

Article

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First record of the spider mite genus *Mixonychus* (Acari: Tetranychidae) from the Americas based on the description of a new species from Colombia

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Abstract

A spider mite of the genus *Mixonychus* is reported for the first time from the Americas; a new species, *Mixonychus* (*Bakerina*) *citraeus* **sp. nov.** is described based on specimens from *Citrus* in Colombia. It is suggested that the new species be considered of quarantine concern for Brazil and Venezuela and, may be, other neighbouring countries of Colombia (Ecuador and Peru).

Key words: Brazil; citrus; new record; quarantine; taxonomy; Venezuela.

Introduction

According to Migeon and Dorkeld's Spider Mite Web database, 18 spider mite species were described in the genus *Mixonychus* Ryke & Meyer, 1960, all from Asia, Africa and Tasmania. Three species were collected from plants in the family Rutaceae: two species from *Citrus* spp., namely *Mixonychus* (*Mixonychus*) *ganjuis* Qian, Yuan & Ma, 1980, from China, *M. (Bakerina) ziolanensis* (Lo & Ho, 1989) from Taiwan and one species from *Aegle marmelos* (L.), *M. (Bakerina) thailandicus* Tangkanasing, 1988, from Thailand.

We have recently received specimens on microscopic preparations, collected July 2014 from *Citrus latifolia* Tanaka, Tahiti Lime or Persian Lime, from Bucaramanga, Colombia, close to the Venezuelan border, which proved to be a species new to Science. This is the first record of a *Mixonychus* species in the Americas.

Measurements are given in micrometers; holotype female measurements are shown in bold type followed by their mean, and range in parentheses, from holotype and 7 paratypes. No measurements of the male are given; it had to be remounted for better view of the aedeagus and got damaged.

Family Tetranychidae **Donnadieu, 1875**
Genus *Mixonychus* **Ryke & Meyer, 1960**

Mixonychus Ryke & Meyer, 1960

Mixonychus Ryke & Meyer, 1960: 559–560; Tuttle & Baker, 1968: 116. Meyer, 1974: 176.

Type species: *Mixonychus acaciae* Ryke & Meyer, 1960

Empodium a single, strong, claw-like structure, without tenent hairs; opisthosoma with 10 pairs of setae, *fl* in normal dorsal position, three pairs of *h* setae; female with two pairs of anal setae and male with four pairs of genito-anal setae.

***Mixonychus (Bakerina) citraeus* sp. nov. (Figs. 1–16)**

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Diagnosis

A *Mixonychus (Bakerina)* species with a strong recurved peritreme; dorsocentral setae short, at most half as long as distance to next seta behind; male palptarsus spinneret a small rounded button-like structure.

Description

Female (n = 13; Figs. 1–9) – Body oval elongate, **373**, 350 (345–373) long, **468**, 450 (419–468) long including rostrum, **247**, 235 (224–247) wide (Fig. 1).

