

***SEIULUS ELIAHUSWIRSKII*, A NEW PHYTOSEIID MITE
(PARASITIFORMES : PHYTOSEIIDAE) LIVING ON OAK IN SICILY**

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ABSTRACT

A description is given of *Seiulus eliahuswirskii* n.sp., a predaceous mite found on *Quercus* sp. in Sicily.

KEY WORDS: Sicily, oak, predaceous mite, Phytoseiidae.

INTRODUCTION

During a survey on phytoseiid mites living on oak, many species were collected (Ragusa Di Chiara, Tsolakis and Russo, 1991); among them the new species of *Seiulus* described here was found.

Mites were kept in 70% alcohol, cleared in Nesbitt's solution, and mounted in Hoyer's fluid. The setal terminology by Rowell, Chant and Hansell (1978) was followed.

This work has been carried out in the context of the PF MAF Program "Biological and integrated control against pests of crops and forests," working group: Biological Control.

Seiulus eliahuswirskii n. sp.
(Figs. 1-6)

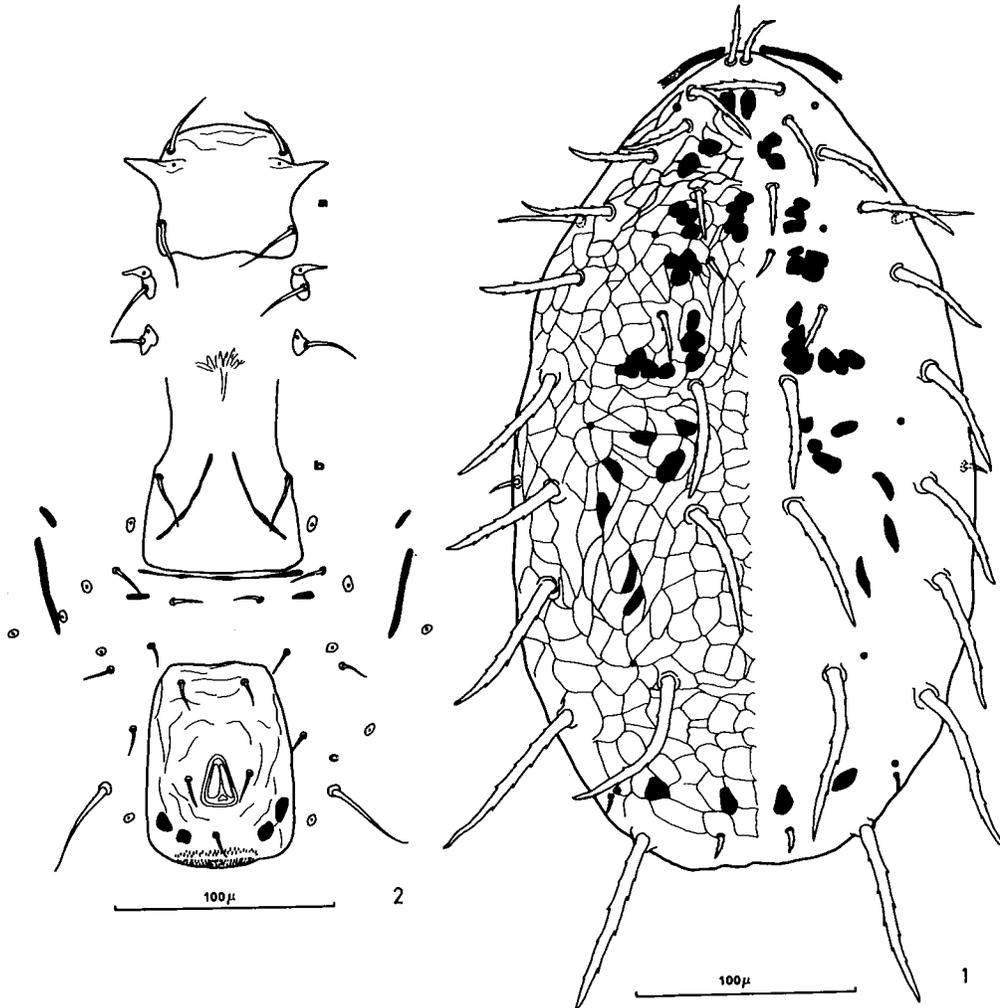
Female

Dorsal shield (Fig.1) thick, strongly ornamented with irregular polygonal cells, the ones included between setae j6 and setae J2 almost squarish in shape. The shield is meriadenique; the adenotaxy is bifidicent (gd4 and gd5 absent). Dorsal lateral setae, besides S5, are long; all setae are more or less serrated. Setae S4 and Z4 and setae s4, s6, Z1 almost equal. Segments z4-gd2-j5 and S2-gd8-Z4 nearly straight; segments j3-gdl-z2 and s6-gd6-Z1 acute angled, the solenostome being equidistant from the setae. Solenostome gd8 anteroparaxial to Z4; solenostome gd9 very close to S5.

All the solenostomes are punctiform, very small and sometimes difficult to be located. Poroides as well as some muscle marks are not visible. Peritreme is entire and its apex reaches almost the bases of setae j 1.

