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ARTICLE

A new species of *Dasineura* Rondani, 1840 (Diptera, Cecidomyiidae) associated with *Byrsonima sericea* (Malpighiaceae)

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ABSTRACT: (A new species of *Dasineura* Rondani, 1840 (Diptera, Cecidomyiidae) associated with *Byrsonima sericea* (Malpighiaceae)). *Dasineura byrsonimae sp. nov.*, a gall midge that induces galls on leaves of *Byrsonima sericea* (Malpighiaceae), is described and illustrated (male, female, pupa and larva).
Key words: Gall, *murici-do-mato*, morphology, "restinga", taxonomy.

RESUMO: (Uma nova espécie de *Dasineura* Rondani, 1840 (Diptera, Cecidomyiidae) associada à *Byrsonima sericea* (Malpighiaceae)). *Dasineura byrsonimae sp. nov.*, um cecidomiídeo que induz galhas nas folhas de *Byrsonima sericea* (Malpighiaceae) é descrita e ilustrada (macho, fêmea, pupa e larva).
Palavras chave: Galha, murici-do-mato, morfologia, restinga, taxonomia.

INTRODUCTION

Byrsonima sericea DC. (Malpighiaceae), co mmonly known as *murici-do-mato*, is a wide spread plant in Brazil, occurring in Goiás, Pernambuco, Minas Gerais, Rio de Janeiro and São Paulo. It is found in restinga, cerrado, rupestrian fields and riparian forests, and is a woody species (3–20 m tall) that flowers from October to February (Teixeira & Machado 2000). In the coastal region of the state of Rio de Janeiro, *B. sericea* is widely distributed, and commonly found in thickets of Myrtaceae and scrubs of *Clusia*, Palmae and Ericaceae (Araújo & Henriques 1984).

In the restinga of Barra de Maricá (Maricá, RJ, Brazil) and Carapebus (Carapebus, RJ, Brazil), Maia (2001) recorded three insect gall morphotypes on *Byrsonima sericea*, which were all induced by Cecidomyiidae (Diptera) and appeared as the following: ovoid closed flowers (fig. 43, page 605 of Maia 2001) induced by *Bruggmanniella byrsonimae* (Maia & Couri 1992), circular leaf galls (fig. 44, page 605 of Maia 2001) induced by the new species of *Dasineura* Rondani, 1840 (described here), and ovoid stem swellings (fig. 45, Page 605 of Maia 2001) induced by an undetermined Cecidomyiinae.

Dasineura is a cosmopolitan and polyphyletic genus. Worldwide it has 448 species; 15 of these species are neotropical (Gagné 2004). Galls caused by this genus have been recorded in 60 plant families. The neotropical species are associated with Asteraceae, Burseraceae, Chrysobalanaceae, Lamiaceae, Malvaceae (originally within the Sterculiaceae), Malpighiaceae, and Myrtaceae.

The objective of this study was to describe the new species of *Dasineura* that induces circular galls on the leaves of *Byrsonima sericea* (Malpighiaceae).

MATERIAL AND METHODS

The studied material was collected at the APA (Area of Environmental Protection) of Maricá (Maricá, RJ, Brazil), along two trails, one adjacent to the Zacarias Beach (42°54'00"W, 22°58'05"S - 42°50'03"W, 22°57'37"S) and the other adjacent to the Maricá lagoon (42°53'23"W, 22°54'00"S - 42°49'57"W, 22°57'34"S), as well as in restinga found in Carapebus, near the Carapebus lagoon (41°35'26"W, 22°14'50"S - 41°35'10"W, 22°13'05"S), and along the access road to Praia Grande (41°38'41"W, 22°16'27"S - 41°39'56"W, 22°15'09"S).

Larvae were obtained by dissecting samples of the galls; adults and pupal exuviae were obtained by rearing (see Maia 2001). All specimens were mounted on slides, following the methodology of Gagné (1994), and are archived in the Diptera collection at the Museu Nacional (MNRJ), in Rio de Janeiro, Brazil. Terminology used to describe the adults follows McAlpine (1981) and terminology used for the immature stages follows Gagné (1994).