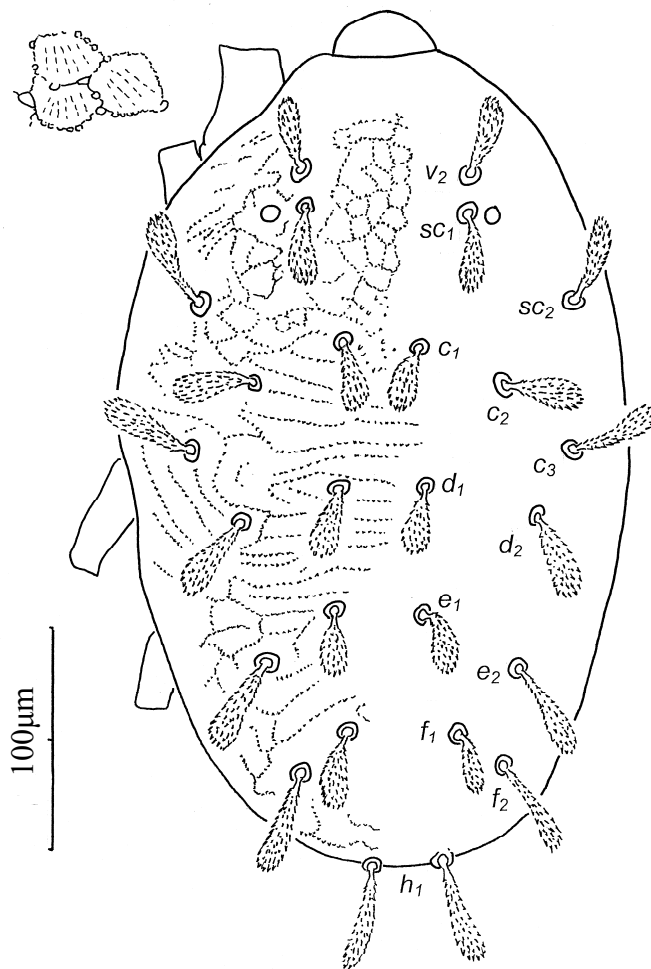
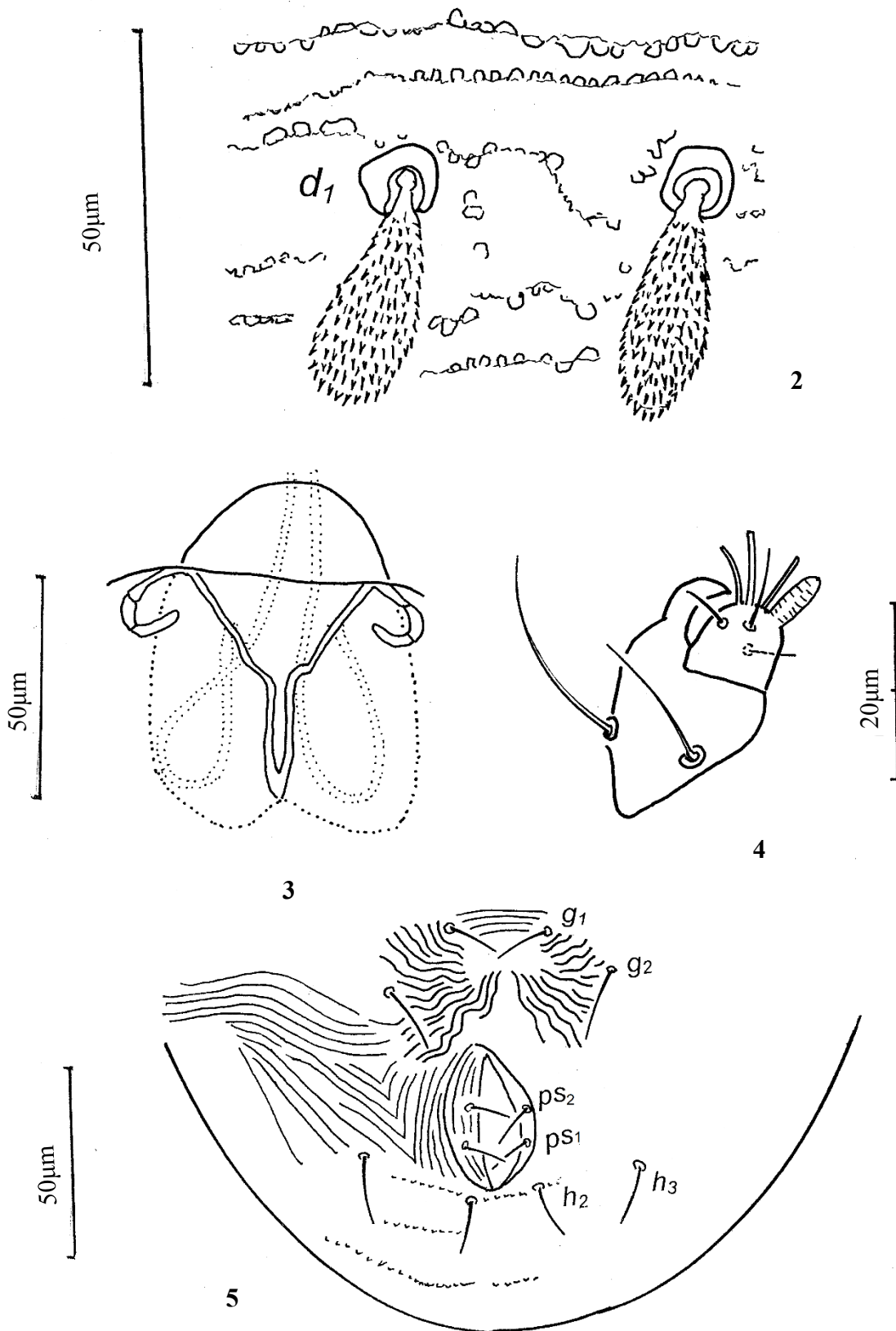


Figure 1. *Mixonychus (Bakerina) citraeus* sp. nov. (female) – Dorsal habitus and detail of dorsopropodosomal reticulation.



