# Description of a new species of *Bruggmannia* Tavares (Diptera, Cecidomyiidae) associated with *Guapira opposita* (Vell.) Reitz (Nyctaginaceae) from Brazil

**Valéria Cid Maia**

*Museu Nacional, Departamento de Entomologia. Quinta da Boa Vista, São Cristóvão, 20940-040 Rio de Janeiro, Rio de Janeiro, Brasil. E-mail: maiavcid@acd.ufrj.br*

ABSTRACT. A new galler species, *Bruggmannia acaudata*, is described and illustrated (larva, pupa, male and female).
KEY WORDS. Gall, galling species, taxonomy.

RESUMO. Uma nova espécie galhadora, *Bruggmannia acaudata*, é descrita e ilustrada (larva, pupa, macho e fêmea).
PALAVRAS CHAVE. Galha, espécie galhadora, taxonomia.

*Bruggmannia* Tavares, 1906 is a neotropical genus with 18 described species: 12 from Brazil, three from El Salvador, two from St. Vincent and one from Cuba (Gagné 1994, Maia & Couri 1993). The Brazilian species are recorded from Rio de Janeiro State (six species), Amazonas (three species), Santa Catarina (two species) and Rio Grande do Sul (one species).

This genus includes only galling species and has been associated with three plant families: Nyctaginaceae (15 species), Rubiaceae (two species) and Myrsinaceae (one species).

The new species is also associated with Nyctaginaceae and represents the fourth genus record on *Guapira opposita* (Vell.) Reitz. This species was previously referred in Maia & Monteiro (1999) and in Maia (2001) as *Bruggmannia* sp.

*Bruggmannia* is easily recognized by the following characteres (Gagné 1994): Adults: male flagellomeres constricted near the middle of the nodes; flagellomeres necks longer than in other genera of the same tribe (Asphondyliini); circumfila less appressed to the flagellomeres than in other Asphondyliini; ovipositor short, unpigmented, with elongate ventral setae and sparse dorsal setae; female cerci separate and tiny; palpus three-segmented; empodia much shorter than the claws.

Pupa. Antennal horns weakly developed or absent; abdominal segments 2-8 with one or two anterior rows of dorsal spines.

Larva. Prothoracic spatula absent; terminal segment convex or elongate and tapered.

*Bruggmannia* spp. can induce simple or complex galls and can attack several plant parts as leaves (14 species), stems (three species) and flower pedicel (one species). The species described herein induces complex galls on leaves.

## MATERIAL AND METHODS

Part of the examined specimens was previously incorporated into the Diptera collection of Museu Nacional (MNRJ) by the author as voucher material of ecological investigations. As few specimens were represented, field works were done in order to obtain more material.

Samples of the galls were collected from July to October, 2003 at the restinga of Barra de Maricá (Maricá, Rio de Janeiro). Some galls were dissected under a stereoscopic microscope in order to remove the larva of third instar. The pupal exuviae and adults were obtained by keeping some samples in plastic pots covered by a fine screening and layered at the bottom with damp cotton. The pots were checked daily. All reared material was first preserved in 70% alcohol and then the specimens were mounted on slides following the methodology of Gagné (1994). All specimens (including the types) were incorporated in the Diptera collection of Museu Nacional, Rio de Janeiro. It was adopted the terminology of Gagné (1994).

