

NEW SPECIES AND OCCURRENCES OF UROPODINA MITES (MESOSTIGMATA) FROM BRAZILIAN CAVES

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ABSTRACT: A new species belonging to the genus *Uroseius* Berlese, 1888 (Trachytidae, Mesostigmata) is described based on the morphological characters of three females and one male collected from caves in Minas Gerais State, Brazil. The new species differs from other Neotropical species in having two shapes of idiosomatic ventral and dorsal setae, a character shared with Palearctic species. New occurrences of *Oplitis apicalis* Lopes, Oliveira, Delabie and Klompen, 2015 are also reported.

KEY WORDS: *Uroseius*, *Oplitis*, Trachytidae, Neotropic, Cave dwelling mites.

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INTRODUCTION

Uropodina is a common element of litter and soil fauna in the tropics. They occur as both free dwellers and as phoretic deutonymphs, mainly associated with other arthropods (Lindquist *et al.* 2009). They are commonly found in caves (Bernardi *et al.* 2009). The systematics of the widespread genus *Uroseius* Berlese, 1888 is complicated by the apparent mixture of plesiomorphic and apomorphic characters. In particular, general fragmentation and reduction of idiosomatal sclerotization are characteristic of some of the so-called “lower” Uropodina (Ainscough 1979).

The above characteristics provided the basis for Hirschmann and Zirngiebl-Nicol (1961) to merge *Uroseius* with the genera *Apionoseius* Berlese, 1904, *Dithinozercon* Berlese, 1916 and *Polyaspinus* Berlese, 1916. Additionally, Hirschmann and Zirngiebl-Nicol (1964) synonymized *Iphidinychus* Berlese, 1913, *Caminella* Krantz and Ainscough, 1960 and *Pholeogynium* Johnston, 1961. All of the above were included in the subgenus *U. (Apionoseius)* (Berlese, 1904), while the subgenus *U. (Uroseius)* retained the species originally described for the genus and *Pholeogynium sorrentinus* (Lombardini, 1952), synonymized to *Uroseius (U.) hunzikeri* Schweizer, 1922 (Halliday 2015).

Ainscough (1979), however, moved all species belonging to *U. (Apionoseius)* to the superfamily Polyaspidioidea. Currently, *Uroseius sensu stricto* comprises 19 species: three are known from females, ten from deutonymphs only, five from females and deutonymphs, and a single species, *U. sorrentinus*, had its females, males and deutonymphs described (Moraza and Pérez-Martínez 2019; Moraza 2019).

No formal occurrences of *Uroseius s.s.* were found in Brazil, although an unknown species associated with domestic flies in chicken litter was recorded (Rodrigueiro and Prado 2004).

The genus *Oplitis* was proposed by Berlese (1884) and revised more recently by Hirschmann (1991). It is one of the most diverse genera of Uropodina with about 150 described species (Babaeian *et al.* 2016). Different authors considered it a member of the families Uropodidae, Trachyuropodidae and Oplitidae. Here, we follow Lopes *et al.* (2015) in considering the species group (*Artengruppen*) established by Hirschmann, as a genus; and the genus *Oplitis* as the family Oplitidae, in which the authors described the species *Oplitis apicalis* Lopes, Oliveira, Delabie and Klompen, 2015.

The above genus is usually associated with ants, termites, or their nests: its adult instars are mostly found on ants (Lopes *et al.* 2015). However, some species have been collected from soil and litter. The genus *Oplitis* has a worldwide distribution.

In this article, we describe a new species of *Uroseius* and record new occurrences of *Oplitis apicalis*. All the mites were obtained from caves located in Minas Gerais State, Brazil—a biodiverse and threatened environment.

MATERIALS AND METHODS

The mites were hand-captured in caves located in Minas Gerais State, southeastern Brazil. They were stored in 70% alcohol, slide mounted in Hoyer’s medium (Walter and Krantz 2009) or in glycerin jelly (Green and Macquitty 1987) and deposited in the Acarological Collection of the

Centro de Coleções Taxonômicas da Universidade Federal de Minas Gerais (UFMG AC).

The slide mounted mites were studied using a Leica DM2500 compound microscope equipped with a camera lucida. Original drawings are pencil line drawings. Final artwork was prepared using Adobe Illustrator CS5. Measurements and pictures were taken using the Leica DM 750 optical microscope with an attached ICC50W digital camera, which was calibrated using a graduated slide. All measurements are given in micrometers (μm), indicating ranges, when more than one individual per stage was available. Structures were measured according to Moraza (2019). In particular, dorsal shield lengths are midlines from the posterior margin of the vertex to the caudal margin. Other idiosomatic shields are midlines from the anterior margin to the posterior edge of each structure. Leg lengths are measured from the bases of the coxae to the apex of the tarsus, excluding the pretarsus.

The terminology and abbreviations employed throughout the description follow Moraza (2019) when redescribing *U. sorrentinus* (Lombardini, 1952) and Moraza and Pérez-Martínez (2019) when describing *U. foetidus* Moraza et Pérez-Martínez, 2019, as well as references cited therein. The classification of Uropodina into superfamilies follows Beaulieu *et al.* (2011).

Geographic coordinates were acquired from GPS upon collection.

SYSTEMATICS

Superfamily **Uropodoidea Kramer, 1881**

Family **Trachytidae Tragårdh, 1938**

Genus ***Uroseius* Berlese, 1888**

Uroseius Berlese, 1888: 3.

Type species *Uropoda acuminata* Koch, 1847: 260, by monotypy.