Figures 2–5. *Mixonychus (Bakerina) citraeus* sp. nov. (female) – 2. dorsopodosomal setae d_1 and reticulation pattern; 3. peritremes; 4. palptarsus; 5. genito-ventral area.

Stylophore rounded anteriorly. Peritremes ending in a hook (Fig. 3). Palp tarsus with terminal sensillum (spinneret) thick, approximately three times as long as wide (Fig. 4). Dorsal idiosomal setae spatulate and long. Prodorsal setae v_2 47, 44 (42–47), 75, 72 (63–77) apart; sc_1 47, 47 (42–49), 77, 70 (65–7) apart; sc_2 49, 47 (47–49). Hysterosomal setae c_1 44, 37 (33–44), 40, 37 (35–40) apart; c_2 44, 40 (35–44), c_3 51, 49 (44–51); d_1 37, 35 (30–40), 44, 40 (33–44) apart, d_2 54, 47 (44–54); e_1 42, 37 (33–42), 42, 37 (30–42) apart, e_2 51, 47 (44–54); f_1 44, 37 (35–44), 63, 51 (42–63) apart, f_2 56, 51 (56–58); h_1 56, 53 (49–58), 24, 30 (24–35) apart, h_2 21, 17 (16–21); h_3 19, 19 (16–19). Propodosoma dorsally with reticulate pattern, reticule lobed; laterally with a few longitudinal striae. Hysterosoma dorsally with widely separated, lobed, transverse striae. Ventrally with transverse continuous striae (Fig. 5).

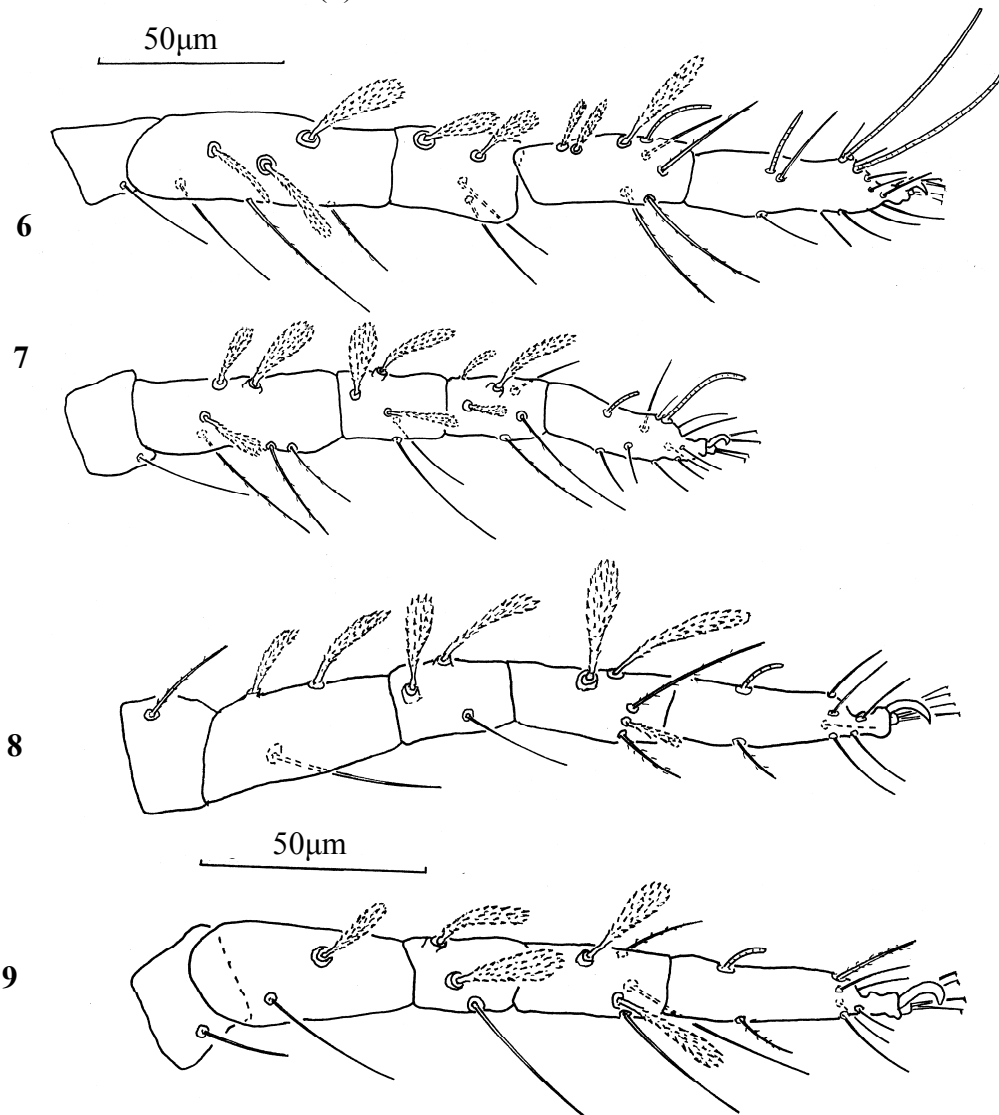
Leg chaetotaxy, from coxae to tarsi, solenidia in parentheses (Figs. 6–9):

