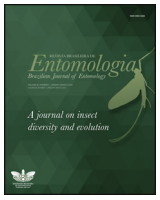
Revista Brasileira de Entomologia 66(4):e20220072, 2022

SOCIEDADE BRASILEIRA DE ENTOMOLOGIA
FUNDADA EM 1937

REVISTA BRASILEIRA DE
Entomologia
A Journal on Insect Diversity and Evolution



Asphondylia maricensis (Diptera, Cecidomyiidae): pupa description and new combination

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urn:lsid:zoobank.org:pub:1579331E-7567-4F68-840E-5743333C718E

ARTICLE INFO

Article history:
Received 01 September 2022
Accepted 08 November 2022
Available online 12 December 2022
Associate Editor: Marcia Couri

Keywords:
Gall midge
Atlantic Forest
Morphology
Taxonomy

ABSTRACT

Asphondylia maricensis Maia & Couri, 1992 (Diptera, Cecidomyiidae) was described based on female and larva of third instar. Through fieldworks carried on the type locality, Maricá (RJ, Brazil) and rearing in laboratory, pupal exuvia was obtained and described for the first time. Its morphology indicates that the species belongs to *Bruggmanniella* Tavares, 1909. Therefore, a new combination is proposed, *Bruggmanniella maricensis* (Maia & Couri, 1992).

Asphondylia maricensis Maia & Couri, 1992 (Diptera, Cecidomyiidae) was described based on female and larva of third instar collected in the Maricá Environmental Protect Area (Maricá, State of Rio de Janeiro, Brazil). This species is known only from the type locality. It induces glabrous, yellow, globoid galls on leaves of *Struthanthus taubatensis* Eichler (Loranthaceae), an endemic plant to Brazil (Caires and Dettke, 2020). In the original description, the host plant was referred to as *Struthanthus maricensis* Rizzini ex Profice, a heterotypical synonymy. The aim of this study is to describe its pupa and to propose a new combination.

Fieldwork was carried out weekly from April to July 2021 in the Maricá Environmental Protect Area (22°57'42" S, 42°51'54") by Valéria Cid Maia and Bruno Gomes. This is the type locality of *Asphondylia maricensis*. The Maricá Environmental Protect Area belongs to the Atlantic Forest domain. The local vegetation was investigated along the two main pathways, one adjacent to the Zacharias Beach and the other adjacent to the Maricá lagoon. Samples of the gall were collected and transported in labelled plastic bags to the laboratory, where part of them was dissected with the aid of a stereoscopic microscope to obtain larvae of 3rd instar. The other was kept in closed transparent plastic pots, labeled and lined with humid paper to obtain pupal exuviae and adults. These pots were examined daily for emergence. All insects were preliminarily preserved in 70% alcohol, later mounted on microscope slides following the methodology outlined in Gagné (1994), and then deposited in the Entomological collection of the Museu Nacional, Universidade Federal do Rio de Janeiro (MNRJ).

Measurements were done using a microscope slide with scale from 0.01 to 5.0 mm. All drawings were scanned and then edited using Corel DRAW®. Pupal morphological terminology follows Gagné (1994).

Individuals of *Struthanthus taubatensis* were found in the patch adjacent to the Zacharias Beach, close to the military area of aeronautics. Galls induced by *Asphondylia maricensis* (Fig. 1a) were found in a single individual. Larvae were obtained by gall dissection and pupal exuviae by rearing.

Description of the pupa: Exuviae hyaline, almost entirely light brown, antennal horns and prothoracic spiracles darker than the body (Fig. 1b). Head: antennal horns conical, 0.31 mm long, outer margin irregular (Fig. 1c); apical setae 0.04 mm long, a pair of lower facial papillae on each side of clypeus (one bare and other setose), a triplet of lateral facial papillae near base of each palpus (two setose and other bare); frontal spines absent. Prothoracic spiracle conical, 0.58 mm long, 1.7 as long as antennal horns (Fig. 1d). Abdominal segments II-V with numerous tiny dorsal spines and elongated spiracles, 0.12 mm long (Fig. 1e) (exuvia broken at midlength of the abdominal segment VI). Material examined: 1 pupal exuvia collected in the Environmental Protection Area of Maricá, on 31.July. 2021 by Maia & Gomes.