Diagnosis. The concept of *Uroseius* used here is based on that of Moraza and Pérez-Martínez (2019) and Moraza (2019)

***Uroseius subterraneus* sp. n.**

Figs. 1–5

Diagnosis. *Uroseius* with 2 shapes of dorsal and ventral idiosomal setae: 1) smooth and short needle-like, 2) long, stout and barbed club-shaped. 2 pairs of stout and barbed club-shaped setae on dorsal shield (J3–J4) and both setae morphologies on laterodorsal idiosoma. Marginal row of idiosomal setae needle-like. Caudal idiosomal protuberance absent. Setae JV1–JV2, ZV1–ZV2 smooth

needle-like, 32–46 (37) long. Hypostomal setae $h4 > h2$. Males with genital valves nude.

Description of adult female (n=3). *Idiosomatic dorsum.* Idiosoma rounded with prominent vertex, 952–1,020 (974) long, 738–820 (779) wide, with lateral projections and not covered by dorsal shield (Fig. 1C). Dorsal shield 850–920 (890) long, 503–524 (512) wide, weakly ornamented, covering the central region of idiosoma with irregular margin and bearing approximately 29–31 pairs of setae (j3–j6, z2–z6, s1–s6, J1–J4, Z1–Z3, S1–S2 and 12–17 supplementary “x” setae), J3–J4 thicker, longer barbed club-shaped setae 57–65 (60) (Figs. 1C, 4A, B), other setae smooth and needle-like 20–43 (32) long. Each seta on dorsal shield with 1 or 2 gland pores at base; marginal shield absent, lateral soft cuticle bearing approximately 29–30 pairs of setae, loosely arranged in 2 rows: marginal row with 10 pairs of supplementary setae *rx* and *Rx* (two anterior needle-like and remaining 8 long barbed club-shaped); dorsal row comprising pairs of *r1–r6*, *R1–R6*, *J5*, *S3–S5*, *Z4–Z5*, and supplementary pair of setae *x*; *r1–r5*, *x*, *S3–S5* and *Z4* smooth and short while remaining setae barbed club-shaped. Concerning setae morphology, lateral soft cuticle bears 13–14 pairs of smooth needle-like setae, and 15–17 pairs of long, barbed club setae. All dorsal setae on soft cuticle on rounded platelets bearing 2 or 3 glandular pores. 9 pairs of lyrifissures discernible: 2 on dorsal shield (*idm1*, *idm3*); 7 on membranous cuticle, 2 podonotal (*idx* in Fig. 1C) and 5 opisthonotal (*idl1–idl5*). Additionally, setae on marginal cuticle may be tentatively grouped in a marginal row that bends ventrally, ending anteriorly to lyrifissure *ivp* and *JV5* with 10–13 pairs of smooth needle-like setae, 35–64 (46) long.

Idiosomatic venter (Fig. 1A, B). Sternal shield with very small punctuations (visible in 100 \times magnification), anterior margin truncate. Exopodal II–IV faintly paneled. Genital shield pear-like in shape, 200–233 (213) long, 116–142 (130) wide, nude, with punctate cuticle, anterior border varying from bifid (Fig. 2D) to almost truncate and crenulate (Fig. 1A). All sternal setae smooth and needle-like, similar in length 22–34 (27), each associated to a pore (*gst1–gst3*); sternal setae *st1–st5* borne on sclerotized cuticle around genital shield. 1 pair of lyrifissures discernible posterior to *st1* (*iv1*) and another posterior to genital opening (*iv5*). Conspicuous pair of cuticular organs near endopodal II–III with two pores on a pair of rounded platelets (*gst1*, CO) (Figs. 1B, 4D). Parapodal, exopodal, peritrematal and metapodal elements with pigmented flexible cuticle faintly

