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A New Troglobitic Rhagidiid Mite, *Traegardhia vicenzaensis* n. sp. from Northern Italy

(Acari: Prostigmata)

from

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Synopsis: A new troglobitic and troglomorphic rhagidiid mite, *Traegardhia vicenzaensis* n. sp., from northern Italy is described and its taxonomic status discussed.

1. Introduction:

During a stay at the University of Padova, Dr. Konrad Thaler (Institute of Zoology, University of Innsbruck, Austria) received some material of spiders collected by Mrs. I. Ferrari and Mr. E. Piva, members of a speleological club (Club Speleologico Proteo Vicenza), who investigated the fauna in a cave system near Vicenza. A large, whitish, long-legged rhagidiid mite resembling a spider was found in that material. Dr. Thaler kindly provided me with that specimen for further taxonomical study, and the mite was identified as a new troglobitic species of the previously monobasic genus *Traegardhia* ZACHARDA 1980. This is only the second known species of this genus, and as far as is known, representatives of this genus inhabit caves in southern Europe (ZACHARDA 1980).

2. Material and methods:

One damaged specimen preserved in alcohol was mounted in lactic acid in a temporary microscopic preparation and examined under a standard light microscope under bright field without phase contrast.

Terminology follows that proposed by LINDQUIST and ZACHARDA (1987), and BAKER (1990), who applied new descriptive formats and morphological terminologies to the Rhagidiidae largely based on the works of GRANDJEAN (e.g., 1934, 1939). Measurement criteria follow those of ZACHARDA (1980).

3. Taxonomic and faunistic results:

Traegardhia vicenzaensis n. sp. (Figs 1 - 3)

Traegardhia Zacharda, 1980, p. 715.

Diagnosis:

Large adults, idiosomal length approx. 1280 - 1300 µm. Chelicerae slender with elongated and attenuated digits. Proximal cheliceral seta inserted above articulation of digitus mobilis. Rhagidial organ I consists of 4 elongated and attenuated oblique rhagidial solenidia lying in separate

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depressions, stellate famulus inserted between 1st and 2nd proximal rhagidial solenidion antiaxially; rhagidial organ II consists of 3 elongated and attenuated rhagidial solenidia arranged in tandem in confluent depressions. Palpal tarsus slender with 10 ciliated setae and 1 erect, simple, spiniform solenidion. Spiniform solenidion on tibia I in ventral position.

Description:

Adult female(1 slightly damaged specimen examined). Length of idiosoma approximately 1280 - 1300 μm . Ratio of leg I length to idiosomal length 1.50.

Gnathosoma:

Subcapitulum oval (Fig. 1E), ratio of length to breadth 1.05; distal hypostomal lips with spiniform internal malar and smooth, membranous external malar processes; adoral setae nude; proximal subcapitular setae ciliate. Chelicerae slender with elongated and attenuated digits, dorsal surface with slight saddle-shaped depression slightly proximal to level of bases of digits (Fig. 1A, B); fixed digit terminates in 3 cusps, smooth along masticatory surface; movable digit smooth along masticatory surface. Chelicerae with 2 setae, proximal one inserted above articulation of movable digit; tip of proximal seta does nearly reaches insertion of distal seta; tip of distal seta overlaps apex of fixed digit. Length of chelicera 220 μm , dorsoventral width 76 μm , length of movable digit 90 μm , length of proximal and distal cheliceral setae 23 and 50 μm , respectively, distance between their insertions 30 μm . Ratio of cheliceral length to dorsoventral width 2.90; ratio of length of movable digit to length of chelicera 0.40; ratio of length of movable digit to dorsoventral width of chelicera 1.17. Palpus slender with relatively slender tarsus (Fig. 1G); ratio of length to width of tarsus 4.20. Length of palpal trochanter, femorogenu, tibia and tarsus 50 μm , 132 μm , 76 μm and 138 μm , respectively. Number of setae and solenidia (in brackets) on palpal trochanter, femorogenu, tibia and tarsus 0-2-3-10(1), respectively; tarsal solenidion simple, spiniform, erect. Subterminal, ventral ciliated seta on palpal tarsus strikingly short.

