

# SOME PHYTOSEIID MITES FROM KENYA, WITH DESCRIPTION OF THREE NEW SPECIES

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TAXONOMY  
PHYTOSEIIDAE  
AFRICA

SUMMARY : Five phytoseiid species are reported from Kenya. Three of them are new to Science : *Amblyseius duplicesetus*, *Euseius neofustis* and *Typhlodromus bergi*.

TAXONOMIE  
PHYTOSEIIDAE  
AFRIQUE

RÉSUMÉ : Cinq espèces d'acariens phytoseiides sont présentes au Kenya. Trois d'entre elles sont nouvelles pour la Science : *Amblyseius duplicesetus*, *Euseius neofustis* et *Typhlodromus bergi*.

## INTRODUCTION

Surveys of predaceous phytoseiid mites have been conducted in several African countries as part of a multi-institutional program for the biological control of the cassava green mites, *Mononychellus* spp. The present work was based on specimens collected in Kenya by Mr. H. VAN DEN BERG, during a temporary work at the Commonwealth Institute of Biological Control. To date, 14 phytoseiid species have been reported from Kenya (MOUTIA, 1958 ; SWIRSKI & RAGUSA, 1978).

All measurements are given in micrometers. The setal nomenclature follows that of ROWELL *et al.* (1978). Depositories of types are abbreviated : CPATSA/EMBRAPA (Centro de Pesquisa Agropecuaria do Tropico Semi-Arido, 56300 - Petrolina, PE, Brazil) and USNM (United States National Museum, Washington, DC, USA).

## Genus *Amblyseius* Berlese

*Amblyseius* BERLESE, 1914 : 143.

### *Amblyseius duplicesetus* Moraes & McMurry, n. sp.

DIAGNOSIS. — This species belongs to the *laragoensis* species group as defined by McMURTRY & MORAES (1984). However, the cervix of the spermatheca is shorter than in other species of the group. It is also distinctive in having a long postero-distodorsal seta associated with the antero-distodorsal macroseta of *Sge* I to IV and *Sti* III and IV.

FEMALE. — (Figs. 1-5) (2 specimens measured).

Dorsum. — Dorsal shield smooth with 7 pairs of visible pores, 360 long and 240 wide at widest level of proscutum. Setae *j1* 42 (41-43), *j3* 47 (43-51), *j4* 8

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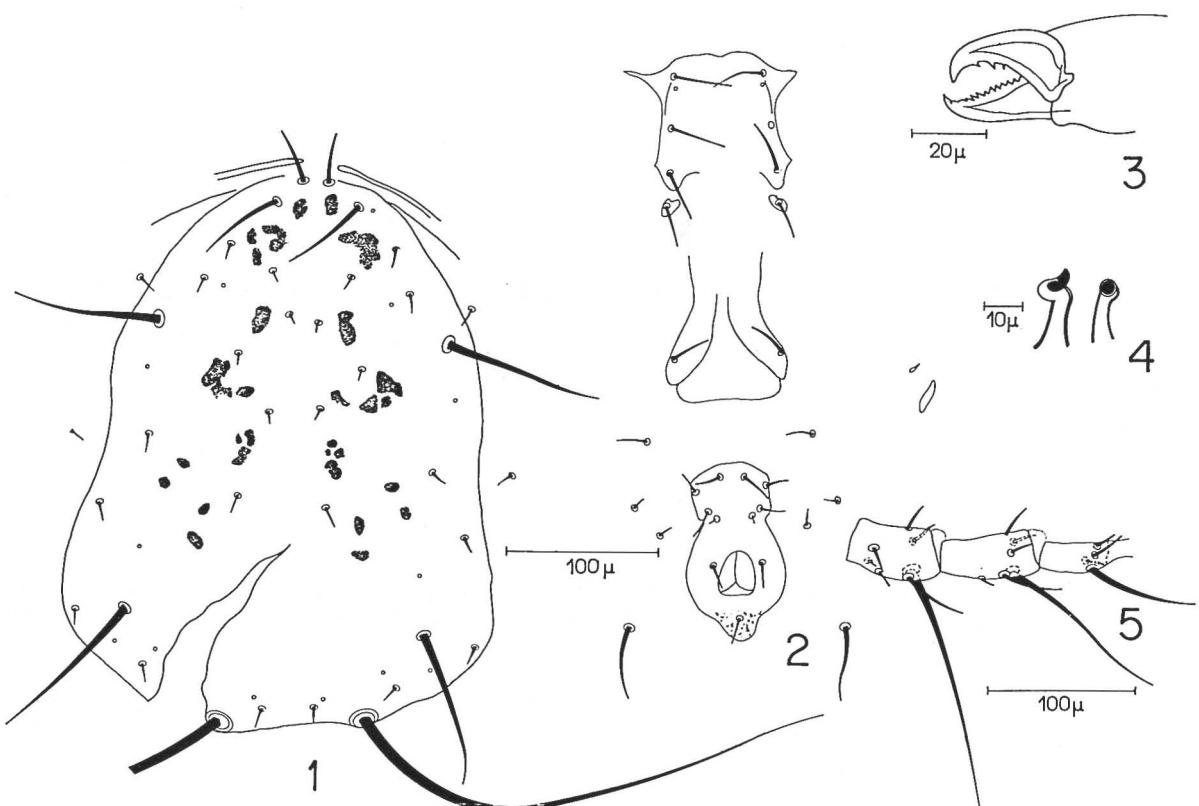