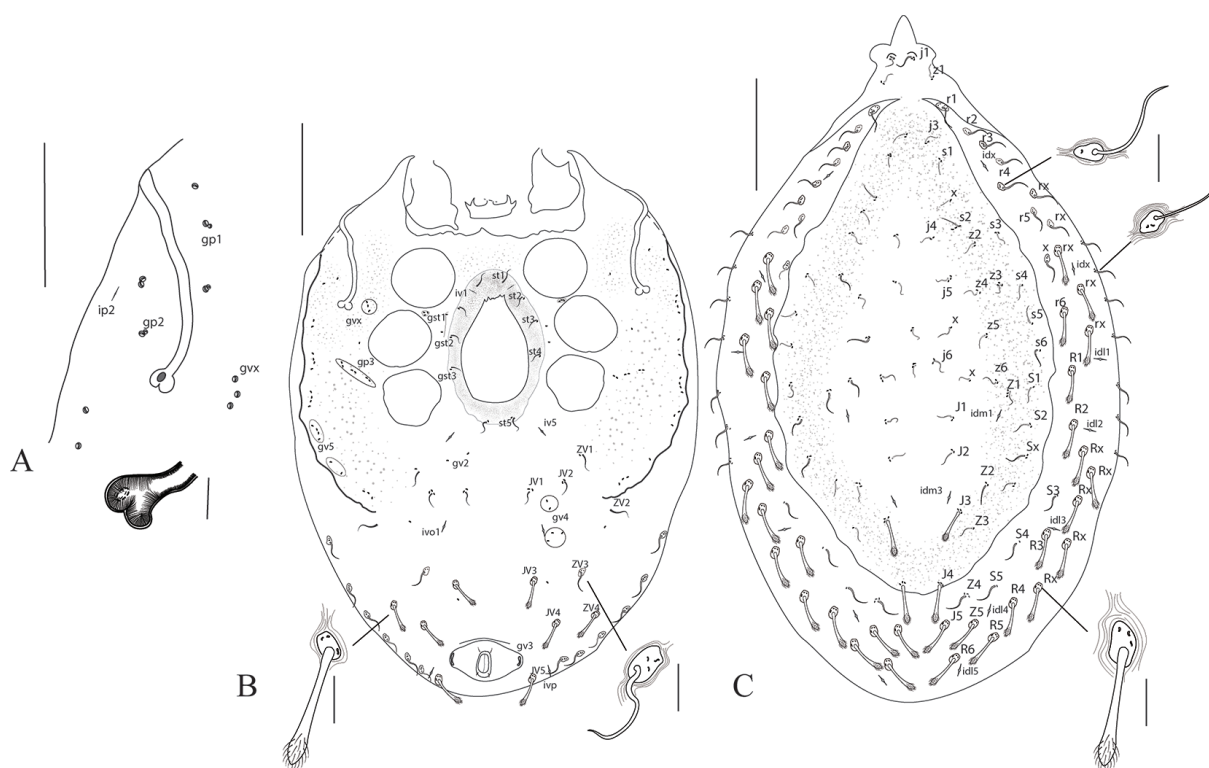


Fig. 1. *Uroseius subterraneus* sp. n., female. A—detail of peritremal area and stigma; B—idiosoma ventral view; C—idiosoma dorsal view. Setae and pores named according to Moraza (2019). Scale bars: A=100; B, C=200; setae and stigma in details=25.

paneled. Peritreme from posterior border of coxae I to anterior margin of coxae III, slightly bent in anterior region, with a short prestigmatal paraxial projection (Fig. 1A). 1 discernible lyrifissure lateral to peritremes (ip2) (Fig. 1A).

Opisthogastric region. Ventral shield bearing four pairs of smooth and needle-like setae (*JV1–JV2*, *ZV1–ZV2*) 32–46 (37) and four pairs of barbed club-shaped setae (*JV3–JV5*, *ZV3–ZV4*) 45–54 (49) associated with gland pores. 2 pairs of lyrifissures discernible, *ivo1* and *ivp* (Fig. 1B).

Anal shield 72–89 (80) long, 120–128 (125) wide, capturing a large pair of glands *gv3* at both sides. Anal opening 33–40 (35) long; 2 pairs of thin, short and smooth adanal setae, anterior pair 12–13, posterior pair 14–17, approximately.

Gnathosoma (Fig. 2A). Gnathotectum with one medial tapering prong bearing lateral spines, with 2 basal serrate projections laterally and a serrate crest (Fig. 2B). Salivary stylets (ss) well developed, 69–100 (82) long. Internal mala feather-like, shorter than corniculi, with short fimbriae. Hypostomal setae complete only in Paratype (UFMG AC 210144), all smooth, setiform: *h1* (60) > *h3* (59) > *h4* (18) > *h2* (12). Corniculi horn-like, stout. Deutosternum gutter not well defined. Tritosternum

bases 85–107 (95) wide, 22–35 (28) long, with smooth surface and lateral pointed projections; base of laciniae 49 long with 5 barbed branches (Fig. 2E).

Cheliceral measurements were available only for the individual UFMG AC 173943. Chelicerae (Fig. 2C) 436 long, without a distinct “nodus”, fixed digit 63, movable digit 46. Fixed digit with several small teeth, movable digit with a single tooth. Fixed digit with conspicuous processes at dorsal surface of distal region bearing globular sensilla and 1 pilose lamella attached to ventral region (Fig. 2C); pilus dentilis absent; margin of arthrodial envelope smooth.

Palps leg-like 152–188 (170). Palptrochanter with three short spines at anterior lateral margin (pp) (Fig. 2A). Trochanteral setae *v2* long, all setae smooth with no barbs; all genual setae thin, setiform. Setal formula: 2–4–5–12–14. Palpal apotele (ap) bifurcate.

Legs (Fig. 3). Coxae I–IV with distinct glandular fields (Figs. 3A–D, 4C). Length of leg I 502–578 (544), leg II—521–610 (569), leg III—520–588 (558), leg IV—596–677 (632). From femur to tibia, most dorsal and medial setae blunt spine-like (Fig. 3A–D), other setae slender. Leg chaetotaxy I–IV: coxae: 2–2–2–1; trochanters:

