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Article

Redescription of *Moritzoppia* (*Moritzoppia*) *unicarinata unicarinata* (Acari: Oribatida: Oppiidae) collected from Iran

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Abstract

An oribatid mite of the family Oppiidae, *Moritzoppia* (*Moritzoppia*) *unicarinata unicarinata* (Paoli, 1908) is redescribed on the basis of Iranian material.

Key words: oribatid mites, Pycnonota, Oppiellinae, morphology, taxonomy.

Introduction

The oribatid mite genus *Moritzoppia* (family Oppiidae; subfamily Oppiellinae) was established by Subías & Rodríguez (1987) with *Oppia keilbachi* Moritz, 1969 as the type species. This genus is a replacement name for *Moritziella* J. Balogh, 1983. The name *Moritziella* is a nom. praeoc. (junior homonym of *Moritziella* Börner, 1908 (Hemiptera)) and therefore needed to be changed. *Moritzoppia* is easily distinguished from other genera of the subfamily by the convex dorsosejugal suture, usually penetrating into the basal part of the prodorsum; well developed seta c_2, which is at least as long as the remaining notogastral setae; globular and aciculate sensillus and with four pairs of genital setae (Balogh & Balogh 1992). Thirty-three species and six subspecies in two subgenera (*Moritzoppia* Subías & Rodríguez, 1987 and *Moritzoppiella* Gordeeva, 2000) have, until now, been recorded as members of this genus, distributed in the Holarctic, Neotropical and Australian regions (Subías 2014). Among the species, *Moritzoppia* (*Moritzoppia*) *unicarinata* (Paoli, 1908) with having five subspecies is the species with the most subspecies.

During 2004 in the course of faunistic surveys of oppiid mites of Iran, the subspecies *Moritzoppia* (*Moritzoppia*) *unicarinata unicarinata* (Paoli, 1908) from Mazandaran province, northern Iran, was collected. The main objective of the present paper is to provide a more complete redescription of this subspecies based on Iranian specimens.

Materials and methods

Soil and litter samples were taken from the surface to a soil depth of 10 cm under different plants. Oribatid mites were extracted in Berlese-Tullgren funnels set over jars of 75% ethanol. Mites were removed, cleared in lactophenol, and mounted in Hoyer's medium on glass microscope slides. The slides were placed in an oven at 45 °C for two weeks, after which the specimens were examined using a light microscope (Zeiss Standard 20). Figures were made using a drawing tube attached to the microscope.

Body length was measured from the tip of the rostrum to the posterior edge of the notogaster, and body width refers to the maximum width of the notogaster in dorsal aspect. All body measurements are presented in micrometers (μm).

All specimens are deposited in the Acarology Collection, Department of Plant Protection, Shiraz University, Shiraz, Iran.

Results and discussion

Moritzoppia (*Moritzoppia*) *unicarinata unicarinata* (Paoli, 1908) (Figs. 1–5)

