

STUDIES ON INDIAN PHYTOSEIIDAE (ACARINA : MESOSTIGMATA) : SOME
TYPHLODROMUS MITES FROM SOUTH INDIA WITH DESCRIPTIONS OF
NEW SPECIES

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ABSTRACT

Four species of *Typhlodromus* from south India are described as new to science. In addition, collection data are provided for another four species, three of these are reported for first time from there.

INTRODUCTION

The mites of the genus *Typhlodromus* are of great economic importance as they are efficient predators of phytophagous mites. Excepting one species, viz. *Typhlodromus rickeri* Chant, which is known from Karnataka, nothing about *Typhlodromus* mites is known from other parts of south India. The author while surveying Phytoseiidae of India, made some collection from different parts of south India, and the present paper is based on the material of the genus *Typhlodromus*. The material of the other genera will be treated elsewhere.

Altogether, eight species are discussed here, of these, four are described as new to science and three are recorded here for the first time from south India. The entire material treated here were collected by the author himself. The measurements given in the text are all in microns. Chant *et al* (1974) has been followed both for concept of the genus as well as for setal nomenclature.

The types and other material treated here are being deposited in the National Collection of the Zoological Survey of India, Calcutta.

1. *Typhlodromus kodaikanalensis* sp. nov.

(fig. 1 A-E).

Female : Body elongated oval. Peritreme extends anteriorly upto the base of j_1 . Dorsal shield 300 long, 165 wide, well sclerotized, reticulate, with 18 pairs of setae, Z_5 thickest and serrate, all other setae smooth and simple ; excepting j_3 which touches base of Z_2 , no other setae on dorsal shield reach upto the bases of succeeding setae ; $s_6=S_2=S_4=Z_4$, $S_5=z_2$, bases of j_1 very close to each other, Z_5 shorter than distance between their bases ; measurements of setae : j_1 -21, j_1 - j_6 -16 each, J_2 -20, J_5 -6, j_3 -20, z_2 -20, z_3 -20, s_3 - s_2 0 s_4 -24, s_6 -28, S_2 -28, S_4 -28, S_5 -16, Z_5 -48. z_4 -16, Z_4 -28, r_3 -25, R_1 -24. Sternal shield weakly sclerotized with 3 pairs of sternal setae, metasternal plates with setae distinct. Genital shield 60 wide, narrower than greatest width of ventrianal shield, with a pair of genital setae. A fold and some small platelets present between genital and ventrianal shields. Ventrianal shield 92 long, 76 wide, anterior margin rounded, lateral margins almost straight with 4 pairs of preanal setae (14 long) ; 4 pairs of setae present around ventrianal shield JV_4 -34 long ; 2 pairs of metapodal plates present : larger one : 25 long, smaller one