Dasineura byrsonimae sp. nov. (Figs. 1-2)

Adult: Body length: 1.55–1.80 mm (male, n=2), 2.35 mm (female, n=1). Head (Fig. 1A): occipital process absent; eyes with circular facets, not contiguous on vertex; antenna: scape obconic, pedicel globose; 13 flagellomeres in male and 12 in female, flagellomeres short, setulose, with neck reduced only in female and bare in both sexes; flagellomeres 1 and 2, connate; circumfila ring-like (Figs. 1B-C); flagellomeres similar in length, except the last one, which is longer than the preceding, especially in females (Figs. 1D-E); length of male three last flagellomeres: 0.070 mm, 0.070 mm, and 0.085 mm (n=1); length of female three last flagellomeres: 0.045

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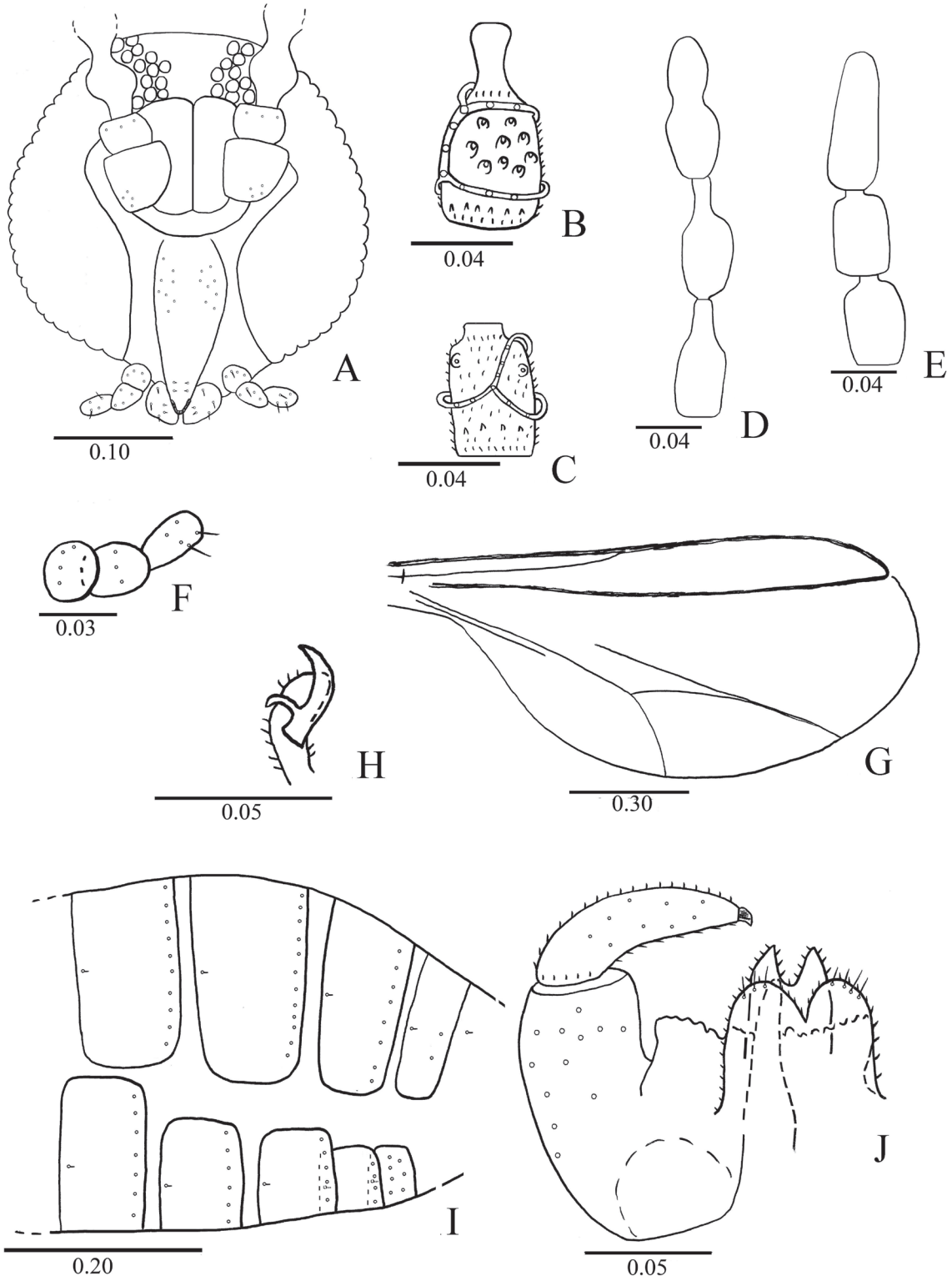