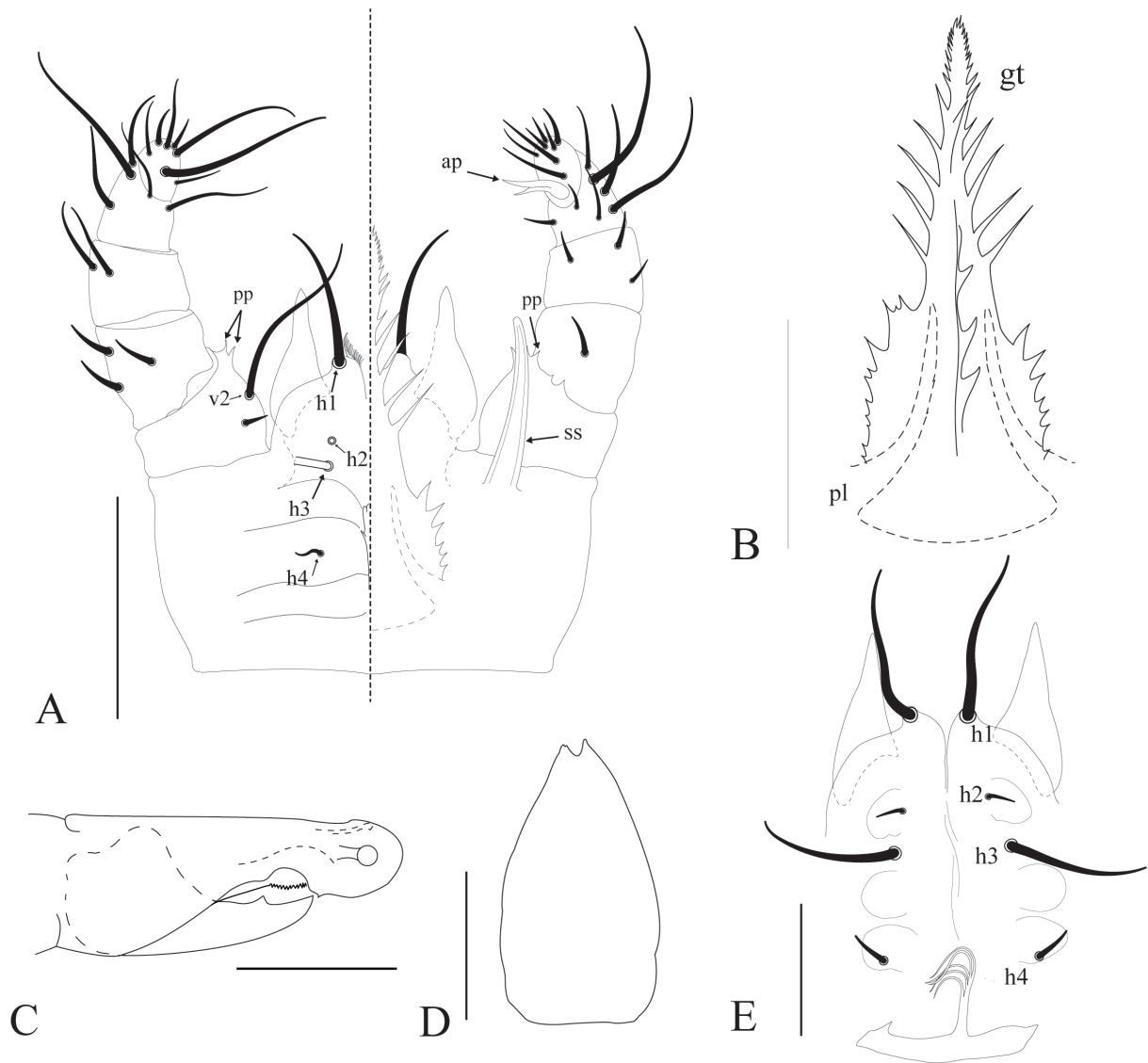


Fig. 2. *Uroseius subterraneus* sp.n. female. A—gnathosoma; B—gnathothectum and paralabrum; C—chelicera; D—genital plate of individual UFMG AC 173943; E—subcapitulum and tritosternum of individual UFMG AC 210144. ap=bifurcate apotele; gt=gnathothectum; h1–4—hypostomal setae; pl—paralabrum; pp—prongs; ss—salivar stylet; v2—ventral setae 2. Scale bars: A, D–E=100; B=50; C=25.

4–4–4–4; femora: 2 2/1 2/1 1, 2 2/1 2/1 1, 1 2/1 1/0 1, 1 2/1 1/0 1; genu: 1 2/1 2/1 1, 1 2/1 2/1 1, 1 2/1 2/1 0, 1 2/1 2/0 0; tibiae: all 1 1/1 2/1 1; tarsi II–IV: all 3 3/2 1/1 3/2 3. Leg I pretarsus absent, tarsi I 140–160 (152) long, about 2.4 times longer than tibia (55–68 long). Pretarsi II–IV with distinct claws and pointed pulvillus. Tarsi II–IV with distal tarsal setae blunt tipped spine-like, similar in length, with *al-1*, *av-1*, *pl-1* and *pv-1* stout, and with setae *ad-1*, *pd-1* filiform 63–105 long; pretarsi 32–40 (34) long from bases of tarsi to bases of claws; dorso-apical gland absent.

Male (N=1). Length 1,065, width 790.

Dorsum (Fig. 5A). Idiosomal shape similar to that of female. Vertex damaged in the individual

available, but bearing pairs of *j1* and *z1*. Dorsal shield broader than that of female, 908 long, 543 wide at widest level. It captures setae *S3–S4* and *Z4*, leaving a single pair of smooth setae (*S5*) out. Shield with 31 pairs of setae (*j3–j6*, *z2–z6*, *s1–s6*, *J1–J4*, *Z1–Z4*, *S1–S4* and 10 supplementary setae), of which 2 pairs (*J3–J4*) long, stout, barbed club-shaped setae (74) similar to those observed in females. 2 pairs of lyrifissures discernible on plate (*idm1*, *idm3*).

Soft cuticle surrounding dorsal shield with approximately 27 pairs of setae, loosely arranged in 2 rows with the same smooth needle-like setae and stout, barbed club-shaped setae morphologies (9 and 18 pairs, respectively) observed on dorsal