I: 2 – 1 – 7 – 5 – 7(1) – 9 (1) + 2 duplexes

II: 2 – 1 – 6 – 5 – 6 – 9 (1) + 1 duplex

III: 1 – 1 – 3 – 3 – 5 – 7(1)

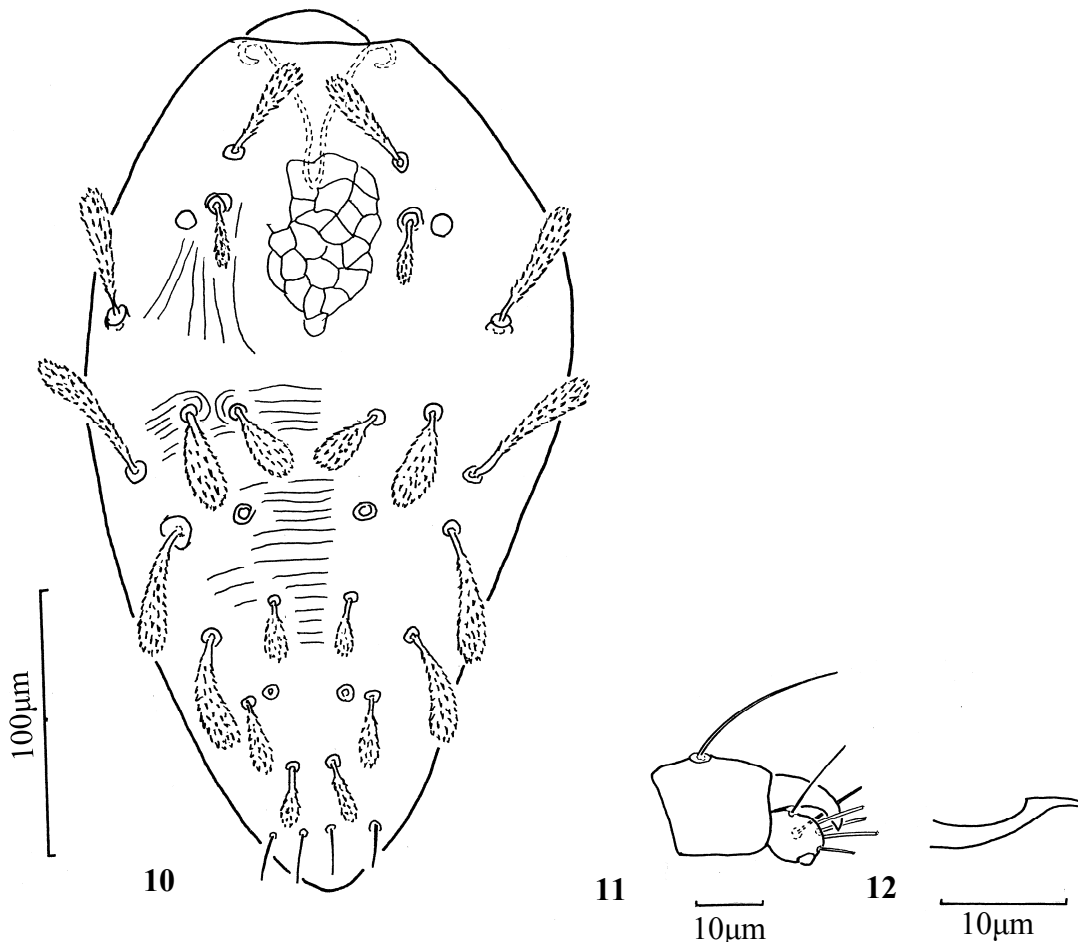
IV: 1 – 1 – 2 – 3 – 5 – 7(1)



