

Asymmetry in the number of solenidia on tarsi II of *Brevipalpus* (Acari: Tenuipalpidae) populations from Argentina*

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Abstract

To verify the prevailing *Brevipalpus* species in citrus orchards affected by leprosis in Argentina, specimens of this genus were collected mainly from ‘Valencia’ and ‘Hamlin’ varieties of sweet orange plants from experimental and commercial plantations at Bella Vista, Corrientes Province, Concordia, Entre Rios Province and Saens Peña, Chaco Province. Examinations under light microscopy and scanning electron microscopy were carried out to identify the species based on external morphological characteristics. A mixture of typical *Brevipalpus obovatus* Donnadieu and *Brevipalpus phoenicis* (Geijskes) was found, with prevalence of the former (43.7 versus 27.2%) in the 327 adult females examined. However, 29% of the total number of females examined were atypical, having one solenidion (ω'') on one of tarsi II and two (ω' and ω'') on the other, either left or right. To investigate whether this variation was also common elsewhere, several *Brevipalpus* populations of the *obovatus* species-group from Chile (*Brevipalpus chilensis* Baker), Brazil (*B. obovatus* and *B. phoenicis*), Costa Rica and Paraguay (*B. phoenicis* in both countries) were examined. Asymmetric numbers of tarsus II solenidia were found in 11 of the 1,993 examined adult female specimens of these populations. The results suggested a relation between the high proportion of asymmetric mites in Argentina and the occurrence of a mixed population of both *B. obovatus* and *B. phoenicis*; however, present knowledge about the apparently parthenogenetic system of reproduction of these species does not support the hypothesis that asymmetric mites could be the hybrids of those species. Thus, the factor leading to high proportions of asymmetric *Brevipalpus* in Argentina remains unknown.

Key words: *Brevipalpus obovatus*, *Brevipalpus phoenicis*, scanning electron microscopy, light microscopy.

Introduction

Some American *Brevipalpus* mites of the *obovatus* species group (Gonzalez, 1975) are notorious for their ability to transmit plant viruses and for their peculiar biology (Childers & Derrick, 2003). These mites are haploid and reproduce by thelytokous parthenogenesis (Childers *et al.*, 2003), although a few males are commonly found in natural populations. The latter can copulate but apparently are not able to inseminate females (Pijnaker *et al.*, 1981). Weeks *et al.* (2001) demonstrated that the haploid individuals were feminized because of the presence of a symbiont bacterium, a unique case of this sort among mites. At least three tenuipalpid species, namely *B. californicus* Banks, *B. obovatus* Donnadieu and *B. phoenicis* (Geijskes), are known to be involved in the transmission of plant viruses (Childers *et al.*, 2003; Kitajima *et al.*, 2003).

The morphological characters most commonly used to separate those three species are the number of the dorsolateral hysterosomal setae and the presence or absence of solenidion ω' on the tarsus of leg II of adult females. *Brevipalpus obovatus* and *B. phoenicis* have five (d_3 , e_3 , f_3 , h_1 and