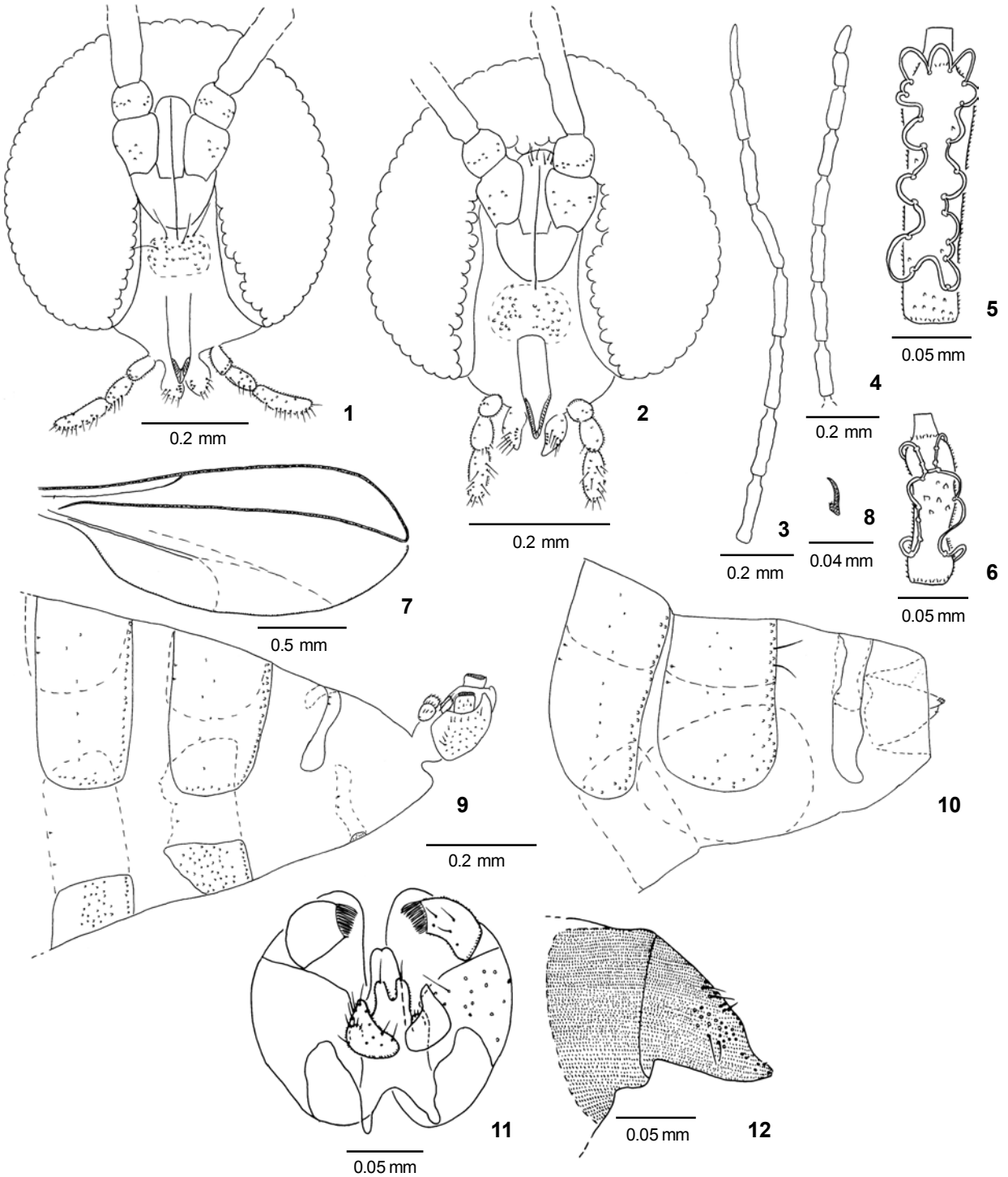
## *Brugmannia acaudata* sp. nov.

