomeres progressively shortening, 13th-15th subcubic (Figure 2). Head in dorsal view transverse, twice as wide as long; eye 1.4 times longer than temple (Figure 3, see arrows); temple fully rounded; occipital carina high, occiput fully concave, smooth and shiny (Figure 3). Eye in lateral view, 1.3 times as high as wide; temple ventrally almost as wide as eye and 1.8 times as wide as temple dorsally (Figure 4, see arrows). Clypeus 2.2 times as wide as high, ventro-lateral margins with a tenuous and discontinued carina, ventral margin truncate; clypeus punctuated shiny. Malar space as long as first flagellomere and 1.5 times as long as basal width of mandible (Figure 5). Frons with conspicuous arcuated lateral carinae extending at the base of torulus until near central ocellus (Figure 6, see arrow), interantennal carina distinct. Face 1.5 as long as high with scattered silvery hairs. Head entirely, face, vertex and temple rugose.

Mesosoma in lateral view 1.6 times as long as high, sternaulus and notaulus little distinctive (Figures 7 and 8), pairs of lobes at base of scutellum indistinct (Figure 8). Scutellum laterally foveolated and centrally rugulose (Figure 9). Propodeum anteriorly foveolate and posteriorly foveolate with four longitudinal carinae extended until the propodeal projections (Figure 9). Caudal margin of propodeum defined by distinct transverse ridge with central pair of projections somewhat stronger. Hind femur 3.0 times as longer as wide. Fore wing (Figure 10) as long as head, mesosoma and 2/3 of metasomal carapace combined. Pterostigma 2.7 times as long as wide, with r distinctly issuing from its middle; r shorter than width of pterostigma; 3-SR 1.75 times as longer than r; 4-SR straight; 1-R1 0.7 times as long as pterostigma (Figure 11).

