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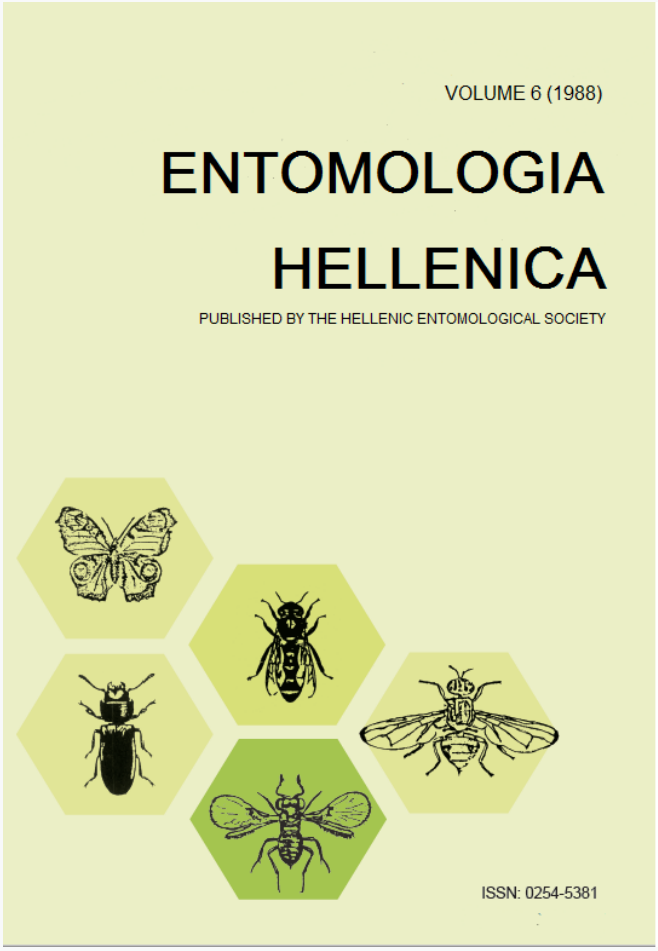

Typhlodromus erymanthii, a new species of the family Phytoseiidae (Acari: Mesostigmata) from Greece

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Typhlodromus erymanthii, a New Species of the Family Phytoseiidae (Acari: Mesostigmata) from Greece[1]

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ABSTRACT

The adult female of *Typhlodromus erymanthii*, which belongs to the *simplex* species - group, is described and illustrated. It was collected from *Quercus coccifera* L. leaf erinea, and its association with other mites there is discussed. The dorsal setae, shield and leg setae were covered by a (waxy?) material.

Introduction

During investigations carried out by the authors on phytoseiid mites in Greece, several species were found to be new to science. One of these, *Typhlodromus erymanthii*, is described and illustrated herebelow.

Materials and Methods

The setal nomenclature of Rowell et al. (1978), and the spermatheca terminology of Wainstein (1973) were used. All measurements are given in microns; ten specimens were measured.

Description

Typhlodromus erymanthii spec.nov.

FEMALE

Dorsum (Fig. 1). Dorsal shield 326 (317 - 340) long (j1 - J5) and 196 (193 - 202) wide at level of Z1. Dorsal shield oval, dark, strongly sclerotized and reticulated mostly centraly and posteriorly; lateral and anterior regions mostly lineated; without distinct waist. Poroides and solenostomes (sensu Athias - Henriot 1975, 1977) not visible, possibly due to the strong sclerotization of the shield. Muscle marks (slightly) visible only on podosoma. Most dorsal setae thick and long, located on tubercles. Setae j5, z5, J5 short and smooth. Setae j1, j3, j4, j6, z2, z3, z4, S5 smooth and longer than before. All other setae slightly (s4, s6, Z1, S2, J2) to distinctly (Z4, Z5, S4) serrated. Setae r3