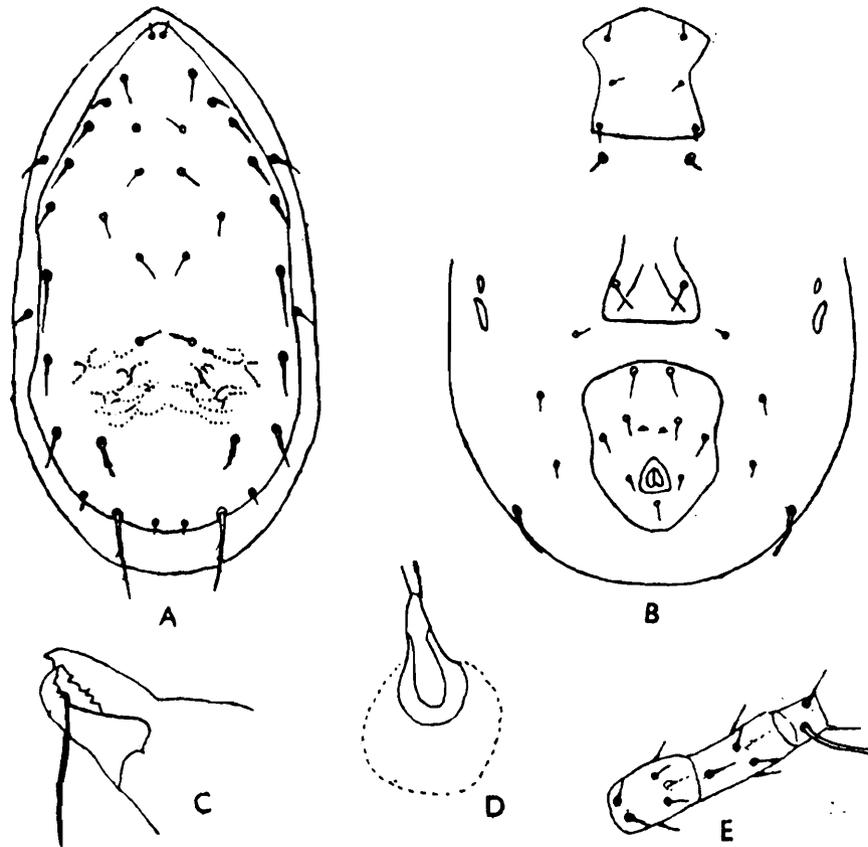


Fig 1 (A-E) *Typhlodromus neotransvaalensis* sp. nov. A. dorsal shield, B. ventral surface, C. chelicera, D. spermatheca, E. leg IV.

16 long. Fixed digit of chelicera multidentate with a pilus dentilis, movable digit with 3 teeth. Spermatheca as in figure. Macroseta present only on basitarsus IV-40 long. Leg chaetotaxy : genu II-7 setae (4 dorsal, 3 lateral), genu III 7 setae (4 dorsal, 2 lateral, 1 ventral), genu IV 7 setae (4 dorsal, 2 lateral, 1 ventral), tibia II 7 setae (3 dorsal, 2 lateral, 2 ventral), tibia III 7 setae (4 dorsal, 2 lateral, 1 ventral), tibia IV 6 setae (3 dorsal, 2 lateral, 1 ventral),

Male : Unknown.

Material : *Holotype* : ♀ , INDIA : Tamil Nadu, Kodaikanal, on pear 7.xii.1975; *Paratypes* : 3 ♀ ♀ , data same as for holotype.

Remarks : This new species is close to *Thyphlodromus homalii* Gupta, 1970 but differs from

it in shape of spermatheca, in having both the digits of chelicera equal with 3 teeth on movable digit (toothless in *homalii*), in having macroseta on basitarsus IV double the length of the segment (equal to the length of segment in *homalii*) and j_1 being much close to each other. It also differs from *T. caudiglans* Schuster, 1959 in having S_5 much shorter than S_4 (equal in *caudiglans*) and in having sternal shield with 3 pairs of sternal setae (2 pairs in *caudiglans*). Further, it differs from *T. yamashitai* Ehara, 1972 in having macroseta on leg IV longer, Z_4 , s_3 , s_4 , s_6 , S_2 relatively shorter and in lacking posterior lateral extension on sternal shield.

This mite was associated with *Tetranychus* sp. which infested the pear plant. The adult of this *Typhlodromus Kodaikanalensis* sp.

nov. found to chase the larvae of *Tetranychus* sp. but no feeding was observed.

2. *Typhlodromus neotransvaalensis* sp. nov.
(figs. 2, A-E)

Phytoseius :

Female : Body oval. Peritreme extends anteriorly upto j_1 and posteriorly upto coxa IV. Dorsal shield heavily sculptured as in *Phytoseius*, 328 long, 190 wide with 18 pairs of setae, sublateral setae lie on lateral integument ; all the setae on dorsal shield appear to be weakly serrate and never touch the bases of following setae. Seta Z_5 being longest, thickest and slightly knobbed at the tip, $Z_4 = S_4$; measurements of setae : j_1-j_6 and $J_2-16-20$ each, J_5-12 ; j_3, z_2, z_3, s_2-18 each, $s_4-20,$

