

# Description of the male of *Brachygastra moebiana* Saussure 1867 (Hymenoptera: Vespidae; Epiponini)

Sergio Ricardo Andena<sup>1✉</sup> & Sidnei Mateus<sup>2</sup>

1. Universidade Estadual de Feira de Santana - Departamento de Ciências Biológicas, Laboratório de Sistemática de Inseto, e-mail: [sergioricardoandena@gmail.com](mailto:sergioricardoandena@gmail.com) (Autor para correspondência✉). 2. Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto da Universidade de São Paulo - Departamento de Biologia, Setor de Ecologia e Evolução, e-mail: [sidneim@ffclrp.usp.br](mailto:sidneim@ffclrp.usp.br).

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**Abstract.** The male of *Brachygastra moebiana* (de Saussure) is described, including figures of male genitalia and notes about the Richards's description of what he supposed to be the same species.

**Keywords:** *Brachygastra moebiana*; Epiponini; male genitalia.

## Descrição do macho de *Brachygastra moebiana* (de Saussure) (Hymenoptera: Vespidae; Epiponini)

**Resumo.** O macho de *Brachygastra moebiana* (de Saussure) é descrito, incluindo figuras da genitália e notas sobre a descrição contida em Richards (1978), da espécie, que supostamente é a mesma.

**Palavras-Chave:** *Brachygastra moebiana*; Epiponini; Genitália de macho.

**B***rachygastra* is a Neotropical genus of social wasps with sixteen species described and distributed from Southwestern of the United States to Argentina (NAUMANN 1968; RICHARDS 1978; CARPENTER AND MARQUES 2001). The genus is easily recognized by the prominent, projecting scutellum which, together with the metanotum and propodeum, forms a flat, vertical posterior surface of the thorax (NAUMANN 1968; RICHARDS 1978). The first abdominal segment (Tergo I) is short, cap-shaped, and not at all petiolate (NAUMANN 1968). The second segment (Tergo II) is greatly enlarged, and often conceals the succeeding segments, giving the wasps their characteristic short shape (NAUMANN 1968). Many species have been described based only on color, and numerous "varieties" or "forms" have been elected without indication of whether the form was a geographical variant, a local color form or a subspecies (NAUMANN 1968). RICHARDS & RICHARDS (1951) found the extent of the yellow color pattern in *Brachygastra scutellaris* (F.) to be correlated with ovarian development. The occurrence of yellow forms in both *B. scutellaris* and *Brachygastra bilioneata* Spinola in dry savannas of northern South America, and the dominance of black pigmentation in other species of *Brachygastra* found in high altitudes also suggest that environment has an effect on pigmentation, although there are doubtless genetic components involved (NAUMANN 1968). NAUMANN (1968) in his revision of the genus used characters with less variation, such as the occipital carina, pronotum, scutellum, metanotum and propodeum, punctures and hairs, instead of color pattern. RICHARDS (1978) included three more characters (short pubescence of clypeus, shape of entrance to first thoracic spiracle and propodeal valves). As pointed out by NAUMANN (1968) the best characters are found in the male genitalia but unfortunately the males are rarely collected and in some species they are entirely unknown. Characters from male genitalia has been elucidative for phylogenetic reconstruction in several genera of Epiponini

(ANDENA *et al.* 2007; 2009a; 2009b; PICKETT & WENZEL 2007). NAUMANN (1968) analyzed 4754 specimens, but only 99 were males and most of them belonged to two species. Still, he depicted and described the male genitalia of *Brachygastra lecheguana* (Latreille), *Brachygastra mellifica* (Say), *Brachygastra azteca* (de Saussure), *Brachygastra augusti* (de Saussure), *B. scutellaris*, *B. bilioneata* and *Brachygastra smithii* (de Saussure). RICHARDS (1978) described the male genitalia of *B. scutellaris* and what he supposed to be a male of *Brachygastra moebiana* (de Saussure) from Jacareacanga, Pará state, Brazil deposited in Universidade Federal do Paraná. However this specimen was not found in the collection (Hermes, pers. com.). Richard's description differs from that of the male described in this work (see below). Two males were found in a colony collected in Rio Branco, Acre State, Brazil, in 13/x/1998 by F. B. Noll and S. Mateus, bearing 577 females. Population of this nest is deposited at Biology Department, Ecology and Evolution sector of FFCLRP – USP. The nest collected by Richards (1978:156), in Nova Xavantina, Mato Grosso State, had 458 females, a population similar to that found by Noll and Mateus. Morato *et al.* (2008) also recorded *B. moebiana* in Acre State.

