

# New host records for species of *Anastrepha* (Diptera: Tephritidae) in the state of Amazonas, Brazil

## *Novos registros de hospedeiros para espécies de Anastrepha (Diptera: Tephritidae) no estado do Amazonas, Brasil*

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**ABSTRACT:** This is the first record, for the state of Amazonas, of the occurrence of *Anastrepha striata* in fruits of abiu (*Pouteria caimito*, Sapotaceae) and star fruit (*Averrhoa carambola*, Oxalidaceae). The associations between *A. striata* vs *Inga fagifolia* (Fabaceae), *A. striata* vs *Passiflora nitida* (Passifloraceae) and *Anastrepha distincta* vs *P. nitida* are new for Brazil.

**KEYWORDS:** Amazon; host plants; fruit flies.

**RESUMO:** Esse é o primeiro registro, para o estado do Amazonas, da ocorrência de *Anastrepha striata* em frutos de abiu (*Pouteria caimito*, Sapotaceae) e de carambola (*Averrhoa carambola*, Oxalidaceae). As associações entre *A. striata* e *Inga fagifolia* (Fabaceae), *A. striata* e *Passiflora nitida* (Passifloraceae) e *Anastrepha distincta* e *P. nitida* são inéditas para o Brasil.

**PALAVRAS-CHAVE:** Amazônia; plantas hospedeiras; mosca-das-frutas.

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In Brazil, the fruit flies of the genus *Anastrepha* Schiner, 1868 (Diptera: Tephritidae) are very diverse and widely distributed, representing one of the main pests of fruticulture (MARSARO-JÚNIOR et al., 2013; CAMARGOS et al., 2015). In the Brazilian Amazon there are 78 known species of *Anastrepha*, with 42 recorded for the state of Amazonas, Brazil (ADAIME et al., 2016a). Intensive surveys done on native and exotic fruits have led to new fruit fly/host associations (DUTRA et al., 2013; ADAIME et al., 2016b), however, there is still a knowledge gap in the Brazilian Amazon region, which this study aims to fill.

In this context, the species *Anastrepha striata* Schiner 1868 and *Anastrepha distincta* Greene 1934 are highlighted for their constant occurrence in regional fruits. *Anastrepha striata* is a polyphagous species, very abundant and broadly distributed in the Amazon region, where it is a key pest species. It has been recorded on 31 plant species (ADAIME et al., 2014) and prefers fruits of the family Myrtaceae, especially guava (*Psidium guajava*) (ADAIME et al., 2016a). Currently, for the state of Amazonas, *A. striata* is associated to six hosts from two botanical families (Table 1).

*Anastrepha distincta* is recorded for 17 host species and shows a preference towards fruits of the family Fabaceae, especially the ice-cream-bean (*Inga edulis*). In the state of Amazonas, *A. distincta* is associated to six hosts from four botanical families (Table 1).

**Table 1.** Hosts of *A. striata* and *A. distincta* in the state of Amazonas.

Species of fruit fly	Common name	Botanical family	Botanical species	
<i>A. striata</i>	Guava	Myrtaceae	<i>Psidium guajava</i>	
	Araza		<i>Psidium stipitata</i>	
	Pará guava		<i>Psidium cutangulun</i>	
	Brazilian guava		<i>Psidium guineense</i>	
	Surinam cherry fruit		<i>Eugenia uniflora</i>	
	Passion fruit		Passifloraceae	<i>Passiflora edulis</i>
<i>A. distincta</i>	Ice-cream-bean	Fabaceae	<i>Inga edulis</i>	
	Ingá-mirim		<i>Inga fagifolia</i>	
	Ingá-açu		<i>Inga cinnamomea</i>	
	Bacuri		Clusiaceae	<i>Platonia insignis</i>
	Mapati		Moraceae	<i>Pouroma cecropiaefolia</i>
	Hogplum		Anacardiaceae	<i>Spondia mombin</i>

Source: ZUCCHI, 2008; ADAIME et al., 2016a.