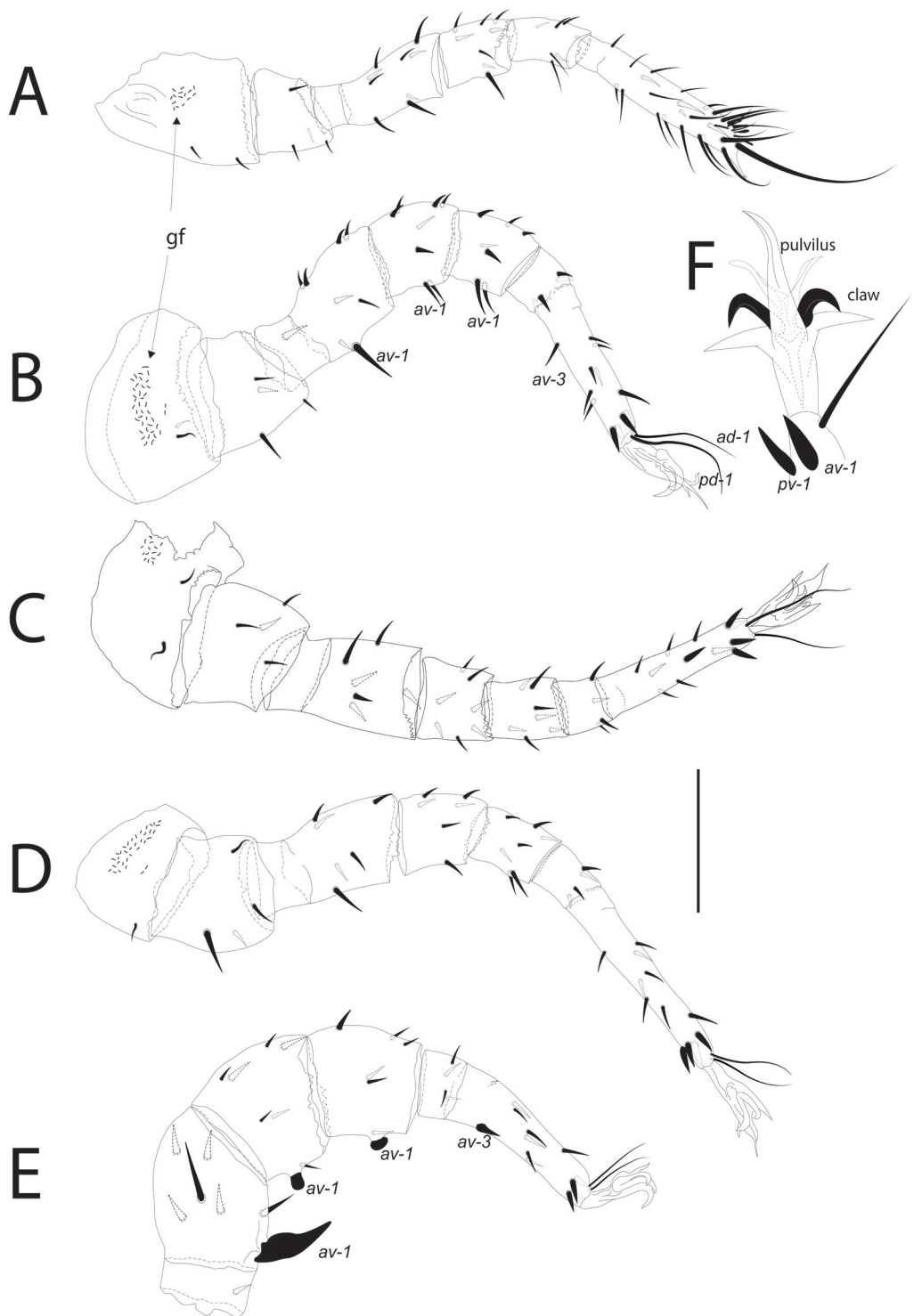


Fig. 3. *Uroseius subterraneus* sp.n. female. A—leg I; B—leg II; C—leg III; D—leg IV; male, E—detail of ambulatory of leg II. F—leg II. gf—glandular fields. Scale bars: A–E=100; F=50. Setae named according to Moraza (2019).

shield, but each one placed on small platelets in the following way. 1 row with marginal supplementary setae (*rx* and *Rx*) (anteriormost needle-like and remaining setae stout, barbed club-shaped); 1 dorsal row comprising pairs of *r1–r6*, *R1–R6*, *J5*, *S5*, *Z5* and 1 supplementary pair of setae *x*, where *r1–r5*, *x* and *S5* smooth and short, while remaining

pairs of setae stout, barbed club-shaped. 7 pairs of lyrifissures on membranous cuticle, 2 podonotal (*idx*) (Fig. 1C) and 5 opisthonotal (*idl1–idl5*).

Additionally, setae on marginal cuticle may be tentatively grouped in 1 marginal row that bends ventrally, ending anteriorly to *JV5* with 11 pairs of smooth needle-like setae, 38–66 (47) long.

