

Occurrence of *Conotrachelus psidii* (Marshall, 1922) in *Psidium cattleianum* (Sabine)

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ABSTRACT

The guava weevil, *Conotrachelus psidii* (Marshall, 1922) (Coleoptera: Curculionidae), has been reported to be harmful to guava fruit, causing deterioration. However, the occurrence of this insect and resulting damage in araçazeiro *Psidium cattleianum* (Sabine) fruit has not yet been described. For this reason, the objective of this study was to report the occurrence of *C. psidii* in araçá (*P. cattleianum*). In May 2015, the occurrence of *C. psidii* in araçá trees of the *P. cattleianum* species was investigated. Recordings were performed in the experimental area of UNEPE Viveiro de Plantas Hortícolas (geographical coordinates 25°41'37"S and 53°06'07"W, average altitude of 502m) at the Federal University of Technology (UTFPR-DV), Dois Vizinhos – PR.

Key words: araçá; insect pest; guava weevil.

The guava weevil, *Conotrachelus psidii*, is an insect of the Coleoptera order and Curculionidae family (Silva, 2009). It is characterized as a small beetle that measures approximately 6mm in length and has dark brown coloring, with elytra that have longitudinal grooves covered by short and fine arrows and are colored white or yellow (Gallo et al., 2002; Sá & Silva, 2011). Four to five days after the eggs are laid, white apodal larvae with dark-colored head hatch, and after four days, leave and become pupa in the soil. This period takes approximately 16 days (Gallo et al., 2002), while adults can survive up to seven months (Silva, 2009).

Conotrachelus psidii has a negative impact on the production and commercialization of fruit in several countries, including Brazil, due to early ripening and rotting, giving them an unpleasant appearance (Valente & Benassi, 2014). In addition to larvae damaging the fruit, adults may damage other plant organs, such as flower buds, petioles and stems (Silva-Filho et al., 2007). This insect, *C. psidii*, is one of the main pests of guava, *Psidium guajava* (L.), in Brazil. The larvae of this insect damage guava fruit by destroying the pulp and seeds, leaving the inner part of the fruit with blackened appearance and, therefore, causing problems for producers (Gallo et al., 2002; Silva, 2009). Guava fruits attacked by *C. psidii* present depressions in the epicarp and black spots at the posture site.

Brazil has potential to produce native fruit trees, such as *Psidium cattleianum* (Sabine), popularly known as red or yellow araçá. It belongs to the family *Myrtaceae* and the genus *Psidium*, the same as *P. guajava*. *P. cattleianum* is a plant which is native to Brazil, present in the Atlantic Forest (mixed and dense ombrophilous forest) and can occur from Bahia to Rio Grande do Sul (Silva et al., 2011), being prominent in the South of Brazil (Tomaz et al., 2011). The araçá is cultivated in domestic orchards in the South of Brazil, is an arboreal species, has a height of 1 to 9 meters and brown trunk. It has leaves of 5 to 9cm in length and white axillary flowers, which appear between September and December (Muller et al., 2012). The fruit can be yellow or red, which suggests that there are two morphotypes (varieties) of the species, and the flavor is similar to the guava, but less acidic (Rocha et al., 2008).

Psidium cattleianum has significant economic importance, being used to generate heavy and compact wood which is suitable for use in civil construction and the manufacture of tool cables, for example. This species

is also recommended for areas of environmental recovery. The fruit is used by humans in various ways, such as the preparation of jellies, juices and liqueurs, due to their nutritional characteristics (Sousa & Sobral, 2007). However, the productivity of *P. cattleianum* can be compromised by several factors, one of them being the attack by insect pests.

In the experimental area of UNEPE Viveiro de Plantas Hortícolas (geographic coordinates 25°41'37"S and 53°06'07"W, average elevation of 502m) at the Federal University of Technology, Campus Dois Vizinhos (UTFPR-DV), fruit damaged by *C. psidii* attack was studied. The area of the araçazeiro orchard comprised 300 plants of the cultivar Ya-CY, which has yellow pulp. The plants originated from seeds planted in 2010 in an area of 1.0×2.5m.