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https://doi.org/10.1590/1806-9665-RBENT-2022-0072

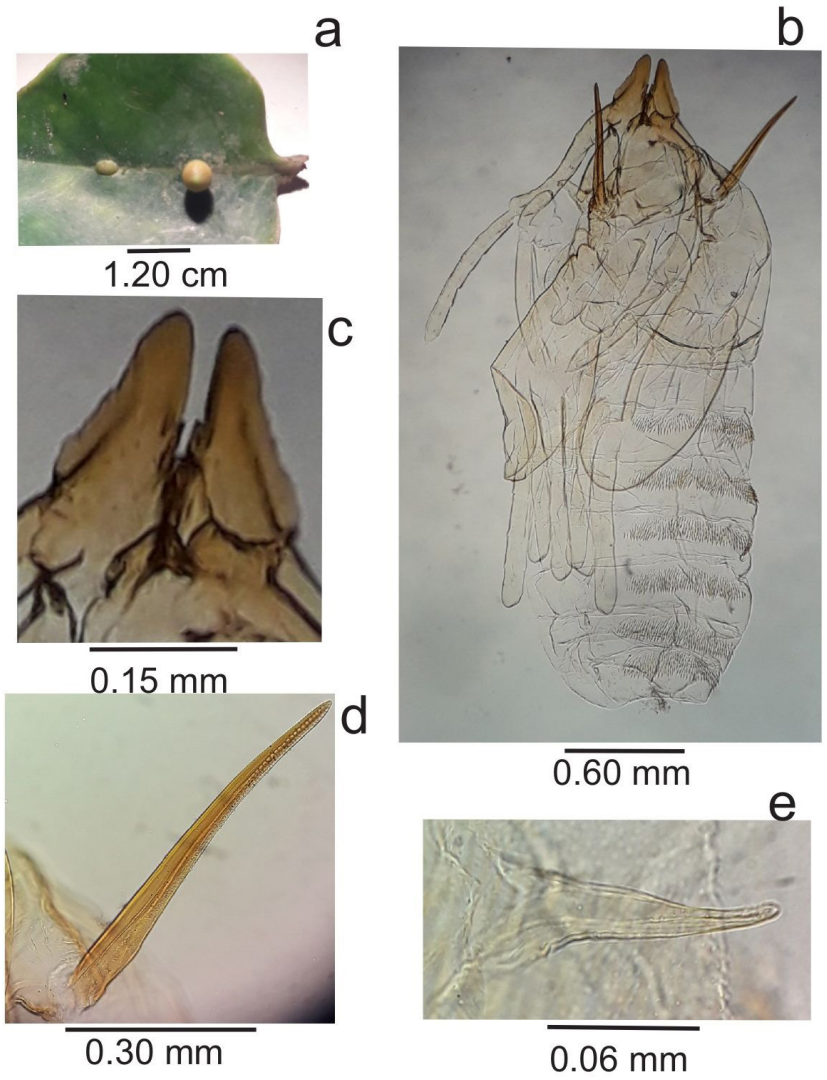

Figure 1 *Bruggmanniella maricensis* (Maia et al., 1992): a) Gall on *Struthanthus taubatensis* Eichler (Loranthaceae); b) Pupal exuvia, general aspect, dorsolateral view; c) Antennal horns, ventral view; d) Prothoracic spiracle, general aspect; e) 5th abdominal spiracle.

***Bruggmanniella maricensis* (Maia & Couri, 1992), new combination**

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Females and larvae of *Asphondylia* Loew, 1850 and *Bruggmanniella* Tavares, 1909 are morphologically very similar. But their males and pupae are easily distinguishable. Males of *Asphondylia* have gonostylus with a solid tooth, while in *Bruggmanniella* the tooth is completely divided mesally, resulting in two separate teeth. Pupae of *Asphondylia* have frontal spines and rows of dorsal abdominal spines, the distal ones being more strongly developed than the basal. Differing from them, pupae of *Bruggmanniella* do not have frontal spines. Furthermore, the dorsal abdominal spines are tiny and more numerous (Gagné, 1994).

Garcia et al. (2022) proposed the following diagnosis of *Bruggmanniella,* based on a cladistic analysis: prothoracic larval spatula with 3 or 4-teeth, inner teeth (or tooth) larger than outer ones; pupa with antennal horns and well developed prothoracic spiracles; upper and frontal horns absent; pupal cephalic margin thickened; male genitalia with two-toothed gonostyli; parameres absent; cerci-like lobes on female abdominal segment VIII Tavares, 1909 (Garcia et al., 2022).

Asphondylia maricensis has this set of female and pupa characters indicated by Gagné (1994) and Garcia et al. (2022). The male is still unknown. Therefore, the species is transferred to *Bruggmanniella* based on pupal morphology, and a new combination is proposed, *Bruggmanniella maricensis* (Maia et al., 1992). It is important to mention that the spatula of *B. maricensis* has four apical teeth, being the inner shorter than outer ones.

Acknowledgments

Thanks to Bruno Gomes for field assistence. This work was supported by the Conselho Nacional de Pesquisa Científica e Tecnológica (Proc. 301481/2017-2).

Conflicts of interest

The authors declare no conflicts of interest.

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