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Troglohyphantes paulusi n. sp. (Araneae, Linyphiidae) from Iran

KONRAD THALER¹

Troglohyphantes paulusi n.sp. is described from northern Iran, Talysh region, and the morphology of its palpal organ studied. It is distinct for the complicated proximal end of the cymbium and the embolic division, which differ markedly from its congeners. The female is not yet known.

Keywords: *Troglohyphantes*, Iran, new species.

INTRODUCTION

The linyphiid genus *Troglohyphantes* includes an array of long-legged, uniformly coloured subterranean species with small ranges, which live hidden in micro-caverns of the forest floor or in the interstices of scree, while others are confined to the cave environment. The range of the genus has been considerably widened since the taxonomic milestones in its study, the classic monograph of FAGE (1919) and the revision of the Yugoslav species by DEELEMANN-REINHOLD (1978). Most species come from the Pyrenees, from the southern macroslope of the Alps, the Dinaric Karst and the Carpathians, but there are now records also from Algeria (BOSMANS 1985), Tenerife (RIBERA & BLASCO 1986), Turkey (BRIGNOLI 1971, WUNDERLICH 1995), from the Caucasus mountains (PICHKA 1965, TANASEVITCH 1986, 1987) and Kirghizia (TANASEVITCH 1989). It is therefore not surprising that some peripheral species deviate strongly from the established species groups. *Troglohyphantes paulusi* n.sp. from Iran also shows some unusual characters, which deserve special mention.

Abbreviation: NMW = Naturhistorisches Museum Wien. All measurements in mm.