FIG. 1-5 : *Amblyseius duplicesetus* n. sp., female ; 1 — dorsal shield ; 2 — ventral surface ; 3 — chelicera ; 4 — spermatheca ; 5 — genu, tibia and basitarsus of leg IV.

(7-10), *j5* 8 (7-10), *j6* 8 (7-10), *J2* 11 (10-12), *J5* 11 (10-12), *z2* 12, *z4* 11 (10-12), *z5* 8 (7-10), *Z1* 12, *Z4* 98 (96-100), *Z5* 323 (310-336), *s4* 106 (103-109), *S2* 12, *S4* 12, *S5* 11, *r3* 12, *R1* 10. All setae smooth.

Peritreme. — Extending forward to level of *j1*.

Venter. — Posterior margin of sternal shield not discernible. Distances between sternal setae *ST1-ST3* 62, *ST2-ST2* 67 and genital setae *G-G* 70 (65-75). Ventrianal shield vase-shaped, with a strong constriction posterior to *JV2* setae, 115 (113-117) long, 54 (53-55) wide at level of *ZV2* and 66 (65-67) wide at level of anus.

Chelicera. — Movable digit 31 long, with 3 teeth directed backwardly. Fixed digit 29 long, with ca. 13 teeth.

Spermatheca. — Cervix flared, 12 long. Atrium globate, with lateral insertion of major duct.

Legs. — Setaceous macrosetae with the following lengths : *Sge I* 50 (48-52), *Sge II* 38, *Sge III* 47 (43-

51), *Sti III* 37 (34-41), *Sge IV* 157 (156-158), *Sti IV* 116 (112-120), *St IV* 68 (67-69). Chaetotaxy of Ge II 2, 2-2/0, 1 ; Ge III 1, 2/1, 2/0, 1.

MALE. — Unknown.

LOCALITY AND TYPE MATERIAL. — Holotype female and one paratype (CPATSA/EMBRAPA) from *Mangifera indica*, Msabaha area, 13-IX-1985 (H. VAN DEN BERG).

#### Genus *Euseius* Wainstein

*Amblyseius (Amblyseius)* section *Euseius* WAINSTEIN, 1962 : 15.

*Euseius* DELEON, 1967 : 18 ; MUMA et al., 1970 : 92 ; McMURTRY, 1983 : 257.

*Euseius africanus* (Evans)

*Typhlodromus africanus* EVANS, 1954 : 524.

