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***Brevipalpus phoenicis* (Geijskes) species complex (Acari: Tenuipalpidae)—a closer look**

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Abstract

Brevipalpus phoenicis sensu stricto (Geijskes) is redescribed and the species diagnosis established. Two former synonyms of *B. phoenicis* sensu lato, *B. yothersi* Baker and *B. papayensis* Baker, are resurrected and redescribed and their species diagnoses established. *Brevipalpus hondurani* Evans is also redescribed and diagnosed. Four new species, previously misidentified as *B. phoenicis* sensu lato or *B. obovatus* Donnadieu, are described—*B. azores* sp. nov., *B. feresi* sp. nov., *B. ferraguti* sp. nov., and *B. tucuman* sp. nov. Four new junior synonyms of *B. yothersi* are listed—*Brevipalpus amicus* Chaudhri and *B. recula* Chaudhri (new synonymies), and *B. mcbridei* Baker and *B. deleoni* Pritchard and Baker (misidentifications). A key is provided to separate these species. New morphological characters significant for species separation are presented and discussed.

Key words: *Brevipalpus* species groups, *Citrus*, citrus leprosis virus, differential interference contrast, flat mites, low temperature scanning electron microscopy, phase contrast, systematics

Introduction

Flat mites represent some of the most economically important plant feeding mite species in the world, especially those in the genus *Brevipalpus* Donnadieu (Jeppson *et al.* 1975; Childers & Rodrigues 2011). The importance of flat mites as agricultural pests has increased significantly over the past 40 years mainly because of their association with plant viruses and their increasingly obvious quarantine importance (Ochoa *et al.* 1994; Childers & Derrick 2003; Childers *et al.* 2003; Gerson 2008; Kitajima *et al.* 2010; Rodrigues & Childers 2013; Alberti & Kitajima 2014).

Plant viruses transmitted by species in the genus *Brevipalpus* have been described from more than 40 plant species (Kitajima *et al.* 2001, 2003; Rodrigues *et al.* 2008; Kitajima & Alberti 2014). Among these, the citrus leprosis virus complex is by far the most serious (Bastianel *et al.* 2010; Kitajima *et al.* 2011a; Roy *et al.* 2013, 2014; Alberti & Kitajima 2014; Kitajima & Alberti 2014). The citrus leprosis complex consists of two unrelated taxa of viruses, cytoplasmic and nuclear, found throughout South, Central and North America. The cytoplasmic viruses are citrus leprosis virus C (CiLV-C), citrus leprosis virus C2 (CiLV-C2) and Hibiscus green spot virus 2 (HGSV-s); and the nuclear viruses are citrus leprosis virus N (CiLV-N) and citrus necrotic spot virus (CiNSV) (Roy *et al.* 2015). The CiLV complex causes one of the most important invasive diseases in the Americas (Rodrigues & Childers 2013), and poses a major threat to citrus industries worldwide. This threat is exacerbated by the widespread distribution of the potential vectors. For example, over the past decade, CiLV has spread at an alarming rate throughout South and Central America and most recently within Mexico (Rodrigues & Childers 2013, Alberti

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