Ventral shields (Fig. 2a, b, c). Sternal scutum (Fig. 2a) almost as long as wide, carrying 2 pairs of setae and 1 pair of poroides, smooth with few striae on its anterior part; the posterior margin is waved and is not showing the 2 big lateral lobes. Setae V3 as well as poroides pv2 tylochore located on small platelets.

Epyginium (Fig. 2b) with a slight convex posterior margin; slightly wider than opisthogastral shield; it is larger on its posterior part after the point of insertion of the setae. Genital sigilla of the 4th and 5th pairs are linear, the one of the 6th pair (sgpa) free, almost equidistant from setae ZV1 and JV1; segment ZV1-sgpa-JV1 obtuse angled.



Figs. 1-2. *Seiulus eliahuswirskii* n.sp. 1. Female dorsal shield. 2. Female ventral shields: a, sternal scutum; b, epyginium; c, opisthogastral shield.

Opisthogastral shield (Fig. 2c) reduced, almost squarish in shape being a little narrower in its anterior part; ornamented with few striae, it carries 2 pairs of setae; solenostomes are not visible. Five pairs of setae surround the shield.

Inguinal sigillum long and narrow. Basitarsus IV carries a slightly differentiated thick macroseta (Fig. 3d). In the chelicerae the movable digit carries 1 tooth, the fixed one 3-4 teeth. On genu II, 8 setae are present.

Measurements (in microns): $j_1 = 26(20-27)$, $j_4 = 19(12-20)$, $j_5 = 10(9-12)$, $j_6 = 44(40-51)$, $J_2 = 56(49-61)$, $j_3 = 34(27-39)$, $z_2 = 27(24-31)$, $z_3 = 37(34-41)$, $z_4 = 39(34-44)$, $s_4 = 44(43-51)$, $s_6 = 51(41-56)$, $Z_1 = 49(44-54)$, $S_2 = 58(51-66)$, $S_4 = 70(63-78)$, $S_5 = 9(7-10)$, $Z_5 = 75(68-83)$, $z_5 = 17(14-20)$, $Z_4 = 71(66-78)$, $r_3 = 32(27-37)$, $R_1 = 10(9-12)$, $JV_5 = 37(32-44)$; $D_s =$

