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The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d’avenir » programme (Labex Agro: ANR-10-LABX-0001-01)

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REVISION OF THE GENUS *KAMPIMODROMUS* NESBITT, 1951
(PARASITIFORMES, PHYTOSEIIDAE),
WITH A DESCRIPTION OF A NEW SPECIES *

BY S. RAGUSA DI CHIARA ** and H. TSOLAKIS **

SYSTEMATICS

ABSTRACT: In the present paper the Authors revise the genus *Kampimodromus* Nesbitt, 1951. A new species is also described.

SYSTEMATIQUE


INTRODUCTION

Phytoseiid mites are considered important biotic control agents of phytophagous mites.

As many species have been described up to now, it would be worthwhile to order them according to natural lines. Quite often, in fact, the new species are described comparing them to other species which do not really belong to the same natural genus. It should be mentioned that little progress has been made in this direction up to now (ATHIAS-HENRIOT, 1977, 1978; ATHIAS-HENRIOT and FAUVEL, 1981; RAGUSA and ATHIAS-HENRIOT, 1983; JUVARA-BALS, 1988). The present paper is a contribution to the application of the above concept and an attempt, previously started by CIULLA (1988), to revise the genus *Kampimodromus*.

MATERIALS AND METHODS


As far as unavailable specimens are concerned, we tried to decide from the existing iconography whether they belonged to the genus *Kampimodromus*.

Observations were done using an interference contrast microscope. The organotactic terminology used was that described by ATHIAS-HENRIOT (1975) and by CHANT and YOSHIDA-SHAUL (1992). Sometimes some organotaxies and margins of shields were not reported in the drawings due to the condition of the specimens.

The material collected by us is deposited in the collection of the Istituto di Entomologia agraria, Università di Palermo (Italy).

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* Work supported in part by C.N.R and in part by M.A.F. in the context of the P.F. M.A.F. Program "Biological and integrated control against pests of crops and forests." Working group: Biological control.

** Istituto di Entomologia agraria, Università di Palermo, Viale delle Scienze - 90128 Palermo, Italy.

**Genus Kampimodromus**

Type species *Typhlodromus aberrans* Oudemans, 1930a.

The genus *Kampimodromus* was described by Nesbitt (1951) who designated *Typhlodromus elongated* Oud. (1930a) as the type of the genus.

We borrowed this type species from the Rijksmuseum van Natuurlijke Historie (Leiden) to examine it. In Table 1 we report measurements of setae.

For several years we have collected a species at weekly intervals on *Corylus* at Polizzi (PA), which is present all year around under two different forms: one during summertime which has longer, thicker and serrated setae, and is identical to *K. elongatus* (see Table 1), and another one during winter-time which has shorter, less thick and less serrated setae.

<table>
<thead>
<tr>
<th></th>
<th><em>K. elongatus</em></th>
<th><em>K. elongatus</em></th>
<th><em>K. aberrans</em></th>
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<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
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<td>22</td>
<td>21 (19-24)</td>
<td>20 (19-22)</td>
<td>19 (15-20)</td>
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<tr>
<td><strong>j3</strong></td>
<td>—</td>
<td>17 (17-22)</td>
<td>16 (12-19)</td>
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<tr>
<td><strong>j4</strong></td>
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<tr>
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<td>21 (19-27)</td>
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<tr>
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<tr>
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<tr>
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<td>0</td>
<td>0</td>
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<td><strong>N° Solenostomes</strong></td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>


**Table 1**: Biometric data of *Kampimodromus elongatus* and *Kampinodromus aberrans* (in μm).

Oudemans (1930a) described another new species, *Typhlodromus aberrans*, similar to *K. elongatus* taking nymphs into account. The translated description as well as the drawings by Oudemans (plate n° 362) were reported by Nesbitt (1951). We also borrowed two slides of the type material of *K. aberrans*. It was impossible to check the slide containing the deutonymph, because the specimen was not well cleared, some setae were broken, some were missing, solenostomes and poroids were impossible to see, and the ventral side was indiscernible. The movable digit of chelicerae clearly did not bear any tooth. The protonymph on the other slide was in better condition and four pairs of solenostomes are clearly present (*gdl*, *gd2*, *gd6* and *gd9*), while three solenostomes are reported (*gdl*, *gd2*, *gd6* and *gd9*), while three solenostomes are reported (*gdl*, *gd2*, *gd6* and *gd9*).
gd2 and gd6) in the drawing by Oudemans (in Nesbitt, 1951). Moreover, it is possible to see the solenostome gv3 in the ventral side, which is not shown in Oudemans’s drawing.

