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## **First Record of *Membracis juncta* (Walker) (Hemiptera: Membracidae) in *Tibouchina candolleana* (Mart. ex DC.) (Melastomataceae)**

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# First record of *Membracis juncta* (Walker) (Hemiptera: Membracidae) in *Tibouchina candolleana* (Mart. ex DC.) (Melastomataceae)

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The plant family Melastomataceae consists of 5,000 species, divided into roughly 166 genera (Renner et al. 2016). In Brazil, it is present in every phytogeographical domain, including 69 genera and 1,393 species, of which 65% are endemic (Goldenberg et al. 2012). The genus *Tibouchina* spp. consists of about 350 species that are found in tropical and subtropical regions in the Americas (Peralta 2002).

*Tibouchina candolleana* (Mart. ex DC.), also known as “Quaresmeira,” is a native species that grows in the states of Bahia, Minas Gerais, Goiás, and Distrito Federal (Lorenzi 2002). It has potential for planting along streets under the power lines, and is widely planted in urban areas due to its profuse flowering. It is also used in reforestation of degraded areas (Ferreira et al. 2007). In addition, *T. candolleana* has medicinal properties, possessing chemicals with microbial activity (Santos et al. 2012).

Despite its potential usefulness, *Tibouchina* spp. are susceptible to damage by insects (Lorenzi 2002). Duarte et al. (2008) studied urban reforestation in Maringá, in Paraná State, and noted that *T. candolleana* plants often are attacked by termites (Blattodea; formerly Isoptera). Quaresmeira also is susceptible to beetles from the coleopteran family Chrysomelidae, according to a report by Santos et al. (2015) in Minas Gerais, where they found damage in *Tibouchina* spp. flowers and leaves. Maia et al. (2014) surveyed gall-inducing insects that live in Brazilian cerrado (savannah), and observed that Melastomataceae were important hosts for galls caused by Diptera, Lepidoptera, and Coleoptera. In Minas Gerais, gall-inducing insects from the family Cecidomyiidae (Diptera) were found to affect *T. candolleana* (Maia & Silva 2011). Finally, in Piracicaba in São Paulo State, *Frankliniella* sp. (Thysanoptera: Thripidae) was collected from *Tibouchina* sp. flowers (Monteiro et al. 2001).

The Membracidae (Hemiptera) often can be recognized by the very well-developed pronotum, which may cover the head, assume unusual shapes, and extend back over the abdomen (Wood 1993; Wallace 2008). They are piercing-sucking insects that cause direct and indirect damage to plants. Direct damage is associated with sap removal, as well as injection of toxins and plant pathogens. Membracids remove photoassimilates, which are rich in carbohydrates but poor in amino acids. Thus, these insects have a highly efficient filtering system that

retains the amino acids, but filters out the excess liquid, which are rich in sugars (honeydew) (Lopes 1996). The presence of honeydew on the leaves supports growth of blackish fungus (*Capnodium* sp.) that interferes with photosynthesis, resulting in indirect damage (Lin 2006; Wallace 2008; Lencioni Neto 2011).

The objective of this report is to document the occurrence of *Membracis juncta* (Walker) (Hemiptera: Membracidae) for the first time on *Tibouchina candolleana* (Mart. ex DC.) Cogn. (Melastomataceae) plants.

Eggs, nymphs, and adults of *M. juncta* were observed on *T. candolleana* that compose the urban forest in the Vila Arraiolos and Vale dos Diamantes neighborhoods in Diamantina, Minas Gerais (Fig. 1). The observations were made in Jul 2015 and again in Jul 2018.

Membracids were collected and sent to Antonio José Creão Duarte, from the Systematics and Ecology Department of Universidade Federal da Paraíba, in João Pessoa, Paraíba, Brazil, who provided species determination.

Adult *M. juncta* are black with a laterally flattened body, and have a continuous white stripe of irregular width dorsolaterally on the pronotum, merging posteriorly (Fig. 2A). The nymphs are principally white with dark legs, and spines on the dorsal abdomen (Fig. 2B). The eggs are whitish in color, about 1 mm long, and cylindrical. Egg clusters are covered with waxy secretions, as was reported by Wood (1993). The insects were found on leaves, adjacent to the stems, and covered with a waxy substance. Both immature and adult *M. juncta* prefer the young, tender parts of the plant, and normally are found at the apical meristems (Fig. 1C).