Figure 1. A-J. *Dasineura byrsonimae* sp. nov. 1A. Male head, frontal view; 1B. Male flagellomere 9; 1C. Female flagellomere 3; 1D. Male flagellomeres 11-13; 1E. Female flagellomere 10-12; 1F. Male palpus; 1G. Male wing; 1H. Male, foreleg, tarsal claw and empodium; 1I. Male abdominal segments 4-8, lateral view; 1J. Male terminalia, dorsal view. Scale bars in mm.

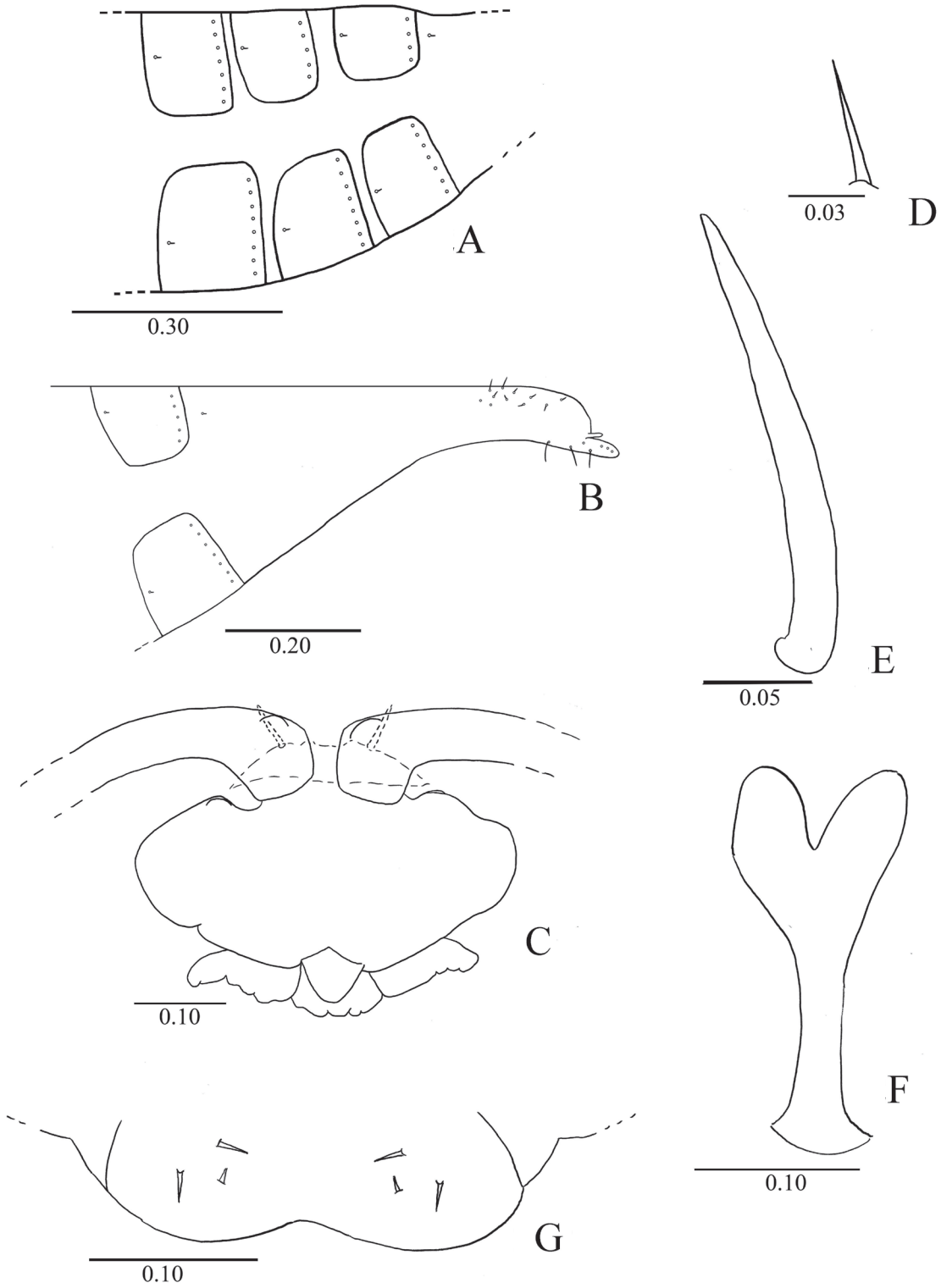

Figure 2. A-G. *Dasineura byrsonimae* sp. nov. 2A. Female abdominal segments 5 to end, lateral view; 2B. Ovipositor, lateral view; 2C. Pupa head, frontal view; 2D. Pupa, apical seta; 2E. Pupa, prothoracic spiracle; 2F. Larva, prothoracic spatula and lateral papillae, ventral view; 2G. Larva, terminal segment, dorsal view. Scale bars in mm.

mm, 0.045 mm, and 0.070 mm (n=1); palpus three-segmented, setose, first segment 0.020 mm, second segment 0.025 mm, third segment 0.30 mm of length (n=1) (Fig. 1F). Wing (Fig. 1G): length: 1.4 mm (male, n=2), 1.5 mm (female, n=2); R5 straight, joining C before wing apex; Rs absent; M3 present; CuA forked; CuP present; legs: tarsal claws one-toothed, bowed beyond midlength; empodia well developed, as long as bend in claws (Fig. 1H). Male abdomen (Fig. 1I): tergites 1–6 rectangular, with caudal row of setae, caudolateral setae absent, two