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Source: Systematic and Applied Acarology, 2(1):181-188.

Published By: Systematic and Applied Acarology Society

URL: <http://www.bioone.org/doi/full/10.11158/saa.2.1.27>

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Two new phytophagous mites (Acari: Tetranychidae, Eriophyidae) from *Arachis pintoii* from Brazil

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Abstract

Tetranychus ogmophallos n.sp. (Acari: Tetranychidae) and *Aceria pintoii* n.sp. (Acari: Eriophyidae) are described from *Arachis pintoii* (Krap. & Greg.) (Fabaceae). Since *T. ogmophallos* thrives on peanuts (*Arachis hypogoea* L.) and on *Arachis prostrata* Benth. it is suggested that stolons of *A. pintoii* should not be used as a means of propagation since they can easily carry a potential pest to at least one economic crop, peanuts.

Key words: Tetranychidae, Eriophyidae, taxonomy, *Arachis pintoii*, *A. hypogoea*, *A. prostrata*

Introduction

Arachis pintoii (Krap. & Greg.) is a legume of Neotropical (Brazilian) origin which is being increasingly used as a herbage plant, as a cover crop in orchards (apples, avocados, citrus, papaya etc.), in rubber tree cultures and grown in association with grasses in pastures in several countries including Australia, Colombia, Costa Rica and Brazil.

Suárez *et al.* (1992) pointed out that "*A. pintoii* can fix atmospheric nitrogen which allows the farmer to improve animal production increasing the quantity and quality of forage in pastures." Dominguez-Valenzuela *et al.* (1990) observed reduced root galling of tomatoes by *Meloidogyne arabicida* López & Salazar when *A. pintoii* was present as a cover crop.

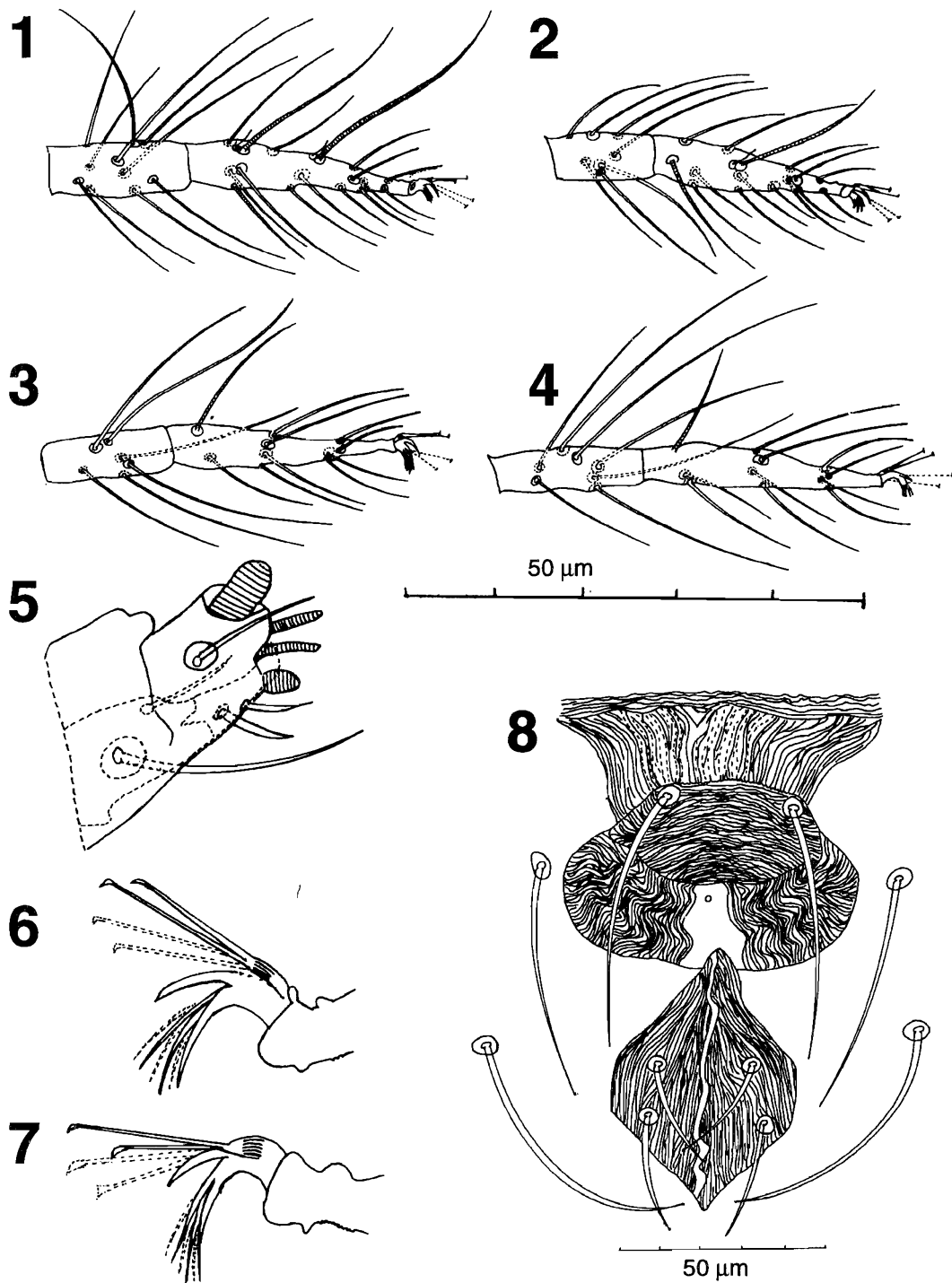
A. pintoii is usually propagated by seed, although stolons are quite often used for this purpose, which can easily disseminate pests as well as diseases.