s_6-24, s_1-20 each, $S_2-24, S_4-28, S_5-24, Z_5-36, z_4-18, Z_4-28, r_3-20, R_1-20$. Sternal shield smooth, weakly sclerotized with 3 pairs of long sternal setae, metasternal plates with setae distinct. Genital shield 68 wide with a pair of genital setae. Ventrianal shield 112 long, 92 wide, smooth with 4 pairs of setae, anterior margin straight with 4 pairs of short preanal setae (8 long) ; 4 pairs of setae present around ventrianal shield ; some small platelets and 4 pairs of setae present around ventrianal shield, 2 pairs of metapodal plates present, larger one 28 long ; JV_4 32 long with knobbed tip. Spermatheca as in figure with flask shaped cervix. Leg chaetotaxy : genu II 7 setae (4 dorsal, 3 lateral), genu III 7 setae (4 dorsal, 2 lateral, 1 ventral), genu IV 7 setae (4 dorsal, 2 lateral, 1 ventral), tibia II 7 setae (3 dorsal, 2 lateral, 2 ventral), tibia III 7 setae (3 dorsal,

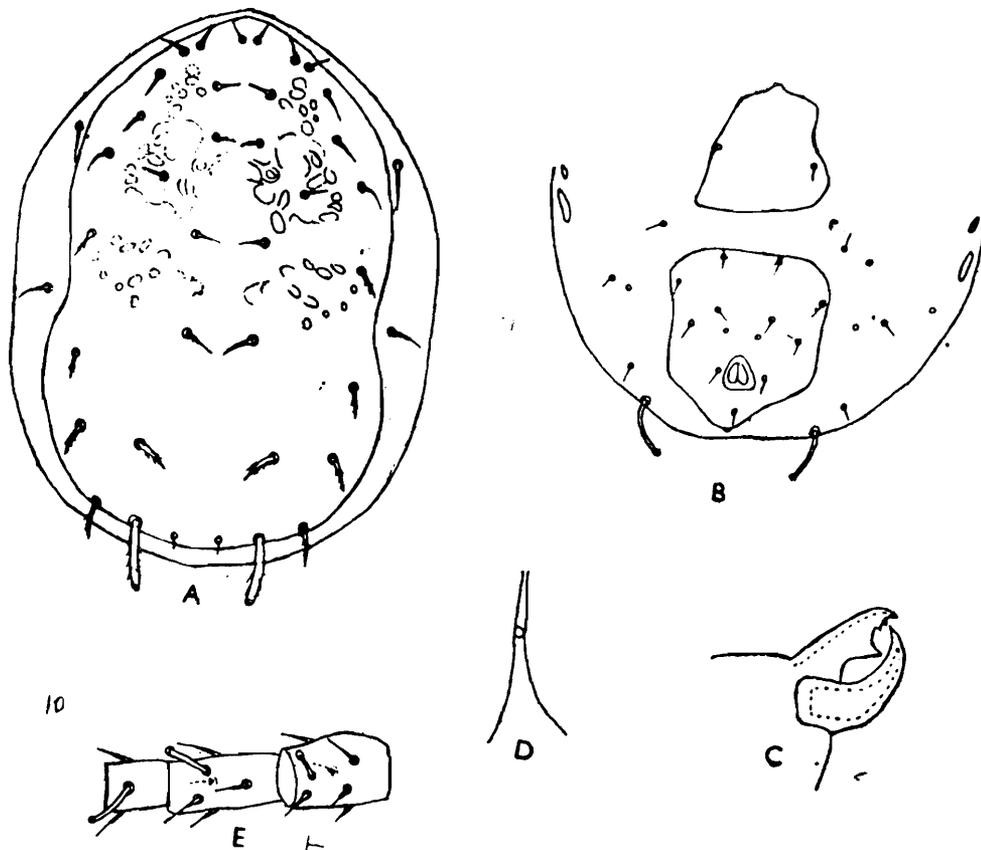


Fig. 2 (A-E) *Typhlodromus kodaikanalensis* sp. nov. A. dorsal shield, B. Ventral surface, C. chelicera, D. spermatheca, E. leg IV.

2 lateral, 2 ventral), tibia IV 6 setae (3 dorsal, 2 lateral, 1 ventral); macrosetae on leg IV: genu-16, tibia-20, basitarsus-26, all with flattened tip.

