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A preliminary note on mites on corn in Brazil with redescriptions of *Catarhinus tricholaenae* and *Oligonychus zeae* (Acari: Diptilomiopidae, Tetranychidae)

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ABSTRACT

The rediscovery of *Catarhinus tricholaenae* Keifer, 1959 in Brazil is reported and the male described for the first time, and *Oligonychus zeae* (McGregor, 1955) is reappraised.

Key words: Acari, taxonomy, Diptilomiopidae, Tetranychidae

INTRODUCTION

In the course of investigating the phytophagous mite fauna in corn fields in the States of Minas Gerais and São Paulo, Brazil, an eriophyid mite, *Catarhinus tricholaenae* Keifer, and two spider mites, *Oligonychus zeae* (McGregor 1955) and *Tetranychus urticae* Koch, 1836, were collected.

Catarhinus tricholaenae is a member of the Rhyncaphytoptinae and was first described from females vagrant on Natal grass, *Tricholaena rosea* Nees (= *Rhynchelitrum roseum* = *Melinis roseum*) and on corn, from Campinas, SP, Brazil, causing leaf discoloration. Flechtmann and Aranda (1970) also reported it from the upper leaf surface of corn from Coronel Oviedo, Paraguay. Our material (5 males, 22 females) was taken from the undersurface of corn leaves of plants which showed abundant symptoms of virus-like diseases, and from leaves of *Brachiaria plantaginea* (Link.) Hitchc. (Poaceae), collected by DLQS at the Centro Nacional de Pesquisa de Milho e Sorgo, Sete Lagoas, Minas Gerais.

Catarhinus tricholaenae Keifer, 1959

Catarhinus tricholaenae Keifer, 1959. Occ. Pap. Calif. Bur. Entomol. (1):10, 12. C. tricholaenae: Flechtmann & Aranda, 1970. Proc. Entomol. Soc. Wash. 72(1):94.

MALE (Figs. 1, 2). Measurements in micrometers, from 3 males. Smaller than female, 171-191-197 long, 66-67-70 wide. Gnathosoma projecting downward and backward; basal setae 10-11-11 long; antapical setae 5-5-6 long and bent at a right angle. **Prodorsal shield** 47-47-50 long, 60-66-67 wide, with rounded anterior lobe; shield surface rugose with a few narrow longitudinal smooth bands. Prodorsal shield with tubercles of scapular setae well ahead of rear margin, 16-17-18 apart, projecting setae dorsomedially, setae 4-4-4 long. **Legs I** 30-31-31 long; femora 9-9-10 long, femoral setae absent; genua 3-4-4 long, genual setae 25-26-29 long; tibiae 7-8-10 long, tibial setae 13-14-15 long; tarsi 6-7-7 long, lateral setae (ft') 24-25-25 long, dorsal setae (ft')



FIGURES 1-2. Catarhinus tricholaenae Keifer, male. 1, Dorsal shield; 2, coxisternal region.

21-22-22 long, unguinal setae 7-7-8 long, solenidia 6-6-6 long, empodia 5-5-5 long. Legs II with all normal setae present, 28-31-31 long, femora 9-9-10 long, femoral setae 8-10-11 long; genua 3-3-4 long, genual setae 7-9-11 long; tibiae 6-7-10 long; tarsi 5-7-8 long, lateral setae 21-24-26 long, dorsal setae 5-6-6 long, mesal setae 4-4-5 long, solenidia 6-7-7 long, empodia 5-5-5 long. Coxae: anterior coxae broadly contiguous, sternal line 11-13-14 long; coxal setae 1b, 10-10-11 apart, 10-10-10 long; coxal setae 1a, 6-8-9 apart, 18-19-21 long; coxal setae 2a set on strong tubercles, 18-20-21 apart, 32-33-37 long. Coxisternal region with 9-10-10 microtuber-culate rings. Genitalia 20-21-22 wide, 13-14-14 long, granulate. Anterolateral angle with a lateroposteriorly directed spine-like structure; papillae anterocentrally, as figured. Genital setae 9-12-17 long. Opisthosoma: dorsal annuli broader than ventral ones. Lateral setae (c_2) 14-16-16 long, on annulus 1; ventral setae 1 (d), 33-36-37 apart, 48-49 long, on annulus 11-11-11; ventral setae 2 (e) on annulus 25-27-28, 18-19-20 apart, 7-8-8 long; ventral setae 3 (f) on annulus 44-47-49, 23-24-24 apart, 20-24-27 long. Total dorsal annuli 28-30-31, with elongate faint microtubercles; total ventral annuli 49-53-54, with small beadlike microtubercles; last 3-4 ventral annuli with fine long microtubercles. Caudal setae (h_2) 62-63 long, accessory setae (h_1) minute, 1 long.

MATERIAL EXAMINED. 22 females, 5 males, on 7 microscopic preparations. One slide with 2 males and 4 females in the collection of Dr. J. Amrine Jr., West Virginia University, Morgantown, WV, USA and 6 slides with 3 males and 18 females in the collection of the Department of Zoology, University of São Paulo - ESALQ, Piracicaba, SP, Brazil.

RELATION TO HOST PLANTS. Leaf vagrants on corn plants on the lower surface of leaves with virus-like symptoms. At this time it cannot be stated whether the symptoms were due to a virus or to a mite toxemia. No visible damage on *Brachiaria* leaves, where they occur as vagrants on the upper surface.

Oligonychus zeae (McGregor, 1955)

Paratetranychus zeae McGregor, 1954/55. Rev. Ecuat. Entomol. Parasitol. 2(3,4): 370. Oligonychus zeae: Baker & Pritchard, 1962. Rev. Soc. Mexic. Hist. Nat. 23: 328.