According to Chant (1955), and also in our opinion, the two forms (elongatus and aberrans) belong to the same species, which show a different habitus in relationship to the season. However, he found, in contrast with us, the form we found in summer during winter and vice versa.

As the types of aberrans are young stages, we tried to collect the adults corresponding to these immatures in the same park (Arnhem) where, according to van Eyndhooven (personal communication, 1987), Oudemans collected this species on Tilia platyphyllos. But, as no aberrans were found on this plant, we tried to collect on Corylus sp. in the same place. Young stages similar to the nymphs of aberrans, especially as far as the number of solenostomes on the dorsal shield is concerned, were then collected and adults corresponding to these stages were also collected.

During our weekly collections in Polizzi, we found both young stages on Corylus identical to the type material described by Oudemans (1930a) and collected by us at Arnhem, and adults which were identical to the ones collected by us at Arnhem (see Table 1).

Afterwards Oudemans (1930b) described another species, Typhlodromus vitis. The type material of this species is lost, as the slide checked by us was empty. Therefore the only evidence we have to determine this species is the original description (Oudemans, 1930b) and the drawings by Oudemans in the collection of the Leiden museum (Plate 408), also reported by Nesbitt (1951). According to this evidence, Nesbitt (1951) affirmed that “It (aberrans) and T. vitis are so remarkably alike that I am almost persuaded that vitis is the adult of aberrans”. However he concluded that, to be certain, nymphal forms of vitis and adults of aberrans had to be available.

Chant (1955) collected many specimens in Kent which agreed with the description of T. vitis by Oudemans. He bred this species and comparing the young stages to the type materials of aberrans concluded that the two species were synonyms, and that therefore “three names, T. aberrans, T. vitis, and T. elongatus exist for this species” (Chant, 1955).

In our opinion the drawings by Oudemans are not sufficient to determine T. vitis, as many important characters and the insemination apparatus are not reported. As a consequence we think that T. vitis has to be considered as a lost species.

Our study shows that the adults found at Arnhem on Corylus are identical to the adult forms found at Polizzi during wintertime and, as two forms of the same species are present in summer and in winter, we can say that K. elongatus = K. aberrans, and K. aberrans has to be maintained as it has page priority.

In 1961 Muma described the new genus Paradromus and he put Typhlodromus aberrans as type species. From the description he gave, it appears that this genus has to be considered as synonym of the genus Kampimodromus Nesbitt, 1951.

Composition

Several species do not agree with the description of the genus Kampimodromus for many characters:

1) Amblyseius heveae Oudemans (1930b) does not have setae J2 and S5, the peritreme reaches the base of setae J1 and three macrosetae are present on leg IV;

2) Amblyseius oudemansi Chant (1959) shows absence of setae J2 and Z1 and presence of two teeth on the movable digit;

3) In Amblyseius chergui Athias-Henriot (1960) the dorsal shield shows deep striae, only two pairs of solenostomes are present (gd2 and gd9), peritreme is short;

4) In Amblyseius maritimus Ehara (1967a) setae J2 are absent, the peritreme extends beyond setae J1, in the opisthogastral shield gv3 is absent, three capitate macrosetae are present on leg IV;

5) Okiseius subtropicus Ehara (1967b) lacks setae J2, and the peritreme extends forward to setae j1;

6) In Okiseius alniseius Wainstein and Begjarov (1972) setae J2 are absent; dorsal shield is well sclerotized with prominent sculptures, the peritreme reaches j1, two teeth are present on movable digit,
and three knobbled macrosetae are present on leg IV;