Male: Unknown

Material: *Holotype*: ♀, INDIA: Tamil Nadu, Ootacamund, Botanical garden, on *Casurina* sp. 28. xii. 1975; *Paratypes*: 1 ♀ Aruvankadu, on tea, 26. xii. 1975.

Remarks: This new species differs from *T. transvaalensis* (Nesbitt, 1951) in having lateral setae shorter than distance between their bases, j_3 and z_2 being equal ($j_3 > z_2$ in *transvaalensis*) and in presence of 4 pairs of preanal setae on ventrianal shield (3 pairs in *transvaalensis*).

3. *Typhlodromus rhododendroni* sp. nov. (figs. 3, A-D)

Female: Body small. Peritreme extends anteriorly upto j_1 . Dorsal shield 272 long, 160 wide, weakly sclerotized, reticulate with 18 pairs of setae. Excepting Z_5 and Z_4 which are serrate, all other setae smooth and imple. Bases of j_1 very close and almost touching each other; $Z_5 > Z_4 \geq S_4$, $z_2 < S_5$; anterior lateral setae barely touch the bases of succeeding setae; $J_2 = S_6 = S_2$; r_3 and R_1 lie on interscutal membrane; measurements of setae: j_1 —16, j_4 —16, j_5 —18, j_6 —20, J_2 —25, J_5 —8; j_3 —25, z_2 —16, z_3 —20, s_3 —20, s_4 —24, s_6 —25, S_2 —26, S_4 —32, S_5 —20, Z_5 —44; z_4 —20, Z_4 —36; r_3 —20, R_1 —18. Sternal shield weakly sclerotized, smooth, with 3 pairs of long sternal setae, 4th pair lie on metasternal plates. Genital shield narrower (56 wide) than greatest width of ventrianal shield with a pair of setae. Ventrianal shield 84 long, 60 wide, lateral margins concave with 4 pairs of short preanal setae (6 long); 4 pairs of setae and some small platelets present around genital and ventrianal shields; 2 pairs of small metapodal plates present; JV_4 —32 long. Fixed digit of

Chelicera with 3 teeth placed anteriorly, movable digit with one tooth. Spermatheca as in figure. Leg chaetotaxy: genu II 7 setae (4 dorsal 3 lateral), genu III 7 setae (3 dorsal, 2 lateral, 2 ventral), genu IV 7 setae (4 dorsal, 2 lateral, 1 ventral), tibia II 7 setae (3 dorsal, 2 lateral, 2 ventral), tibia III 7 setae (3 dorsal, 2 lateral, 2 ventral), tibia IV 6 setae (3 dorsal, 1 lateral, 2 ventral), macroseta on leg IV: 25 long.

Male: Unknown.

Material: *Holotype*: ♀, INDIA: Karnataka Gundelpet, on *Rhododendron arboreum*, 30.xii. 1973. *Paratypes*: 2 ♀♀ data same as for holotype.

Remarks: This new species comes closer to *Typhlodromus bakeri* (German, 1948), but differs in having z_2 much shorter than j_3 (equal in *bakeri*) and S_5 about $\frac{1}{2}$ of Z_5 . It also differs from *T. rhenanus* (Oudemans, 1905) in having shorter macrosetae on leg IV and in shape of spermatheca. Further, it is distinguished from *T. caudiglans* Schuster, 1959 by presence of all the three pairs of sternal setae on sternal shield (2 pairs present in *caudiglans*).

4. *Typhlodromus channabasavanni* sp. nov. (fig. 4 A-E)

Female: Body elongated oval. Peritreme extends anteriorly upto j_1 and posteriorly upto coxa IV. Dorsal shield 300 long, 160 wide with 2-3 pairs of pores and 18 pairs of setae, all being smooth and pointed; setae Z_5 being the longest, $Z_4 > S_6 = S_2$, $s_6 > s_4$, $j_1 = j_6 = J_2 > j_4 = j_5$, $j_3 = z_3$, s_3 and z_4 minute, r_3 and R_1 lie on interscutal membrane; measurements of setae: j_1 —16, j_4 — j_5 —8 each, J_6 — J_2 —18 each, J_5 —6; J_3 —36, z_2 —8, z_3 —36, S_3 —8, s_4 —45, s_6 —48, S_2 —48, S_4 —32, S_5 —12, Z_5 —70; z_4 —8, Z_4 —56, Sternal shield with 3 pairs of sternal setae. Genital shield 64 wide, smooth with a pair of long genital setae. Ventrianal

