

**A NEW UROPODINE MITE OF THE GENUS *URODIASPIS*  
BERLESE, 1916 (ACARINA, MESOSTIGMATA) FROM TURKEY**

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**ABSTRACT:** A new species of the genus *Urodiaspis* (Acari, Mesostigmata, Urodinychidae), *Urodiaspis pannonicasimilis* n.sp., collected from Eastern Anatolia, Turkey, is described. Characteristic features and the figures of female, male and deutonymph of the new species have been given. Some critical morphological features of the new species is discussed with closely related species *Urodiaspis pannonica* Willmann 1951, and observed ecological information for the new species is presented.

**KEY WORDS:** Acari, Uropodina, Urodinychidae, *Urodiaspis*, new species, Turkey.

Berlese created the genus *Urodiaspis* in 1916, with the type species *Urodiaspis tecta* (Kramer, 1876). This genus has been studied by some authors since Berlese, and recently reviewed by Hirschmann (1979, 1984a, 1984b), Wiśniewski and Hirschmann (1993), and Zirngiebl-Nicol (1973). According to Wiśniewski & Hirschmann (1993) the genus represented in the world with 21 species. Hirschmann (1984a) divided the genus *Urodiaspis* into six species-groups for easy identification, and in the genus, *Urodiaspis pannonicasimilis* n.sp. belongs to the *rectangulovata* species-group.

Species of the genus *Urodiaspis* live in litter, soil substrates, moss, decaying wood, rotten leaves, humus and heterogeneous decomposed organic materials of various types of broad-leaved deciduous or coniferous forests (also in tropical forest). Occasionally, they colonise specific subcorticolous habitats, nests of vertebrates, ants and bumble-bees. They can also penetrate into cultivated landscape habitats (orchards, gardens and other degraded or agricultural stands in non-forested areas) (Hiramatsu, 1979, 1982; Hirschmann, 1972b; Hirschmann & Wiśniewski, 1993; Karg, 1989; Maśán, 2001).

Some uropodine specimens were collected from soil and litter under evergreen and deciduous trees, decayed and decaying wood, from the bark of trees and nest of ants at Gümüşhane and Erzincan and Erzurum provinces in Turkey. Among this material, *Urodiaspis pannonicasimilis* n.sp. is new for the science (Hirschmann & Wiśniewski, 1993; Özkan et al., 1994, 1998).

Morphological and setal nomenclature are mainly based on Athias-Binche and Evans (1981), Evans (1957, 1972, 1992), Evans and Till (1979), Krantz (1978) and Lindquist and Evans (1965). Specimen collection, extraction, preservation and preparation for examination were given by Bal and Özkan (2005). Specimens are mounted in Hoyer's medium and examined with a Nikon E-600 compound microscope equipped with differential interference contrast and phase contrast systems. All measurements are given in micrometers (µm). Materials are deposited in the Bal's mite collection, and in the Atatürk University Zoology Museum, (AUZM), Erzurum.

Abbreviations used on figures and in text are as follows: *Ad1-2*: Adanal seta; *cas*: camerostomal setae; DN: deutonymph; fd: fixed digit; *h1-4*: hypostomal setae; *i-I*: dorsocentral setae series; la: lacinia; md: movable digit; no: nodus; *Pa*: postanal seta; per: peritreme; *r-R*: marginal setae series; *s-S*: lateral setae series; *st1-5*: sternal setae; *V*: ventrianal setae series; *z-Z*: mediolateral setae series.

### ***Urodiaspis pannonicasimilis* n.sp. (Figs 1–7)**

**Examined materials: Erzincan province:** Holotype ♀, Erzincan, Ahmediye village (39° 53' N, 39° 22' E), litter from under mixed deciduous trees (*Populus tremula*, *Quercus macranthera*). Paratypes, 16.4.2001, Refahiye, Dumanlı forests, decaying tree stump, 22 ♀, 8 DN.; 26.5.2001, Çayırılı, Keşiş mountain (39° 45' N, 39° 34' E), forest, from soil and litter under pine tree (*Pinus sylvestris*), 8 ♀, 7 DN.; 9.5.2001, Erzincan, Ahmediye village (39° 53' N, 39° 22' E), litter from under mixed deciduous trees (*Populus tremula*, *Quercus macranthera* subsp. *sypirensis*, *Viburnum lanata*, *Sorbus umbellata*, *Acer hyrcanum*), 42 ♀, 1 ♂, 14 DN. **Gümüşhane province:** Paratypes, 4.6.2005, Kelkit, Yeniyl village (39° 53' N, 39° 22' E), litter and bark of *Quercus macranthera*, 4 ♀. **Erzurum province:** Paratypes, 21.7.2000, Uzundere, Azot pine forests (*Pinus nigra*), soil and litter under pine trees, 2 ♀, 1 ♂; 31.5.2000, İspir, south of Bademli village, Petekli forests (40° 25' N, 40° 53' E), litter and soil from forest basin, 1♀, 1DN.