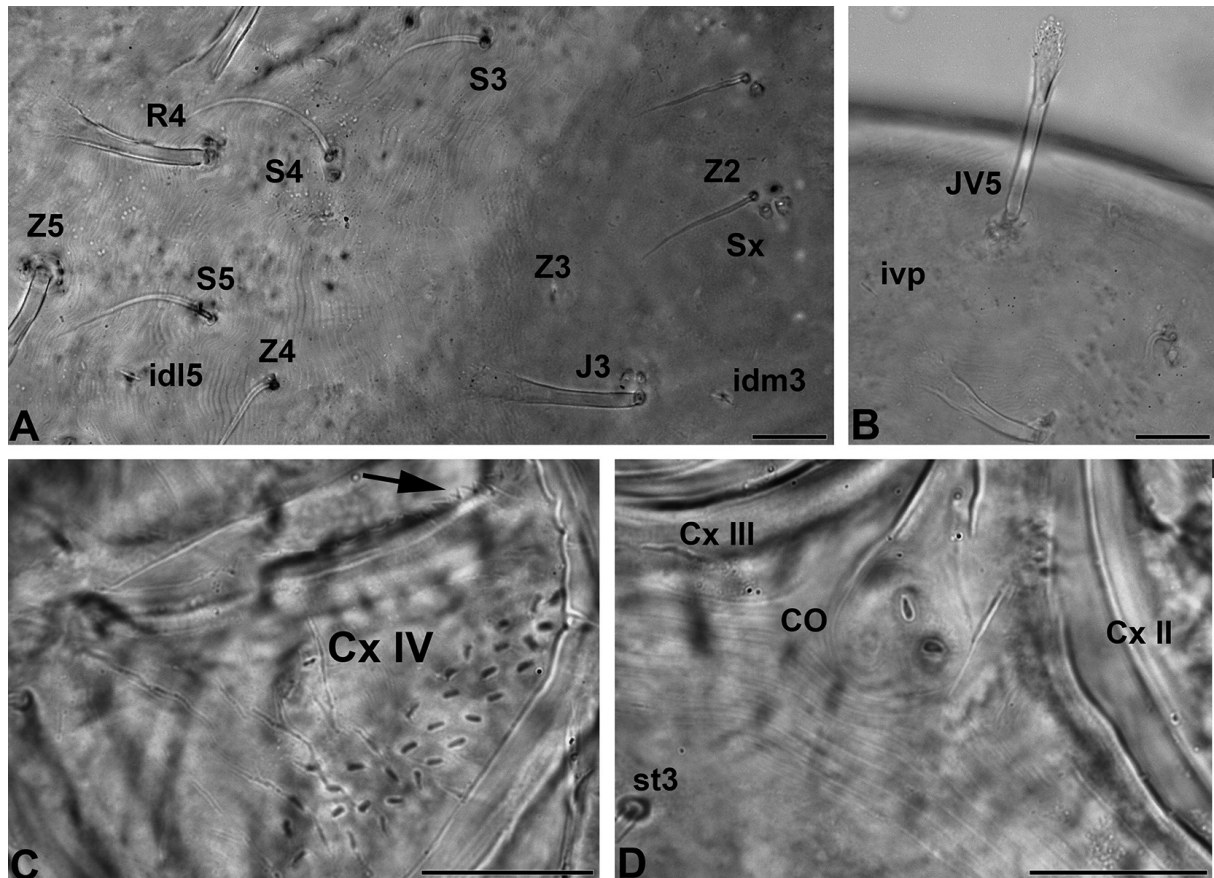


Fig. 4. *Uroseius subterraneus* sp. n. female. A—detail of dorsal idiosoma showing heteromorphic setae on dorsal shield and membranous marginal cuticle; B—detail of idiosoma showing ventral setae; C—coxa IV (CxIV) showing glandular fields, arrow points to the serrate surface; D—region between coxae (Cx) II and III showing the cuticular organ on a rounded platelet (CO); setae and pores named according to Moraza (2019). Scale bars=50.

Venter (Fig. 5A). Sternigenital, endopodals and anal regions distinctly sclerotized, other areas with 1 thinner cuticle despite being darker than membranous dorsal cuticle. Exopodal II–IV faintly paneled. 5 pairs of sternal setae thin and smooth 25–34 (29), with *st1*–*st3* in front of genital opening, *st4* flanking opening and *st5* posterior, associated to glandular opening and leveling with lyrifissures *iv5*. Genital opening at level of anterior margin of coxae IV, 72 long, 62 wide, with 2 valves, anterior valve almost circular and posterior valve crescent-shaped. Genital valves nude. Peritremes similar to those of female. Stigma situated between coxae II and III.

Anal shield sclerotized, cone-shaped, 80 long, 111 wide; 2 pairs of minute smooth adanal setae 12, pair of *gv3* lateral on anal shield.

Opisthogastric region. Similar to that of female, bearing 4 pairs of smooth and needle-like setae (*JV1*–*JV2*, *ZV1*–*ZV2*) 32–47(38) and 4 pairs of distally pilose setae (*JV3*–*JV5*, *ZV4*) 65–74 (70) associated with gland pores.

Gnathosoma. Gnathotectum as in female. Chelicerae 50 long excluding basal segment; movable cheliceral digit 38 long, morphology similar to female. Hypostomal setae smooth, length: *h3* (78) > *h1* (63) > *h4* (16) > *h2* (8). Corniculi stout. Palps as in females, 167 long.

Legs. Leg chaetotaxy as described for female. Leg lengths (excluding pretarsi): I (590), II (536), III (557), IV (576). Leg I tarsus (170) about 2.6 times longer than tibia (63). Setae *av-1* on femur II modified into spur, *av-1* on genu II and tibia II modified into thumb-like knob and in acute spine on tarsus II (Fig. 3E).

Juveniles: unknown.

Type material. Female holotype (UFMG AC 173943) in an iron ore cave (CS-09) at Serra do Sapo, Municipality of Conceição do Mato Dentro, State of Minas Gerais, Brazil (18°56'11"S, 43°24'45"W), 15–22 Jan. 2014, coll. Carste Ciência e Meio Ambiente. Female paratype (UFMG AC 173944), collection data same as for holotype. Female paratype (UFMG AC 210144) in a quartzite cave (S1MLT