SPECIMENS EXAMINED. — On coffee leaves, Lyamungu, Tanzania, 1953 (R. G. TAPLEY), Female Paratypes; on *Triumfetta rhomboidea*, Msabaha, Kenya, 10-IX-1985 (H. VAN DEN BERG).

REMARKS. — The specimens collected in Kenya are very similar to paratypes of *E. africanus* from Tanzania, except for the somewhat shorter z2, z4 and S2-S5 (Table 1). So far, this species has been reported only from Tanzania and Kenya.

TABLE 1 : Average measurements (ranges in parentheses) of adult females of *E. africanus* from different areas.

Character	Tanzania (n = 5) (Paratypes)	Kenya (n = 3)
Dorsal shield length	—	334 (319-358)
Dorsal shield width	—	230 (228-235)
j1	33 (30-38)	34 (29-36)
j3	42 (39-48)	41
j4	5 (5-6)	6 (5-7)
j5	7	6 (5-7)
j6	7 (6-8)	7
J2	8 (7-10)	8 (7-10)
J5	2 (2-3)	5
z2	14 (12-15)	9 (7-10)
z4	14 (12-14)	8 (7-10)
z5	7	6 (5-7)
Z1	8 (7-9)	7
Z4	9 (8-9)	7
Z5	65 (60-71)	63 (62-65)
s4	58 (53-65)	57 (53-60)
S2	12 (12-14)	9 (7-10)
S4	15 (14-17)	9 (7-10)
S5	12 (10-14)	8 (7-10)
r3	15 (13-17)	12 (10-14)
R1	9 (8-10)	8 (7-10)
Sge I	31 (29-34)	31
Sge II	31 (30-32)	32 (31-34)
Sge III	34 (31-36)	34 (31-36)
Sge IV	47 (41-51)	46 (43-50)
Sti IV	40 (38-42)	36
St IV	62 (59-64)	60 (58-62)
ST1-ST3	65 (62-67)	62 (60-65)
ST2-ST2	70 (66-72)	69 (67-70)
G-G	71 (67-74)	68 (67-70)
Ventrianal shield : length	110 (95-116)	103 (101-108)
width ant. half	52 (48-54)	54 (50-58)
width post. half	73 (70-76)	68 (65-72)
Length cervix	—	19
Spermatheca	—	—

n = number of females measured.

*Euseius fustis* (Pritchard & Baker)

*Amblyseius fustis* PRITCHARD & BAKER, 1962 : 283.  
*Euseius fustis*, MATTHYSSE & DENMARK, 1981 : 348.

SPECIMENS EXAMINED. — On tree legume, Lwiro, IRSAC, Zaire, 18-v-1955 (E. W. BAKER), Female Holotype; on cassava, Siaya, Kenya, 26-IX-1985 (H. VAN DEN BERG); on cassava, Msabaha, Kenya, 10-IX-1985 (H. VAN DEN BERG); on cassava, Yala, Kenya, 31-i-1985 (G. J. DE MORAES & J. A. McMURTRY).

REMARKS. — The measurements of the specimens from Kenya agree well with those of the holotype,

TABLE 2 : Average measurements (ranges in parentheses) of adult females of *E. fustis* from different areas.