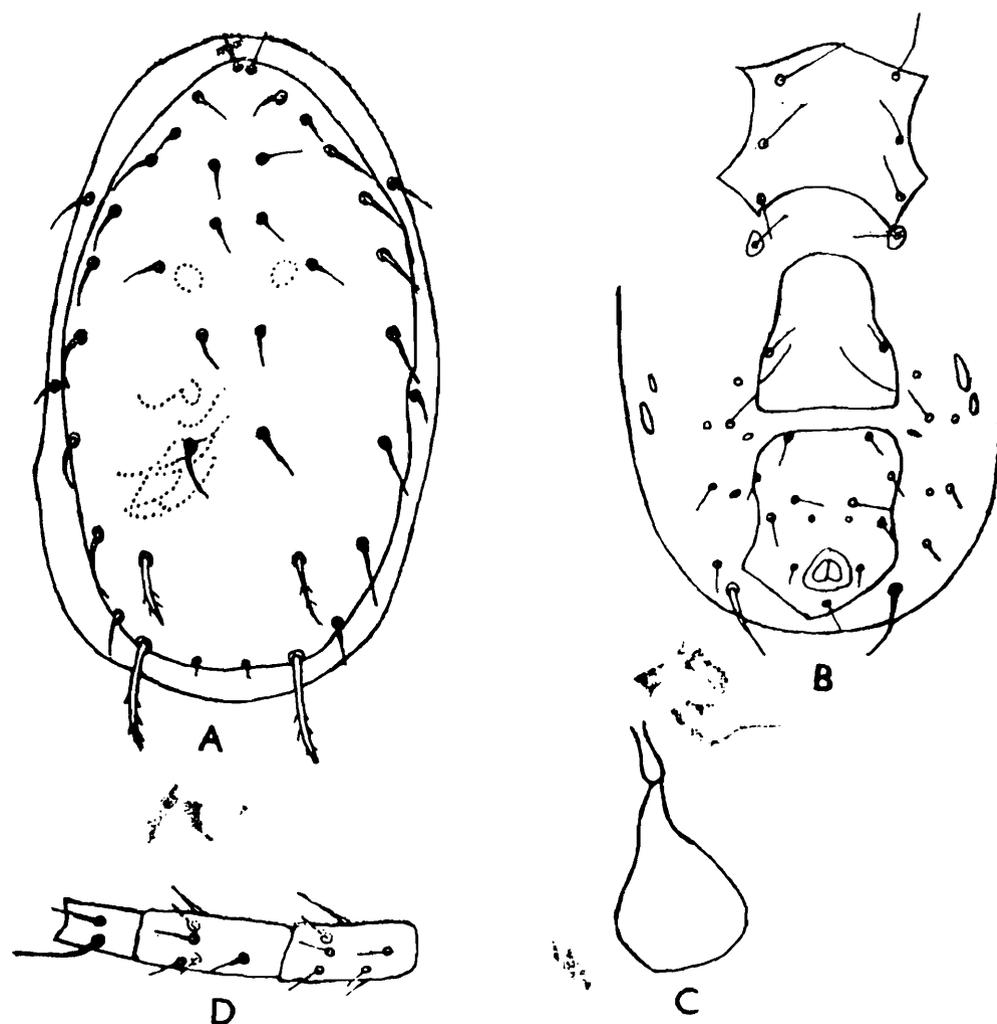


Fig. 3 (A-D) *Typhlodromus rhododendroni* sp. nov. A. dorsal shield, B. ventral surface, C. spermatheca, D. leg. IV.

shield much longer (100) than broad (72), anterior margin rounded, lateral margins concave with 4 pairs of preanal setae (16 long); 4 pairs of setae present around ventrianal shield, JV_4 -44 long; metapodal plates paired, larger one 18 long, smaller one 14 long. Fixed digit of chelicera multidentata with a long pilus dentilis, movable digit with a single small tooth. Spermatheca with a flask shaped cervix, atrium rounded with long duct. Leg IV with macroseta present only on basitarsus-56 long.