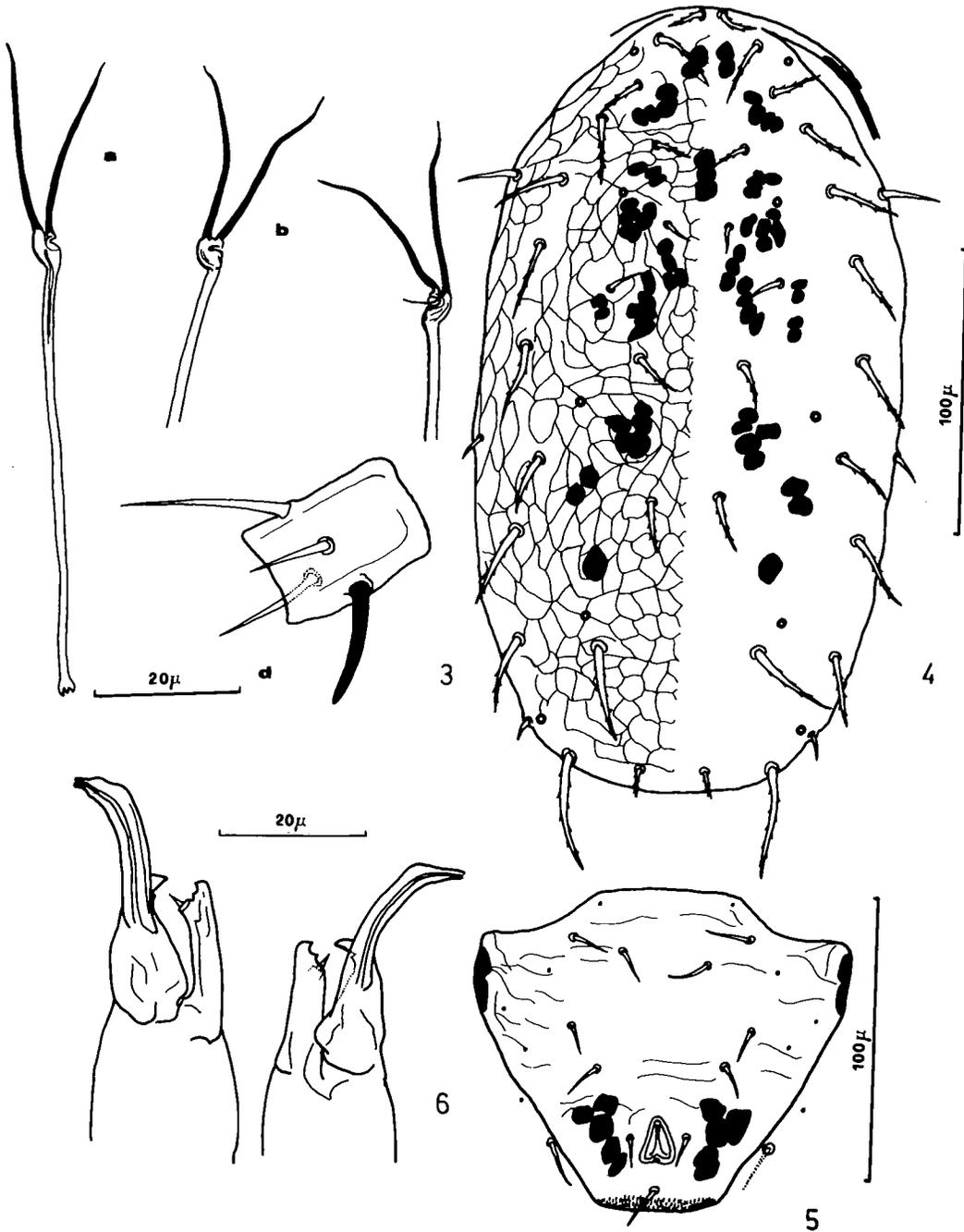


Fig. 3-6. *Seiulus eliahuswirskii* n. sp. 3. a, b, c, insemination apparatus; d, basitarsus IV. 4. Male dorsal shield. 5. Male opisthogastral shield. 6. Spermatostylus.

345(327–374); Lva = 82(75–87), lva 65(60–70), StIV = 19(17–22); inguinal sigillum = 37(32–44).

Insemination apparatus (Fig. 3a, b). Adductor duct simple, straight, narrow, about twice as long as the calyx; the receptaculum being slightly enlarged and usually indented.

Atrium oblong, exterior to the bottom of the calyx, separated from it by a slight constriction; embolus well differentiated.

Accessus straight, almost as long as the trivium. Calyx thick walled, subconic in shape, the ratio length/width varies between 1.1 and 2.2.