Prodorsum:

Naso well-developed, with a pair of internal vertical setae v1. Bothridial setae sc1 filiform, finely pubescent. Length of setae: v1 56 μm , v2 82 μm , sc1 132 μm , sc2 135 μm .

Opisthosomal dorsum:

Complement and arrangement of dorsal setae and cupules typical for Rhagidiidae; four pairs of cupules; ia positioned laterally at level about midway between setae c1 and d1, im lateral and just anterior to setae e1, ip between setae e1 and f1, ih positioned ventrolaterally, almost laterad of posteriormost pair of aggenital setae. Length of setae: c1 66 μm ; c2 148 μm ; d1 89 - 95 μm ; e1 105 μm ; f1 145 μm ; f2 torn off; h1 125 μm , h2 82 μm .

Podosoma:

Coxisternal plates (epimeres) I, II, III, IV with 3-1-5-3 finely pubescent setae, respectively.

Genital region:

Genital valves each with 5 finely pubescent setae of similar length, about 30 - 36 μm , arranged evenly along medial edge of valve. Five pairs of aggenital (paragenital) setae of similar length, about 70 μm . Length of genital valves 135 μm .

Legs:

Leg I 1920 μm long, about 1.50 as long as idiosoma. Empodia all setulose, broadly oval in dorsoventral view, slightly longer than claws; claws each with distinct small clawlet ventrobasally. Num-

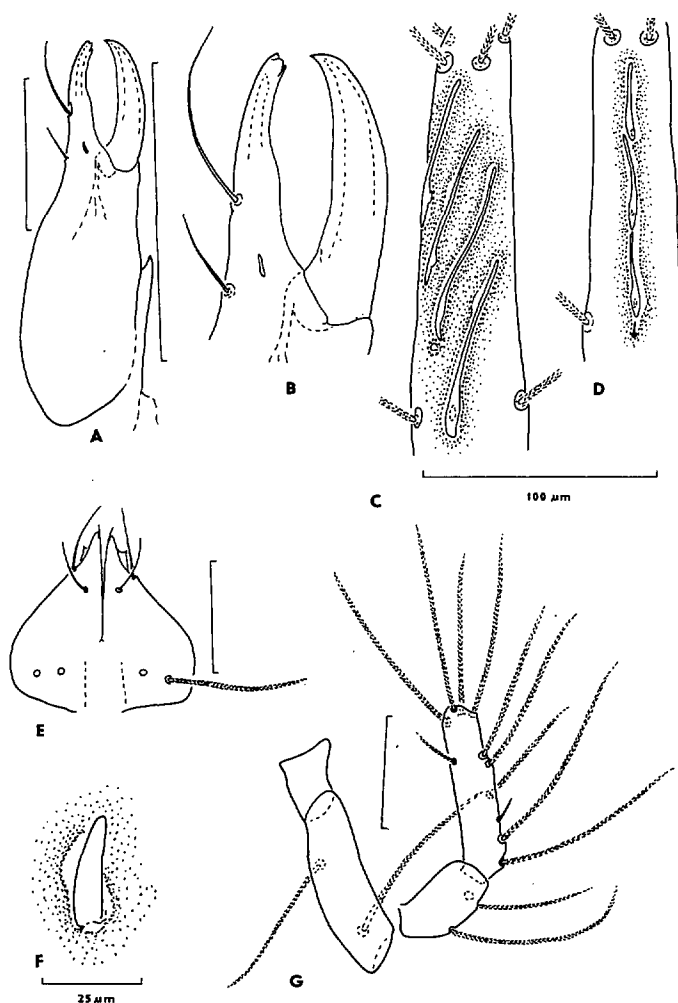


Fig. 1: *Traegaardhia vicenzaensis* n. sp., adult female. A: Chelicera, lateral aspect. B: Cheliceral shears in detail, lateral aspect. C: Rhagidial organ I, dorsal aspect. D: Rhagidial organ II, dorsal aspect. E: Subcapitulum, ventral aspect. F: Dorsodistal lanceolate solenidion on tibia II, dorsal aspect. G: Palpus, lateral aspect. Bar scales for A, B, C, D, E, G: 100 µm, F: 25 µm.

ber of setae and solenidia (solenidia and famulus, ε, bracketed), respectively, on legs I - II - III - IV: trochanters 1-1-2-2; basifemora + telofemora 5+5-6+5-4+4-3+4; genua 12(1) - 9(1) - 7(1)-6; tibiae 11(2) - 7(2) - 7(2)-6(1); tarsi 21(4+ε)-16(3+ε)-14-14 (Figs. 2, 3).