Figures 6–9. *Mixonychus (Bakerina) citraeus* sp. nov. (female) – 6. Leg I, femur and genu with alternative setal count; 7. Leg II; 8. Leg III; 9. Leg IV.

Alternative setal count observed on segments of legs I and II: femur I 6; genu I 4; tibia I 6(1); tibia II 5 and 6(1); tarsus II 10(1)+1 duplex and 10 + 1 duplex.

Male (n = 1; Figs. 10–16) – Smaller than female. Prodorsal median reticulation without lobes; hysterosomal striae continuous, no lobes (Fig. 10). Palp tarsus with terminal sensillum a low rounded knob-like structure (Fig. 11), wider than long. Aedeagus shaft narrowing distally and curving dorsad forming a large slender knob; anteriorly small, acute and a long posterior projection tapering caudad (Fig. 12).



Figures 10–12. *Mixonychus (Bakerina) citraeus* sp. nov. (male) – 10. Dorsal habitus. Dorsocentral setae d_1 and e_1 broken off; 11. Palptarsus; 12. Aedeagus.

Leg chaetotaxy, from coxae to tarsi, solenidia in parentheses (Figs. 13–16):

I: 2 – 1 – 7 – 5 – 7(3) – 9(2) + 2 duplexes

II: 2 – 1 – 6 – 5 – 8 – 9(1) + 1 duplex

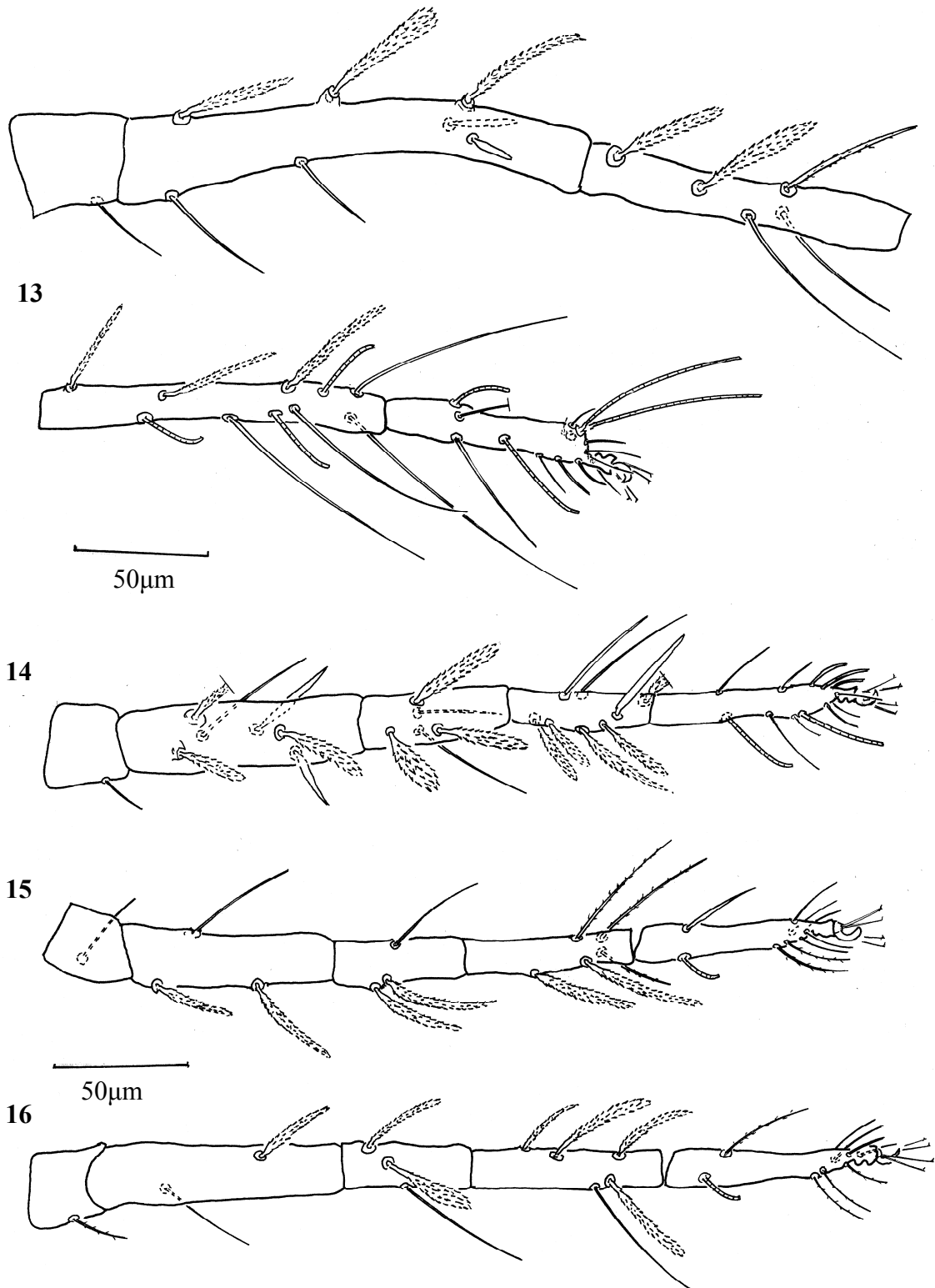
III: 1 – 1 – 3 – 3 – 5 – 8(1)