Male

Dorsal shield (Fig. 4) similar to that of the female but smaller; opisthogastral shield (Fig. 5) subtriangular, free, with 4 pairs of setae. Spermatostylus bent (Fig. 6).

Measurements (in microns): j1 = 15(14–17), j4 = 13(10–14), j5 = 10(9–10), j6 = 17(15–20), J2 = 22(19–24), j3 = 23(19–26), z2 = 18(17–20), z4 = 26(24–27), s4 = 29(26–31), s6 = 29(27–31), Z1 = 22(19–26), S2 = 29(27–31), S4 = 30(27–34), S5 = 9(7–10), Z5 = 46(41–49), z5 = 13(12–14), Z4 = 36(32–39), r3 = 24(20–27), R1 = 10(7–12), JV5 = 16(14–17), StIV = 20(17–24).

MATERIAL EXAMINED. Holotype female (S 1443 A(1)), Italy, Sicily, Borgetto (Palermo) on *Quercus* sp., 15.x.1990. Paratypes, 6 females, same data as holotype; 10 females on *Quercus ilex*, Palermo, 17.x.1990; 8 females on *Quercus* sp. at Sant'Elia (Catanzaro), 21.vi.1990; 8 females at Nicolosi (Catania) on *Quercus ilex*, 20.ix.1990.

Allotype male (S 1439 A(1)), Italy, Sicily, Palermo (Parco della Favorita) on *Quercus ilex*, 17.X.1990. Other 3 males with the same data as the allotype; 4 males, Sant'Elia (Catanzaro) on *Quercus* sp., 21.vi.1990 and 1 male, Nicolosi (Catania) on *Quercus ilex*, 20.ix.1990.

Holotype, allotype, and paratypes are deposited in the Istituto di Entomologia agraria, Università di Palermo, Italy. Some paratypes are deposited in the collection of the Agricultural Research Organization, the Volcani Institute, Bet-Dagan, Israel.

This new species is named for Eliahu Swirski, who twenty years ago introduced me to the world of phytoseiid mites and to whom I owe the foundation of my scientific career.

TAXONOMIC NOTES. *Seiulus eliahuswirskii* is similar to the following species of *Seiulus*: *erymanthii* Papadoulis & Emmanouel (1988), *peculiaris* Kolodochka (1980), *carmonae* Chant & Yoshida-Shaul (1983), *simplex* Chant (1956), *subsimplax* Arutunian (1972), and *calabriae* Ragusa & Swirski (1976).

S. eliahuswirskii can be distinguished from *S. calabriae* in the different length of setae (see Table 1) and in the bent adductor duct which is straight in the new species. *S. eliahuswirskii* differs from *S. erymanthii* because the dorsal shield of the latter is not reticulated all over, the adductor duct is bent (see Papadoulis and Emmanouel, 1988, p. 5, fig. 8 a, b, c), the ratio J2/j6 is 1.8 as compared to 1.2 in the new species, setae j6 are much shorter and setae S5 much longer (see Table 1). *S. peculiaris* differs from *S. eliahuswirskii* because it has a moderately sclerotised dorsal shield with brightly tuberculate sculptures not too prominent. The shape of the calyx in the insemination apparatus is also slightly different (see Kolodochka, 1980, p. 4, fig. 1: 4, 5). Finally, setae j6 are much shorter while j5, Z1, S2, S4, Z5, Z4 are much longer (see Table 1). The ratio J2/j6 is 6.3 as against 1.2 in the new species.

In *S. carmonae* the shape of the spermatostylus and calyx is slightly different and the adductor duct is bent (see Chant and Yoshida-Shaul, 1983, p. 1147, figs. 11, 15). Setae j5 are also longer (see Table 1). *S. simplex* is very close to the new species, but it can be distinguished because setae j6 are much shorter (see Table 1). Finally, *S. subsimplax* has a ratio J2/j6 = 4.4, setae j6 much shorter and setae Z1, S5, Z4 much longer or longer (S2, S4) (see Table 1).