Male : Unknown.

Material : *Holotype* : ♀, INDIA : Tamil

Nadu, Aravankadu, on tea, 26. xii. 1975. *Remarks* : This new species is easily distinguished from *Typhlodromus pruni* Gupta, 1970 by difference in relative length of dorsal idiosomal setae specially S_1 and S_2 which are longer than those of *pruni*, Z_5 and Z_4 being not serrate, by difference in shape of spermatheca and by absence of macrosetae on genu IV and tibia IV.

The species is named after Dr. G. P. Channabasavanna in recognition of his very valuable contribution in the field of Acarology.

This mite was associated with tea scarlet

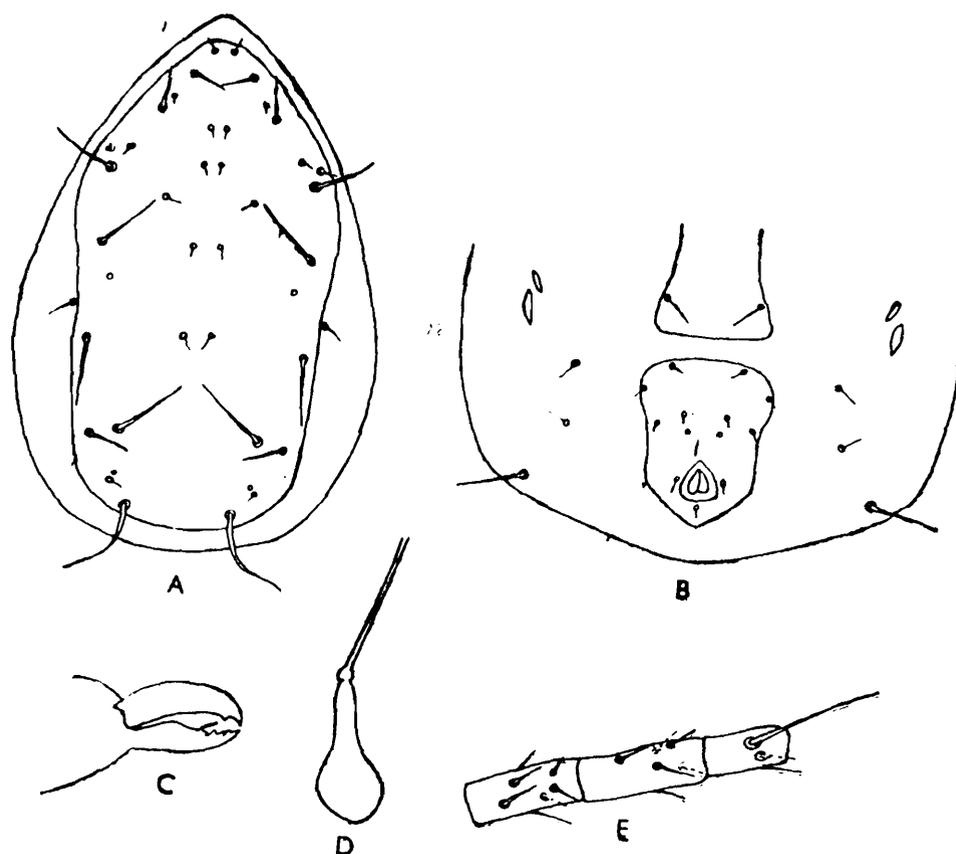


Fig. 4 (A-E) *Typhlodromus channabasavanni* sp. nov. A. dorsal shield, B. post ventral surface, C. chelicera D. spermatheca, E. leg IV.

mite, *Brevipalpus phoenicis* (Geij.) but as the population of this new species was extremely low, it was not certain whether it was feeding on it.