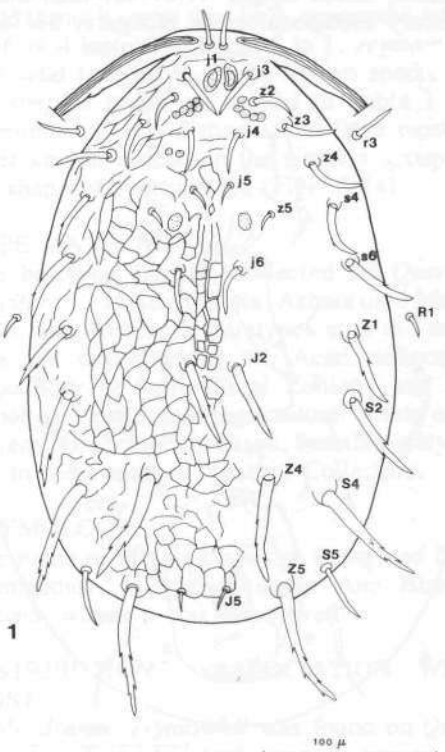

FIG. 1. *Typhlodromus erymanthii* spec. nov., female, dorsal shield.

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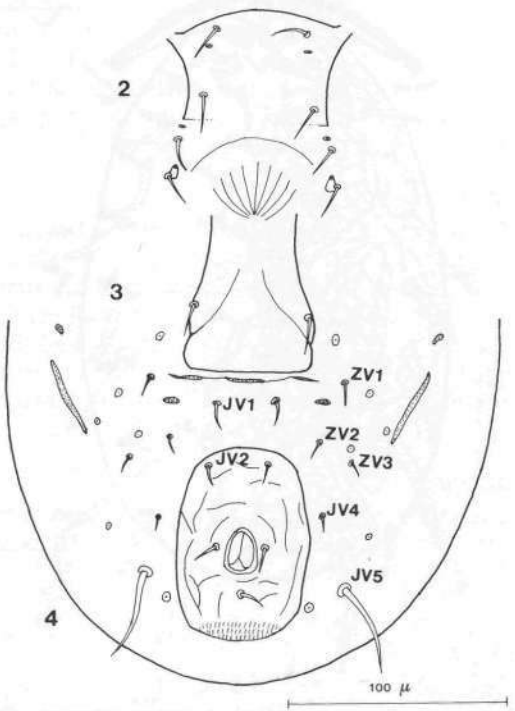
and R1 on interscutal membrane, smooth. Measurements of setae as follows: j1 25(23 - 26), j3 32(29 - 35), j4 20(17 - 26), j5 12(11 - 12), j6 26(21 - 34), J2 49(43 - 54), J5 10(9 - 11), z2 24(23 - 26), z3 30(26 - 32), z4 33(29 - 35), z5 11(9 - 12), Z1 42(37 - 49), Z4 66(63 - 69), Z5 70(66 - 75), s4 36(32 - 40), s6 41(37 - 46), S2 56(52 - 60), S4 63(60 - 66), S5 28(23 - 35), r3 24(23 - 26) and R1 12(11 - 14). Apex of peritreme near bases of j1.

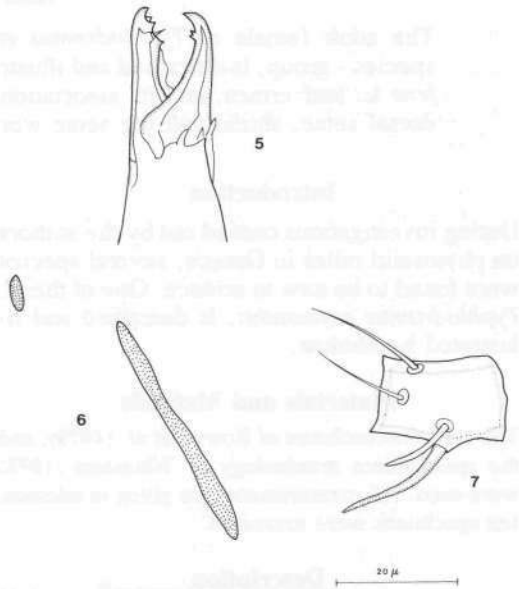
Venter (Figs. 2, 3, 4, 6). Sternal shield smooth, slightly sclerotized, with two pairs of setae and a pair of poroids (PV_1). Posterior margin not visible. PV_2 and ST_3 on integument; each metasternal platelet with a poroid (PV_3) and a metasternal setae ST_4. Width of sternal shield at the level of setae ST_2 54. Genital shield smooth slightly sclerotized; width 61(60 63). Ventrianal shield sclerotized and lightly sculptured, with one pair of preanal setae (JV2); solenostomes not visible. Length of ventrianal shield 86(84-89): width 61(58-66). Setae ZV1, ZV2, ZV3, JV1, JV4 and JV5 on integument surrounding ventrianal shield. Setae JV5 smooth, much longer 41(37-46) than others. Primary metapodal plate elongate, 38(36-41) long and 3(3-4) wide. A number of platelets lie between genital and ventrianal shields as figured. Besides PV5 at least 5 pairs of poroids are present on the ventral interscutual membrane.