Material examined

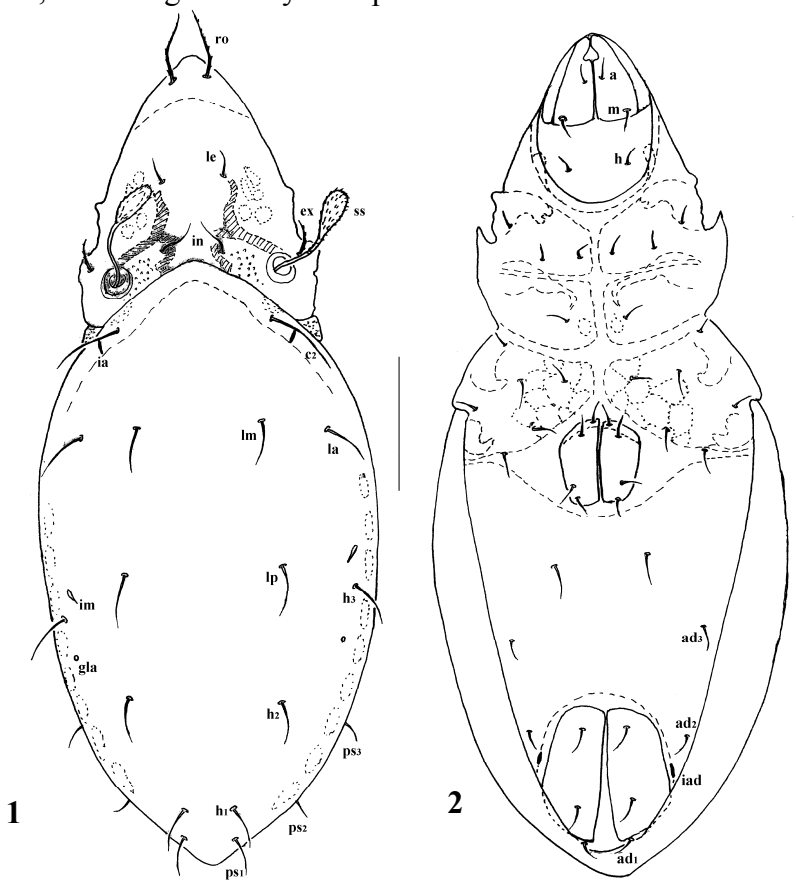
Five specimens were collected at the beginning of Kandelous road (2 km.), Mazandaran province, northern Iran, from soil under cypress trees (*Cupressus* sp.), 10 IV 2004, M.A. Akrami leg.

Redescription

Measurements. Three females and two males. Mean length 290 (n= 5; range 276–297). Mean width 121 (n= 5; range 117–128). Females and males similar in size.

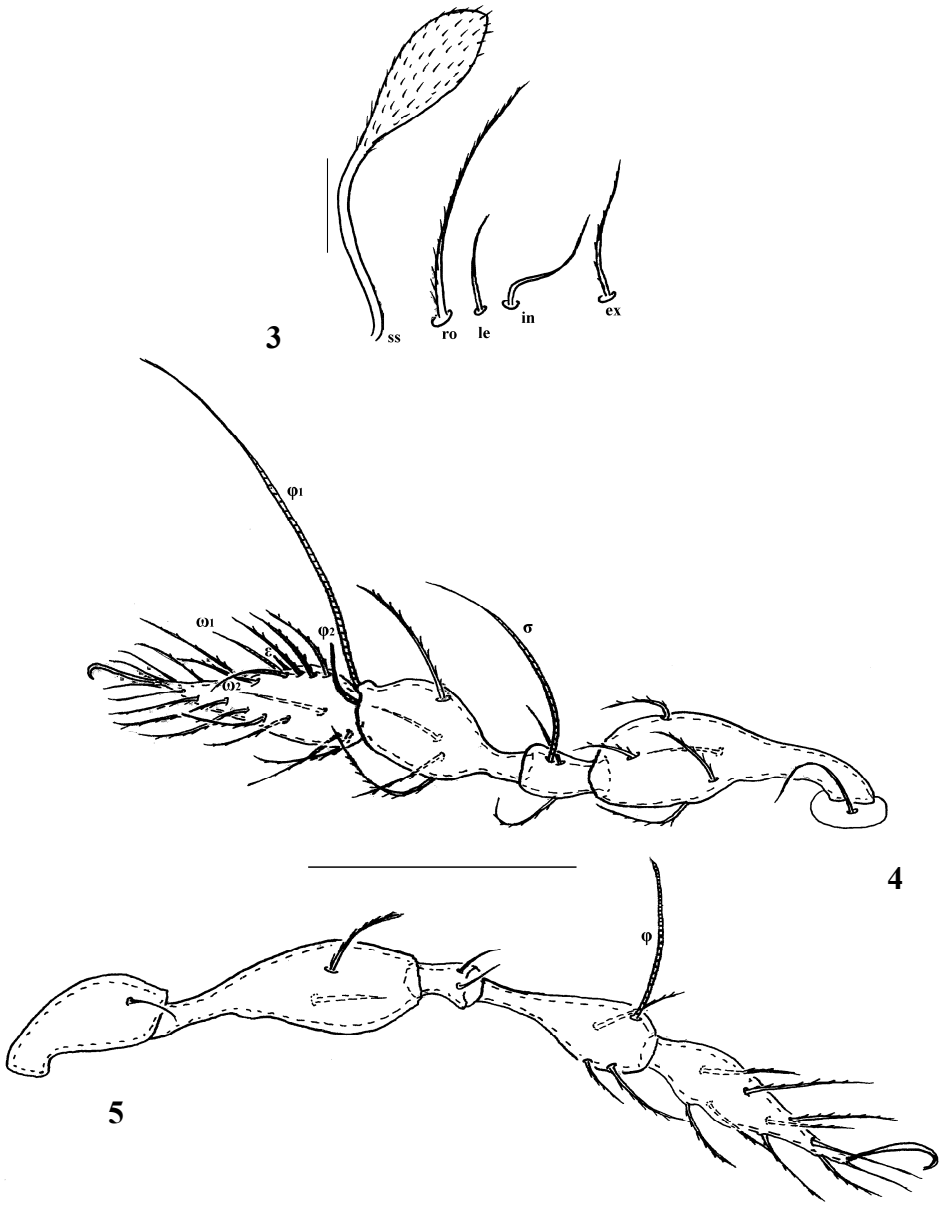
Integument. Yellowish-brown in color. Body surface smooth.