5. *Typhlodromus homalii* Gupta (fig. 5, F)

Typhlodromus homalii Gupta, 1970, *Oriental Ins.* 4 : 188-189.

Female : Dorsal shield 320 long, 170 wide with 18 pairs of setae. Measurements of setae : j_1-16 , j_4-j_5-13 each, j_6-17 , J_2-21 , J_5-10 ; j_3-17 , z_2-20 , z_3-16 , s_3-12 , s_4-20 , s_6-24 , S_2-24 , S_4-24 , S_5-16 , Z_5-40 ; z_4-16 , Z_4-26 . Sternal shield 80 long, 60 wide. Genital shield 80 wide. Ventrianal shield 104 long, 84 wide with 4 pairs of setae. Macroseta on basitarsus IV—17 long. Spermatheca as figured.

Material : 1 ♀, Kerala ; Trivandrum, on an unknown host, 14. xii. 1975 ; 1 ♀, Tamil Nadu : Top slip, Ambuli Perai, on an unknown host, 24. xii. 1975 ; 1 ♀, Kodaikanal, on an unknown host, 7. xii. 1975.

Distribution : India : West Bengal, Kerala (New record), Tamil Nadu (New record).

Remarks : The specimens examined under present investigation conformed well with the original description showing no marked variation from there.

This mite was feeding on the eggs of *Oligonychus* sp. infesting the unknown shrub at Trivandrum.

6. *Typhlodromus rickeri* Chant (fig. 5, B)

Typhlodromus (*Typhlodromus*) *rickeri* Chant, 1960, *Canadian Entomol.* 92 : 62-64.

Female : Dorsal shield 280 long, 160 wide with 18 pairs of setae. Measurements of setae : j_1 -20, j_4 -12, j_5 -24, j_2 -32, j_6 -6, j_3 -44, z_2 -8, z_3 -52, s_3 -10, s_4 -60, s_6 -66, S_2 -61, S_4 -36, S_5 -16, Z_5 -76, z_4 -8, Z_4 -60. Genital shield 60 wide. Ventrianal shield 92 long, 64 wide. Macrosetae on leg IV : genu-32, tibia-28, basitarsus 48. Spermatheca as illustrated.

Tamil Nadu : Topslip, on *Eucalyptus robustus*, 21.xii.1975 ; 1 ♀, Ambuli Perai, on *Dalbergia latifolia*, 24.xii.1975.

Distribution : India : Meghalaya, Tamil Nadu (New record), Kerala (New record), Andhra Pradesh (New record).

Remarks : As Chant (1960) did not give the measurements of dorsal idiosomal setae in details, it is not possible to state if there is any variation in respect of setal length in the specimens examined under present investigation.

This mite was associated with a tetranychid mite infesting *Dalbergia latifolia* at Ambuli Perai.

7. *Typhlodromus communis* Gupta (fig. 5 C-D)

Typhlodromus communis Gupta, *Ent. Mon. Mag.* (In press).

Female : Dorsal shield 300 long, 160 wide with 18 pairs of setae. Measurements of setae : j_1 -16, j_4 -10, j_5 -16, j_6 -16, J_2 -20, J_5 -6 ; j_3 -18, z_2 12-, z_3 -20, s_3 -24, s_4 -28, s_6 -28, S_2 -32, S_4 -24, S_5 -16, Z_5 -48, z_4 -20, Z_4 -32. Sternal shield as long as wide. Genital shield 68 wide. Ventrianal shield as long (80) as wide. Macrosetae on basitarsus IV-33 long. Spermatheca as in figure.

Male : Spermatophoral process as illustrated.

Material : 5 ♀ ♀, 1 ♂, Karnataka, Bandipur, on *Eucalyptus*, 29. xii.1975 ; 4 ♀ ♀, Gundelpet, on an unknown host, 30.xii.1975 ; 3 ♀ ♀, Tamil Nadu : Kodaikanal, on *Dalbergia* sp., 7.xii.1975.

Distribution : India ; West Bengal, Karnataka (New record), Tamil Nadu (New record).