anterior trichoid sensilla, and elsewhere with scattered scales, tergite 7 with few caudal setae, caudolateral setae absent, two anterior trichoid sensilla, and elsewhere with scattered scales, tergite 8, not sclerotized, with only two anterior trichoid sensilla as vestiture; sternites 2–7, rectangular with caudal row of setae, caudolateral and middle setae absent, two anterior trichoid sensilla and elsewhere with scattered scales; sternite 8, with scattered setae, two anterior trichoid sensilla and elsewhere with scattered scales; terminalia (Fig. 1J): gonocoxites not splayed; gonostyli claviform, entirely setulose; gonocoxites and gonostyli subequal in length; cerci rounded at distal margin, setose; hypoproct bilobed, setose, lobes pointed at apex; parameres wide, shorter than aedeagus and not tapering to apex; aedeagus tapering to apex, shorter than hypoproct and cerci. Female abdomen (Fig. 2A): tergites 1–6 as in male; tergite 7 with caudal row of setae, caudolateral setae absent, two anterior trichoid sensilla, and elsewhere with scattered scales; tergite 8, not sclerotized, with only two anterior trichoid sensilla as vestiture; sternites 2–7 as in male; sternite 8, not sclerotized; ovipositor 0.6 mm long, protrusible (n=1); female cerci fused with scattered setae (Fig. 2B).