For the male color pattern of *B. moebiana* Richards (1978) cited the pronotum almost entirely yellow, but in the specimens seen here, there is only a strip, narrower than that found in females; and the Tergum II with a yellow band, not cited by Richards (1978). These differences may be only variation, once the specimens were collected in different areas (states of Pará and Acre, Brazil), also pointed out by RICHARDS (1978: 176). RICHARDS (1978: 175) stated about the male genitalia of *B. moebiana*: "The genitalia resembles Naumann's figures 29 and 30 (1968: 996) of *B. bilioneata* but the cuspis seems to be rather larger compared with the digitus". Actually the figures 29 and 30 in Naumann's article refer to *B. azteca* and the figures 55 and 56 to *B. bilioneata*, clearly a typo in RICHARDS (1978: 175). Based in the figures 55 and

56 (NAUMANN 1968; 1000) it is hard to see such differences cited by RICHARDS (1978), who did not mention if he had seen the same specimen analyzed by Naumann (1968). The differences between the male genitalia of *B. moebiana* in relation to *B. bilioneata* (VAN DER VECHT **unpublished**; NAUMANN, 1968: 965-967) are: paramere longer (Figure 1A), apical angle of paramere and cuspis more rounded and hairs on digitus and cuspis shorter and sparser (see Figure 1 D and E). With these comments and description of male we hope to elucidate the inaccuracies made by RICHARDS (1978).

**Male.** It resembles the female, except that the gena is narrower with a yellow strip extending from malar space to vertex (Figure 2A); clypeus yellow, with long and dense silver hairs; yellowish marks extending to the middle of the frons; two lateral yellow marks on internal line of the eyes; antenna brownish above and yellowish beneath (Figure 2C); pronotum, laterally, with a narrower yellow strip; anterior, medial and posterior legs brownish above and yellowish beneath tergum II with a yellow band on anterior region (Figure 2B).

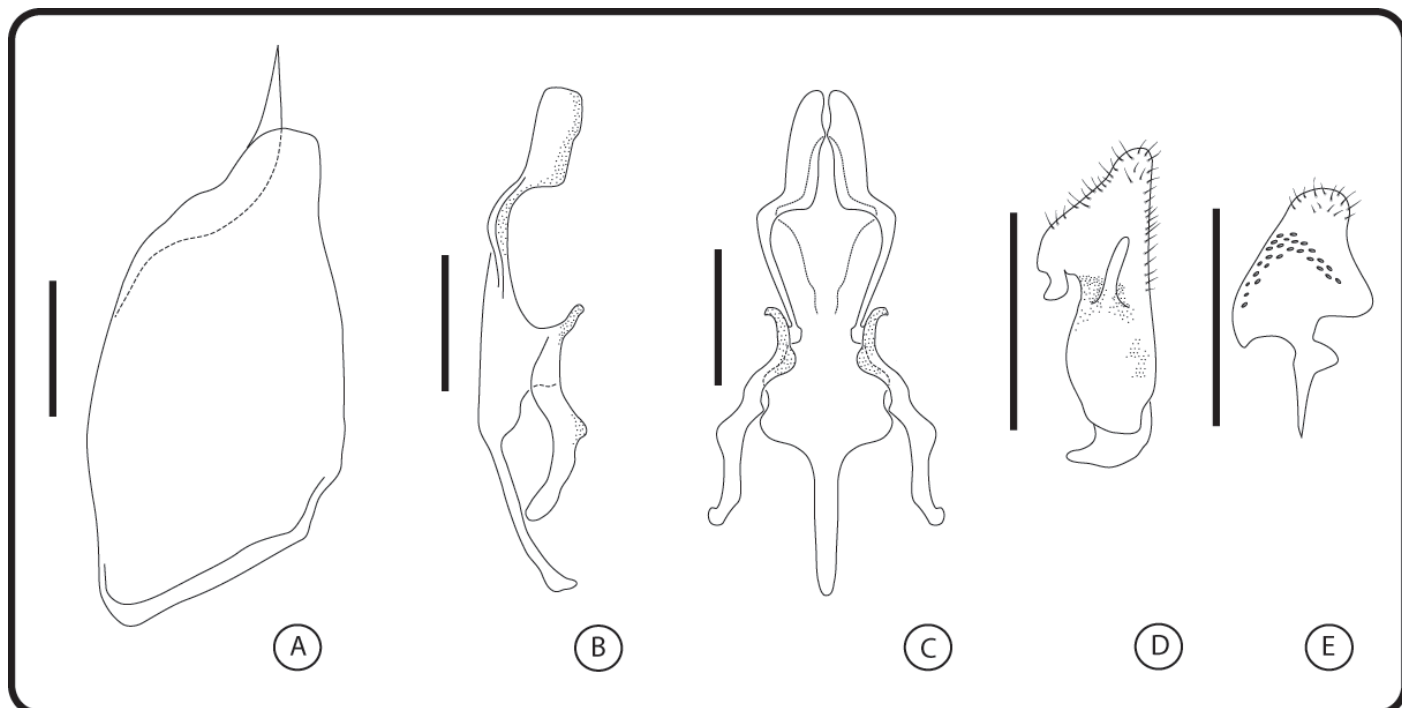


Figure 1. Male genitalia of *Brachygastra moebiana*. A= paramere; B= aedeagus, lateral view; C= aedeagus, ventral view; D= cuspis, lateral view; E= digitus, lateral view. Scale bar= 0.5 mm.