Thus, to study the phytophagous mites aerial parts of *A. pintoii* plants, consisting of stolons with their leaves, were collected from experimental plots in Centro de Pesquisa Agropecuária do Cerrado (EMBRAPA), Planaltina, Brasília, Brazil, and thoroughly examined under a 30 x stereoscope.

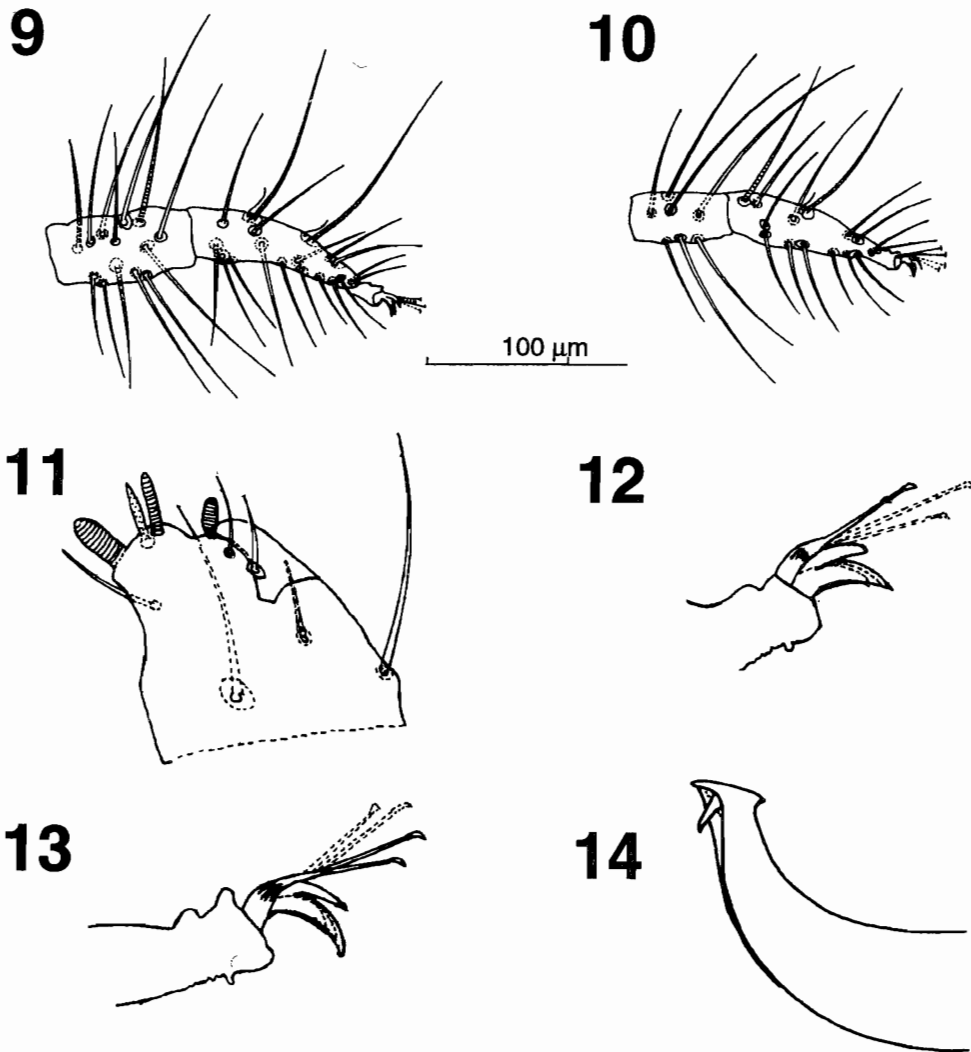
The two species of plant-feeding mites collected from these samples proved new to science and are described below.