### Figs 1-19

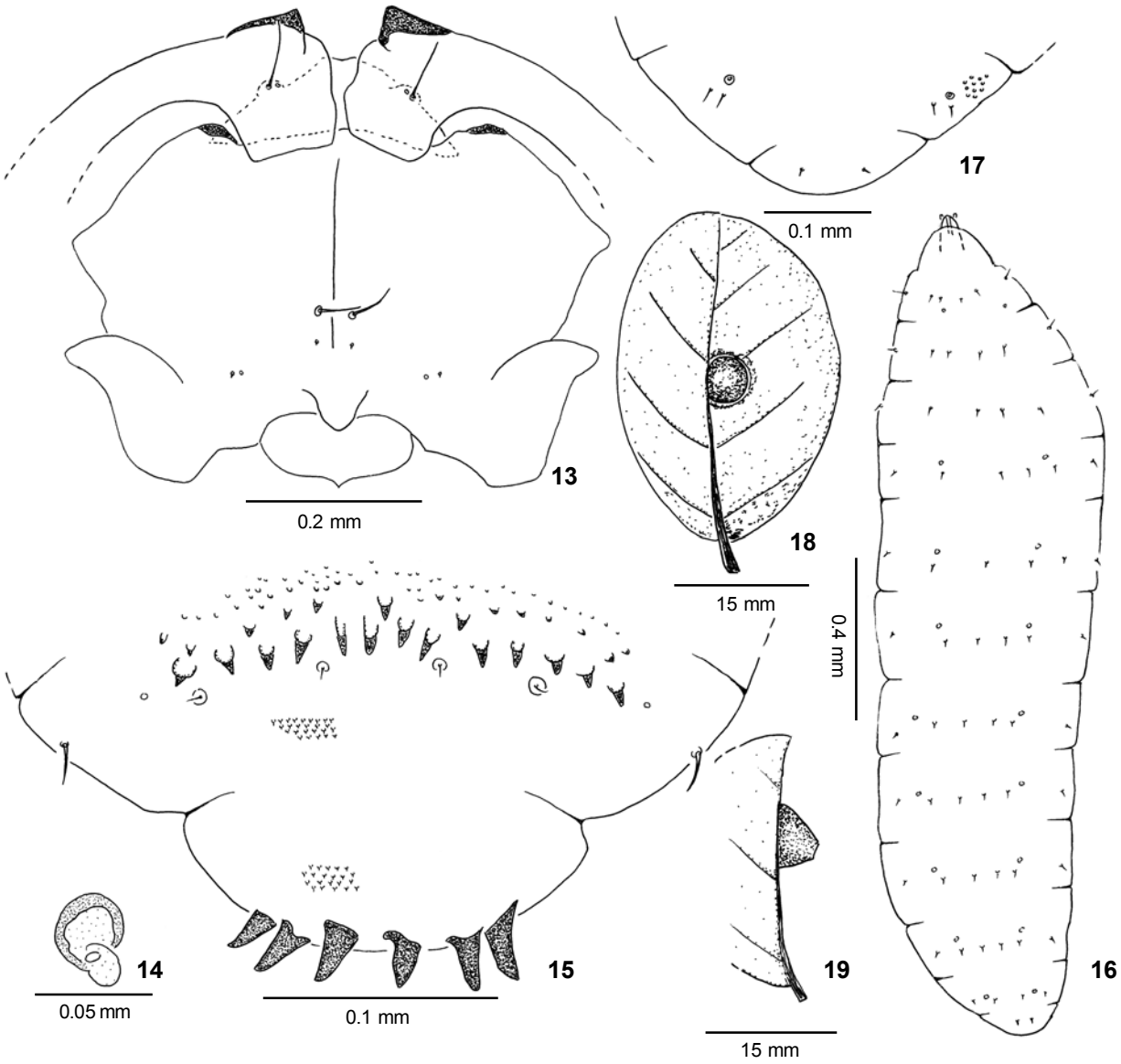
Diagnosis. Flagellomeres not constricted near middle of nodes; female sternite 7 with basal margin irregular; larva with terminal segment convex (without a "tail"); pupa with two or three lateral facial papillae and two lower facial papillae; male cercus riniform.

Adult. Body length: 2.8-3.5 mm (n = 5). Head (Figs 1 and 2): occipital process absent. Eyes facets hexagonal, closely approximated. Antenna with scape cylindrical setose, pedicel globose, male and female flagellomeres cylindrical, necks bare (male necks longer than in female). Proportions of flagellomeres as in figures 3 and 4. Flagellomeres 1 and 2 connate. Circumfila anastomosing (Figs 5 and 6).

Frontoclypeus with 32-40 setae. Labrum long-attenuate without ventral sensory setae. Hypopharynx of the same shape as labrum, with long, anteriorly directed lateral setulae. Labellae elongate-convex, each with several lateral setae and two pairs




Figures 1-12. *Bruggmannia acaudata* **sp. nov.**: (1) holotype male, head frontal view; (2) female, head frontal view; (3) holotype male, antennal flagellomeres 5-12; (4) female, antennal flagellomeres 5-12; (5) holotype male, antennal flagellomere 5; (6) female, antennal flagellomere 5; (7) female, wing; (8) female, midtarsal claw and empodium (lateral); (9) holotype male, abdominal segment 6 to end, dorsolateral view; (10) female, abdominal segment 6 to end, dorsolateral view; (11) holotype male terminalia, dorsal view; (12) female terminalia, lateral view.




Figures 13-19. *Bruggmannia acaudata* **sp. nov.** (13-15) Pupa: (13) cephalic region, frontal view; (14) prothoracic spiracle; (15) terminal segment, dorsal view; (16-17) larva dorsal view: (16) general aspect; (17) posterior segments; (18-19) gall: (18) upper surface; (19) lower surface.

of short mesal sensory setae. Palpus with three setose crescent segments: segment one spheroid, segments 2 and 3 cylindrical.

Thorax: Anepimeron setose, other pleural sclerites asetose. Wing (Fig. 7) length: 2.0-2.2 mm in male (n = 5); 2.6-2.8 mm in female (n = 5). Tarsal claws simple, empodium rudimentay (Fig. 8).

