NEW RECORDS OF *Anastrepha* (DIPTERA: TEPHRITIDAE), ITS HOSTS AND PARASITOIDS IN THE SERRA DO TEPEQUÉM, RORAIMA STATE, BRAZIL

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ABSTRACT

This work was carried out at Serra do Tepequém, Amajari municipality, state of Roraima, in order to record the occurrence of *Anastrepha* species, their host plants and parasitoids. Samples of fleshy fruits of 10 species belonging to seven botanical families were collected, from April to July 2009. We identified 10 species of *Anastrepha*, with *Anastrepha amita* Zucchi, *Anastrepha antunesi* Lima and *Anastrepha sororcula* Zucchi reported for the first time in Roraima. *Inga thibaudiana* DC. (Fabaceae), *Loreya mespiloides* Miq. (Melastomataceae) and *Citharexylum poeppigii* Walp. (Verbenaceae) are reported for the first time as hosts of *Anastrepha distincta* Greene, *Anastrepha coronilli* Carrejo & González and *A. amita* in Brazil, respectively. Five species of parasitoid hymenopterans were recorded, four of Braconidae [*Doryctobracon areolatus* (Szépligeti), *Doryctobracon* sp.2, *Opius bellus* Gahan and *Utetes anastrephae* (Viereck)] and one of Figitidae [*Aganaspis pelleranoi* (Brèthes)].

Key words: Fruit Flies, Amazon, Amajari

NOVOS REGISTROS DE *Anastrepha* (DIPTERA: TEPHRITIDAE), SEUS HOSPEDEIROS E PARASITÓIDES NA SERRA DO TEPEQUEM, ESTADO DE RORAIMA, BRASIL

RESUMO

O presente trabalho foi realizado na Serra do Tepequém, município de Amajari, estado de Roraima, com o objetivo de registrar a ocorrência de espécies de *Anastrepha*, suas plantas hospedeiras e parasitóides. Foram realizadas coletas de frutos carnosos de 10 espécies pertencentes a sete famílias botânicas, de abril a julho de 2009. Foram identificadas 10 espécies de *Anastrepha*, sendo *Anastrepha amita* Zucchi, *Anastrepha antunesi* Lima e *Anastrepha sororcula* Zucchi registradas pela primeira vez em Roraima. *Inga thibaudiana* DC. (Fabaceae), *Loreya mespiloides* Miq. (Melastomataceae) e *Citharexylum poeppigii* Walp. (Verbenaceae) são registradas pela primeira vez como hospedeiros de *Anastrepha distincta* Greene, *Anastrepha*

coronilli Carrejo & González e *A. amita* no Brasil, respectivamente. Cinco espécies de himenópteros parasitóides foram registradas, quatro de Braconidae [*Doryctobracon areolatus* (Szépligeti), *Doryctobracon* sp.2, *Opius bellus* Gahan e *Utetes anastrephae* (Viereck)] e uma de Figitidae [*Aganaspis pelleranoi* (Brèthes)].

Palavras-chave: Moscas-das-frutas, Amazônia, Amajari.

Surveys on fruit flies species (Diptera: Tephritidae), their host plants and their parasitoids are among the fundamental studies to better understand this group of insects (Zucchi 2000a). For the state of Roraima, located in the extreme north of Brazil, 13 species of *Anastrepha* are recorded (Zucchi 2008), and for five of them [*Anastrepha atrigona* Hendel, *Anastrepha flavipennis* Greene, *Anastrepha hamata* (Loew), *Anastrepha rafaeli* Norrbom & Korytkowski and *Anastrepha zucchii* Norrbom], host plants are not known yet. This study aimed to document the occurrence of *Anastrepha* species, their host plants and parasitoids in the Serra do Tepequém, state of Roraima. The Serra do Tepequém, located in the municipality of Amajari (03°45' to 03°49' N and 61°41' to 61°46' W), is considered a low-elevation Tepui (maximum elevation 1,100 m), an isolated area with about 70 km^2. The vegetation is characterized by a mosaic between herbaceous and shrub formations. Highlands present shrub usually between rock outcrops. At the plateau base, it presents countryside formations interspersed with gallery forests along streams. Forest areas with larger scale occur in the mountainside.

Samples of fleshy fruits were collected in the Serra de Tepequém from April to July 2009. Samples were randomly collected, being located plants with good amount of maturing or already mature fruits, collecting fruits from the plant and the newly fallen ones. Fruits were packed in screened coolers and conducted to the Entomology Laboratory of Embrapa Roraima, Boa Vista. In the laboratory, the processing of fruit samples was performed according to Silva *et al.* (2007). Fruit flies and parasitoids that emerged were kept in glass jars containing 70% ethanol and identified later based on the keys of Zucchi (2000b) and Canal & Zucchi (2000). It was calculated: emergence percentage (E= number of adults emerged/total number of puparia x 100); pupal viability index (VP= number of flies emerged/total puparia) x 100, percentage of parasitism (PP= number of parasitoids emerged number/puparia x 100) and infestation (I= number of puparia obtained/kg fruit collected).

