

Notes and Comments

First report of *Palaeomystella tibouchinae* Becker & Adamski, 2008 (Lepidoptera: Coleophoridae: Momphinae) in *Rhynchanthera grandiflora* (Melastomataceae) in Brazilian rupestrian fields of Espinhaço mountain range

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Ecological interactions can be defined as the population phenomena that occur between different species, such as competition, mutualism, and predation (e.g. herbivory and parasitism) (Nakazawa, 2020). The interaction between plants belonging to the family Melastomaceae and galling insects, mainly belonging to the order Lepidoptera, is still inadequately studied and reported. Galls in Melastomaceae species of plants have mainly been reported to be caused by the insects of the order Diptera, family Cecidomyiidae (Cintra et al., 2020). The family Melastomataceae includes thousands of known plant species, such as *Rhynchanthera grandiflora* (Aubl.) (CNCFLORA, 2012; Freiberg et al., 2020; Konzmann et al., 2020).

Rhynchanthera grandiflora is a shrub/sub-shrub that grows up to 2 m in height, and it is commonly found in the humid and open areas of several Brazilian biomes (CNCFLORA, 2012). This species is on the red list of threatened flora (SIBBR, 2020), and there are few reports on its interaction with galling insects. These interactions form an important component of biodiversity and may be strongly influenced by the species-specific traits (Stone and Schonrogge, 2003; Giron et al., 2016). The interactions between galling insects and their hosts provide them food and a protective environment against adverse climatic conditions and natural enemies (Price et al., 1987; Stone and Schonrogge, 2003; Giron et al., 2016).

The galling insect *Palaeomystella tibouchinae* Becker & Adamski, 2008 (Lepidoptera: Momphidae) was identified in Brazil as a new species attacking the plants of *Tibouchina barbiger* (Naudin) Baillon (Melastomataceae) (Becker and Adamski, 2008). Interactions between *P. tibouchinae* and *R. grandiflora* have not been reported so far. Therefore, in this study, we aimed to report the interaction between gall-inducing *P. tibouchinae* in *R. grandiflora* plants. This information can be useful for future studies on ecological interactions between these species.

This study was conducted in a rupestrian field area in Diamantina, Minas Gerais state (18°12,404'S, 43°36'042"W) at Serra do Espinhaço, Brazil. This region was declared as a biosphere reserve by UNESCO and as a Globally Important Agricultural Heritage System (GIAHS) by the UN Food and Agricultural Organization (Brasil, 2018; FAO, 2020). An important and exclusive type of vegetation that covers the mountains of this region includes the rupestrian fields. It is formed by shrubby vegetation, prone to fire, along with patches of cerrado and forests (Silveira et al., 2016) and with rock fields and mountain pastures, that remains constant in Diamantina (Soares et al., 2021). The local climate is classified as Cwb based on the Köppen classification system, which is characterized by subtropical dry winter plateaus and rainy summers.

Ten *R. grandiflora* shrubs were inspected in this study, of which 4 possessed galls on them (Figure 1a). A total of six galls were collected from each shrub (Figure 1b), which were packed in plastic pots, transferred to the Universidade Federal dos Vales do Jequitinhonha e Mucuri (UFVJM), in Diamantina, Minas Gerais state, Brazil, and stored in an air conditioned room with temperature 25 ± 2°C, relative humidity 70 ± 10%, and photoperiod of 12 h. A total of four galls were opened, and a larva (Figure 1c) and a pupae (Figure 1d) were spotted in two of them. The other two galls were empty. A total of 20 galls were preserved until the adults emerged (after 22 days) (Figure 1e). After the emergence of adults, five non-sexed adults were used for further identification. The insects were identified by an insect taxonomist, Dr. Vitor O. Becker (Instituto Uiraçu), based on the key and identification system proposed by Becker and Adamski (2008) as *Palaeomystella tibouchine* (Figure 1e).

The species *P. tibouchine* was first described in 2008 and the available information about its ecological interaction with host species is limited. Therefore, documenting the occurrence of gall formation by *P. tibouchine* in plant

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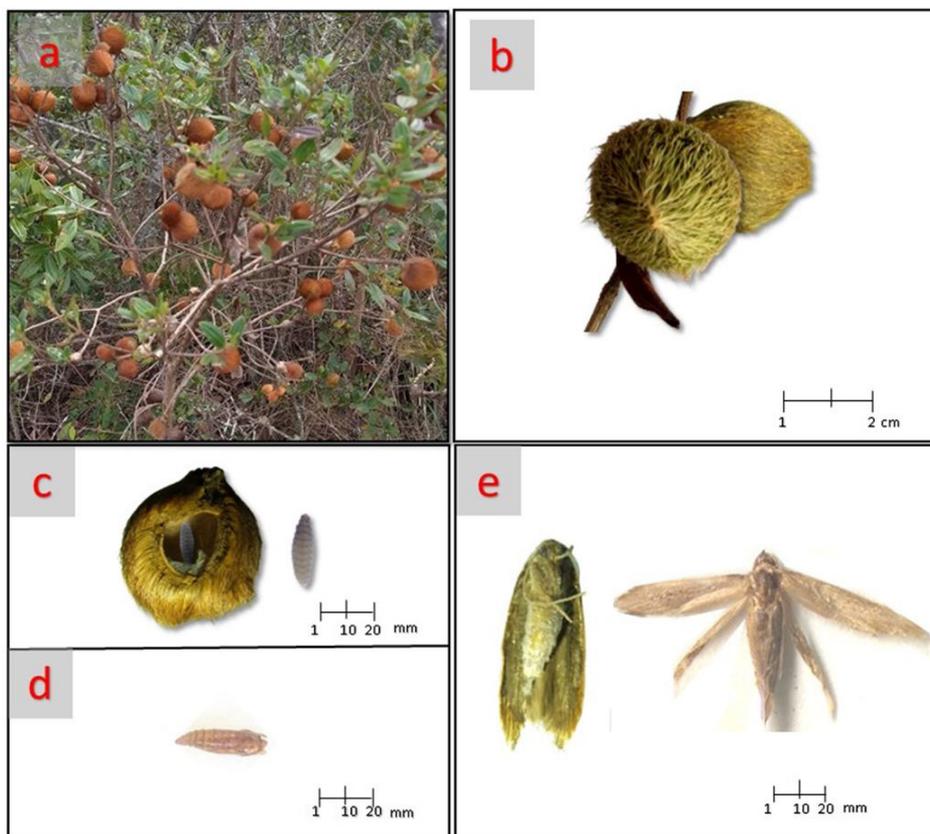


Figure 1. *Rhynchanthera grandiflora* with galls (a), representative image of galls (b); larva inside a gall (c), pupae (d), and adults (e) of *Palaeomystella tibouchinae*.

species, *R. grandiflora*, is an important scientific effort to advance knowledge about the species and their ecological interactions.

Here, we report, for the first time, the gall-inducing species *P. tibouchinae* on *R. grandiflora*, and this represents a starting point for future ecological studies on the interaction between lepidoterans and plant species of the Melastomataceae family.

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