Tetranychus ogmophallos sp. nov. (Figs. 1-14)

DIAGNOSIS. Females bear a diamond-shaped pattern of striae between dorsal setae e_1 and f_1 ; the proximal pair of duplex setae on leg I set in line with most other proximal setae; empodial claws with a well-developed dorsomedian spur; leg chaetotaxy unique.



FIGURES 1-8. *Tetranychus ogmophallos* n. sp., female. 1, Tarsus and tibia I; 2, tarsus and tibia II; 3, tarsus and tibia III; 4, tarsus and tibia IV; 5, palp tarsus; 6, tarsal appendages I; 7, tarsal appendages II; 8, genital-anal area



FIGURES 9-14. *Tetranychus ogmophallos* n.sp., male. 9, Tarsus and tibia I; 10, tarsus and tibia II; 11, palp tarsus; 12, tarsal appendages I; 13, tarsal appendages II; 14, aedeagus, enlarged

In males the knob of the aedeagus has small anterior and posterior angulations; if not properly focused under a 500 x magnification, it resembles the aedeagus of *T. evansi* Baker & Pritchard; under 1000 x magnification, however, it is noted that the axis of the knob is almost parallel to the axis of the shaft; the anterior (proximal) angulation is short and acutely angulate and the posterior angulation considerably longer and acutely angulate; the dorsal line of the knob is almost flat, only slightly arched. The stem of the aedeagus is posteriorly and longitudinally (vertically) furrowed and from the depth of the furrow protrudes a spinelike (hollow ?) structure, about as long as the width of the shaft where it joins the knob; this structure is directed posteriorly and downwards at an angle of approximately 45 degrees with the axis of the shaft.

FEMALE. Measurements in micrometers of allotype with range from 10 paratypes. Stylophore rounded anteriorly; peritremes hooked distally. Prodorsal striae longitudinal; opisthosomal striae transverse but forming a diamond-shaped pattern between setae e_1 and f_1 . Dorsal body setae long, extending beyond bases of the next two rows. Pregenital area with longitudinal striae, about half of them broken lines; flap with transverse, somewhat arched, striae. Spinneret ("terminal sensillum" of palp tarsus) robust, slightly longer than one and half times its width. Tarsus I with one sensory and three tactile setae in circumsegmental line with proximal duplex setae. Tibia I with 9, occasionally 10, tactile and one sensory (solenidion) setae. Empodia I-IV with well-developed dorsomedian spur.