7) In *Amblyseius trichophilus* Blommers (1976) setae *S4* are present and the peritreme reaches the bases of setae *j1*;

8) *Kampimodromus kostini* Kolodochka (1979) shows the dorsal shield deeply striated, two solenostomes present (*gd2* and *gd9*), setae *Z1* and *S2* not close to each other, short peritreme;

9) *Kampimodromus kuznetzovi* Kolodochka (1979) has the dorsal and opisthogastral shields strongly striated and two pairs of solenostomes (*gd2* and *gd9*), peritreme short;

10) In *Amblyseius hymetticus* Papadoulis and Emmanouel (1991) the dorsal shield is striated and bears two pairs of solenostomes, setae *Z1* and *S2* not close to each other, peritreme short;

11) *Amblyseius marzhaniani* Arutunian (1969), according to the original description (as we did not receive the type material from Arutunian), has a very short peritreme, setae *Z1* and *S2* not close to each other, and different ornamentation on dorsal shield;

12) *Amblyseius cataractus* Ueckermann and Loots (1988) has setae *S4*, a long peritreme (reaching *j1*) and *gv3* probably absent.

**Dubious species**

*Amblyseius hevearum* Oudemans (1930b) was described from one male collected in Sumatra; apparently the female has not been described.

**Definition of the genus Kampimodromus**

Nesbitt, 1951

(= *Paradromus* Muma, 1961)

**Insemination apparatus** (Fig. 1)

Receptaculum slightly differentiated. Adductor duct cylindrical, simple, long almost more than twice the maximum width of the calyx. Atrium
almost globulose, club-shaped, not inserted in the calyx. Accessus not differentiated; embolus prominent as well as the spermatic channel. Calyx hemispherical, bell-shaped and thick-walled, with a slight incision in the median part.

Related characters

Adenotaxy monodeficient (gd5 absent). Solenostomes gd1, gd4 and gd8 metatactic; when gd1 is present it is closer to j2 and the line j2-gd1-z3 shows a slightly obtuse angle. When gd8 is present it is anterior or anteroparaxial to Z4. Dorsal scutum (Figs. 2a-9a) coriaceous, slightly ornamented with striae in the anterior lateral part, more often in the region included between setae j6-S2-Z4; polygonal cells sometimes present in this part. Line j3-gd2-z4 forms an angle of about 90°; gd6 anteroparaxial to Z1. s4 equal or slightly longer than z4; S2 equal or slightly longer than Z4. The line z3-id2-z4 nearly forms an angle of 90°; the line gd2-z4-id2 forms an angle of almost 180°; id2 closer to z4 than z3. Solenostome gd9 anteroparaxial to S5. Most setae are serrated.

The peritreme is between the bases of setae j2 and z3, usually closer to z3, or between z3 and z4, closer to z3 (Figs. 2a-9a).
Sternal shield (Figs. 3b-6b, 8b, 9b) smooth, almost as long as wide, setae ST3 hoplochorous, in one case it is tylochorous (Fig. 3b); setae ST4 and iv3 tylochorous. Epigynium (Figs. 2b-6b, 8b, 9b) with a straight posterior margin, almost as large as the opisthogastral shield, sometimes larger. Inginal sigillum (Figs. 2b-5b, 7b-9b) elongate. Genital sigilla of 4th and 5th pairs linear, well visible; sigillum sgpa (6th pair) tylochorous and closer to setae ZV1 than to opisthogastral shield (Figs. 2b-9b).

Opisthogastral shield (Figs. 2b-9b) subrectangular longer than wide, sometimes enlarged in the preanal region, slightly waisted, anterior margin straight, ornamented with few striae, carrying from one (JV2) to three pairs (JV1, JV2 and ZV2) of preanal setae; in case of presence of one or two pairs of preanal setae, the remaining setae (JV1, JV2 and JV1 respectively) are usually in the interscutal membrane (Figs. 2b, 7b); the solenostome gv3 is small, punctiform, posteroparaxial to setae JV2 (primitive condition), rarely posteroantiaxial to JV2 and the line gv3-JV2-ZV2 forms an angle of 180°; it rarely forms an obtuse angle. Ratio length/width varying from 1,7 to 2,6. Chelicerae paucidentate: movable digit unidentate or without teeth, fixed digit with 2-3 teeth. Basitarsus angle of interscutal membrane (Figs. 2b, 7b); the solenostome with a differentiated macroseta.