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FIGURES 3-6. Oligonychus zeae (McGregor), 3-4 female; 5-6 male. 3, tarsus and tibia I; 4, tarsus and tibia II; 5, tarsus and tibia II.

Oligonychus zeae: Moraes & Flechtmann, 1981. Pesq. Agropec. Brasil. 16(2):182. Oligonychus mellinnii Flechtmann, 1971. Livre DocenteThesis: 44. Syn. nov. Oligonychus melinis (sic): Flechtmann & Baker, 1975. Rev.Brasil.Entomol. 19(3):118. Syn. nov.

This species was briefly described from corn from Porto Viejo, Ecuador. Baker and Pritchard (1962) added to its description and reported it from Honduras on bananas. It was also reported from several grasses, including sorghum and sugar cane from Iran, Colombia, Venezuela, Mexico and Central America (Jeppson *et al.* 1975). Flechtmann and Baker (1975) reported it, under the name O. melinis, from a grass in Corumbatai, SP and Moraes and Flechtmann (1981) from Sorghum bicolor, from Petrolina, Pernambuco, Brazil.

The reexamination of the type material of *O. mellinnii* Flechtmann, described from *Melinis* sp. (Poaceae) from Vitoria da Conquista, Bahia, and from a grass in Recife, Pernambuco, Brazil, showed it to conform with the description of *O. zeae*. Based on the study of this material and on specimens collected from *Brachiaria plantaginea* (Lin.) Hitchc., a weed in corn fields, in Sete Lagoas, Minas Gerais, Brazil, this species is better illustrated and described.

FEMALE (Figs. 3, 4, 7-10). Prodorsal striae longitudinal. Dorsal hysterosomal striae transverse except for a longitudinal pattern in the area between setae f_1 (fourth pair of dorsohysterosomals or D_4); dorsal body setae extending about one half length beyond bases of next row. Peritremes straight, ending in a slightly thicker bulb. Stylophore rounded anteriorly.

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Spinneret ("terminal sensillum" of palp tarsus) robust, about as long as wide. Ventral striae transverse, lobed; longitudinal in area immediately anterior to genital flap; flap pattern transverse and then becoming longitudinal on rear middle. Tarsus I with 4 tactile and one sensory setae proximal to proximal duplex setae; empodial claw with well-developed proximoventral hairs; tibia I with 9 tactile and one sensory seta; tibia II with 9 (sometimes 8) tactile setae.

Leg chaetotaxy, from coxae to tarsi:

I	2 - 1 - 10 - 5 - 9(1) - 13(1) + 2 duplex
Π	2 - 1 - 6 - 5 - 7 - 13(1) + 1 duplex
Ш	1 - 1 - 4 - 4 - 6 - 9 (1)
IV	1 - 1 - 4 - 4 - 7 - 10 (1)

Occasionally tibia I with 8 tactile and 1 sensory setae; femur II with 5 or 7 setae and tarsus II with 12 (1)+ 1 duplex; no variation on setal count of legs III and IV was observed.

Body length range, including gnathosoma, 387-477; width 252-279.

MALE (Figs. 5, 6, 11-16). Smaller than female. Empodium I with proximoventral hairs fused into a trifid platelet; proximoventral hairs are free on the other empodia. Tarsus I with 3 sensory and 4 tactile setae proximal to proximal duplex setae; tibia I with 3 sensory and 9 tactile setae. Spinneret ("terminal sensillum" of palp tarsus) robust, twice as long as wide. Aedeagus sigmoid, bent upward at a right angle and ending in a curved tip.

Leg chaetotaxy, from coxae to tarsi:

I	2 - 1 - 10 - 5 - 9(3) - 13(3) + 2 duplex
Π	2 - 1 - 6 - 5 - 7 - 13 (1)
Ш	1 - 1 - 4 - 4 - 6 - 9 (1)
IV	1 - 1 - 4 - 4 - 7 - 10 (1)

The only variation observed was a tarsus IV with 9 tactile instead of the usual 10 tactile setae, plus one sensory.

Body length range, including gnathosoma, 324-396.

MATERIAL EXAMINED. Seven females and 11 males from *Brachiaria plantaginea* (Link.) Hitchc., Sete Lagoas, Minas Gerais, Brasil, 08 Nov. 1995, DLQS; 8 females and 10 males from *Melinnis* sp., Vitória da Conquista, Bahia, 06 Jul. 1970, CHWF. The mite populations develop on the lower leaf surface causing discoloration, visible on both sides of the leaves. Material in the collection of the Department of Zoology, University of São Paulo - ESALQ, Piracicaba, SP.

Tetranychus urticae Koch, 1836

The common two-spotted spider mite was known to occur on corn in Brazil since the early 1960's (Mariconi, 1963); however, no damage to its host plant was reported.

In 1995 severe infestations of *T. urticae* were observed in corn fields in São José do Rio Preto, São Paulo and in Janauba, Minas Gerais, both on plants in the milky stage and on seedlings. The fields were irrigated overhead and planted during a very dry period. At this stage, nothing can be stated about a possible correlation with weather conditions or corn varieties and mite populations.

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FIGURES 7-16. Oligonychus zeae (McGregor), 7-10 female; 11-16 male. 7, genitoanal region; 8, tarsal appendage I; 9, tarsal appendage IV; 10, spinneret; 11, spinneret; 12, tarsal appendage I; 13, tarsal appendage IV; 14, peritreme; 15, 16, aedeagi.

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