Leg chaetotaxy, from coxae to tarsi:

I	2 - 1 - 10 - 5 - 9[10] (1) - 12 (2) + 2 duplexes
II	2 - 1 - 6 - 5 - 7[6] - 13 (1) + 1 duplex
III	1 - 1 - 4 - 4 - 6 - 9 (1)
IV	1 - 1 - 4 - 4 - 7 - 10 (1)

Obs.: number of tactile setae +

number in brackets [] = alternative (rarer) count

number in parentheses () = no. of sensory setae

Body length, including gnathosoma 566 (525 - 581); width 341 (318 - 378).

MALE. Measurements in micrometers, are of the holotype followed by the range in 10 paratypes. Smaller than female. Empodium I split into three platelets, with a well-developed, robust dorsomedian spur. Tarsus I with two sensory setae (solenidia) and two tactile setae proximal to proximal duplex setae and one tactile seta in circumsegmental line with proximal duplex setae. Tibia I with four (sometimes three) sensory and nine (sometimes eight) tactile setae. Spinneret ("terminal sensillum" of palp tarsus) about two and half times as long as wide. Aedeagus bent dorsad, head or knob with short acute anterior angulation and larger posterior acute angulation; dorsal line of knob only slightly arched; stem of aedeagus medio-posteriorly and longitudinally (vertically) furrowed; from the depth of the furrow protrudes a spine-like structure, as long as the width of the shaft where it joins the knob, directed posteroventrally at 45 degrees.

Leg chaetotaxy, from coxae to tarsi:

I	2 - 1 - 10 (9) - 5 - 9 [8] (4[3]) - 13 (3) + 2 duplexes
II	2 - 1 - 6 - 5 - 7 - 13 [12] (1) + 1 duplex
III	1 - 1 - 4 - 4 - 6 - 9 (1)
IV	1 - 1 - 4 - 4 - 7 - 10 [9] (1)

Body length, including gnathosoma 450 (405 - 480); width 243 (217 - 247), n = 10.

SPECIMENS EXAMINED. Holotype male, 39 male paratypes, 70 female paratypes, from *Arachis pintoii* (Krap. & Greg.) (Fabaceae), on 33 microscopic preparations, collected by DNMF, at EMBRAPA, Centro de Pesquisas Agropecuárias do Cerrado, Planaltina, DF, Brasília, Brazil., 08 Dec. 1995.

Type material deposited in the Department of Zoology, University of São Paulo - ESALQ, Piracicaba, S.P., Brazil.

ETYMOLOGY. The specific designation, *ogmophallos*, is derived from the Greek, masculine, *ogmos* = furrow and the Greek masculine *phallos* = penis, aedeagus, referring to the posterior mediolongitudinal furrow of the aedeagus. *Tetranychus* is also masculine.

BIOLOGICAL OBSERVATIONS. The females of *T. ogmophallos* are dark carmine red, in color. They form large colonies on both sides of the leaves causing chlorosis and early leaf drop; abundant and dense webbing has been observed.

This species was easily transferred to plants of *Arachis prostrata* Benth, a legume frequently associated with grass in lawns, and to peanuts, *Arachis hypogaea* L. On both, *T. ogmophallos*