Character	Zaire (Holotype)	Kenya (n = 3)
Dorsal shield length	365	347 (334-360)
Dorsal shield width	233	222 (216-226)
j1	28	22 (19-26)
j3	18	18 (17-19)
j4	13	11 (10-12)
j5	12	11 (10-12)
j6	13	14 (12-14)
J2	14	16 (14-17)
J5	6	7
z2	14	14 (12-17)
z4	14	14 (12-17)
z5	13	11 (10-12)
Z1	14	11 (10-12)
Z4	13	14 (12-17)
Z5	47	45 (43-48)
s4	18	21 (17-24)
S2	12	14 (12-17)
S4	12	13 (10-14)
S5	12	12 (10-14)
r3	14	15 (12-17)
R1	12	13 (12-14)
Sge I	28	20 (19-22)
Sge II	24	?
Sge III	28	29 (26-31)
Sge IV	48	41 (38-43)
Sti III	19	19
Sti IV	28	24
St IV	42	43 (41-46)
ST1-ST3	64	62 (60-65)
ST2-ST2	72	70 (67-72)
G-G	86	80 (77-84)
Ventrianal shield : length	—	100 (98-101)
width ant. half	48	48 (46-50)
width post. half	62	70 (67-72)
Length cervix	—	—
Spermatheca	—	56 (48-65)
Fixed digit	—	24
Movable digit	—	24

n = number of females measured.

except for the somewhat shorter *Sge I* and *Sge IV* (Table 2). This species is now known from Zaire, Nigeria and Kenya.

*Euseius neofustis* Moraes & McMurtry, n. sp.

DIAGNOSIS. — This species closely resembles *Euseius fustis* but differs by having most of the dorsal shield setae over 50 % longer. Also, in all specimens of *E. neofustis* observed *R1* is on the dorsal shield, whereas 95 out of 100 specimens of *E. fustis* observed had *R1* on the membrane.

FEMALE. — (Figs. 6-9) (4 specimens measured).

Dorsum. — Dorsal shield reticulated, with 11 pairs of visible pores, 342 (341-343) long and 220 (216-221) wide at widest level of proscutum. Setae *j1* 29 (29-31), *j3* 25 (24-26), *j4* 18 (17-19), *j5* 20 (17-22), *j6* 25 (24-26), *J2* 25 (24-29), *J5* 12, *z2* 22 (22-24), *z4* 23 (22-24), *z5* 19, *Z1* 21 (19-24), *Z4* 24, *Z5*

53 (48-55), *s4* 31 (29-34), *S2* 24, *S4* 23 (22-24), *S5* 22 (22-24), *r3* 17 (17-19), *R1* 17 (17-19). Setae *R1* on dorsal shield. All setae smooth, except for *Z5* which are barbed.

Peritreme. — Extending forward to level between *z2* and *z4*.

Venter. — Distances between *ST1-ST3* 63 (60-65), *ST2-ST2* 71 (70-72) and *G-G* 79 (74-82). Ventrianal shield with 3 pairs of preanal setae more or less in line; length of shield 96; width 49 (46-50) at widest level of anterior half and 66 (62-70) at anus level.

Chelicera. — Movable and fixed digits 26 and 24 long, respectively.

Spermatheca. — Cervix tubular, 55 (50-60) long. Atrium barely noticeable.

Legs. — Macrosetae knobbed at tips. *Sge I* 22, *Sge II* 21 (19-22), *Sge III* 29 (26-31), *Sge IV* 50 (48-55), *Sti IV* 27 (24-29), *St IV* 35 (31-38). Chaetotaxy of *Ge II* 2, 2-2/0, 1; *Ge III* 1, 2/1, 2/0, 1.