Genua I and II each with 1 erect, simple spiniform, distiventral solenidion, genu III with 1 proximal, lateroventral, small spiniform solenidion, genu IV lacks solenidion. Tibia I with 1 ventral, mediolateral, erect, spiniform solenidion, and 1 small, dorsodistal rhagidial solenidion; tibia II with 1 small, laterodorsal, proximal, spiniform erect solenidion, and 1 large, lanceolate, dorsodistal solenidion lying in longitudinally open depression (Fig. 1F); tibia III with 2 erect, spiniform, latero-

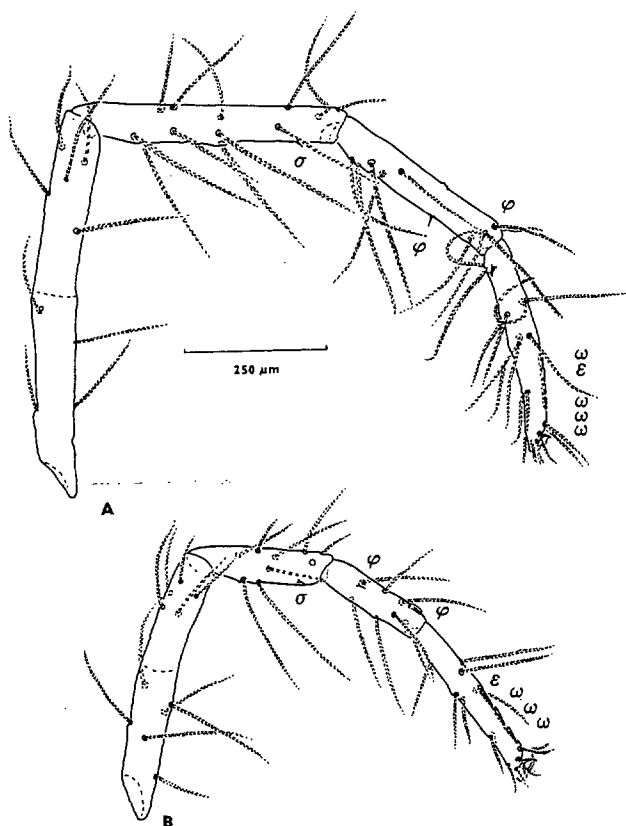


Fig. 2: *Traegardhia vicenzaensis* n. sp., adult female.
A: Setal arrangement on leg I. B: Setal arrangement on leg II. Bar scale: 250 μ m.

dorsal, proximal solenidia arranged in tandem; tibia IV with 1 erect, spiniform, dorsoproximal solenidion. Tarsus I slender, its tip slightly truncated in lateral view, ratio length to width 7.26, with 4 oblique rhagidial solenidia lying in separate depressions, stellate famulus, ϵ , inserted between 1st and 2nd proximal rhagidial solenidion antiaxially (Fig. 1C); tarsus II with 3 rhagidial solenidia lying in tandem in confluent depressions and small spiniform famulus, ϵ , subtending proximal rhagidial solenidion (Fig. 1D).