**Female** (Holotype). Idiosoma 510 µm long and 330 µm wide. Body well sclerotised and brown. Dorsal plate differentiated from post-dorsal and marginal plate. Marginal plate surrounding dorsal and post-dorsal plates. Marginal plate fused with post-dorsal plate posteriorly, marginal setae linked by a corrugated structure line, 2 pairs of dorsal setae in the posterior edge and 2 pairs of setae in front end brush-like, the remaining dorsal setae shortened and needle-like. Dorsal setae short, thorn-like, not reaching insertion of following setae. Dorsal, marginal and post-dorsal plates with 26–30, 15 and 6 setae pairs, respectively. Marginal setae short, smooth and simple. Postdorsal plate 60 µm long and 150 µm wide. Setae *1l* and *sl*, and a pair of postdorsal setae (*1A*) brush-like apically. Other postdorsal setae *15* and *Z5* simple and small. Punctuation of plates faint and dense. Lateral setae bearing a small denticles close to tip part (Fig. 1).

Epigynial plate iron-like, filled with coxae II-IV, 40 µm width and 80 µm length. Plate with small shining circlets, posterior circlets bigger than others. Anterior prolongation of peritreme U-like, and inclined inferiorly. Seta *st1* close to anterior border of plate, others at laterally located epigynium, *st2* at level coxa II, *st2* coxa III, *st4* between coxa II-IV, *st5* coxa IV, respectively. A pair of lyrifissures located on the sternal plate anteriorly. Dorsal, marginal and lateral setae puny and weaker from male. A pair of ventrianal setae very short out of anus. (Fig. 2).

Hypostomal laciniae long, narrow, sharply pointed, its inside with finely denticled; *h1* smooth and long, *h2* short and reach base of *h1*, *h3* extremely long, *h3*=3*xh2*, outside bearing 6-7 denticles; *h4* with 6-7 denticles outside and a bit longer than *h2* (Fig. 3A). Chelicerae with a small nodus, movable digit with denticles, fixed digit a sensillar seta on its hyaline appendage. Middle part of chelicera 105 µm, movable digit 20 µm and fixed digit 30 µm (Fig. 3D). Corniculus horn-like. Hypostome articulated between setae *h3*–*h4* (Fig. 3A). Epistome lancet-like and sides with denticulate, anterior part 3-branched (Fig.

3B). Tritosternum cup-shaped basally, lacinia triangular, with three branches apically, middle branch longer than others, and branches with fine spines (Fig. 3C).

All pedofossae well developed. Legs robust and powerful. Coxae I broad, hiding tritosternum and gnathosomal apparatus (Fig. 2). All legs terminating with a pulvillus and two claws. All leg tarsi bearing a pairs of digits on ambulacral prolongation apically; legs setae thorn-like. All femora bearing a membraneous flap (Fig. 4A-D).

**Male.** Idiosoma egg-like, 570  $\mu\text{m}$  long and 370  $\mu\text{m}$  wide. Sternal, ventrianal and endopodal plates densely punctated and especially sternal region with small subcircular depressions. Camerostomal setae pilosed. Genital plate circular, finely punctated, and situated between coxae II–IV. Setae *st1* just behind of coxae I, stae *st2* at level of coxae II, setae *st3* between coxae III, setae *st4* between coxae III-IV, just outside of opening, and setae *st5* near posterior margin of genital plate. Setae *Ad1–Ad2* and postanal seta (*Pa*) smooth, long and thickened (Fig. 5). Other morphological and chaetotaxic features as in females.

**Deutonymph:** Idiosoma 500  $\mu\text{m}$  long, 400  $\mu\text{m}$  wide, egg-like. Dorsum with small shining pore circlets (Fig. 6). Lateralialia slightly waved or indented. Sternal, ventrianal, endo- and exopodal plates with shining micropores; all dorsal and ventrianal setae thorn-like. Sternal plate anvil-like, 185–200  $\mu\text{m}$  long and 70  $\mu\text{m}$  wide, 48–50  $\mu\text{m}$  at base, and bearing five pairs of setae (*st1–st5*). Ventrianal setae *V2*, *V3*, *V4*, *V6* and *V8* on ventrianal plate, but *V7* pair arising from soft membraneous integument out of ventrianal plate. Setae arising from soft cuticle on a small platelet. Anal plate boat in shape, 125  $\mu\text{m}$  long and 155  $\mu\text{m}$  wide, postanal seta (*Pa*) present. Anterior prolongation of peritreme smooth and bearing small chitinous bulges on interior margin. Stigmatic opening slightly widened and occurs at level of coxa II. Posterior prolongation of peritreme smooth, directed posteriorly. Pedofossae distinct and well developed, coxae I large, placed close to each other. Anal setae *Ad2* longer than *Ad1*. Gnathosomal, cheliceral, epistomal and tritosternal features as in adults (Fig. 7).