Pupa: Head (Fig. 2C): antennal horn absent; facial papillae absent; apical seta long, 0.05 mm long (n=1) (Fig. 2D); prothoracic spiracle long, setiform, 0.22 mm long (n=1) (Fig. 2E); tergites 2–8 without spines, dorsal tegument spiny. Terminal segment rounded.

Larva: Body length: 1.80–2.10 mm (n=5); spatula (Fig. 2F): 0.23–0.26 mm of length (n=5), two-toothed (teeth wide and divergent), lateral papillae not visible; three pairs of setose terminal papillae; two pairs similar in length (0.02 mm), the other pair conspicuously shorter (Fig. 2G).

Biology: Pupation occurs in soil.

Etymology: The name *byrsonimae* refers to generic name of the host plant.

Examined material: BRAZIL, RIO DE JANEIRO: **Maricá** (APA), 05.VI.1998, V. Maia leg; holotype, male; same data: 1 female, 1 pupal exuvia and 1 larva; same locality and collector: III.1998, 7 larvae; 21.VIII.1998, 1 larva; same locality, 23.X.2000, Maia & Azevedo leg., 1 male and 1 female; Carapebus, 25.VII.1998, V. Maia leg, 2 larvae, 1 pupal exuvia; 25.II.2000,1 pupal exuvia; 02.V.2000, 2 pupal exuviae; 22.V.2000, 1 pupal exuvia; 30.V.2000, 1 female and 06.VI.2000, 1 larva. Obtained from leaf galls on *Byrsonima sericea* (Malpighiaceae).

DISCUSSION

The new species is tentatively included within the genus *Dasineura* because of the following: R5 shorter than the length of the wing, tarsal claws toothed, gonostylus partially bare, ovipositor elongate-protrusible, female cerci fused and spatula clove-shaped. However, this species differs from *Dasineura* because it has three-segmented palpi, an eighth tergite that is not longitudinally divided (in females) and larva with a reduced number of terminal papillae. According to the traditional definition of the genus (Gagné 1994), *Dasineura* has four-segmented palpi, a longitudinally divided eighth tergite (in females) and larva with eight terminal papillae. In addition, the new species is unique because of the absence of mesal setae on male and female sternites. The female antennae have only 12 flagellomeres, which is found only in *Dasineura chilensis* Kieffer & Herbst 1909, and *D. corollae* Gagné 1977, in the Neotropics; the number of female flagellomeres in *D. corollae* varies from 12 to 13. According to Gagné (1994) most of the neotropical species probably do not belong in *Dasineura*, which has traditionally been used as a catchall genus.

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REFERENCES

ARAÚJO, D.S.D. & HENRIQUES, R.P.B.1984. Análise florística das restingas do Estado do Rio de Janeiro. In: LACERDA, L.D. DE; R. CERQUEIRA & B. TURCQ (Orgs.) *Restingas: Origem, Estrutura, Processos*. Niterói: CEUFF. p. 195-216.

GAGNÉ, R. J. 1994. *The Gall Midges of the Neotropical region*. Ithaca: Cornell Univ. Press. xv + 352 p.

GAGNÉ, R. J. 2004. A Catalog of the Cecidomyiidae (Diptera) of the World. *Memoirs of the Entomological Society of Washington, 25*: 408 p.

MAIA, V. C. 2001. The gall midges (Diptera, Cecidomyiidae) from three restingas of Rio de Janeiro State. *Revista Brasileira de Zoologia, 18*(2): 305-317.

MCALPINE, J.F. 1981. Morphology and terminology: adults. In: MCALPINE, J.F.; B.V. PETERSON; G.E. SHEWELL; H. J.TESKEY; J.R. VOCKEROTH & D.M. WOOD (Eds). *Manual of Neartic Diptera*. Ottawa: Research Branch, Agriculture Canada, Monograph 27, vol. 1. p. 9-63.

TEIXEIRA, L.A.G & MACHADO, I.C. 2000. Sistema de polinização e reprodução de*Byrsonima sericea* DC. (Malpighiaceae). *Acta Botanica Brasilica, 14*(3): 347-357.