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FIRST RECORD OF *ANASTREPHA FRATERCULUS* AND *CERATITIS CAPITATA* (DIPTERA, TEPHRITIDAE) ON ARECACEAE IN BRAZIL

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The palm tree *Butia eriospatha* (Mart. ex Drude) Becc. (Arecaceae) (Fig. 1A) is native to the phytogeographic domain of the Atlantic Forest. It is found in mixed ombrophilous forests and in fields in the states of Paraná, Santa Catarina and Rio Grande do Sul, Brazil (Lorenzi et al. 1996, 2010; Sobral et al. 2006; Bourscheid 2011). The species, known as the woolly butia palm, butiá-da-serra, butiazeiro, macuma, or butiá-veludo, has a single, erect trunk and can grow to heights of 3 to 6 m (Henderson et al. 1995; Lorenzi et al. 1996; Lorenzi et al. 2006, 2010; Bourscheid 2011). Flowering takes place between Nov and Dec, and the globular fruits have a yellow epicarp when ripe (Fig. 1B), i.e., in Jan through Mar (Henderson et al. 1995; Lorenzi 2002; Lorenzi et al. 2010). The fruits of *B. eriospatha* (Fig. 1B) are 16 to 20 mm long × ~ 26 mm wide. The pulp is succulent and non-fibrous (Fig. 1C), and is consumed in natura or in juices, liqueurs, mousses, ice creams, jams, and yogurts, among other preparations (Lorenzi et al. 2006; Bourscheid 2011).

During a study of native fruit fly hosts, 1 sample of *B. eriospatha* fruits was collected in the municipality of Passo Fundo, Reserva Particular do Patrimônio Natural Maragato (S 28° 13' 52.99" W 52° 27' 3.48"), middle plateau region of Rio Grande do Sul State, Brazil. In this sample (40 fruits, 372.1 g) collected in Feb 2011, 6 puparia were observed (infestation rates: 16.13 puparia/kg of fruit and 0.15 puparium/fruit), from which 6 flies emerged (5♀ + 1♂). The fly species were *Anastrepha fraterculus* (Wiedemann) (2♀ + 1♂) and *Ceratitis capitata* (Wiedemann) (3♀). The collected specimens are deposited in the Laboratório de Entomologia at Embrapa Amapá, Macapá, Brazil.

Anastrepha fraterculus is distributed across 22 Brazilian states, with 92 reported host species in 19 botanical families (Zucchi 2008). In Brazil, its most common hosts are species of *Citrus* (Rutaceae) and *Psidium* (Myrtaceae). *Ceratitis capitata*, native to Africa, was first reported in Brazil in 1901, in the state of São Paulo (Hempel 1901). It is currently found in 22 of the 27 Brazilian states, most commonly in southeastern and southern Brazil. In the country, it has been associated with 84 hosts in 25 plant families. The plant families with the highest number of hosts of *C. capitata* are Myrtaceae (20 species), Rutaceae (12), and Rosaceae (9) (Zucchi 2012).

This is the first report of *B. eriospatha* as a fruit fly host. It is the first report of an Arecaceae species as a host of *A. fraterculus* in general (Norrbom 2004) and the first report of an Arecaceae species as a host of *C. capitata* in Brazil. *Ceratitis capitata* has been recorded from *Butia capitata* Becc. (Liquido et al. 1998). Prior to this report, Jesus et al. (2008a) obtained *Anastrepha parishi* Stone from sampled fruits of *Oenocarpus bacaba* Martius, 1823 (Arecaceae), collected in the municipality of Pracuúba, state of Amapá. That was the first report of an *Anastrepha* species observed in a native species of Arecaceae. Also in Amapá (municipalities of Ferreira Gomes and Macapá), Jesus et al. (2008b) reported *Attalea excelsa* Mart. (Arecaceae) as a host of *Anastrepha striata* Schiner.

We would like to emphasize that this is a report of the 2 most economically important fruit fly species in Brazil. *Anastrepha fraterculus* and *C. capitata* are the most polyphagous fruit flies in Brazil in number of known hosts, giving them the broadest geographic distribution in the country (Zucchi 2008, 2012). The most significant