4th and 5th pairs linear, well visible; sigillum JV2 case it is tylochorous (Fig. 3b); setae gv3-JV2-ZV2 as long as wide, setae gd9-JV2 ranging from 1,2 to 2 (Fig. 1h).

5. Few striae on dorsal shield (Fig. 5a); solenostome gd9 very close to Z5 (Fig. 5a); ratio S2/Z1 = 2

K. aberrans

Dorsal shield reticulated especially in the posteralateral region (Fig. 6a); gd9 not close to S5 (Fig. 6a); ratio S2/Z1 = 1,3; longer macroseta than in 5, on basitarsus IV

6. Strong reticulation on the posteralateral regions of dorsal shield, few striae are present anterolaterally (Fig. 7a); apex of peritreme closer to j2 (Fig. 7a); two pairs of preanal setae (Fig. 7b); in the insemination apparatus, the atrium is prominently bulbous (Fig. 1b).

—Dorsal shield slightly striated; apex of peritreme close to z3; three pairs of preanal setae

7. Solenostomes gd2 quite big and crateriform (Fig. 8a); ratio S2/Z1 = 1,9; epigynium as large as the opisthogastral shield (Fig. 8b); one tooth on movable digit; slightly knobbed, not serrate macroseta on basitarsus IV

K. langei

gd2 smaller than in 7 (Fig. 9a); ratio S2/Z1 = 1,6; epigynium larger than opisthogastral shield (Fig. 9b); no tooth on movable digit; pointed and serrate macroseta on basitarsus IV

K. ericinus n. sp.

Kampimodromus hmiminai

McMurtry and Bounfour, 1989.

(Figs. 1f, 2a, b)

Kampimodromus hmiminai McMurtry and Bounfour, 1989.

Dorsal shield with slight reticulation in the anterolateral region; few striae present in the posteralateral part; the remaining part of the shield is almost smooth; six pairs of small solenostomes are present. This is the biggest species in the group. Ratio S2/Z1 = 6,8; Z5/Z4 = 1,1. Measurements of setae in Table 2. The epigynium is wider than the opisthogastral shield; the latter is slightly suboval and carries only one pair of setae; the six remaining pairs are situated on the interscutal membrane. Ratio length/width of the opisthogaster = 1,9. Peritreme almost at level of bases of setae z3. No tooth is present on the movable digit. A blunt and serrate macroseta is present on basitarsus IV.

Key to species

1. Six pairs of solenostomes present on dorsal shield (Fig. 2a); ratio S2/Z1 = 6,8; one pair of preanal setae (Fig. 2b) —K. hmiminai

—Less than six pairs of solenostomes; ratio S2/Z1 ranging from 1,2 to 2 (Fig. 1h) 2

2. Three pairs of solenostomes (gd2, gd6, gd9) present on dorsal shield (Fig. 3a); gd9 posteroantiaxial to S5 (Fig. 3a); gv3 posteroantiaxial to seta JV2 —K. judaicus

—Four-five pairs of solenostomes on dorsal shield; gd9 anteroparaxial to S5 (Figs. 4a-9a) 3

3. Four pairs of solenostomes on dorsal shield 4

—Five pairs of solenostomes on dorsal shield 6

4. Ratio S2/Z1 = 1,9; one tooth on movable digit of chelicerae; apex of peritreme close to z4 (Fig. 4a); short, pointed macroseta on basitarsus IV —K. keae

1. An organ situated on a shield.
2. An organ situated on a microsclerite.
Type locality and habitat: Holotype on fig at Sidi Benour (Morocco), April, 29, 1982; six paratypes same data as the holotype; three additional paratypes on fig at Agdaz (near Zagora), May, 11, 1982 and one paratype on fig at Taliouine, May, 12, 1982.