FIGS. 2-4. *Typhlodromus erymanthii* spec. nov., female: 2 sternal shield, 3 genital shield, 4 ventrianal shield.

Chelicerae (Fig. 5). Fixed digit 29 long, tridentate, with a small pilus dentilis; movable digit 26 long with one distinctive bifid tooth.

Legs, Palps (Fig. 7). Measurements of legs (base of coxae to base of claws) and palp (base of trochanter to apex of tarsus) as follows: Leg I 276(268-285); Leg II 217(213-221); Leg III 226 (213-239); Leg IV 296(288-305); palp 119(115-121). Basitarsus IV with a stout macroseta.



FIGS. 5-7. *Typhlodromus erymanthii* spec. nov., female: 5 chelicerae, 6 primary and secondary metapodal plates, 7 basitarsus IV.

Spermatheca (FIG. 8). Atrium incorporated in the posterior part of the more or less tubular cervix. Major duct narrower than cervix, with two characteristic bends: one at junction with cervix and another a little posteriorly, minor duct not visible. Cervix 23 long.

MALE. Unknown.

TAXONOMIC NOTES-DIAGNOSIS

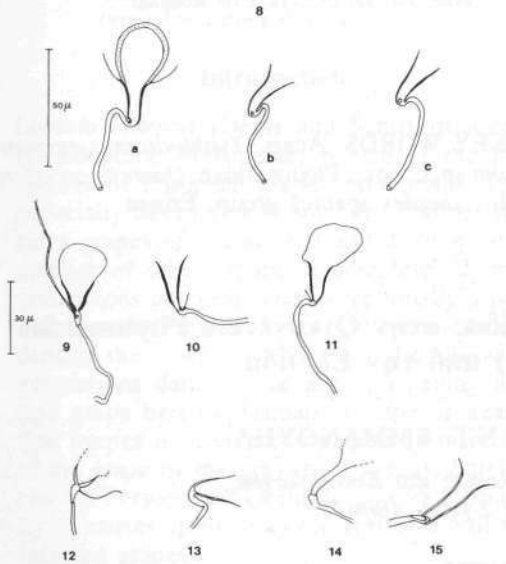
The female of *T. erymanthii* shares features found on other known species in the *simplex* group as defined by Chant and Yoshida - Shaul (1983). However, it can be readily disting-

TABLE 1. Comparison of setal lengths of females of *Typhlodromus erymanthii* spec. nov. with those of other species of *Typhlodromus* in the *simplex* species group (lengths in microns).

Setae	*Typhlodromus erymanthii**	*Typhlodromus eleonorae***	*Typhlodromus subsimplex****	*Typhlodromus simplex****	*Typhlodromus calabriae****	*Typhlodromus carmonae****	*Typhlodromus arzakanicus****	*Typhlodromus peculiaris****
j3	32 (29-35)	29 (28-30)	36	24	22	35	24	40
j4	20 (17-26)	7 (6- 8)	11	14	6	29	15	9
j6	26 (21-34)	53 (45-56)	15	24	8	56	21	12
J2	49 (43-54)	60 (53-62)	66	46	9	66	25	76
z2	24 (23-26)	35 (32-38)	30	22	24	24	18	37
Z4	66 (63-69)	85 (83-90)	90	63	94	77	72	90
Z5	70 (66-75)	86 (81-95)	90	69	92	77	72	100
S2	56 (52-60)	74 (68-83)	75	52	84	60	54	77
S4	63 (60-66)	81 (78-90)	88	67	94	75	76	92
S5	28 (23-35)	41 (38-47)	38	12	8	14	9	15
r3	24 (23-26)	38 (36-43)	–	32	21	34	–	40
R1	12 (11-14)	9 (6-12)	–	12	9	12	–	8
JV5	41 (37-46)	56 (48-60)	–	34	18	48	–	30

* From 10 specimens.
** From original description(Ragusa and Swirski 1981).
*** Taken from Chant and Yoshida-Shaul (1983).