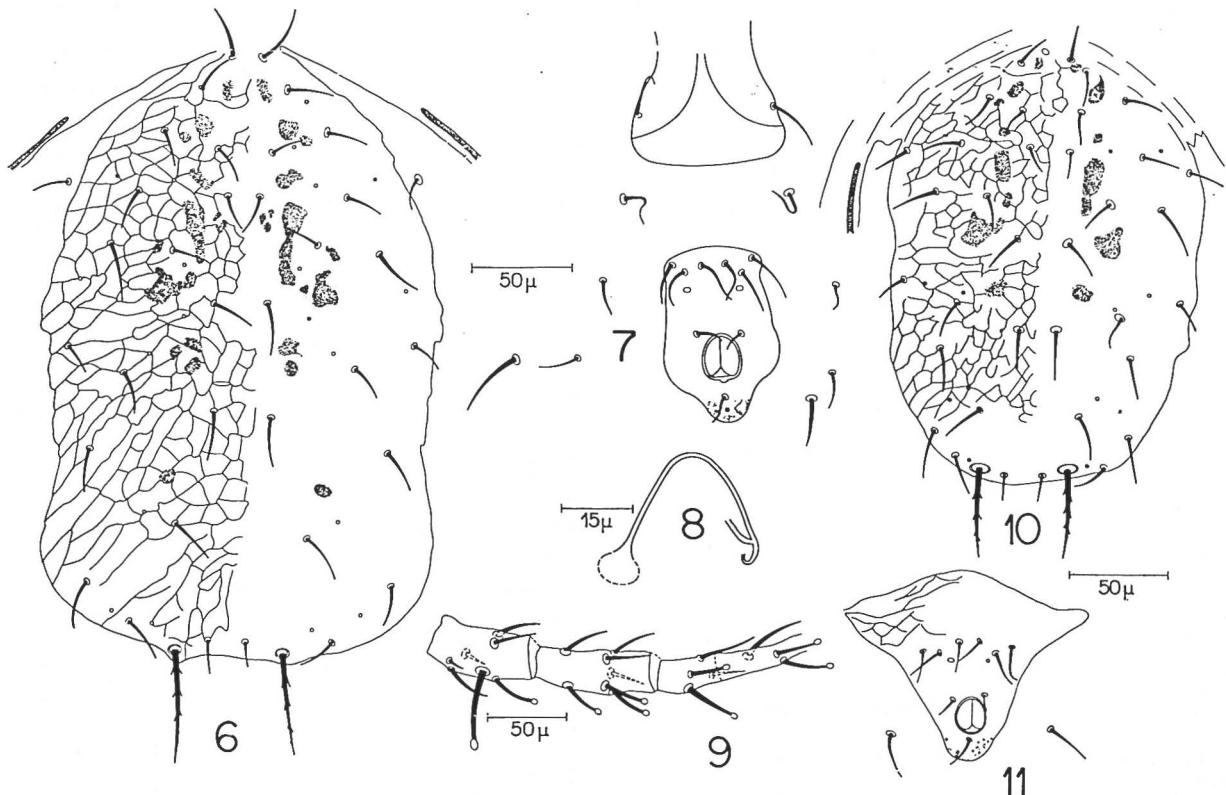


FIG. 6-11 : *Euseius neofustis* n. sp., 6-9 : female ; 6 — dorsal shield ; 7 — ventral surface ; 8 — spermatheca ; 9 — genu, tibia and basitarsus of leg IV ; 10-11 : male ; 10 — dorsal shield ; 11 — ventrianal shield.

MALE. — (Figs. 10-11) (2 specimens measured).

Dorsum. — Dorsal shield reticulated, with 8 pairs of visible pores, 248 (245-252) long and 168 wide at widest level of proscutum. Setae  $j_1$  20 (19-22),  $j_3$  20 (19-22),  $j_4$  14,  $j_5$  14,  $j_6$  18 (17-19),  $J_2$  19,  $J_5$  8 (7-10),  $z_2$  18 (17-19),  $z_4$  18 (17-19),  $z_5$  16 (14-17),  $Z_1$  18 (17-19),  $Z_4$  19,  $Z_5$  42 (41-43),  $s_4$  24,  $S_2$  18 (17-19),  $S_4$  19,  $S_5$  18 (17-19),  $r_3$  16 (14-17),  $R_1$  14 (12-17). All setae smooth, except for  $Z_5$  which are barbed.

Peritreme. — Extending to level between  $z_4$  and  $s_4$ .

Venter. — Ventrianal shield creased on the anterior half, 104 (101-108) long and 139 (134-144) wide at widest level.

Legs. — Macrosetae knob-tipped, with the following lengths :  $Sge\ I$  19,  $Sge\ II$  20 (19-22),  $Sge\ III$  26 (24-29),  $Sge\ IV$  42 (41-43),  $Sti\ IV$  29,  $St\ IV$  34 (31-36).