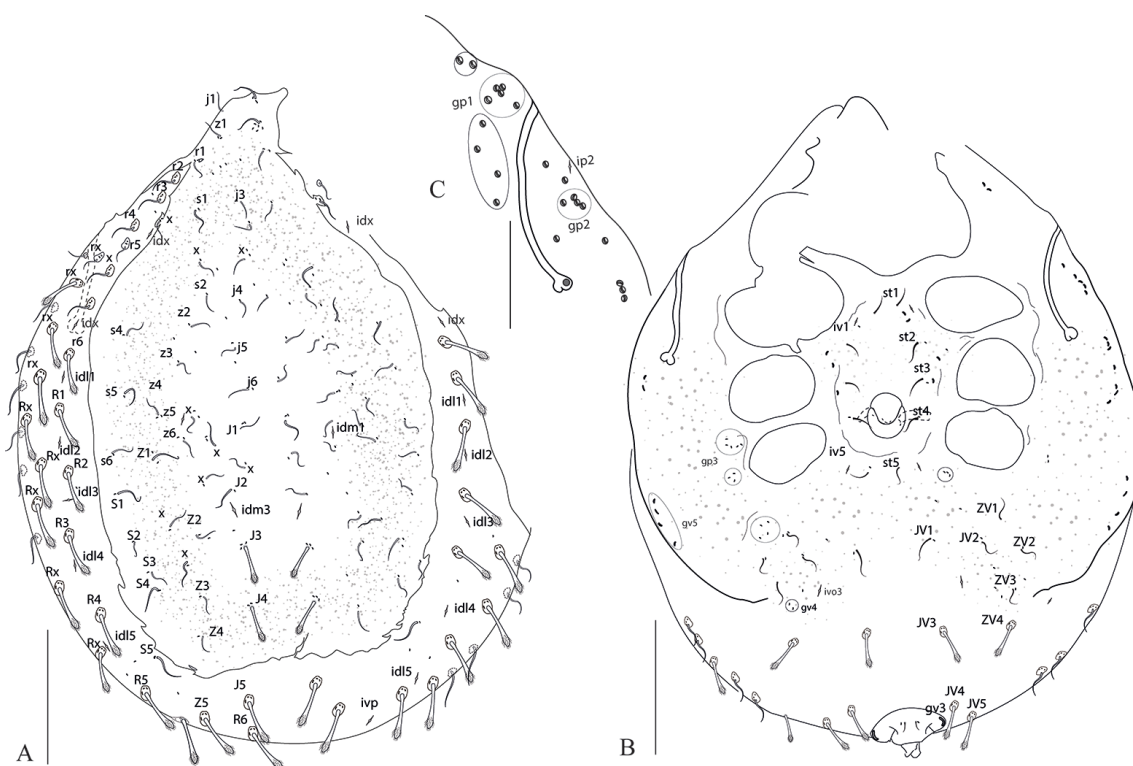


Fig. 5. *Uroseius subterraneus* sp.n. male. A—idiosoma ventral view; B—idiosoma dorsal view; C—detail of peritremal area and stigma; setae and pores named according to Moraza (2019). Scale bars: A, B=200; C=100.

009), Municipality of Santa Bárbara do Monte Verde, Mantiqueira Ridge, State of Minas Gerais, Brazil (21°56'55"S, 43°44'09"W), 24–27 Jun. 2020, coll. Eq. Spelayon. Male paratype (UFMG AC 172895) in an iron ore cave (SPT-0585), Municipality of Conceição do Mato Dentro, State of Minas Gerais, Brazil (19°10'30"S, 43°15'55"W), 12–14 Jun. 2017, coll. Carste Ciência e Meio Ambiente.

Type depositories: type material deposited at “Centro de Coleções Taxonômicas da UFMG (CCT-UFMG)”.

Etymology. The species name refers to the fact that the specimens were collected inside of caves.

Remarks. The genus *Uroseius*, including *U. subterraneus* sp.n., comprises 20 species. Four of them are represented by adults: *U. loksai* Kontschán, 2012; *U. rotundus* Hiramatsu, 1981; *U. subterraneus* sp.n.; and *U. willmanni* Hirschmann and Zirngiebl-Nicol, 1969). Six of the species are represented by both adults and deutonymphs: *U. acuminatus* (Koch 1847); *U. degeneratus* Oudemans, 1913; *U. foetidus* Moraza and Pérez-Martínez, 2019; *U. hunzikeri* Schweizer, 1922; *U. sorrentinus* Lombardini, 1952; and *U. tuberosus* Hirschmann and Hiramatsu, 1971. The remaining ten species are represented by deutonymphs only. Two species—*U. subterraneus* sp.n. and *U. sorrentinus*—had their males described (Moraza 2019, present study).

Among the nine species with described females, three are neotropical, found in Ecuador: *U. tuberosus* Hirschmann and Hiramatsu, 1977; *U. loksai* Kontschán, 2012; and *U. rotundus* Hiramatsu, 1981. *Uroseius subterraneus* sp.n. differs from the above three species in having dual setal morphology, with some setae smooth, short and needle-shaped and others long, stout, barbed club-shaped (Kontschán 2012). In *U. tuberosus*, all setae are pilose and long, while in *U. loksai* and *U. rotundus* all setae are smooth and short. Additionally, *U. tuberosus* has a caudal idiosomal protuberance, which is absent in all other *Uroseius* (Kontschán 2012).

The heterogeneous morphology of setae observed in *U. subterraneus* sp.n. was, until now, thought to be a feature restricted to the Palearctic species of the *Uroseius* genus (Karg 1989, Moraza and Pérez-Martínez 2019). The distribution of setae with different morphologies relative to the sclerotization varies among Palearctic species, however, and the only species with a similar distribution of setal morphologies on dorsum is the recently described *U. foetidus*. *Uroseius foetidus* and *U. subterraneus* share two pairs of stout and barbed club-shaped setae on dorsal shield (J3–J4) and both smooth, short needle-like and stout barbed club-shaped setae on laterodorsal idiosoma.

Uroseius subterraneus sp.n. differs from *U. foetidus* in the shape and size of the ventral and marginal setae. *Uroseius subterraneus* sp.n. has a marginal, ventral bending row with 10–13 pairs of smooth needle-like setae 38–66 (this range includes females and one male) and setae *JV1–JV2*, *ZV1–ZV2* 32–47 long (this range includes females and one male), while all of the above setae are very short or vestigial in *U. foetidus*. Another distinctive feature is the relative size of hypostomal setae: in *U. foetidus*, hypostomal seta *h2* is as long as or slightly longer than the distance to the base of *h1*, and the palpcoxal seta *h4* is clearly the shortest; in *U. subterraneus* sp.n., *h2* is the shortest setae, even shorter than *h4*.

This is the second species of *Uroseius* from which a male is described. It confirms the observations of *U. sorrentinus* (Lombardini, 1952), in which males and females differ in leg II: with setae *av* modified as spurs (which are pointed on femora and assume the shape of a blunt knob on genu and tibia) and tarsus II with enlarged, spine-like seta in males. The males and females also differ in bearing some pairs of setae on dorsal shield in males whereas in female they are on striated dorsal cuticle, namely *J5*, *Z4*, *Z5* in *U. sorrentinus* and *S3–S4* and *Z4* in *U. subterraneus* sp.n. Males of *U. subterraneus* sp.n. differ from those of *U. sorrentinus* in having nude genital valves (vs. *U. sorrentinus* males having a pair of eugenital setae on anterior valve).

Family **Oplitidae Johnston, 1968**
Genus **Oplitis Berlese, 1884**

Diagnosis. The concept of *Oplitis* used here is based on that of Lopes, Oliveira, Delabie and Klompen (2015).