**Protonymph and larva:** Unknown

**Remarks:** *Urodiaspis pannonica* Willmann 1951, is a widespread species in central Europe (Austria, Belorussia, Czech Republic, Hungary, Lithuania, Moldavia, Poland, Romania, Slovakia and Ukraine). The species is only known from females and deutonymphs, and relatively extensive material of this species are examined by various researchers. Male specimens of *Urodiaspis pannonica* are unknown and the species is evaluated as a thelytokous species. The new species is very similar and closely related, but not conspecific with European species.

Habitats of Turkish specimens relatively agree with European congeners. *U. pannonica* is very common species abundantly occurring in leaf litter of warmer deciduous forests. The new species has been collected from barks of trees, especially collected from bark of *Populus tremula*, *Quercus macranthera* subsp. *sympirensis*, *Viburnum lanata*, *Sorbus umbellata*, *Acer hyrcanum*, *Pinus sylvestris* and *P. nigra*, also collected from litter in the forest basin.

These two species are easily distinguished, both by morphological characters and zoogeographic distribution. *Urodiaspis pannonica* appears to be confined to Central and Eastern Europe, but *Urodiaspis pannonicasimilis* n.sp. has a more easterly distribution and may be characteristic of Eastern Anatolia, Turkey.

Some slight differences are present between female specimens of *Urodiaspis* from Europe and Turkey. In females of *Urodiaspis pannonicasimilis* n.sp., prestigmatic section of peritremes is conspicuously shorter and regularly curved in *U. pannonica* specimens, it is longer and with 2 distinct bends, and genital shield is usually otherwise sculptured. In *U. pannonica* large sculptural pores can be found also in anterior and lateral parts of genital shield. In deutonymphs of *U. pannonicasimilis* n.sp. prestigmatic section of peritremes is also more reduced in length, and ventrianal shield has relatively well developed lateral corners and uniform punctate ornamentation, in the contrary, ventrianal shield is subcircular to subpentagonal, subequal in length and width, and with punctate-reticulate ornamentation in posterior part in deutonymphs of *U. pannonica*. The most noticeable character for recognition of *U. pannonicasimilis* n.sp. presence of unique sculptural lines situated close to posterior margin of dorsal and marginal shields in deutonymphs, however, these linear structures absent in deutonymphs of *U. pannonica*.

Idiosomal length of the new species is in agreement with *U. pannonica* (Hirschmann & Wiśniewski, 1993; Karg, 1989). Besides, males of the new species apparently longer than its females. Hirschmann gave idiosomal size 450/300 µm for deutonymph of *U. pannonica*, according to this, deutonymphs of the new species is longer than *U. pannonica*.