LOCALITY AND TYPE MATERIAL. — Holotype female, allotype male, 2 paratype females and 1 paratype male (CPATSA/EMBRAPA), from cassava, Kilifi, 12-IX-1985 (H. VAN DEN BERG); 1 paratype female (USNM), from cassava (*Manihot esculenta* Crantz), Msabaha, 10-IX-1985 (H. VAN DEN BERG).

Genus *Typhlodromus* Scheuten

*Typhlodromus* SCHEUTEN, 1857 : 111.

***Typhlodromus bergi* Moraes & McMurtry, n. sp.**

DIAGNOSIS. — This species differs from *Typhlodromus praeacutus* van der Merwe, 1968 by being much smaller and having proportionally longer dorsal shield setae. It differs from *Typhlodromus*

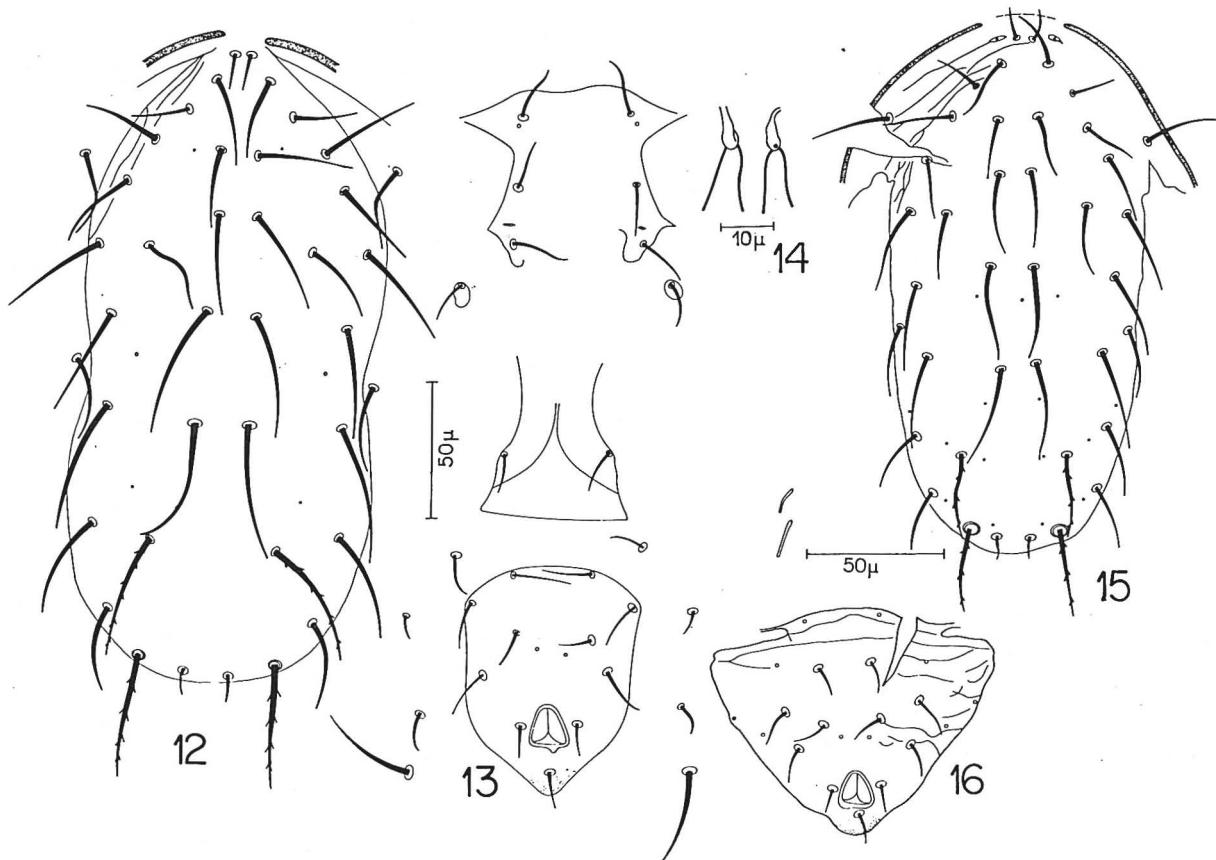


FIG. 12-16 : *Typhlodromus bergi* n. sp., 12-14 : female ; 12 — dorsal shield ; 13 — ventral surface ; 14 — Spermatheca ; 15-16 : male ; 15 — dorsal shield ; 16 — ventrianal shield.

*bambusae* Ehara, 1964 and *Typhlodromus foraminosus* (Schuster, 1966) by the shape of the ventrianal shield. The sternal shield of *T. bergi* is also different from that of *T. bambusae*. *T. bergi* also resembles *Typhlodromus balanites* El-Badry, 1967 but differs by having shorter *S5* and *j-J* setae.

FEMALE. — (Figs. 12-14) (3 specimens measured).

Dorsum. — Dorsal shield smooth, with 5 pairs of visible pores, 267 (262-274) long and 122 (120-122) wide at widest level of proscutum. Setae *j1* 15 (14-17), *j3* 30 (29-30), *j4* 30 (29-30), *j5* 41 (38-44), *j6* 54 (53-54), *J2* 56 (53-58), *J5* 9 (7-10), *z2* 22 (22-24), *z3* 32 (29-34), *z4* 34 (31-36), *z5* 30 (29-30), *Z4* 49 (46-50), *Z5* 46 (43-48), *s4* 44 (41-46), *s6* 46 (43-48), *S2* 54 (50-58), *S4* 40 (36-43), *S5* 34 (31-36), *r3* 37 (34-38), *R1* 37 (34-38). All setae smooth except for *Z4* and *Z5* which are serrated.