*Kampimodromus judaicus* (Swirski and Amitai), 1961. (Figs. 1e, 3a, b)

*Amblyseius judaicus* Swirski and Amitai, 1961.

Dorsal shield ornamented mainly in the posterior region. Setae $Z1$ are inserted almost at the same level of setae $S2$ (Fig. 3a); setae $S5$ are inserted not in the marginal part of dorsal shield (Fig. 3a). Three pairs of prominent, crateriform solenostomes are present; $gd9$ are almost equidistant from setae $S5$ and $Z4$ and the line $Z4-gd9-Z5$ forms an angle of $180^\circ$. Ratio $S2/Z1 = 1.2; S5/Z4 = 1$; measurements of setae are given in table 2. Width of epigynium almost as that of opisthogastral shield. Ratio length/width of opisthogastral shield is 1.7. Peritreme almost reaching the bases of setae $z3$. No tooth on the movable digit; it should be mentioned.
that SWIRSKI and AMITAI (1961) found one small tooth in one specimen only. A short (Table 2) and not serrate macroseta is differentiated on tarsus IV.

Note: This species shows few differences in comparison to the other species belonging to the genus Kampimodromus. They are: a) the position of setae S5 and Z1 on dorsal shield; b) the position of solenostomes gd9, and the tylochore position of setae ST3.

Type locality and habitat: Holotype and four paratypes on Salvia sp. at Aqua Bella (Judean Hills), April, 5, 1961.

Kampimodromus keae
(Papadoulis and Emmanouel, 1991)
(Figs. 1d, 4a, b)

Amblyseius keae Papadoulis and Emmanouel, 1991.

Dorsal shield slightly striated with four pairs of solenostomes; gd2 is the biggest and crateriform; gd6 and gd9 are also crateriform but smaller; gd1 is the smallest and punctiform. Solenostome gd9 very close to the base of setae S5. Measurements of the setae are given in Table 2. Ratio length/width in the opisthogastral shield is 1.9. Peritreme between the base of setae z4 and s4, closer to z4. Movable digit with one tooth. Macroseta pointed and short (see Table 2).

Type locality and habitat: Holotype and 30 paratypes on Quercus aegilops at Kea island in the Aegean sea, October, 2, 1988.

Kampimodromus aberrans (Oudemans, 1930)
(Figs. 1b, 5a, b)

Typhlodromus aberrans Oudemans, 1930a.

Dorsal shield with four pairs of prominent solenostomes, the biggest is the crateriform gd2. Ratio S2/Z1 = 2; Z5/Z4 = 1. Margins of epigy-
Fig. 4: *Kampimodromus keae*, holotype, dorsal shield (a), ventral side (b).
nium posterior to ST5 convex. Epigynium as width as the opisthogastral shield. Shape of opisthogastral shield and number of preanal setae as in Fig. 5b; sometimes the shape is slightly variable and setae ZV2 are in the interscutal membrane (Fig. 11). Ratio length/width of opisthogastral shield = 2.1. For measurements of setae see Table 1 and 2. Peritreme between the base of setae j2 and z3, closer to z3. Movable digit without teeth. A pointed macroseta present.

Male : Smaller than female; dorsal shield (Fig. 10a) more coriaceous and more ornamented than the one of the female; solenostomes gd2 crescentic, greatly enlarged, covered with a tiny tectum; opisthogastral shield (Fig. 10b) subtriangular; three pairs of setae on it; one pair of setae on interscutal membrane; cingulum present; spermatostylus L-shaped (Fig. 10c); ratio S2/Z1 = 1.8; Z5/Z4 = 1.1; setae s4 = 47 (44-49); Z1 = 26 (24-29); S2 = 44 (41-49); Z5 = 42 (39-48); J2 = 29 (26-34); Z4 = 40 (37-44) stIV = 23 (20-26).

Type locality and habitat : Holotype, a nymph I do.ve., Museum Leiden Cat. N° 1 on Tilia platyphylos at Arnhem; topotypic female 1021b, and male 1021f on Corylus sp. at Arnhem, July, 12, 1987.

