

## Scientific Note

# First report of *Idalus agastus* (Dyar, 1910) (Lepidoptera: Erebidae: Arctiinae) attacking native Myrtaceae seedlings in nurseries in Brazil

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**Abstract.** This study reports, for the first time, attack of *Idalus agastus* (Dyar, 1910) (Lepidoptera: Erebidae: Arctiinae) on the seedlings of Myrtaceae family plants grown in nurseries in southern Brazil. This arctiid is common in the state of Rio Grande do Sul and is a secondary pest of eucalyptus. However, reports of damage to native fruit species in nurseries are unprecedented in this region. Infestation and foliage damage have been observed in *Psidium cattleianum* Sabine (strawberry guava), *Myrcianthes pungens* (O. Berg.) D. Legrand (guabiyu), *Myrciaria cauliflora* Mart. (jaboticaba), and *Eugenia uvalha* Cambess. (uvaia) trees during the September/October 2023.

**Keywords:** *Psidium cattleianum*, *Myrcianthes pungens*, *Myrciaria cauliflora*, *Idalus agastus*, Defoliating caterpillar.

*Idalus agastus* Dyar, 1910 (Lepidoptera: Erebidae: Arctiinae) is a moth species with wide geographical distribution in Brazil (Ferro & Diniz 2007). A study on faunal composition of Arctiinae (Lepidoptera) in the state of Rio Grande do Sul found *I. agastus* to be one of the two most prevalent species (Ferro & Teston 2009). Although it is considered a secondary pest in of eucalyptus crop, there is a possibility that it could be the primary pest as well, given its potential for destructive defoliation (Zanuncio et al. 1992). There are past reports of *I. agastus* infestation in Myrtaceae plants in Uruguay, where it was reported to feed on the leaves of *Myrcianthes pungens* (O. Berg.) D. Legrand (guabiyu) and *Eugenia uniflora* L. (pitanga) (Biezanko et al. 1957; Biezanko et al. 1974), and around Rio Grande do Sul (Brazil), in *Psidium guajava* L. (guava), and *E. uniflora* (Biezanko 1983). However, there have been no new reports regarding the damage related to this association.

The diversity and economic importance of plants belonging to the Myrtaceae are well established (Conceição & Aragão 2010). Although its flora has not been fully described, there are several studies that have added to our knowledge about this group (Sobral et al. 2012; Giaretta et al. 2018; Flores et al. 2019). In Brazil, species of the Myrtaceae are commercially important and widely cultivated because of their fleshy fruits and easy adaptation to the country's different climate zones. Among these are *Eugenia uvalha* Cambess. (uvaia), *M. pungens* (guabiyu), *Myrciaria cauliflora* Mart. (jaboticaba), and *Psidium cattleianum* Sabine (strawberry guava), all of which are increasingly becoming part of agroforestry systems.

One of the primary causes of damage to native fruit trees, and the consequent loss in production, is infestation by pests such as fruit flies (Diptera: Tephritidae) (Bisognin et al. 2015), gall-forming insects such as felt scales (Hemiptera: Eriococcidae), and Cecidomyiids (Diptera: Cecidomyiidae) (Diez-Rodríguez et al. 2011). In some cases, attacks by defoliating insects such as strawberry guava sawflies have also been reported (Pedrosa-Macedo 2000).

The objective of this study was to report incidences of *I. agastus* attacks and the defoliation and damage caused by this species to the seedlings of *E. uvalha*, *M. cauliflora*, *M. pungens*, and *P. cattleianum* cultivated in growing bags in the tree nurseries of an agroecological system.