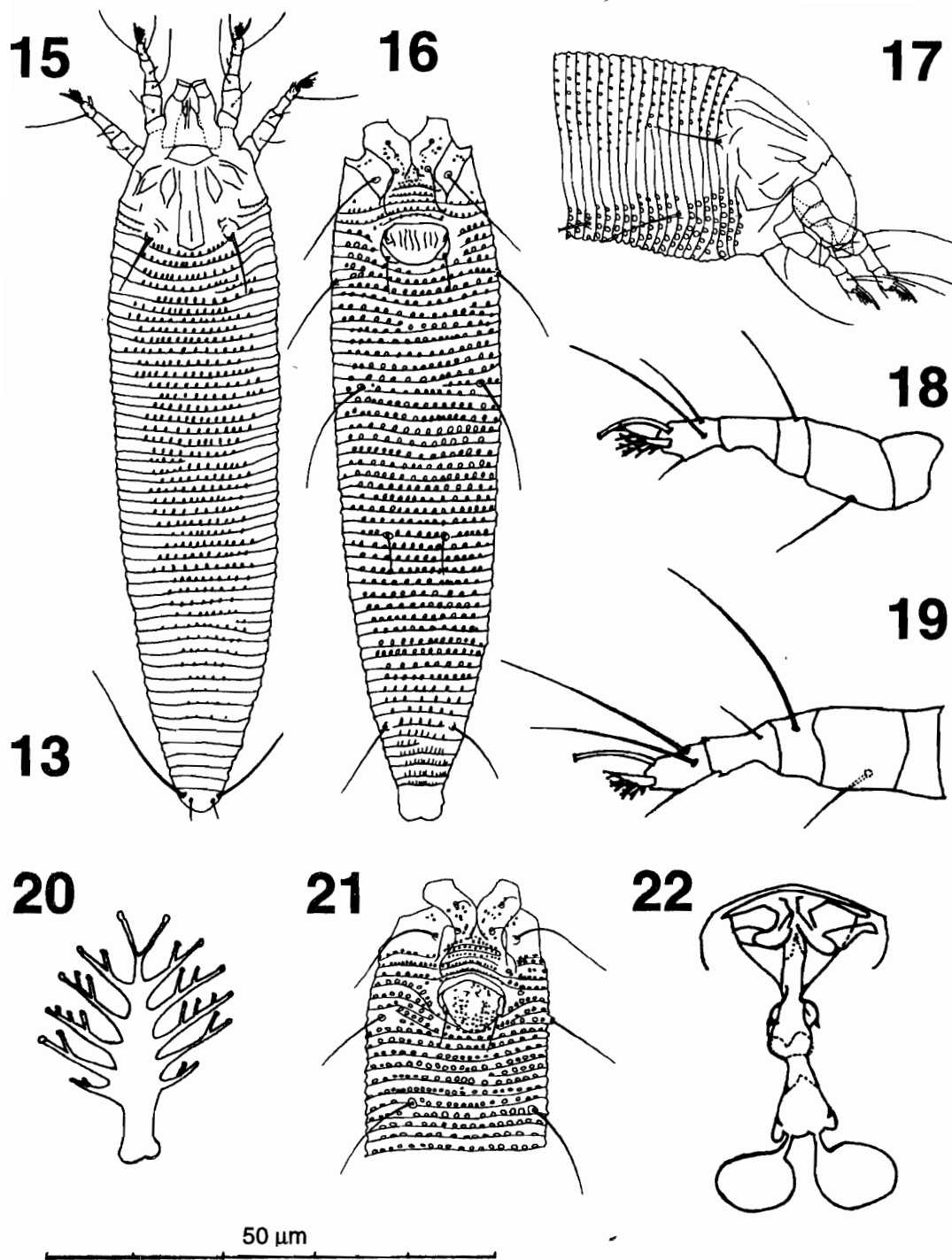
thrived well; potted peanut plants kept in the laboratory suffered severe damage and died. It is, therefore, thought to be advisable to propagate this plant only by seed; stolons should never be used due to the possibility of spreading phytophagous mites which can severely damage other plants of economic importance.