Fig. 5 : Kampimodromus aberrans, topotypic female, dorsal shield (a), ventral side (b).
Distribution: *K. aberrans* was reported in various parts of the world: England, Spain, Algeria, Bulgaria, Canada, Germany, Greece, Hungary, Israel, The Netherlands, Poland, Portugal, Switzerland, Turkey, California, C.I.S., Yugoslavia (De Moraes, McMurry, Denmark, 1986). But it should be mentioned that, while it is certain that the species collected belong to the genus *Kampimodromus* (according to the iconography given by different authors), it is not certain that the species are really *K. aberrans*. This species was collected by us at Scillato (Palermo) and Bocchiglierio (Cosenza) on *Quercus* sp., Feb. 9, 1973 and June, 20, 1990; Palermo, on Avocado and *Malva* sp., March, 16, 1974 and May, 15, 1979; at Trecastagini (Catania) on *Quercus cerris*, September, 20, 1990; at Campo Fiorito (Palermo) on *Rosa* sp., May, 2, 1990; at Bocale (Reggio Calabria) on *Morus nigra*, Nov. 10, 1988; at S. Giovanni in Fiore (Cosenza) on *Sorbus* sp., July, 13, 1988; at Aprigliano (Cosenza) on *Fagus sylvatica*, July, 14, 1988; at Portici (Napoli) on *Diospyrus kaki*, Sept., 1977; at Putignano (Bari) on *Corylus avellana*, Apr. 25, 1983; at Lusciano (Caserta), Solopaca (Benevento) and
Fig. 7: *Kampimodromus alettae*, holotype, dorsal shield (a), ventral side (b).

Kampimodromus molle
(Ueckermann and Loots, 1985)
(Figs. 1g, 6a, b)

Amblyseius (Kampimodromus) molle Ueckermann and Loots, 1985.

Dorsal shield ornamented with striae in the anterolateral region and with more regular cells in the posterolateral regions. Four pairs of small solenostomes on dorsal shield; ratio $S2/Z1 = 1,3$ and $Z5/Z4 = 1$; setae $S5$ not situated on the margin of the dorsal shield (Fig. 6a); solenostomes gd9 anteroparaxial to $S5$ and situated at $1/3$ of distance between setae $S5$ and $Z4$; $gv3$ small and not well discernible. Measurements of setae are given in Table 2. Epigynium is wider than opisthogastral shield; the latter carries two pairs of preanal setae, while five pairs are present in the membrane surrounding the shield. Ratio length/width of the shield is $1,7$; $gv3$ small, punctiform, inserted just under bases of setae JV2. Peritreme between $j2$-z3 closer to $j2$. Movable digit of chelicer impossible to check. A macroseta is present on tarsus IV.

Type locality and habitat: Holotype on Tapinan­thus natalitus at Rustenburg Nat. Res. (Transvaal, South Africa), November 7, 1979.

Kampimodromus alettae
(Ueckermann and Loots, 1985)
(Figs. 1h, 7a, b)

Amblyseius alettae Ueckermann and Loots, 1985.

The insemination apparatus (Fig. 1h) has a smaller calyx in comparison to that of K. aberrans (Fig. 1b); the atrium is prominent and bulbous. Dorsal shield ornamented with striae anterolaterally and with polygonal cells in the posterior region. Five pairs of small solenostomes are present. Ratio $S2/Z1 = 1,5$; $Z5/Z4 = 1,6$. Solenostomes gd9 very close to setae $S5$. Measurements of setae given in Table 2. The epigynium is wider than opisthogastral shield; the latter carries two pairs of preanal setae, while five pairs are present in the membrane surrounding the shield. Ratio length/width of the shield is $1,7$; $gv3$ small, punctiform, inserted just under bases of setae JV2. Peritreme between $j2$-z3 closer to $j2$. Movable digit of chelica­ra impossible to check. A macroseta is present on tarsus IV.

Type locality and habitat: Holotype on Tapinan­thus natalitus at Rustenburg Nat. Res. (Transvaal, South Africa), November 7, 1979.