Table 1. Measurements (in microns) of several setae in *Seiulus eliahuswirskii* and 6 related species

| Setae | <i>S. eliahuswirskii</i> | <i>S. calabriae</i> ¹ | <i>T. erymanthii</i> ² | <i>S. peculiaris</i> ³ | <i>S. carmonae</i> ⁴ | <i>S. simplex</i> ⁵ | <i>S. sub-simplex</i> ⁶ |
|-------|--------------------------|----------------------------------|-----------------------------------|-----------------------------------|---------------------------------|--------------------------------|------------------------------------|
| j5 | 10(9-12) | | | | 29 | | |
| j6 | 44(40-51) | 7 | 26(21-34) | 12 | | 24 | 15 |
| J2 | 56(49-61) | 7 | | 76 | | | |
| Z1 | 49(44-54) | | | 70 | | | 68 |
| S2 | 58(51-66) | 80 | | 77 | | | 75 |
| S4 | 70(63-78) | 89 | | 92 | | | 88 |
| S5 | 9(7-10) | | 28(23-35) | | | | 38 |
| Z5 | 75(68-83) | | | 100 | | | |
| z5 | 17(14-20) | | | 8 | | | |
| Z4 | 71(65-78) | 90 | | 90 | | | 90 |
| JV5 | 37(32-44) | 11 | | | | | |

¹From Italy, original description (Ragusa & Swirski, 1976).

²From Greece, original description (Papadoulis & Emmanouel, 1988).

³From USSR, original description (Kolodochka, 1980).

⁴From Portugal, original description (Chant & Yoshida-Shaul, 1983)

⁵From a paratype specimen (Chant & Yoshida-Shaul, 1983).

⁶From USSR, original description (Arutunian, 1972).

ACKNOWLEDGEMENTS

I wish to thank Dr. H. Tsolakis and Mr. V. Ciulla for collecting the phytoseiid mites in various localities; Dr. Carmona and Dr. Papadoulis for lending *S. carmonae* and *S. erymanthii*, respectively; Miss M.R. Santoro for preparing the specimens.

REFERENCES

- Arutunian, E.S. 1972. New species of the genus *Seiulus* Berlese, 1887 (Parasitiformes, Phytoseiidae). *Doklady Akademii Nauk Armyanskoi SSR* 54(4): 237-240. (in Russian).
- Chant, D.A. 1956. Some mites of the subfamily Phytoseiinae (Acarina: Laelaptidae) from Southeastern England with description of new species. *Canadian Entomologist* 88(1): 26-37.
- Chant, D.A. and Yoshida-Shaul, E. 1983. A world review of the *simplex* species group in the genus *Typhlodromus* Scheuten (Acarina: Phytoseiidae). *Canadian Entomologist* 61(5): 1142-1151.
- Kolodochka, L.A. 1980. New phytoseiid mites (Parasitiformes, Phytoseiidae) of Moldavia. *Vestnik Zoologii* 4: 39-45.
- Papadoulis, G.T.H. and Emmanouel, N.G. 1988. *Typhlodromus erymanthii*, new species of the family Phytoseiidae (Acari: Mesostigmata) from Greece. *Entomologia Hellenica* 6: 3-6.
- Ragusa Di Chiara, S., Tsolakis, H. and Russo, A. 1991. Acari fitoseidi associati al genere *Quercus* in Sicilia, Calabria e Toscana. *Atti Convegno Problematiche fitopatologiche del genere Quercus in Italia*, 19-20 Novembre 1990 (in press).
- Ragusa, S. and Swirski, E. 1976. Notes on predaceous mites of Italy, with a description of two new species and of an unknown male (Acarina: Phytoseiidae). *Redia* 59: 179-196.
- Rowell, H.J., Chant, D.A. and Hansell, I.C. 1978. The determination of setal homologies and setal patterns on the dorsal shield in the family Phytoseiidae (Acarina: Mesostigmata). *Canadian Entomologist* 110: 859-875.