



SCIENTIFIC NOTE

First Record of *Anastrepha serpentina* (Wiedemann) (Diptera: Tephritidae) in Citrus in Brazil

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Anastrepha serpentina (Wiedemann) occurs in 20 Brazilian states (Zucchi 2008) and in the Federal District (Zahler 1991) associated with 16 host species belonging to Sapotaceae (10 hosts), Rubiaceae (2), Anacardiaceae (1), Clusiaceae (1) Hippocrateaceae (1) and Moraceae (1) (Zucchi 2008). The preferred hosts of *A. serpentina* in Brazil belong to the Sapotaceae, particularly species of *Pouteria* and *Manilkara*, with four and three host species, respectively.

This paper reports the first record of *A. serpentina* in fruits of Rutaceae in Brazil. Data were obtained from an intensive survey of potential host fruits of *Anastrepha* species carried out at major growing areas in the state of Pará (eastern Amazon region), from January 2008 to August 2010.

Two males and one female of *A. serpentina* were reared from sweet oranges, *Citrus sinensis*, purchased at a street market in Belém, and 23 females and 14 males from Capitão Poço (Table 1). The highest infestation was 8.6 puparia/kg. However, no specimens of *A. serpentina* were reared from four samples, but from one of them one specimen of *Doryctobracon areolatus* (Szépligeti)

Abstract

Anastrepha serpentina (Wiedemann) is recorded for the first time in citrus (Rutaceae) in Brazil. Specimens were obtained from sweet orange (*Citrus sinensis*) sampled in the municipalities of Belém and Capitão Poço, and from mandarin orange (*Citrus reticulata*) from Tomé-Açu, state of Pará, Brazil.

emerged. Also for one sample, only two males were obtained, which were identified as *A. serpentina* based on external features. Although puparia have been obtained, no fly or parasitoid emergence was observed for three samples. One unique female of *A. serpentina* was reared from mandarin (*Citrus reticulata*) from Tomé-Açu (Table 1). All specimens sampled were identified by Wilson Rodrigues da Silva and confirmed by Dr. Miguel Francisco de Souza Filho (Instituto Biológico, Campinas, SP). Voucher specimens are deposited at the Embrapa Amapá collection.

Twenty-five other samples, totaling 49.26 kg and 386 fruits of five *Citrus* species – the sweet orange *C. sinensis*; the mandarin orange *C. reticulata*; the lime *C. aurantifolia*; the lemon *C. limon* and the Murcott mandarin *C. reticulata* x *C. sinensis* were not infested by fruit flies.

This report represents a new fruit fly species association related to the host range evolution. The record is not a casual fact, since *A. serpentina* females were reared from one mandarin orange sample in Tomé-Açu (2008), and 11 orange samples – one in Belém (2008) and 10 in Capitão Poço (2009). These three municipalities are

Table 1 *Citrus* infestation by *Anastrepha serpentina* in the state of Pará.

Vernacular names Scientific names	Samples	Municipalities	Dates	Fruits (n)	Mass (g)	Puparia (n)	Infestations (puparia/kg)	Females (n)	Males (n)
Sweet orange <i>Citrus sinensis</i> (L.) Osbeck	1	Belém	05/16/2008	8	1,300	5	3.9	1	2
	2	Capitão Poço	03/25/2009	29	5,760	12	2.1	0	0
	3	Capitão Poço	03/25/2009	40	6,950	12	1.7	3	2
	4	Capitão Poço	03/26/2009	32	3,650	14	3.8	3	4
	5	Capitão Poço	03/26/2009	27	3,390	4	1.2	1	2
	6	Capitão Poço	03/26/2009	11	1,250	5	4.0	3	0
	7	Capitão Poço	03/26/2009	21	3,470	13	3.8	5	0
	8	Capitão Poço	03/26/2009	13	1,770	5	2.8	2	1
	9	Capitão Poço	03/26/2009	10	1,200	2	1.7	2	0
	10	Capitão Poço	03/26/2009	12	1,100	3	2.7	1	2
	11	Capitão Poço	08/19/2009	19	3,150	22	7.0	3	1
	12	Capitão Poço	08/19/2009	19	1,700	5	2.9	0	2
	13	Capitão Poço	08/19/2009	15	1,950	1	0.5	0	0
	14	Capitão Poço	08/19/2009	21	1,750	15	8.6	0	0
	15	Capitão Poço	08/19/2009	12	1,800	5	2.8	0	0
Mandarin orange <i>Citrus reticulata</i> Blanco	16	Tomé-Açu	04/08/2008	10	1,354	4	3.0	1	0

around 200 km far from one another, forming a triangle. Capitão Poço has the largest planted area with *Citrus* in the state of Pará, which may have favored the new association in here reported due to the high availability of *Citrus* plants during the year.

Anastrepha fraterculus (Wiedemann), *A. obliqua* (Macquart), *A. striata* Schiner, *A. turpiniae* Stone and *Ceratitis capitata* (Wiedemann) are reported in citrus in Brazil (Raga 2005, Zucchi 2008). However, for the state of São Paulo, the largest citrus producer in Brazil, only *A. fraterculus* and *C. capitata* are economically important (Raga 2005).

Considering that Brazil is the largest citrus producer in the world (about 800,000 ha of citrus groves), and that the state of Pará is the seventh Brazilian citrus producer and the first in the North region (12,277 hectares) (Agrianual 2010), this record strengthens the need to conduct applied research to study the spatial and temporal distribution and potential damage of *A. serpentina* in *Citrus* in this state.

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