The infected fruits were transported to the Laboratory of Biological Control I at UTFPR-DV where the material was analyzed. There were depressions in the fruit bark, along with black scores left by oviposition (Figure 1A), as described by Gallo et al. (2002) and Silva (2009) in *P. guajava* infected by *C. psidii*.

Analysis of the fruits confirmed the presence of larvae. These were identified according to Gallo et al. (2002) as the larvae of the guava weevil, *C. psidii*, with a scarabaeiform shape, apex, white color, dark head and 8mm in length (Figure 1B and C). The larvae feed on the pericarp, and also on the seeds of the fruit; the blackened color of the pulp, which was observed here, is characteristic of infestation by the guava weevil.

Infestation with *C. psidii* has already been reported in the guava serrana *Acca sellowiana* (Bohneberger, 2009). However, there are no reports in the literature of its occurrence in *Psidium cattleianum*, this is the first record in this species.

Biological control through the release of parasitoids and predators has been studied, as well as the cultural control, accomplished by manual harvesting and destruction of fallen fruits (Gallo et al., 2002; Duarte et al., 2013).

Due to the lack of chemicals registered to control the guava weevil (Brasil, 2016), understanding the biology and ecology of this insect is important for the development of alternative methods of control. Biological control, involving the release of parasitoids and predators, has been studied, as well as cultural control, such as manual scavenging and destruction of fallen fruit (Gallo et al., 2002; Duarte et al., 2013).

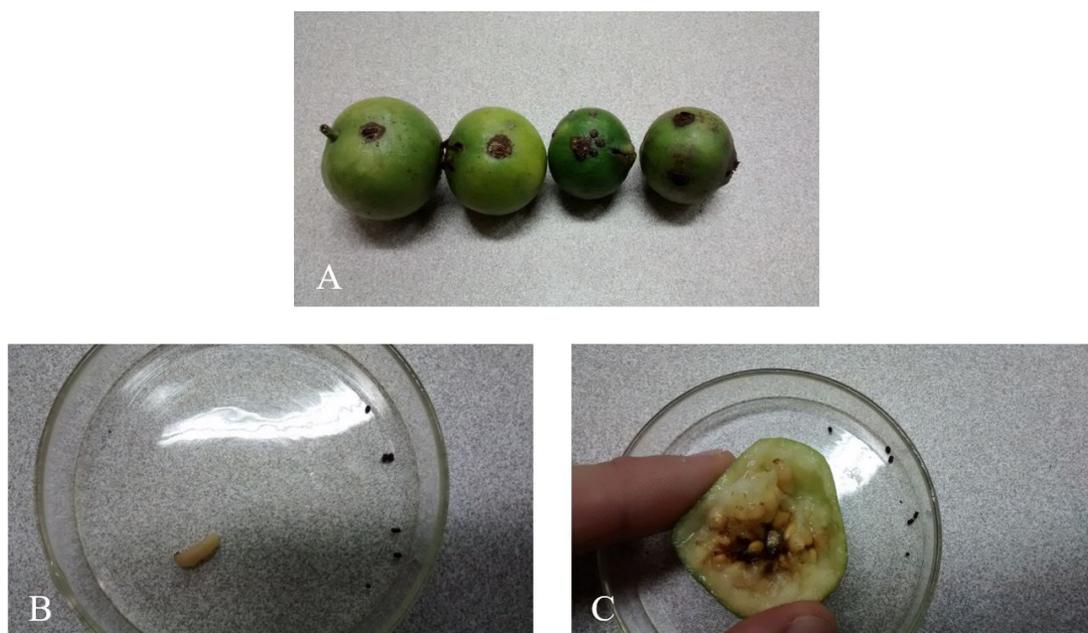


Figure 1. A) *Psidium cattleianum* fruit with depressions and black spots on the epicarp; B) Larvae of *Conotrachelus psidii*; C) Open *Psidium cattleianum* fruit showing infestation with the guava weevil (*Conotrachelus psidii*).

Therefore, studies that investigate the occurrence of *C. psidii* in *P. cattleianum* in different regions and biomes are extremely important for understanding the dispersion capacity of this insect, the potential damage it can cause, and basic information that can contribute to improving the management of this crop, preventing attack by *C. psidii* or providing subsidies for further research. However, it is necessary to carry out new studies on the herbivore-plant relationship involving *C. psidii* and *P. cattleianum*.

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