Peritreme. — Extending to *j1*.

Venter. — Sternal shield with 3 pairs of setae; posterior margin not visible. Distances between *ST1-ST3* 50 (48-55), *ST2-ST2* 50 (48-53), *G-G* 43. Ventrianal shield 94 (89-98) long, 72 (67-74) wide at level of anterior half and 64 (62-65) wide at anus level; with 4 pairs of preanal setae and 1 pair of large pores.

Chelicera. — Movable digit 22 long, apparently with 2 teeth. Fixed digit 25 (22-29) long, apparently with 4 teeth.

Spermatheca. — Cervix funnel-shaped, 11 (10-12) long. Atrium distinct.

Legs. — Macrosetae present only on t IV, sharp-tipped, 46 (43-48) long. Chaetotaxy of Ge II 2, 2-2/0, 1 ; Ge III 1, 2-2/1, 1.

MALE. — (Figs. 15-16) (1 specimen measured).

Dorsum. — Dorsal shield smooth, with 8 pairs of visible pores, 216 long and 108 wide at widest level of proscutum. Setae *j1* 14, *j3* 26, *j4* 26, *j5* 34, *j6* 38, *J2* 41, *J5* 10, *z2* 19, *z3* to *z5* 29, *Z4*, *Z5*, *s4* and *s6* 36, *S2* 41, *S4* 29, *S5* 26, *r3* 31, *R1* 29. All setae smooth except for *Z4* and *Z5* which are serrated.

Peritreme. — Extending to *j3*.

Venter. — Ventrianal shield creased from the

anterior margin to the level of the most posterior pair of pores; with 5 pairs of pores and 4 pairs of preanal setae.

Legs. — Macrosetae present only on t IV, sharp-tipped, 41 long.

LOCALITY AND TYPE MATERIAL. — Holotype female, allotype male and 2 female paratypes (CPAT-SA/EMBRAPA), from *Digitaria argirotricha*, Margarini, 11-IX-1985 (H. VAN DEN BERG).

#### ACKNOWLEDGMENTS

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