



## First record of parasitoids (Hymenoptera: Braconidae) associated with *Anastrepha barbiellinii* Lima, 1938 (Diptera: Tephritidae)

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Tephritidae is one of the most important Diptera families as it encompasses pest species that cause great economic losses in fruit crops worldwide (Dias et al., 2018; Monteiro et al., 2019). Interestingly, Brazil is home to many species of native fruit fly parasitoids, belonging to the Braconidae, Diapriidae, Figitidae and Pteromalidae families (Garcia and Ricalde, 2013; Ongaratto et al., 2020). Scientific efforts aimed at assessing the tritrophic relations among host plants, tephritid fruit flies and parasitoids can contribute to the development of biological pest control strategies (Garcia and Ricalde, 2013). However, for more than 77% of the 121 species of the *Anastrepha* genus registered in Brazil, there is a lack of data regarding their associated parasitoid species (Zucchi, 2008). *Pereskia aculeata* Mill. (Cactaceae) is native to the Brazilian flora, commonly known in Brazil as “ora-pro-nóbis” (Almeida and Corrêa, 2012). The interest of pharmaceutical and food industries on *P. aculeata* has increased in the last years, due to the high content of proteins, essential amino acids, minerals and vitamins in its leaves (Almeida and Corrêa, 2012). *Pereskia aculeata* fruits can be infested by the dipterous: *Anastrepha barbiellinii* (Lima, 1938), *Ceratitidis capitata* (Wiedemann, 1824) and *Neosilba* sp. (Marsaro Júnior et al., 2011).

In the current study, thirty fruits of *P. aculeata* were collected at the Zoobotânica Foundation in Porto Alegre – Rio Grande do Sul, Brazil (30° 03' S, 51° 10' W). Individual fruits were put in plastic containers with a thin layer of vermiculite in the bottom, and closed with voile fabric. The recovered puparia were moved to individual plastic containers with lightly moist vermiculite in the bottom until adult emergence of flies and/or parasitoids (Leonel Júnior et al., 1995). Only in those fruits in which one species of tephritid emerged, the associations between one species of parasitoid and fruit fly were considered valid. In the laboratory of Insect Ecology of the Federal University of Pelotas, the insects were counted, and preserved in 70% hydrated alcohol for later identification. Fruit fly specimens were identified at the species level by diagnosis of the morphological characteristics of the females (Zucchi, 2000). The Braconidae species were identified according to the key of Wharton and Yoder (2016).

The only species of fruit fly recovered in this study was *A. barbiellinii* (Diptera: Tephritidae), amounting 28 individuals (9 males and 19 females). In total, 13 Braconidae parasitoids emerged from the puparium. Three species of parasitoids were identified: *Doryctobracon areolatus* (Szépligeti, 1911), 2 ♀ (female) and 1 ♂ (male); *Doryctobracon brasiliensis* (Szépligeti, 1911), 3 ♂ and 5 ♀; and *Utetes anastrephae* (Viereck, 1913), 2 ♀. This study constitutes the first record of the *D. areolatus* and *U. anastrephae* parasitoids associated with *A. barbiellinii*. In a previous study, Marsaro Jr. et al. (2011) could not confirm if *D. areolatus* was parasitizing *A. barbiellinii* due to the emergence of other Tephritidae species in their samples. Moreover, the association between *D. brasiliensis* and *A. barbiellinii* was observed in a study conducted in Rio Grande do Sul (Marsaro Júnior, 2014). According to Aluja et al. (2014), *P. aculeata* could be classified as a parasitoid reservoir plant, because *A. barbiellinii* larvae use its fruits, of non-commercial value, with the subsequent attraction and multiplication of parasitoid species capable to attack other tephritids that are pests of fruits grown commercially. Therefore, *P. aculeata* might play a relevant role in the ecological balance of tephritid populations in fruit orchards. Thus, the data presented in this scientific note increases the knowledge about the tritrophic relationships among Tephritidae flies, hosts plants and natural enemies in Brazil.

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