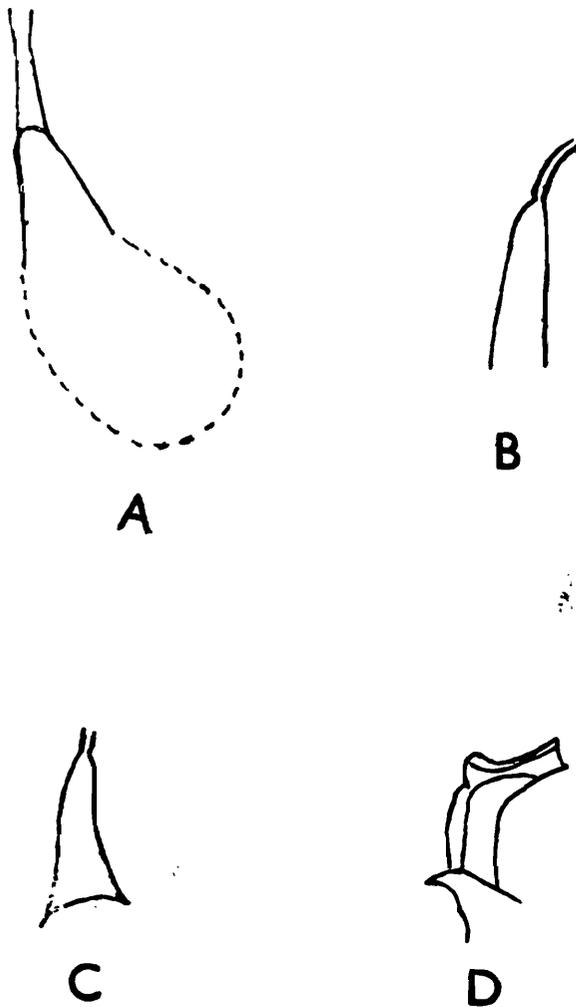


Fig. 5 A *Typhlodromus homalii* Gupta—spermatheca. B. *Typhlodromus rickeri* Chant—spermatheca. (C&D) *Typhlodromus communis* Gupta—C. spermatheca, D. spermatophoral process.

Material : 1 ♀, Karnataka : Bandipur, on *Mahonia leschenaultii*, 30. xii. 1975 ; 3 ♀ ♀, Gundelpet, on an unknown host, 30.xii.1975 ; 1 ♀, Kerala : Walaya, on an unknown host, 14.xii.1975 ; 3 ♀ ♀, Andhra Pradesh : Simachalam, on cashewnut, 5.i.1976 ; 1 ♀,

8. *Typhlodromus eharai* Gupta

Typhlodromus eharai Gupta, *Ent. Mon. Mag.*
(In press).

Female : Dorsal shield 320 long, 194 wide with 18 pairs of setae. Measurements of setae : j_1 -16, j_4 -12, j_5 -16, j_6 -17, J_2 -19, J_5 -8 ; j_3 -15, z_2 -3-15 each, s_3 -16, s_4 -20, s_6 -24, S_2 -24, S_4 -26, S_5 -16, Z_5 -49, z_4 -16, Z_4 -29. Genital shield 68 wide. Ventrianal shield 112 long, 84 wide, with 4 pairs of preanal setae. Macrosetae on leg IV : genu-12, tibia-16 and basitarsus-28.

Material : 2 ♀♀, Karnataka : Bandipur on *Cassia*, 30.xii.1975 ; 1 ♀, Tamil Nadu : Kodaikanal, Oothu, on coffee, 8.xii.1975.

Distribution : India : West Bengal, Karnataka (New record), Tamil Nadu (New record).

Remarks : Excepting Z_5 and Z_4 , which are slightly longer, no other variation from the original description was observed in the specimens examined under present investigation.

This mite was associated with coffee mite, *Oligonychus coffeae* (Nietner) but it did not feed on it.

ACINOWLEDGEMENTS.

The author is grateful to the Director

Zoological Survey of India, for kindly providing the facilities and to Dr. S. K. Tandon, Superintending Zoologist, Entomology Division-B for his keen interest and constant encouragements in the work.

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