Abdomen. Male (Fig. 9): tergites 1-7 rectangular with a complete row of caudal setae, several lateral setae, two basal trichoid sensilla and elsewhere with scattered scales. Tergite 8 linear with two trichoid sensilla. Sternites 1-6 rectangular with setae more abundant mesally, a complete row of caudal setae and two basal trichoid sensilla; sternite 7 with basal margin irregularly sclerotized, setae more abundant mesally to subbasally, a complete row of caudal setae and two basal trichoid sensilla. Sternite 8 linear with several scattered setae and two basal trichoid sensilla. Female (Fig. 10): tergites 1-7 similar to the male ones. Tergite 8 not sclerotized. Sternite 1 not sclero-

tized. Sternites 2-6 similar to the male ones. Sternite 7 longer than the precedent one with rounded margins and scattered setae (absent in the basal 1/3). Sternite 8 not sclerotized.

Male terminalia (Fig. 11): gonocoxites wide and not splayed; gonostylus short (0.035-0.05 mm); cercus riniform completely separate and setose; hypoproct with narrow setose lobes, longer than cercus; parameres very short and setose; aedeagus tapering gradually to apex and sligthly bilobed apically.

Ovipositor (Fig. 12) protrusible, tapering to apex, striate and with two groups of long setae and some short setae distally; cerci tiny, separate, setose.

Pupa. Color: browish. Length: 2.7-3.1 mm (n = 5). Cephalic region (Fig. 13): antennal horn triangular, simple, short (length: 0.06-0.07 mm; n = 5); cephalic seta with 0.09-0.12 mm of length (n = 5); frontal horns absent; two pairs of setose lower facial papillae: one pair with a long seta (0.04 mm of length, n = 5) and the other with a short one (0.01 mm of length, n = 5); two pairs of lateral facial papillae (one pair setose and the other asetose). Upper cephalic margin thickened laterally. Thorax: prothoracic spiracle rudimentary, like a dark spot (Fig. 14). Wing sheath reaching ½ of abdominal segment 3; foreleg and midleg sheath subequal in length, ending near or at distal margin of abdominal segment 5; hindleg sheath reaching basal 1/3 or ½ of abdominal segment 6. Abdomen: segment 1 with six dorsal papillae (four setose and two asetose) and one pair of setose pleural papillae on either side; dorsal spines absent; spinules present only posteriorly to the discal area, segments 2 with the same complement of dorsal and pleural papillae, dorsal spines absent, spinules absent only in the discal area and scattered elsewhere; segments 3-8 with two irregular rows of dorsal spines (distal row with spines more developed); four pairs of dorsal papillae setose; two pairs of pleural papillae setose and dorsal spinules elsewhere. Terminal segment with 4 or 6 well developed terminal spines, spinules scattered elsewhere and no papillae (Fig. 15).

Larva. Body elongate cylindrical and tapered at both ends (Fig. 16). Color: white. Length: 1.7-2.0 mm (n = 2). Integument rough. Spatula absent. Thoracic and abdominal segments 1-7 with two pairs of dorsal papillae setose and one pair of pleural papillae setose. Lateral papillae absent. Abdominal segment 8 with one pair of dorsal papillae setose; terminal segment short, convex, with one pair of terminal papillae setose (Fig. 17).

Gall (Figs 18 and 19): Leaf gall (projecting simultaneously on both surfaces), triangular at lower surface and discoid at upper surface. When mature, with an opercule at upper surface.

Material. Holotype male. Brazil, *Rio de Janeiro*: Maricá (Restinga da Barra de Maricá), 18.VII.2003, Costa & Maia *leg*., MNRJ. Paratypes: same locality, date and collectors, 6 males, 5 females, 1 pupal exuviae. Same locality and date, V. Maia *leg*., 9 males and 9 pupal exuviae. Same locality, 17.XII.1987, V. Maia *leg*., 1 female; X.1988, V. Maia *leg*., 1 female; 05.X.1998, V. Maia *leg*., 1 pupal exuviae (emerg.: 06.X.1998); 06.X.1998, V. Maia *leg*., 1 male; 14.XI.2000, Maia & Azevedo *leg*., 1 larva. Same locality, 30.III.2004, V. Maia *leg*., 3 larvae. Maricá (Restinga de Itaipuaçu), 02.X.1998, V. Maia *leg*., 1 larva (fix: 15.X.1998).

Etimology. *acaudata* refers to the shape of the larval terminal segment (without a "tail").

Discussion. *B. acaudata* is easily distinguishable from the other *Bruggmannia* species, due mainly to the flagellomeres (not constricted near the middle of the nodes). Besides, larva without a "tail" is rare in this genus. This condition is also found only in *B. pustulans* Möhn, 1960 and *B. randiae* Möhn, 1960, but *B. acaudata* differs from both species due to the shape of the male cercus (riniform and separate in the *B. acaudata*; ovoid and mesally fused in *B. pustulans* and *B. randiae*), the absence of frontal spines (present in both species), the presence of lower facial papillae in *B. acaudata* (absent in the other two species).

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