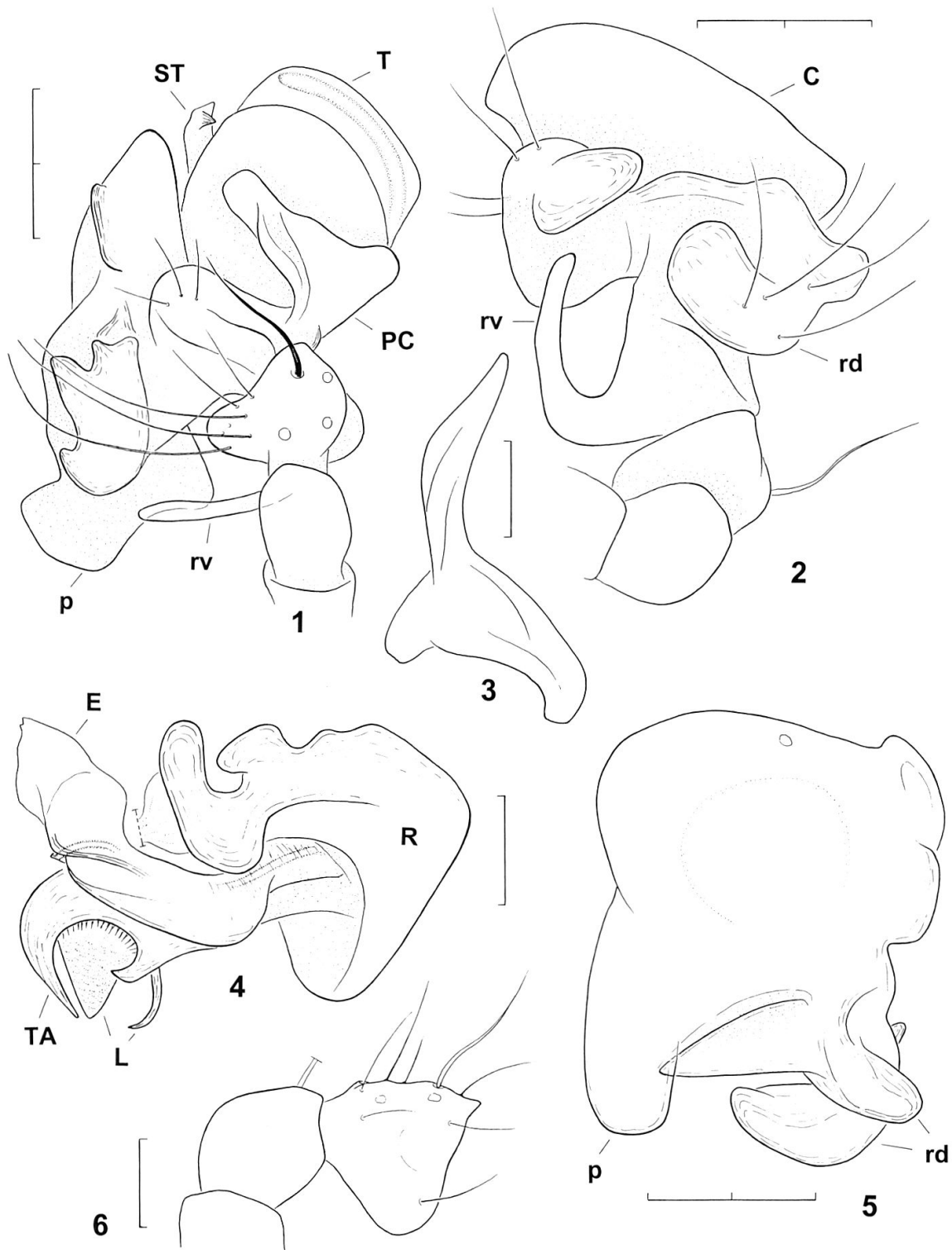
DESCRIPTION

Troglohyphantes paulusi n.sp. (Figs 1–8)

Material: Holotype ♂, 29 July 1971, in pitfall trap, leg. PAULUS. Depository NMW.

Type locality: Iran, Talysh: Assalem. Pitfalls had been placed in the primary forest near the coast. This forest consisted, mainly, of *Fagus*, *Quercus* and *Tilia*. Tree trunks and forest floor were covered with a dense layer of mosses. High humidity was provided by the clouds emerging from the Caspian Sea.

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Figs 1–6. *Troglolyphantes paulusi* n.sp., ♂. 1: Palpal organ (expanded); 2: Cymbium, aboral view; 3: Suprategulum; 4: Embolic division, proateral; 5: Cymbium, dorsal; 6: Palpal patella + tibia, retrolateral. Scales: 0.1 (3–4, 6), 0.2 mm (1–2, 5). — *C* cymbium, *E* embolus, *L* lamella, *p* proateral/proximal apophysis of cymbium, *PC* paracymbium, *R* radix, *rd* dorsal horn of retrolateral/proximal apophysis of cymbium, *rv* its ventral process, *ST* suprategular apophysis, *T* tegulum, *TA* terminal apophysis.

Etymology: This distinct species is named in honour of its collector, Prof. Dr. H.F. PAULUS, University of Vienna, Austria.

Diagnosis: The new species differs clearly from its congeners in Asia Minor and Central Asia in the proximal processes of the cymbium.

Description: Total length 2.3, length (width) of prosoma 1.1 (1.0). Carapace and sternum brownish, caput elevated, with median line of curved setae. Eyes not reduced. Chelicerae 0.44 long, anterior margin with 3 teeth, posterior margin with 4 (?) denticles, stridulatory file fine. Legs pale, length femur I 1.4, II 1.4; spines: femora I-IV 1 dorsal, I also 1 prolateral (0.6), tibia II 2 dorsal, 1 retrolateral (0.7), metatarsus II without spine, trichobothrium 0.24; other leg segments missing. Abdomen grey.