***Aceria pinto* sp. nov.** (Figs. 15-22)

DIAGNOSIS. *A. pinto* is the first eriophyid to be described from a plant in the genus *Arachis* or any other Fabaceae in the tribe Aeschinomenae, which includes *Arachis*. It differs from all other *Aceria* described from Fabaceae; from those described from *Acacia* spp. it differs by the short and broad anteromedial lobe, which is triangular and acute in *A. aechmaspus* S. Meyer (1990b), *A. liopeltus* S. Meyer (1990b), *A. spinosciae* S. Meyer (1990b), *A. nelensis* S. Meyer (1990b), *A. albidae* S. Meyer (1990b), *A. skukuzae* S. Meyer (1990b), *A. acacifloris* S. Meyer (1990b), *A. karrooi* S. Meyer (1990b), *A. transvaalensis* S. Meyer (1990b), *A. dictynus* S. Meyer (1990b), *A. leptum* S. Meyer (1990b), *A. bosforus* S. Meyer (1990b), *A. potamius* S. Meyer (1990b), *A. burnleya* Keifer (1965), *A. amnicolus* S. Meyer (1990b), *A. niloticae* S. Meyer (1990b), *A. calidensis* S. Meyer (1990b) and from *A. giraffae* S. Meyer (1990a); by the well-defined longitudinal lines on the dorsal shield it differs from *A. falciformis* Keifer (1969a) and *A. rosascostae* Keifer (1952), which have faint or obsolete shield lines; from *A. calilupini* Keifer (1946) by its 6-rayed empodium (7-rayed in *calilupini*); from *A. geoffrae* Keifer (1969b) which has an obscure shield design, consisting of lines of faint dashes and a 5-rayed empodium, and, from *A. daleae* Keifer (1960) which has 14 longitudinal ribs on the genital coverflap (8 in *A. pinto*); and from *A. boissieri* Roivainen (1953) which has long, 22-25, dorsal shield setae, (shorter in *A. pinto*, 18-19 long) and is a much smaller species, 125-140 long (*A. pinto* is 160-229 long).

FEMALE. Measurements in micrometers of holotype with range from 9 paratypes.

Elongate, vermiform, body length 214(179-229); width 53(55-65). **Gnathosoma** 29(26-28) long. Basal setae 3(2-3) long; antapical setae 5(4-5) long; chelicerae 19(18-30) long. **Prodorsal shield** 28(27-31) long, 47(44-62) wide, median line extending over rear one third of shield; admedian lines extending over entire length of shield and connecting across caudally by a broad angled V; second and third submedian lines present. Prodorsal shield setae set on tubercles on posterior shield border, 22(18-24) apart, 18(18-19) long, extending backwards, to eighth annulus. **Legs** with all normal setae present. Legs I 31(29-33); femora 8(8-10), femoral setae 10(7-10); genua 5(4-6), genual setae 24(22-25) long; tibiae 7(5-8), tibial setae 5(6-7); tarsi 6(6-8), lateral setae 21(19-24), dorsal setae 14(11-17); mesal setae 4(4-7), solenidia 8(7-9), empodia 7(6-8) long, 6-rayed. Legs II 31(27-30); femora 8(8-9), femoral setae 9(8-10); genua 4(4-4), genual setae 6(8-10); tibiae 6(5-6); tarsi 5(5-7), lateral setae 22(22-25), dorsal setae 5(5-6), mesal setae 4(4-5), solenidia 8(8-9), empodia 7(7-7) long, 6-rayed. **Coxal setae** 1, 10 (6-7) and 14(13-16) apart; coxal setae 2, 14(14-15) and 11(10-11) apart; coxal setae 3, 37(31-37) and 24(23-26) apart. Coxae with few granules. Sternal line 4(2-4) long. Coxisternal region with 6(4-6) rings, microtuberculate. Genital coverflap 23(22-23) wide, 15(13-16) long, with 8 longitudinal ribs in one rank; genital setae 12(11-15) long. **Opisthosoma** - annuli nearly subequal dorsoventrally; annuli completely microtuberculate except for 2 dorsolateral smooth portions extending the length of opisthosoma. Microtubercles bead-like, conspicuous. Terminal 5-6 annuli dorsally smooth and ventrally with fine, elongate microtubercles. Lateral setae 25(24-27) long, on annulus 2-3(2-4); ventral setae 1 on annulus 10-11(10-15), 40(35-39) apart, 10(10-14) microtubercles apart, 40(35-30) long; ventral setae 2 on annulus 23(23-29), 19(17-19) apart, 5(4-6) microtubercles apart, 14(13-16) long; ventral setae 3 on annulus 39(38-47), 22(20-25) apart, 5(5-7) microtubercles apart, 26(25-29) long. Total dorsal annuli 48(47-56), total ventral annuli 44(32-53). Caudal setae 53(52-55) long; accessory setae 6(6-7) long.