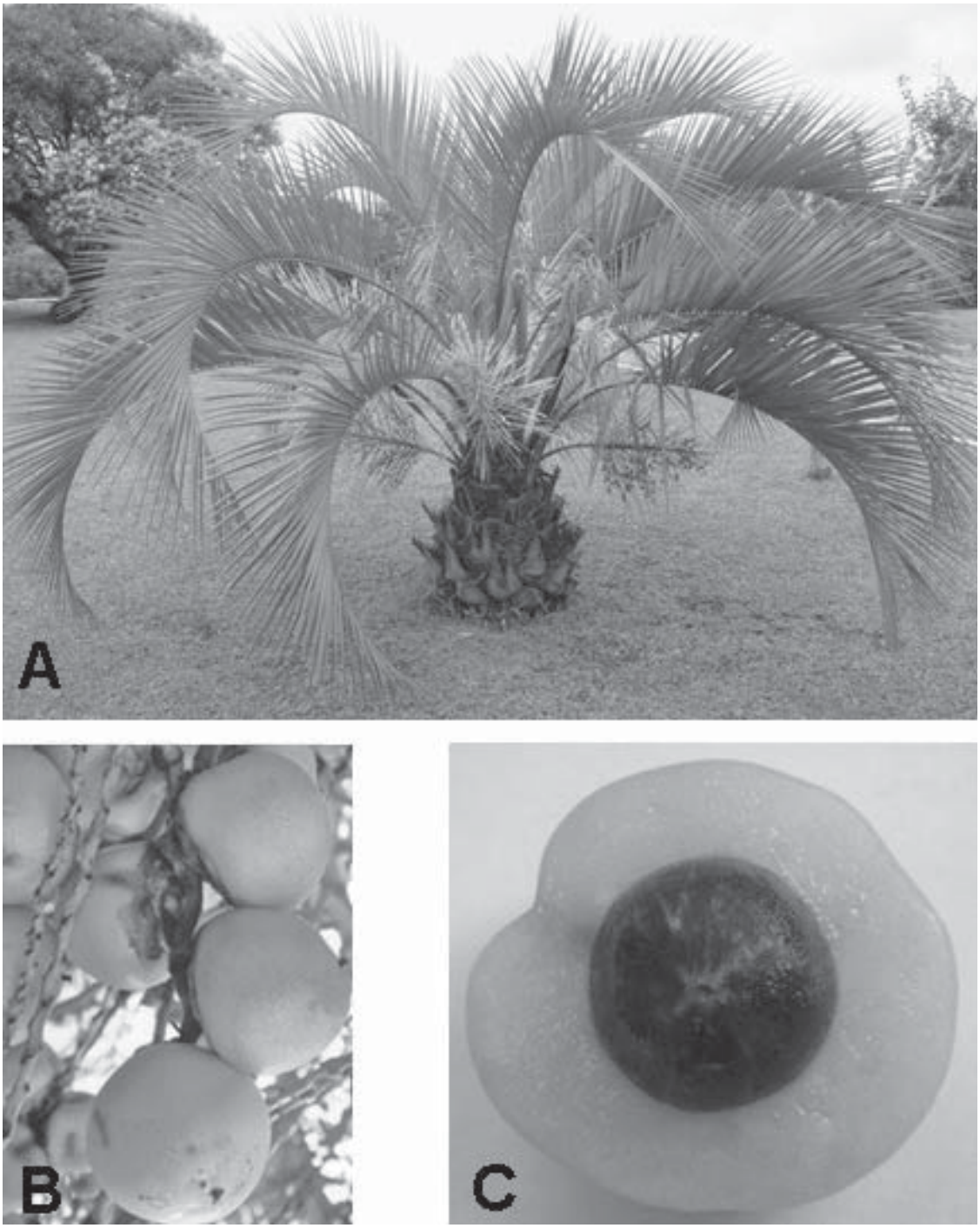

Fig. 1. *Butia eriospatha*: A) young plant, B) bunch with fruits, C) fruit, cut crosswise. Photos: Alberto Luiz Marsaro Júnior. The color version of this figure can be found in the supplementary material for this article in Florida Entomologist 96(4) (December 2013) is online at http://purl.fcla.edu/fcla/entomologist/browse

financial losses and the strongest control measures currently applied by the Brazilian fruit growing industry are focused on these 2 species. Although Brazil has restrictive laws in place for areas occupied by native vegetation and their exploitation for agricultural expansion, the original

vegetation has been heavily altered in the main agricultural regions of the country, i.e., the south and southeast, especially. In these regions, there are small remnants containing few native plant species that serve as fruit fly hosts. Considering that *A. fraterculus* and *C. capitata* are generalist species with high colonization capacities (Selivon 2000), it is likely that in periods of increased fly populations, or when there is low availability of primary host fruits, these tephritids may seek alternative hosts such as *B. eriospatha.* It should also be noted that several other ecological factors may influence the use of host resources by fruit flies (Selivon 2000).

Therefore, with the data presented in this work, the list of hosts of *A. fraterculus* and *C. capitata* in Brazil is expanded. Furthermore, it should be taken into account that the butia fruit is already commercially grown in the state of Rio Grande do Sul, with yields of ~ 60 tonnes of in natura fruits per harvest (Bourscheid 2011). We therefore recommend further studies with the aim of confirming whether the fruit fly species associated with this Arecaceae could potentially bring economic losses to butia growers in the region.

Summary

Anastrepha fraterculus (Wiedemann) and *Ceratitis capitata* (Wiedemann) (Diptera, Tephritidae) were associated with fruits of *Butia eriospatha* (Mart. ex Drude) Becc. (Arecaceae) for the first time in Brazil, from samples collected in Passo Fundo, state of Rio Grande do Sul.

Key Words: *Butia eriospatha*, Mediterranean fruit fly, South American fruit fly, woolly butia palm

Resumo

Anastrepha fraterculus (Wiedemann) e *Ceratitis capitata* (Wiedemann) (Diptera, Tephritidae) foram associadas a frutos de *Butia eriospatha* (Mart. ex Drude) Becc. (Arecaceae) pela primeira vez no Brasil, a partir de amostras coletadas em Passo Fundo, Rio Grande do Sul.

Palavras Chave: *Butia eriospatha*, mosca-do-mediterrâneo, mosca-das-frutas-sul-americana, butiá

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