IV: 1 – 1 – 2 – 3 – 5 – 8(1)

Type Material

Holotype female, 12 females and one male paratypes, from Tahiti Lime, *Citrus latifolia* Tanaka, Rutaceae, Los Mangos, Bucaramanga, Santander, Colombia, collected by V. Cuaran, 04 July 2014, on 11 microscopic preparations in the Acarology Collection,

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Figures 13–16. *Mixonychus (Bakerina) citraeus* sp. nov. (male) – 13. Leg I; 14. Leg II; 15. Leg III; 16. Leg IV.

Etymology

The specific designation *citraeus*, Latin, masculine, meaning lemon tree, refers to the host plant.

Remarks

Mixonychus (Bakerina) citraeus **sp. nov.** is closest to *M. (B.) thailandicus* Tangkanasing, 1988, in the general dorsal striation pattern of the female and in the shape of the aedeagus of the male, but differs in having a strongly curved peritreme (ending in a straight bulb in *thailandicus*); the dorsal setae are different to some extent, however, this character cannot be further detailed since no measurements are presented in the description of *thailandicus*; notorious differences are present in the female and male leg chaetotaxy. The aedeagus follows the general aspect of the aedeagi of *Mixonychus (Bakerina)* species.

Navia *et al.* (2013) outlined the finding of an Asian citrus spider mite, *Schizotetranychus hindustanicus* (Hirst, 1924) in Venezuela in 2002 and its rapid spread to citrus growing areas in Brazil's northern tip, State of Roraima, in 2008 and to Colombia in 2010, in the country's northern border with Venezuela. *M. (B.) citraeus* **sp. nov.** may also be of Southeast Asia origin.

Although no damages of *M. (Bakerina) citraeus* **sp. nov.** to its host plant, Tahiti Lime in Colombia has been reported, this species should be considered of quarantine concern for Brazil, Venezuela, Ecuador and Peru. So far it has not been found on other hosts.

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نخستین گزارش کنه تارتن جنس *Mixonychus* (Acari: Tetranychidae) از قاره آمریکا بر اساس توصیف گونه جدیدی از کلمبیا

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چکیده

کنه تارتنی از جنس *Mixonychus* برای نخستین بار از قاره آمریکا گزارش می‌شود؛ گونه جدید *Mixonychus (Bakerina) citraeus sp. nov.* بر اساس نمونه‌های جمع‌آوری شده از *Citrus* در کلمبیا توصیف می‌شود. حدس زده می‌شود که گونه جدید برای برزیل و ونزوئلا و شاید دیگر کشورهای همسایه کلمبیا (اکوادور و پرو) از نظر مسائل قرنطینه‌ای باید مورد توجه قرار گیرد. واژگان کلیدی: برزیل؛ لیمو؛ گزارش جدید؛ قرنطینه؛ آرایه‌شناسی؛ ونزوئلا.

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