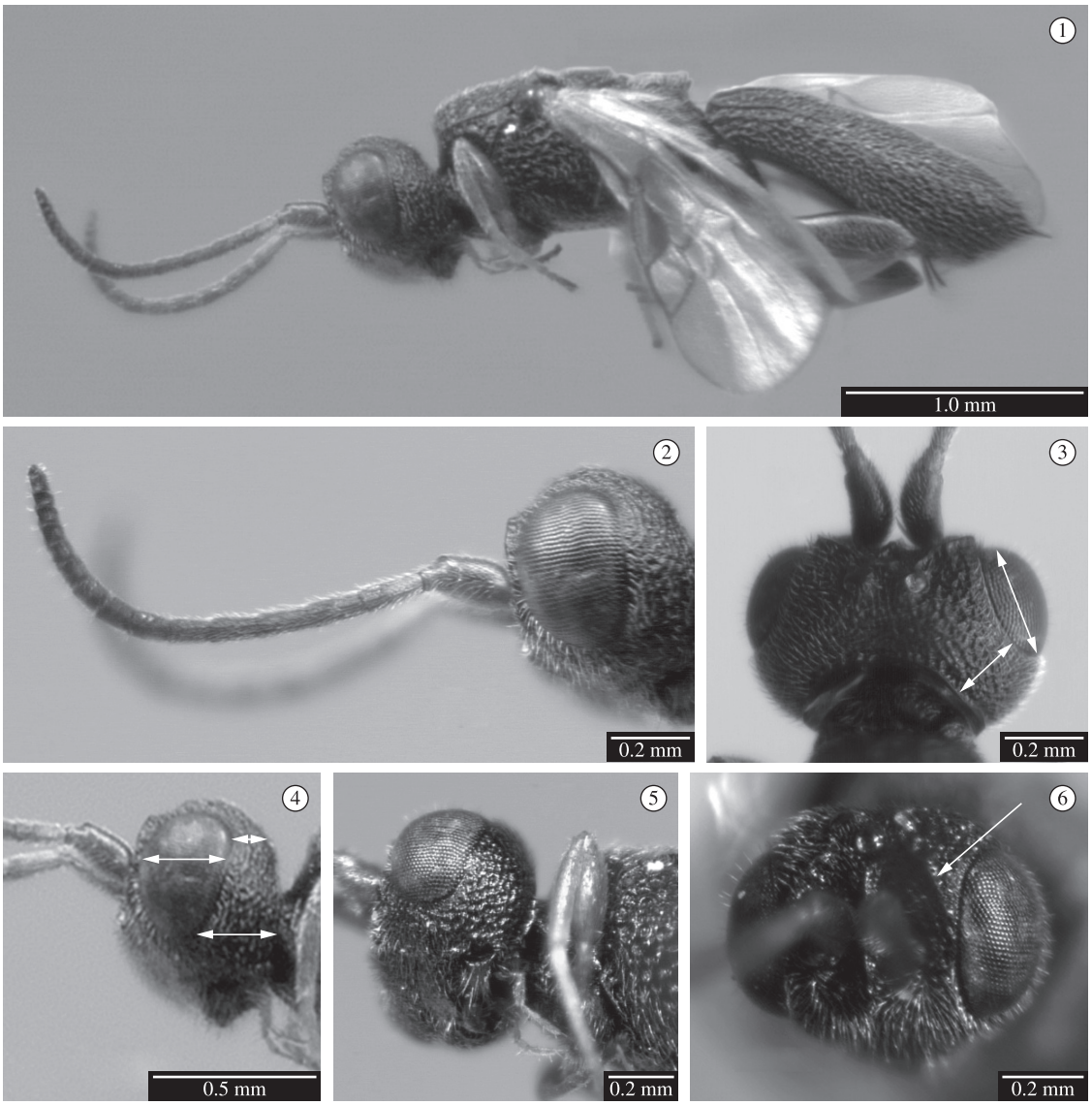
Metasoma. Carapace elongate, in dorsal view almost as long as head and mesosoma combined (Figure 9), apico-dorsally rounded, 2.7 times as long as wide with a sharp apical end, in lateral view 3.8 as long as high behind and 1.4 times as high apically as basally (Figure 12); longitudinally strio-rugose, baso-laterally with a pair of short carinae, two pairs of dorsal carinae, the lateral pair extended until 1/5 of carapace length and median pair delimiting a median longitudinal crenulated furrow (Figure 9). Apex of carapace with a spine like projection (Figure 9, see arrow). Ovipositor sheets apically with some long hairs.

Body black except scape, pedicel, most of first flagellomere reddish yellow, further flagellomeres brownish to black; mandible reddish yellow, palpi yellow; fore leg yellow except apical tarsomere brownish; middle leg yellow, except coxa, base of femur and last tarsomere brownish; hind leg black except apex of coxa, trocanter, base of femur, half basal of tibia orange, tarsomeres yellow, except the last black.