Necrotic spots found on *T. candolleana* leaves were the most characteristic symptom of damage caused by these treehoppers. *Trigona spinipes* (F.) (Hymenoptera: Apidae), also known as Irapuá (Fig. 1B) is commonly associated with *M. juncta*. Although the association with *M. juncta* honeydew is not mandatory (Baronio et al. 2012), the collection of honeydew by the bees may increase the sap consumption by the treehoppers, thus increasing the damage to plants (Vieira et al. 2007). The presence of the predatory bug *Supputius cinciceps* (Stål) (Hemiptera: Heteroptera: Asopinae) attacking nymphs and adults was observed (Fig. 1D).

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**Fig. 1.** (A) *Tibouchina candolleana* (DC.) (Melastomataceae) infested by *Membracis juncta* (Walker) (Hemiptera: Membracidae), Diamantina, Minas Gerais, Brazil, 2015; (B) Association of *M. juncta* with *Trigona spinipes* (F.) (Hymenoptera: Apidae); (C) Nymphs and adult *M. juncta* on young parts of the plant; (D) *Supputius cincticeps* (Stål) (Hemiptera: Pentatomidae) attacking *M. juncta*.

This is the first record of *M. juncta* feeding on *T. candolleana* in Brazil. Due to the potential damage to *T. candolleana* by *M. juncta*, these plants should be monitored for the presence of these insects.

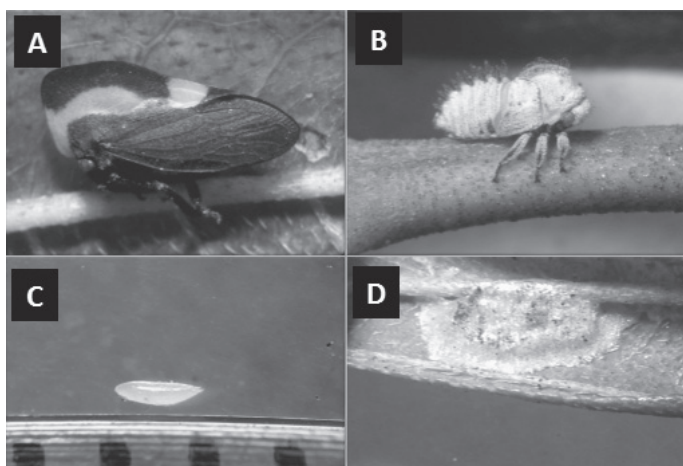
## Summary

*Tibouchina candolleana* (Mart. ex DC.) plants are used in urban reforestation in several cities because its height is compatible with power lines, as well as for its profuse flowering. However, it is susceptible to damage by several insects. Here we provide the first report of *Membracis juncta* (Walker) (Hemiptera: Membracidae) attacking *T. candolleana* plants in Diamantina, Minas Gerais, Brazil. Eggs, nymphs, and adult insects of *M. juncta* were found apically, feeding on young, tender tissues. Their feeding resulted in necrosis on leaves.

**Key Words:** ornamental plants; quaresmeira; piercing-sucking insects; treehoppers

## Sumário

Plantas de *Tibouchina candolleana* (DC.) Cogn são utilizadas na arborização urbana de diversas cidades pela altura compatível com a rede elétrica e exuberância floral. Além disso, esta espécie possui compostos que apresentam atividade microbiana, podendo também, ser utilizadas no reflorestamento de áreas degradadas. Este trabalho relata o primeiro registro de ocorrência do Hemiptera *Membracis juncta*



**Fig. 2.** *Membracis juncta* (Walker) (Hemiptera: Membracidae): (A) adult; (B) nymph; (C) egg; (D) waxy covering on the eggs.

atacando plantas de *T. candolleana* no Brasil, que compõem a arborização urbana de Diamantina, estado de Minas Gerais. Foram constatados insetos adultos, ninfas e ovos de *M. juncta* nas partes jovens e tenras das plantas. Bem como, pontos necrosados nas folhas, decorrentes do hábito alimentar sugador destes insetos.

Palavras Chave: plantas ornamentais; quaresmeira; sugador

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