Affinities:

In general aspect, the female of *Traegaardhia vicenzaensis* n. sp. resembles that of the troglotic and troglomorphic species, *T. dalmatina* (WILLMANN), with regard to the morphology of the chelicera, palpus, rhagidial organs I and II, but it differs from the latter in many important morphological characters of diagnostic value. In *T. vicenzaensis* the proximal cheliceral seta is inserted above the articulation of the movable digit, whereas in *T. dalmatina* it is positioned distad of this articulation. In *T. vicenzaensis* rhagidial organ I consists of 4 elongated, attenuated, separate, oblique rhagidial solenidia and a stellate famulus positioned antiaxially between the 1st and 2nd proximal rhagidial solenidium, whereas in *T. dalmatina* rhagidial organ I consists mostly of only 3 (ex-

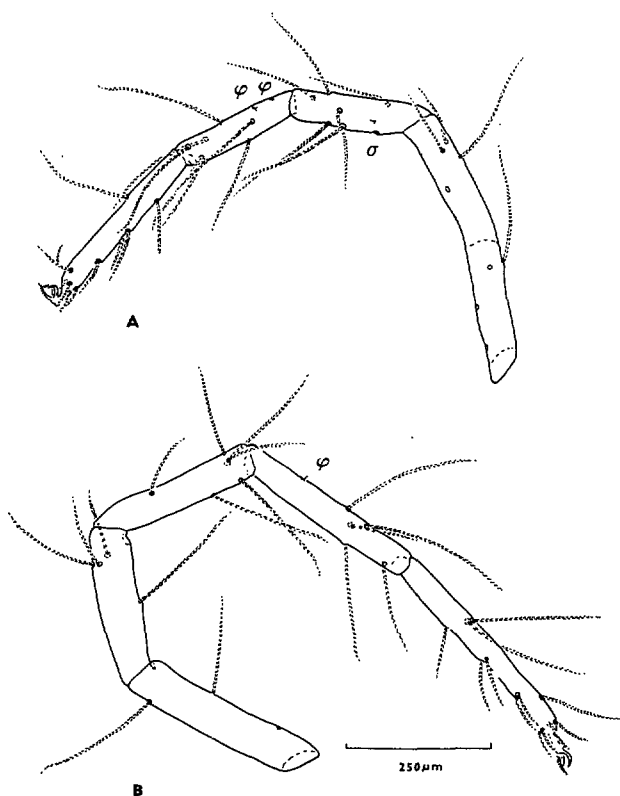


Fig. 3: *Traegardhia vicenzaensis* n. sp., adult female.

A: Setal arrangement on leg III. B: Setal arrangement on leg IV. Bar scale: 250 μ m.

ceptionally 4) rhagidial solenidia lying in tandem and a proximal stellate famulus subtending the proximal rhagidial solenidium. In *T. vicenzaensis* the palpal tarsus bears 10 ciliated setae, whereas in *T. dalmatina* 12 - 13 ciliated setae are on the palpal tarsus. Similarly, in *T. vicenzaensis* 5 pairs of both genital and aggenital setae are in the genital region, whereas in *T. dalmatina* 6 - 7 pairs of genital and 6 - 9 pairs of aggenital setae were observed. In *T. vicenzaensis* the spiniform solenidium on tibia I is in a ventral, mediodistal position, whereas in *T. dalmatina* it is dorsomedial.

Material examined:

Holotype, adult female, Italy, Veneto, M. Lessini, Torrebelticino (Vicenza); quota 386 in a cave, Buso del Monte Naro, 30. V/VI, leg. E. Piva, 2nd July 1989. Type material deposited in the Canadian National Collection of Insects and Arachnids, Centre for Land and Biological Resources Research, Agriculture Canada, Ottawa, under Type no. 21,813.

Etymology:

The species *vicenzaensis* is named after the northern Italian city Vicenza in the vicinity where the species was collected.

Remarks:

Indeed it is very difficult to specify reliable interspecific relations and characters of diagnostic value among species of troglobitic rhagidiid mites having many similar morphological adaptations to life in caves, troglomorphisms (ZACHARDA 1979), particularly in such a morphologically uniform group as the rhagidiid mites. As with many other cave-inhabiting groups of arthropods (BARR 1968), some troglobitic species of the genus *Troglocheles* occur within cave systems that are geographically separated and have local, disjunctive, morphologically different populations. This phenomenon may also be expected among representatives of the genus *Traegardhia*, which are still known only scarcely. Subsequently it may be expected that, after our knowledge of specific diversity of the genus *Traegardhia* is more advanced, a conception and also definition of that genus will have to be modified.

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