We sampled 10 potential host species of fruit flies, belonging to seven families, totalizing 1,448 fruits and 12.77 kg (Table 1). All host species showed infestation by *Anastrepha* spp. A total of 1,049 adults (445 males and 604 females) of *Anastrepha* emerged from 1,837 puparia, besides 326 parasitoids (74.9% emergence and 57.1% pupal viability). The average rates of infestation in hosts were variable (Table 1), with the highest one recorded in tapereba (532.6 puparia/kg of fruit). Remaining species had infestation levels ranging from 37.8 puparia/kg (cassava) to 245.4 puparia/kg (abiu). We recorded 10 species of *Anastrepha: Anastrepha coronilli* Carrejo & González, *Anastrepha amita* Zucchi, *Anastrepha antunesi* Lima, *Anastrepha distincta* Greene, *Anastrepha leptozona* Hendel, *Anastrepha manihoti* Lima, *Anastrepha obliqua* (Macquart), *Anastrepha sororcula* Zucchi, *Anastrepha striata* Schiner and *Anastrepha serpentina* (Wiedemann).

Anastrepha amita, A. antunesi and *A. sororcula* species are recorded for the first time in Roraima. The other species had been already mentioned for the state (Zucchi 2008). *Anastrepha distincta* was obtained from fruits of *Inga edulis* and *Inga thibaudiana* (Fabaceae) (Table 1). Twelve other hosts were known for this species, including five species of *Inga* (Zucchi 2008). *Anastrepha coronilli* was obtained from *Loreya mespiloides* (Melastomataceae), representing the seventh host record for this species, the fourth of Melastomataceae and the first of *Loreya*. *Anastrepha amita* was obtained from *Citharexylum poeppigii* (Verbenaceae); only one host (*Citharexylum myrianthum* Cham.) was known for this species (Zucchi 2008). Therefore, the species *I. thibaudiana*, *L. mespiloides* and *C. poeppigii* are recorded for the first time as hosts of *A. distincta*, *A. coronilli* and *A. amita* in Brazil, respectively. Five species of parasitic Hymenoptera were obtained, four of Braconidae [*Doryctobracon areolatus* (Szépligeti), *Doryctobracon* sp.2, *Opius bellus* Gahan and *Utetes anastrephae* (Viereck)] and one of Figitidae [*Aganaspis pelleranoi* (Brèthes)] (Table 1).

The first reports of Braconidae parasiting larvae/pupae of *Anastrepha* in Roraima were observed by Ronchi-Teles (2000), who recorded the occurrence of *Opius* sp., *U. anastrephae*, *Doryctobracon brasiliensis* (Szépligeti) and *D. areolatus*, the latter parasitizing larvae of *A. coronilli* in *Bellucia grossulariodes*. *Doryctobracon brasiliensis* was found parasitizing larvae/pupae of host species of abiu (*Pouteria caimito*). Subsequently, Amorim (2003) and Amorim *et al.* (2004) recorded parasitism of *A. obliqua* by *D. areolatus* in barbados cherry fruits in Boa Vista. Also, in this municipality, Marsaro Júnior *et al.* (2008) reported parasitism of *A. striata* by *D. areolatus* in guava (*Psidium guajava* and *Psidium* sp.) and *A. obliqua* by *Opius* sp. in tapereba plum (*Spondias mombin*) and hog plum (*Spondias purpurea* L.).

D. areolatus has also been recorded parasitizing *A. zenildae* in fruits of *Ziziphus mauritiana* Lam, in Boa Vista (Ronchi-Teles *et al.* 2008). This parasitoid has also been associated with *A. distincta* in fruits of vine-inga (*Inga edulis*), *A. obliqua* in pear-guava (*Psidium acutangulum* DC.), *A. striata* in guava (*P. guajava*) and pear-guava (P. *acutangulum*) and *A. serpentina* in abiu (*P. caimito*) (Marsaro Júnior *et al.* 2009). In this work, *A. pelleranoi* is reported for the first time in Roraima (Table 1). In addition to species commonly recorded in other Brazilian localities (e.g. Canal & Zucchi 2000), it was also obtained a new species of *Doryctobracon* not formally described (Marinho 2009). It was obtained from larvae in fruits of *L. mespiloides* (Melastomataceae), *P. guineense* (Myrtaceae) and *P. caimito* (Sapotaceae), associated with other braconid (Table 1). *Doryctobracon* sp.2 had been recorded only in the states of Amapá and Goiás (Deus *et al.* 2009). The most abundant parasitoid species was *D. areolatus* (67.2% of total), obtained from seven samples in which there was parasitism (Table 1). The percentage of parasitism recorded in *L. mespiloides* was the highest one (62.3%), which shows the importance of wild plant species in maintaining braconid parasitoid populations. Considering the new records of *Anastrepha* got in this work, 16 species are known in the state of Roraima. However, with the intensive studies on fruit flies in the state performed in recent years, further contributions to the bioecology knowledge of these insects are expected.

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