***Oplitis apicalis* Lopes, Oliveira,
Delabie and Klompen, 2015**

Adult diagnosis. Idiosoma longer than wide, with dorsal shield relatively smooth, with punctuated appearance at high magnifications. Dorsal setae scimitar-shaped. Central dorsal and lateral dorsal regions distinct, merging anteriorly. Marginal shield fused anteriorly with dorsal shield, its setae simple acuminate. Ventral regions of idiosoma similarly smooth, pedofossae present, with pedofossae IV with a pointed tip, gradually narrowing, but with a distinct constriction before the tip. Presence of 3–4 ventral setae. Operculum rounded anteriorly, largely straight posteriorly. Perigenital structure surrounding the genital shield.

Anterior and posterior margins of perigenital structure crenulate, with 5 crenulations on anterior and 5–7 crenulations on posterior margins. Anal shield separated from ventral shield by a pre-anal line. Posterior paranal setae distinctly smaller than the anterior paranal setae, corresponding to 0.5–0.33 of their length. Anterior branch of the peritreme convolute, mushroom-shaped. Gnathotectum with 3 pointed projections.

Description. Measurement ranges are compared to the original description (in parentheses).

Dorsum. Marginal shield width 20–25 (17–23). Dorsal shield setae 23–29 (17–38) long, slender, scimitar-shaped. Marginal shield setae short, 13–15 (11–16), simple, acuminate.

Venter. Operculum situated between coxae II–IV, 153–156 (149–168) long, 105–107 (104–115) wide. Perigenital shield elliptical with 5 (5) crenulations on anterior and 6 (5–7) crenulations (holotype 6) on posterior margins. Perigenital shield longer than wide, 230–232 (223–250) long and 118–120 (114–129) wide. Perigenital area with short setae, length 4–5 (3–6). Pre-anal line present. Setae on ventral and anal shields slender, scimitar-shaped 24–26 (23–30) in length. Peritremes triconvolute, with a tight mushroom-shaped loop in the middle of the anterior branch.

Gnathosoma. Chelicerae with a distinct “nodus”, fixed digit 45 (49–57), movable digit 32 (37–40). Fixed digit with 2 teeth, movable digit with one tooth. Palpal apotele distinctly 3-tined. Trochanteral setae *v1* and long tarsal setae slightly barbed, other setae smooth; genual setae short, thick, spine-like, other setae thin, setiform. Setal formula: 2–4–5–12–14. Gnathotectum tripartite, lateral branches almost as long as median; margins of entire gnathotectum with large, somewhat irregular denticles. Labrum (*la*) singular, covered throughout with similar-sized, small fimbriae. Lateral lips feather-like, bushy. Hypostomal setae *h1* smooth, *h2* with a few small barbs, *h3* with coarse barbs in median section, and subcapitular setae (*sc*) with small, dense barbs along entire length ($h3 > sc > h1 = h2$). Corniculi horn-like. Tritosternum vase-shaped, with smooth surface; laciniae three-branched, the middle branch bifurcate apically.

Legs. Coxae I–IV with dense small punctuations. Length of leg I 240–253 (203–283), leg II—224–238 (232–270), leg III—226–232 (212–253, 236), leg IV—248 (228–281, 252). Leg setation I–IV: coxae: 2–2–2–1; trochanters: 4–3–3–3 (trochanters I with both dorsal setae setiform, smooth, *al* and *pl* both arborescent near tip);

femora: 1 2/1 2/1 1, 1 2/1 2/1 1, 1 2/1 1/1 0, 1 2/1 2/1 0 (*pd2* and *pl* absent on femora III, *pl* also absent on femora IV); genu: 1 2/1 2/1 1, 1 2/1 2/1 1, 1 2/1 2/0 1, 1 2/1 2/0 0; tibiae: all 1 1/1 2/1 1; tarsi II–IV: all 3 3/2 1/1 3/2 3 (setae *ad1* and *pd1* thin, other dorsal setae spine-like). Femoral setae *pv* II–IV wide 2.0 (3.5) and long. Femora I–IV with ventral lamellae. All pretarsi with claws.

Examined material. All mites were obtained from iron ore caves at Conceição do Mato Dentro, State of Minas Gerais, Brazil and collected by the staff of the company *Carste Ciência e Meio Ambiente*. Two females (UFMG AC 174526-7), cave ASS-10 at Serra do Sapó, 18°55'37"S, 43°24'55"W, 27 Feb.–9 Mar. 2012; Female (UFMG AC 170361), cave CSS-0097, 18°56'42"S, 43°24'20"W, 31 May–12 Jun. 2016; Female (UFMG AC 171830), cave AFS 57/19, 19°00'40"S, 43°23'47"W, 18–20 Apr. 2016; Female (UFMG AC 172611), cave MSS 78/19, 19°00'40"S, 43°23'47"W, 16 Dec. 2015; Female (UFMG AC 172835), 19°00'28"S, 43°23'48"W, 10 Sep. 2015.

Comparative material examined: 2 female paratypes, collected from *Neoponera verenae* (Formicidae) at Municipality of Gandu, State of Bahia, Brazil (13°44'31"S, 39°39'50"W), 17 Jun. 2014, coll. Juliana M.S. Lopes. Both deposited at Escola Superior de Agricultura “Luiz de Queiroz”.

Remarks. No significant difference could be found when comparing the individuals reported here to the original description of *Oplitis apicalis*. It is noteworthy that both species, *O. apicalis* and *U. subterraneus*, have no special morphological features (troglomorphisms) that may be related to subterranean environments. Indeed, the original description of *O. apicalis* was based on epigenous material associated with ants. Since the mites described herein were sorted from material collected in caves, it is possible that our specimens detached from the ants before being studied.

Another species of *Uroseius*, *U. sorrentinus*, was collected from caves in Spain and Italy from different depths inside the caves. Similar to the species reported herein, it also has no morphological features that suggest troglodytism (Moraza 2019). Hence, we regard both species as troglophile or troglonexes, i.e. non-obligate cave inhabiting mites (Sket 2008).

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