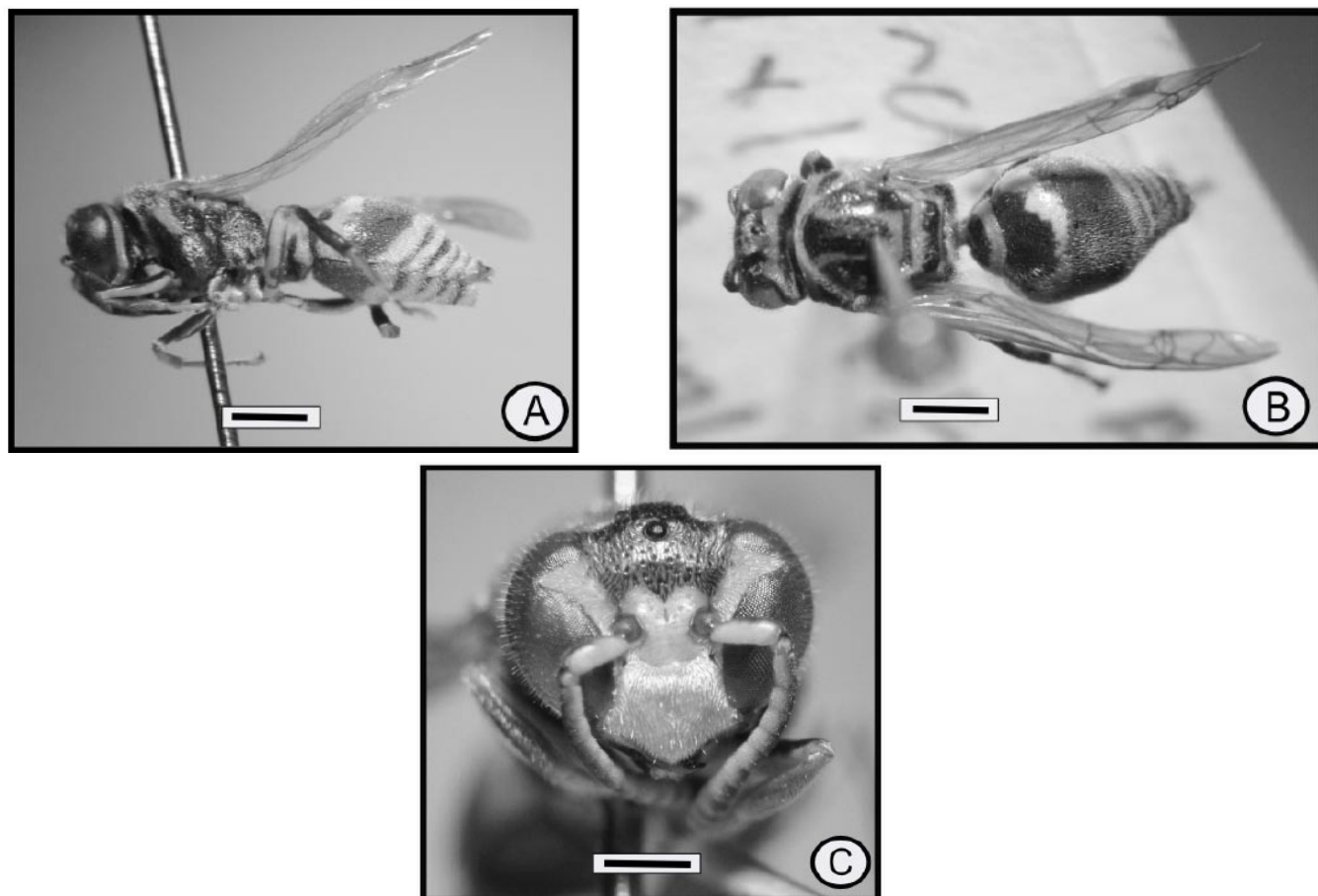


Figure 2. Male of *Brachygastra moebiana*. A= lateral view; B= dorsal view; C= head, frontal view. Scale bar= 1.0 mm.

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