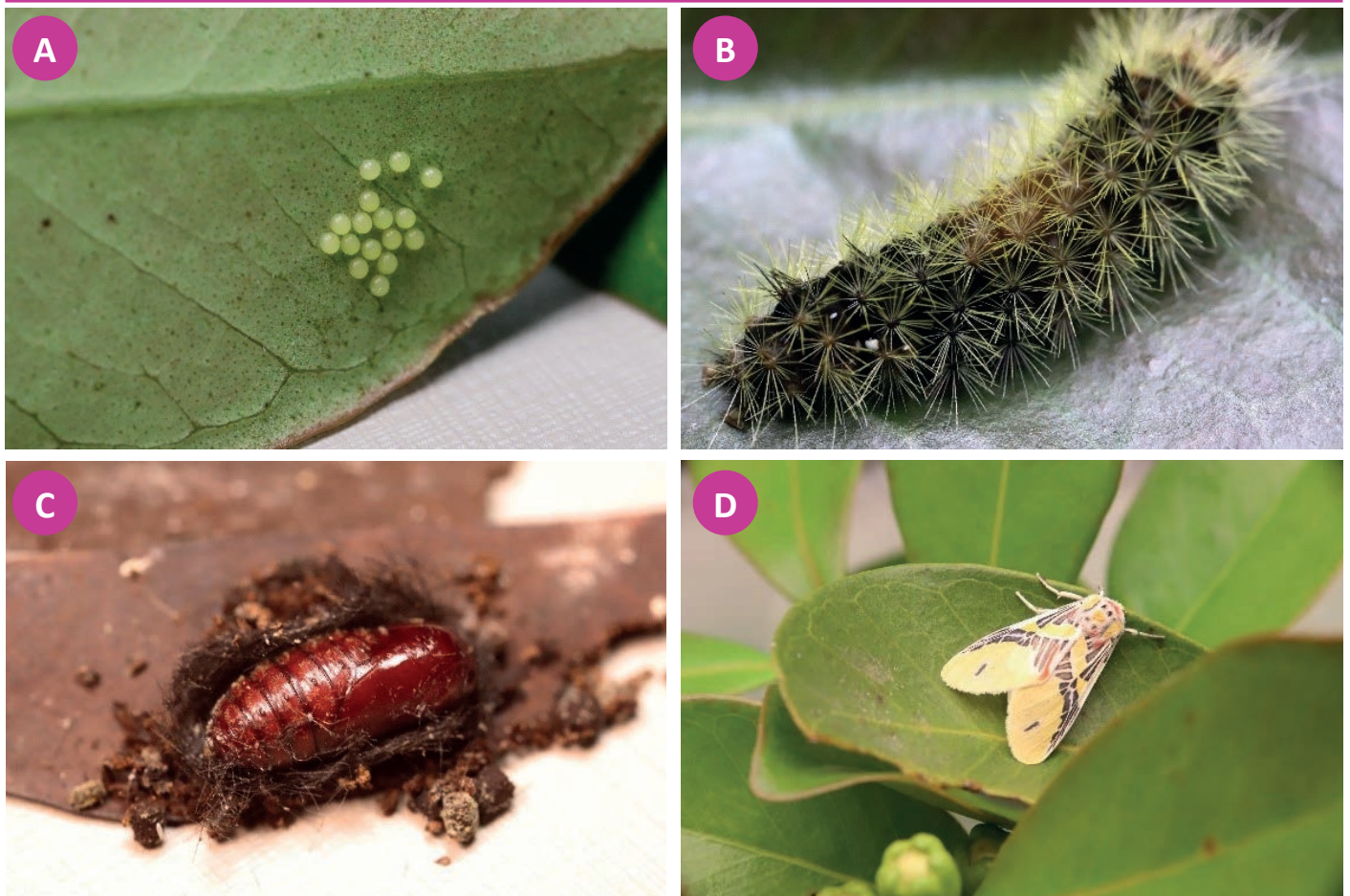
A total of 28 caterpillars of different instars were collected from the leaves and buds of infested seedlings in September/October 2023

from a fruit tree nursery located at Estação Experimental Cascata, operated by Embrapa Clima Temperado, Pelotas, Rio Grande do Sul (31°37'15.93"S, 52°31'25.20"W, 173 m). The insects were transported to the laboratory and reared in a controlled environment (temperature of 25 ± 1.5 °C, relative humidity of 60 ± 20%, and photo-phase of 14 h). Rearing cages comprised 500 mL plastic cups, the openings of which were covered with the lid of a Petri dish. The insects were fed once daily; they were retained in cages upon pupation until adults had emerged. Five pairs were placed individually in the cages, fed a 10% honey solution (v/v); additionally, a strawberry guava plant sprout with three leaves was included to serve as an oviposition site. The following biological parameters were recorded: duration and viability of pupal and embryonic stages and the pre-oviposition, oviposition, fecundity, and longevity of males and females. Photographs of the developmental stages (Fig. 1) and the damage caused were recorded (Fig. 2). The adults were identified by taxonomist Dr. Vitor Osmar Becker of the Reserva Serra Bonita and Instituto Uiraçu, Camaçari, Bahia.

The insects were identified as *I. agastus*. Females laid yellowish-green eggs close to the edges on the abaxial region of leaves. Larval development was completed in six instars. The caterpillars were light brown in color and had few bristles until the third instar, which developed into dense tufts by the end of the larval stage. The pupa was reddish-brown, 12 mm in length, and wrapped in a cocoon made of silk threads and the leftover food. Embryonic and pupal stages were observed to be 5.2 ± 0.23 and 11.7 ± 0.87 days, respectively. Of the couples evaluated, four females laid eggs, recording 5 to 37 eggs/laying, with total average fecundity of 126 ± 25 eggs. The pre-oviposition and oviposition periods were 2.5 ± 0.58 days and 12.5 ± 4.20 days respectively. Longevity was 10.5 ± 1.32 and 17.2 ± 2.04 days for males and females, respectively.

*Idalus agastus* infestation was recorded in *E. uvalha*, *M. cauliflora*, *M. pungens*, and *P. cattleianum* plants. Young caterpillars dispersed among seedlings and fed on leaves and younger shoots by scraping the surface. As they developed, they consumed the entire leaf, beginning at the edges and often including secondary veins. The presence of webs on the leaves, especially on the shoots, was common; after feeding, the leaves dried up.

Further studies are necessary to evaluate the relationship between *I. agastus* infestation and the damage caused by them to seedling production in Myrtaceae plants. Their growth in commercial eucalyptus



**Figure 1.** Life cycle of *Idalus agastus*. (A) Eggs oviposited on a leaf of *P. cattleianum*; (B) Lateral back view of caterpillar of 4th instar; (C) Pupa; (D) Dorsal view of adult moth.



**Figure 2.** Damages caused by *Idalus agastus* in Myrtaceae nurseries. (A) Leaves of *P. cattleianum* with injury caused by caterpillars; (B) Damage on *Myrcianthes pungens* nursery.

plantations in southern Rio Grande do Sul could lead to the spread of *I. agastus*, as this insect is considered a secondary pest of eucalyptus.

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## Authors' contributions

GRA: Conceptualization, Formal analysis, Investigation, Writing – original draft, Writing – review & editing. JLS: Investigation, Methodology, Writing – review & editing. DEN: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Resources, Writing – review & editing.

## Conflict of Interest Statement

The authors declare that they have no competing interests.

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