uished from most of those species by the much longer S5 setae (Table 1). The only other species with similar length of S5 are: *T. eleonorae* (Ragusa and Swirski) and *T. subsimplex* (Arutunjan). However, in *T. eleonorae* all dorsal setae are serrated, j4 are much smaller than in *T. erymanthii* and J2/j1 ≈ 1 while this ratio is about 2 in *T. erymanthii*. In *T. subsimplex* j3 is much sorter than in *T. erymanthii* while J2/j6 = 4 instead of about 2 in *T. erymanthii*. The setal lenghts of all the known species of the *simplex* group are shown in Table 1. *T. erymanthii* is also distinguished from most of other known species in the simplex group by the shape of spermatheca (Figs. 8-14).



FIGS. 8-15. Spermathecae of *Typhlodromus* in the *simplex* species group: 8 *T. erymanthii* spec. nov. a, b, c, various aspects of spermatheca, 9 *T. eleonorae* (Ragusa and Swirski), 12 *T. arzakanicus* (Arutunjan), 13 *T. carmonae* Chant and Yoshida - Shaul, 14 *T. subsimplex* (Arutunjan), 15 *T. peculiaris* (Kolodochka); 9, 10, 11 taken from Ragusa and Swirski (1981), 12, 13, 14, 15 taken from Chant and Yoshida - Shaul (1983).

TYPE MATERIAL

The holotype female, collected on *Quercus coccifera* L. at Ano Blassia, Achaia on 6 March 1988, and 40 female paratypes with the same data are deposited in the Acari collection, Laboratory of Agricultural Zoology and Entomology, College of Agricultural Sciences of Athens, Greece. In addition, female paratypes are in the Canadian National Collection.

ETYMOLOGY

The name of this new species is derived from Erymanthus, a mountain near Ano Blassia, Achaia, where it was discovered.

DISTRIBUTION -- ASSOCIATION WITH HOST

Typhlodromus erymanthii was found on *Quercus coccifera* L. leaf erinea caused by eriophyid mites on which it was repeatedly observed to prey. Great numbers of females of an

unidentified species of Tarsonemidae were also present in the same erinea but their association with the phytoseiid mites is not known. However, it is interesting to note that the association of that tarsonemid species with erinea was consistent, as both tarsonemid and eriophyid mites were found in all samples of *Quercus coccifera* taken from many localities in Greece, whereas *T. erymanthii* was found only in one case. Close association (symbiosis?) of Tarsonemidae with Eriophyidae within erinea and galls seems to be quite common (Lindquist 1986, Emmanouel unpublished data); however, the presence of this phytoseiid among erinea may be more incidental. Nevertheless, all specimens of *T. erymanthii* were observed in erinea and not elsewhere on the leaf surface.

Most of the other known species of the *simplex* group to which this new species belongs were found on *Quercus* and *Fagus* (both in the family Fagaceae) and on other forest trees (*Fraxinus* sp.). *T. erymanthi* was active during the time of collection in March. The altitude of the locality is about 1.100 m above sea level and most of the sampled trees were covered by snow. An interesting phenomenon was that the whole dorsal shield of the mite and all the dorsal and leg setae were covered by a (waxy?) material, enclosing those structures like a sheath, a feature which may be an adaptation to its activity during winter.

Acknowledgment

We are grateful to Prof. D.A. Chant and Mrs E. Shaul, University of Toronto, for their prompt and useful suggestions concerning the identity of this species.

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KEY WORDS: Acari, *Typhlodromus erymanthii* spec. nov., Phytoseiidae, *Quercus coccifera* L., *simplex* species group, Erinea

Typhlodromus erymanthii, Ένα Νέο Είδος στην Οικογένεια Phytoseiidae (Acari: Mesostigmata) από την Ελλάδα

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ΠΕΡΙΛΗΨΗ

Περιγράφεται το θηλυκό ενός νέου είδους ακάρεος Phytoseiidae από την Ελλάδα και δίδονται λεπτομέρειες (σχέδια) της νωτιαίας, κοιλιακής όψεως και των χηληκεράτων. Δίδονται επίσης σχέδια της σπερματοθήκης αυτού και συγγενών ειδών καθώς επίσης και πίνακας μετρήσεων της χαιτοταξίας που διαφοροποιεί όλα τα γνωστά είδη της ομάδας *simplex* στην οποία το *Typhlodromus erymanthii* ανήκει.