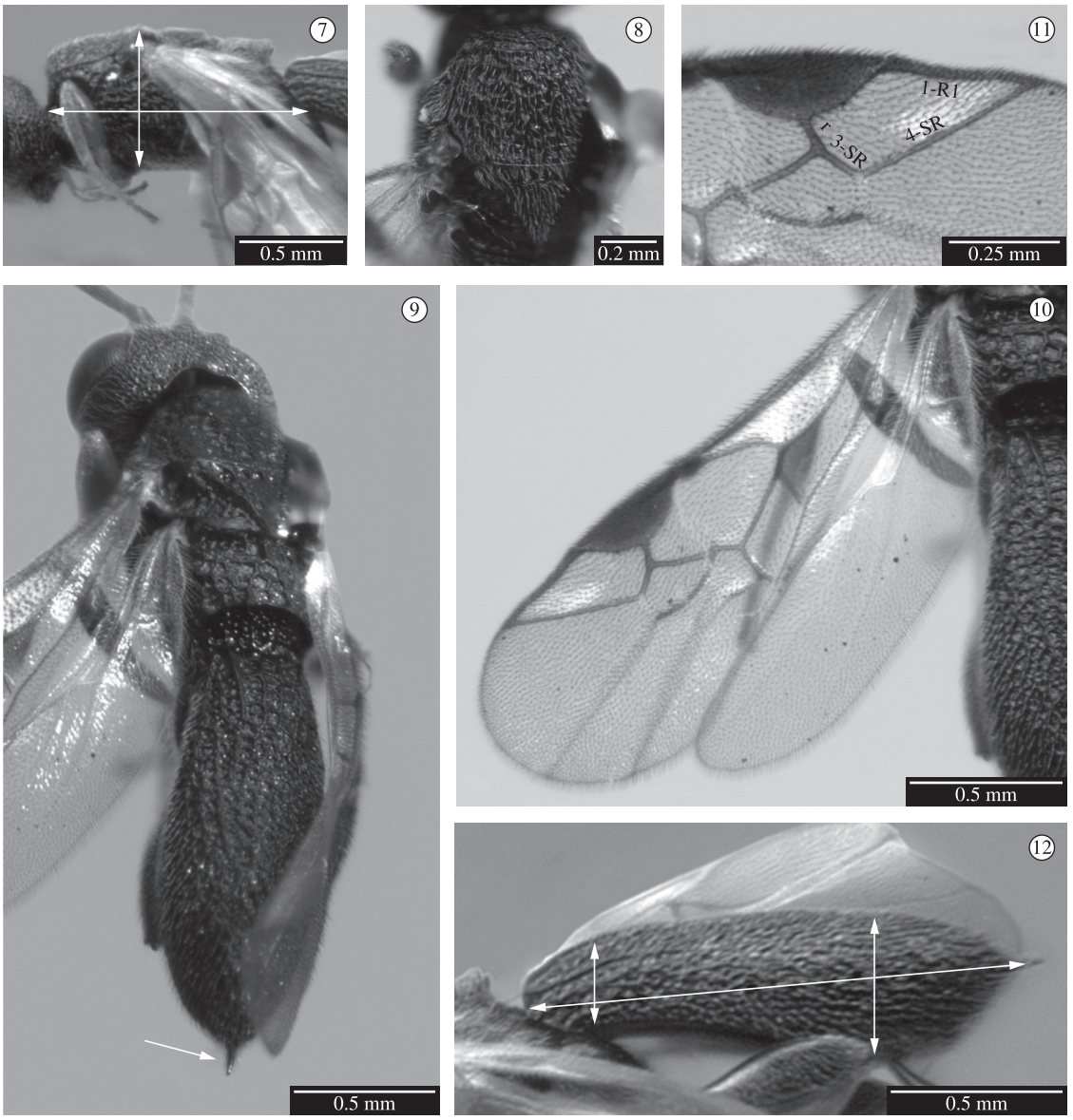
Male and host unknown.

*Distribution* – São Paulo state, Brazil.

Remarks : This new species is closest to *Chelonus (Microchelonus) parkeri* Papp, 2010 and *Chelonus (Microchelonus) cacumenus* Papp, 2010, considering their apically pointed carapace. It can be separated by presenting the frons with conspicuous arcuate lateral carinae. The new species is also near *Chelonus (Microchelonus) parkeri* by presents the propodeal transverse keel with two pairs of projections, but two of them are very weak.




**Figures 1-6.** *Chelonus* (*Microchelonus) murici* sp. nov. 1) Female, habitus; 2) head, in lateral view; 3) head, in dorsal view, arrows indicating the dorsal head measures; 4) head, in lateral view, arrows indicating the lateral head measures; 5) malar space and temple sculptures; and 6) frons, arrow in arcuated lateral carina.




**Figures 7-12.** *Chelonus* (*Microchelonus) murici* sp. nov. 7) Mesosoma, in lateral view, arrows indicating the lateral mesosoma measures; 8) mesosoma in dorsal view; 9) carapace, in dorsal view, arrow in apical projection; 10,11) wings; and 12) carapace, in lateral view, arrows indicating the lateral metasoma measures.

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