FIGURES 15-22. *Aceria pintoi*, n.sp.; 15-20, female; 21-22, male. 15, Dorsal view; 16, ventral view; 17, lateral view; 18, leg I; 19, leg II; 20, empodium ("featherclaw"), enlarged; 21, ventral aspect; 22, internal genital structures.

MALE. Measurements in micrometers of allotype with range from 3 paratypes.

Smaller than female, 161(143-187) long, 50(52-53) wide. **Gnathosoma** 24(26-28) long, basal setae not seen, antapical setae 4(4-5) long; chelicerae (20-24) long. **Prodorsal** shield 26(26-30) long, 46(45-48) wide; setal tubercles 18(18-21) apart, setae 18(17-18) long. **Legs** with all normal setae. Legs I 26(27-30) long; femora 7(6-8) long, femoral setae 7(6-7) long; genua 4(4-4) long, genual setae 19(17-18) long; tibiae 6(5-6) long, tibial setae 4(4-4) long; tarsi 5(6-7) long, lateral setae 18(18-19) long, dorsal setae 14(12-14) long, mesal setae 4(4-4) long, solenidia 8(7-8) long, empodia 6(6-6) long, 6-rayed. Legs II 25(25-26) long; femora 7(6-7) long, femoral setae 6(6-7) long; genua 4(4-4) long, genual setae 6(7-9) long; tibiae 4(4-5) long; tarsi 5(5-5) long, lateral setae 20(18-21) long, dorsal setae 4(4-5) long, mesal setae 3(3-4) long, solenidia 8(8-8) long, empodia 6(6-6) long, 6-rayed. **Coxal** setae 1, 12(12-13) apart, 5(5-8) long; coxal setae 2, 9(9-10) apart, 12(11-14) long; coxal setae 3, 22(19-22) apart, 28(23-29) long; coxae with a few granules. Sternal line (4-5) long. Coxisternal region with 6(5-6) rings, microtuberculate. Genitalia 18(18-19) wide, 14(13-15) long, granulate; papillae pointed, as figured; internal genital structures complex, not fully understood; as figured. Genital setae 11(10-11) long. **Opisthosoma** as in female; lateral setae 20(20-22) long, on annulus 1(1-2); ventral setae 1 on annulus 8-9(8-10), 33(31-32) apart, 11(9-11) microtubercles apart, 25(31-33) long; ventral setae 2 on annuli 18(18-20), 17(16-17) apart, 7(4-5) microtubercles apart, 11(12-13) long; ventral setae 3 on annulus 33(32-35), 21(13-19) apart, 9(5-6) microtubercles apart, 26(23-26) long. Total dorsal annuli 42(41-42), total ventral annuli 38(37-40). Caudal setae 41(42-46) long, accessory setae 6(6-7) long.

TYPE MATERIAL. Holotype female, 30 paratype females; allotype male, 3 paratype males, on 12 microscopic preparations, in the collection of the Department of Zoology, University of São Paulo - ESALQ, Piracicaba, São Paulo, Brazil.

TYPE LOCALITY. Planaltina, Distrito Federal, Central Brazil. January 1995, collected by DNMF.

HOST PLANT. Collected from the buds of *Arachis pintoi* (Krap. & Greg.) (Fabaceae).

RELATION TO HOST PLANT. The mites are leaf vagrants causing slight rusting.

ETYMOLOGY. *pintoi* from the specific designation of the host plant.

Acknowledgements

We are indebted to Dr. Esteban Alberto Pizarro and Alan Kardec Braga Ramos for authorizing and assisting in the collection of the infested plant material.

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Accepted: 20 September 1996