Kampimodromus langei
Wainstein and Arutunian, 1973
(Figs. 1a, 8a, b)


Dorsal shield (Fig. 8a) ornamented; five pairs of prominent solenostomes on dorsal shield, gd2 being the largest and crateriform; ratio $S2/Z1 = 1,9$; $Z5/Z4 = 1,2$; solenostomes gd9 very close to the base of setae $S5$. Measurements of setae are given in Table 2. Width of epigynium almost as that of opisthogastral shield (Fig. 8b); the latter has a ratio length/width = $2,6$. Solenostomes $gv3$ small, punctiform. Peritreme between $j2$ and $z3$, closer to $z3$. Movable digit of chelicer with one tooth. Macro­seta on St IV slightly knobbed.

Type locality and habitat: Holotype, one paratype and allotype from Combretum molle in Moria (Lebowa, South Africa), May, 8, 1981; another paratype female and two paratype males on the same plant in Blyde River Nature Reserve (Transvaal, South Africa) on Feb., 21, 1978.
Type locality and habitat: Holotype from Quercus sp. in the Stepanavan region, Armenian SSR, June 10, 1971.

Kampimodromus ericinus n. sp.

(Figs. 1c, 9a, b)

Dorsal shield with five pairs of prominent crate-riform solenostomes; gd2, gd6 and gd8 quite large; gd1 and gd9 smaller. Ratio $S2/Z1 = 1.6$; $Z5/Z4 = 1.1$; ratio length/width of opisthogastral shield = 2. Length of setae is in Table 2. Margins of the epigynium posterior to setae ST5 almost straight and parallel, but divergent distally. The width of opisthogastral shield is smaller than that of the epigynium. Peritreme between $j2-z3$ closer to $z3$. Dm without teeth. Pointed macroseta present.

Type locality and habitat: Holotype (I 1533 C) on Rubus sp. at Sorianello (Catanzaro) on June, 22, 1990. Seventeen additional paratypes were collected at: Erice (Trapani) on Quercus ilex and Quercus sp., Oct. 7, 1990; Bocchiglieri (Cosenza) and Montecatini (Firenze) on Quercus sp., June 20, 1990 and August 24, 1990 respectively and Sufli (Greece) on Quercus sp. 25, 1990.
Justification—K. ericinus resembles K. langei, but can be differentiated from it by the different length of setae \( j_6, J_2, z_4, s_4, Z_1, S_2 \) (see table 2), absence of tooth of Dm, pointed and serrate macroseta, different shape of margins of epigynium posterior to setae \( ST_5 \), smaller \( gd_2 \).

Livshitz and Kuznetsov report for Crimea Kampimodromus aberrans which in our opinion should be considered as Kampimodromus ericinus: as a matter of fact, comparing measurements and the drawing of \( K. \) aberrans (see Livshitz and Kuznetsov, 1972, p. 43) with the new species, no differences were noticed.

ACKNOWLEDGEMENTS

The authors are deeply indebted to the following scientists who supplied material: P. J. van Helsing, Rijksmuseum van Natuurlijke Historie, Leiden (The Netherlands); E. A. Ueckermann, Plant Protection Research Institute, Pretoria (South Africa); G. Th. Papadoulis, Laboratory of Agricultural Zoology and Entomology, Agricultural University of Athens (Greece); L. A. Kолодочка, Institute of Zoology, Kiev (C.S.I.); J. A. McMurtry, Department of Entomology, University of California, Riverside (U.S.A.); E. Swirski,


Fig. 10: Kampimodromus aberrans allotype, dorsal shield (a), opisthogastral shield (b), spermatostylus (c).

A.R.O., Volcani Center, Bet Dagan (Israel). Thanks are also due to Mr. V. Ciulla who prepared the slides and Mrs. E. Chiavetta who checked the typescript.

REFERENCES


FIG. 11: *Kampimodromus aberrans* females: different shapes of opisthogastral shields.


MCMURTRY (J. A.) & BOUNFOUR (M.), 1989. — Phytoseiid mites of Morocco, with descriptions of two new species and notes on the genera *Kuzninellus*, *Typhloc-