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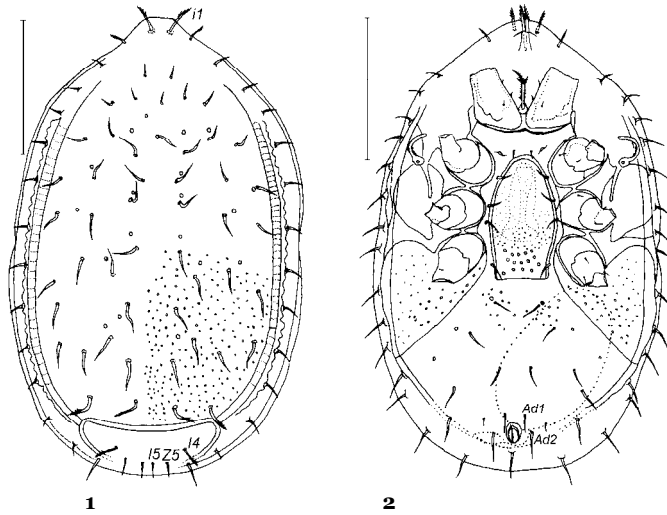
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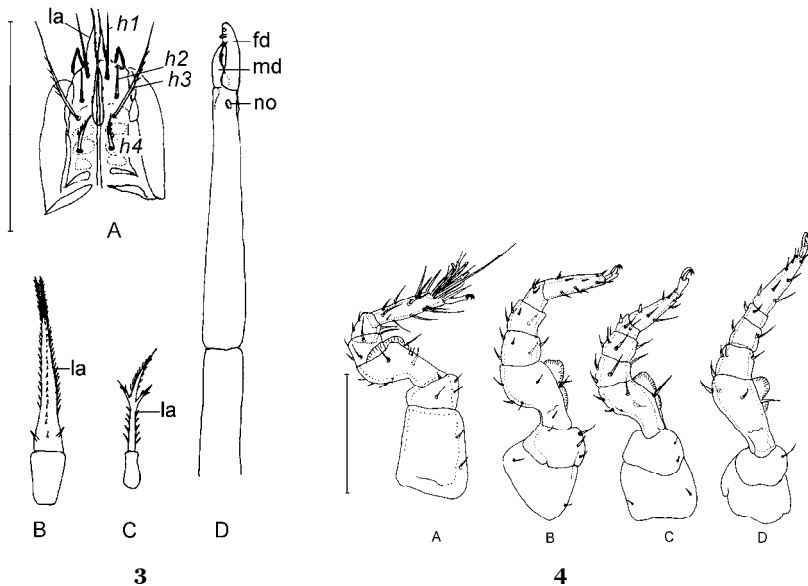
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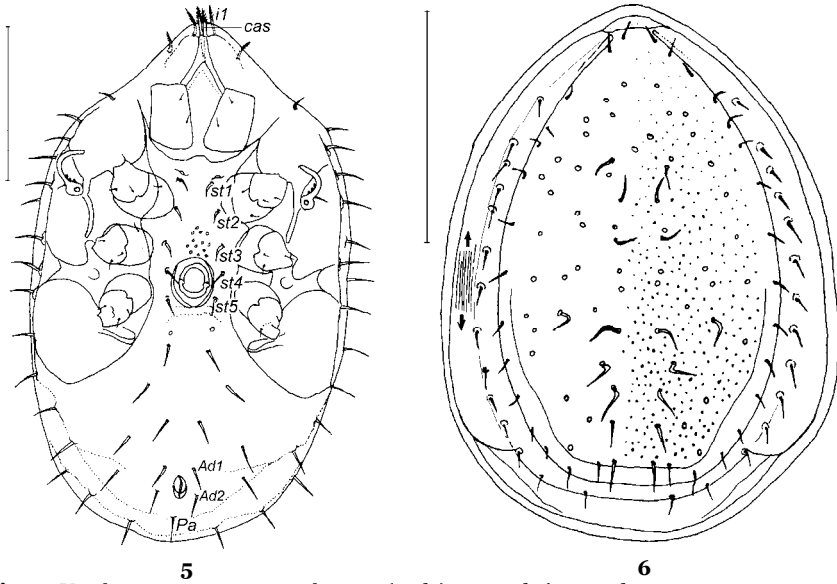
**Fig. 1.** *Urodiaspis pannonicasimilis* n.sp. (female): Dorsal view. Scale: 200  $\mu$ m.

**Fig. 2.** *Urodiaspis pannonicasimilis* n.sp. (female): Ventral view. Scale: 200  $\mu$ m.



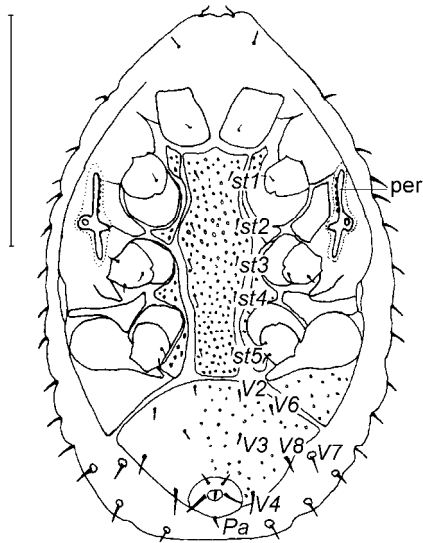
**Fig. 3.** *Urodiaspis pannonicasimilis* n.sp. (female): A – gnathosoma, B – epistome, C – tritosternum, D – chelicera. Scale: 100  $\mu$ m.

**Fig. 4.** *Urodiaspis pannonicasimilis* n.sp. (female): A – leg I, B – leg II, C – leg III, D – leg IV. Scale: 100  $\mu$ m.



**Fig. 5.** *Urodiaspis pannonicasimilis* n.sp. (male): Ventral view. Scale: 200  $\mu$ m.

**Fig. 6.** *Urodiaspis pannonicasimilis* n.sp. (deutonymph): Dorsal view. Scale: 200  $\mu$ m.



**Fig. 7.** *Urodiaspis pannonicasimilis* n.sp. (deutonymph): Ventral view. Scale: 200  $\mu$ m.