The state of Amazonas, in 2016, was the third largest producer of guava for commercialization in the North region of Brazil (IBGE, 2016). Furthermore, besides the economic importance of the two species of Tephritidae that damage and affect the commercialization of these fruits, guava is commonly consumed *in natura* in the Amazonian region, often planted in urban and rural backyards (SEMEDO; BARBOSA, 2007; ALMEIDA; GAMA, 2014).

All entomological material studied was collected in the municipality of Benjamin Constant (4°21'S; 70°2'W), meso-region of the upper Solimões river, southwest in the state of Amazonas, Brazil. Abiu fruits (*Pouteria caimito*) were collected in the month of November/ 2008 and 2009, ingá-mirim (*Inga fagifolia*) and star fruit (*Averrhoa carambola*) were collected in 2009, and the bell apple (*Passiflora nitida*) fruits in May/2009 and August/2017. To obtain the fly adults, the fruits were kept in plastic bags and taken to the laboratory, where they were placed in plastic containers, with a layer of moist sand, and then covered with a screen cloth (ALMEIDA et al., 1998). After adult emergence, the specimens were kept for 24 hours until wing markings settled and then transferred to tubes with 70% EtOH. Sexes were distinguished based on the presence/absence of the ovipositor. Species were identified based on morphological characteristics of the apex of the aculeus on the ovipositor, under stereomicroscope, and using the identification key to species of fruit flies recorded for Brazil (ZUCCHI, 2000). Specimens were deposited in the insect collection of the *Laboratório de Entomologia e Acarologia Agrícola* of the *Faculdade de Ciências Agrárias/ Universidade Federal do Amazonas – LEA/ FCA/UFAM*, in Manaus, state of Amazonas, Brazil.

Table 2 shows the first records, for the state of Amazonas, of *A. striata* attacking fruits of abiu (*P. caimito*, Sapotaceae) and star fruit (*A. carambola*, Oxalidaceae), and the first

**Table 2.** Association between fruit fly species and host plants in Benjamin Constant, upper Solimões river, state of Amazonas, Brazil.

Fruit fly species	Sexing and sexual ratio of individuals	Common name	Botanical family	Scientific name
<i>A. striata</i>	16♂ e 24♀ (0.60)	Abiu	Sapotaceae	<i>Pouteria caimito</i> *
	4♂ e 3♀ (0.43)	Bell apple fruit	Passifloraceae	<i>Passiflora nitida</i> **
	1♂ e 2♀ (0.67)	Star fruit	Oxalidaceae	<i>Averrhoa carambola</i> *
	1♂ e 2♀ (0.67)	Ingá-mirim	Fabaceae	<i>Inga fagifolia</i> **
<i>A. distincta</i>	3♂ e 12♀ (0.80)	Bell apple fruit	Passifloraceae	<i>Passiflora nitida</i> **

\* First record for the state of Amazonas; \*\* First record for Brazil.

Brazilian records of *A. striata* attacking bell apple fruits (*Passiflora nitida*, Passifloraceae) and ingá-mirim (*Inga fagifolia*, Fabaceae). With these new records, *A. striata* now has eight known hosts in the state of Amazonas and 33 in Brazil. Furthermore, Table 2 also shows the first association between *A. distincta* and bell apple fruits (*P. nitida*, Passifloraceae) for the state of Amazonas and Brazil; until now the only known association of the fruit was with *Anastrepha curitis* Stone, 1942. With this new record, *A. distincta* now has

seven known hosts in the state of Amazonas and 18 in Brazil. Most fruit fly studies in the state of Amazonas are concentrated in the metropolitan region of the city of Manaus. In the upper Solimões region, *A. striata* was reported by RONCHI-TELES (2000), RIBEIRO (2005) and ALMEIDA et al. (2009). *A. distincta* was reported by RIBEIRO (2005), however, without any host association. These new records highlight the need to increase surveys of Tephritidae fauna in all Amazonian sub-regions.

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