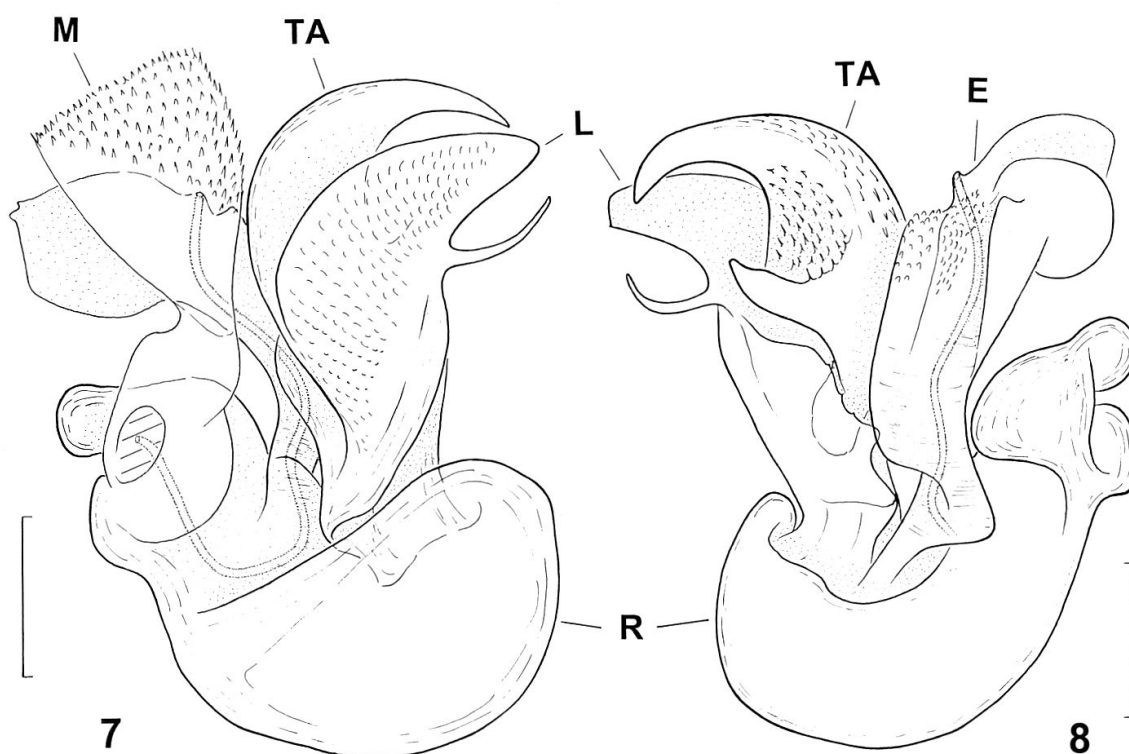
♂ palp: Patella globular, tibia broader than long (dorsal view), with curved spine (Fig. 1) and narrow anterior crest, ventrally bulging (Fig. 6). Cymbium almost rectangular (Fig. 5), with transverse cleft. Its proximal margin strongly modified: the prolateral edge (p) forms a column with concave posterior wall, the retrolateral edge a curved dorsal horn (rd) and a sickle-shaped slender ventral process (rv) (Figs. 1–2, 5). Paracymbium U-shaped (Fig. 1). Suprategulum with a strong, tapering apophysis (Fig. 3), membrane arising from the column as usual. Radix (Fig. 4) basically “in the shape of a swimming duck” (DEELEMEN-REINHOLD 1978: 19), but compact, two times longer than wide, outer margin convex, inner margin concave, sperm duct without globular widening (“FICKERT's gland”). Lamella and terminal apophysis apparently closely fused proximally, lamella (L) as a curved blade, dorsally covered with small warts, posterior side with a slender curved side-process, terminal apophysis (TA) sickle-shaped, following the curvature of the lamella, also with curved side-process. Embolus straight and slender, distally widened, orifice of sperm duct as a tiny denticle (Figs 4, 7–8).

Female: not known.

DISCUSSION

From its general appearance the species must be placed in the genus *Troglohyphantes*. Further characters supporting this placement are provided by the femoral spines, paracymbium, suprategular apophysis and proximal end of the cymbium. The modifications of the cymbial processes in *T. paulusi* n.sp. are strongly exaggerated as compared with the scheme of cymbial evolution in this genus proposed by DEELEMEN-REINHOLD (1978: 177). To my knowledge there is no corresponding retrolateral-ventral process in any other species. There is no clear support for such a placement in the characters of the embolic division: radix curved, embolus straight and not enlarged, with distal flap (“thumb”, SAARISTO & TANASEVITCH 1996). However, the lamella and terminal apophysis are intimately connected as in *Troglohyphantes* (DEELEMEN-REINHOLD 1978: 182). It may be noted, that a side-process is present also in the lamella of members of *Tapinopa* (see MERRETT 1963, THALER 1983), which differ strongly in other characters.

The new species *T. paulusi* cannot be placed in any other genus of the Micronetinae (MERRETT 1963, MILLIDGE 1977, SAARISTO 1995 [see the new genus *Theoa*], SAARISTO & TANASEVITCH 1996), so it is therefore included in *Troglohyphantes*, without allocating it to a given species group. In due course it will be necessary to reconsider relationships within this genus, to assess the affinities also of its peripheral members. *T. paulusi* n.sp. is the first *Troglohyphantes* species in the Iranian fauna (MOZAFFARIAN & MARUSIK 2001), raising the number of Linyphiidae known from that country to nine.



Figs 7–8. *Troglodyphantes paulusi* n.sp., embolic division. 7: dorsal; 8: ventral. Scales: 0.1 mm. — *M* median membrane, other abbreviations as in Figs 1–6.

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