Prodorsum (Figs. 1 & 3). Rostrum rounded with slightly prominent at tip. Rostral setae (*ro*) long, finely barbed unilaterally, inserted on dorsal surface of the rostrum, curved inwards, extending well beyond tip of rostrum.



Figures 1–2. *Moritzoppia* (*Moritzoppia*) *unicarinata unicarinata* (Paoli, 1908). 1. Dorsal view of body; 2. Ventral view of body (scale bar 50 μm).

Lamellar setae (*le*) thin, smooth, almost ¼ as long as rostral setae, arising near anterior end of costulae. Interlamellar setae (*in*) smooth, slightly longer than lamellar setae, nearly half as long as rostral setae, inserted near a pair of cristae in the interbothridial region. Distance between lamellar and interlamellar setae shorter than distance between rostral and lamellar setae. Exobothridial setae (*ex*) nearly as long as interlamellar setae, finely barbed. Sensilli (*ss*) fusiform and aciculate, its head with some very short barbs. Costulae not reaching the insertions of lamellar setae. Transcostula absent. Bothridia round, with wide openings. Some muscle sigillae situated anterior to each bothridium.



Figures 3–5. *Moritzoppia* (*Moritzoppia*) *unicarinata unicarinata* (Paoli, 1908). 3. Sensillus (ss) and prodorsal setae (ro= rostral, le= lamellar, in= interlamellar, ex= exobothridial) (scale bar 10 μm); 4. Leg I; 5. Leg IV (scale bar 50 μm).

Notogaster (Fig. 1). Notogaster elongate, its anterior and posterior margins conspicuously narrowed. Dorsosejugal suture convex, penetrating into the basal part of

prodorsum. Ten pairs of notogastral setae short, thin and smooth, seta c_2 well developed, slightly longer than other notogastral setae, *lm* and *la* situated on same level. Lyrifissures *ia*, *im* and latero-opisthosomal gland (*gla*) opening well developed.

Ventral side (Fig. 2). Hypostomal setae *h*, *m* and *a* short, thin. Apodemes *I*, *II*, *sj* and *IV* well developed. Epimere II with one pair of round muscle sigillae and epimeres III and IV with several polygonal muscle sigillae. Epimeral setal formula (I-IV) 3-1-3-3, epimeral setae short, thin and smooth. Discidium well developed. Genital plates with 4 pairs of genital setae, two inserted on anterior half and two on posterior half the plates, one pair of aggenital setae, two pairs of anal and three pairs of adanal setae; adanal setae ad_1 in postanal, ad_2 in para-anal and ad_3 in pre-anal position. Ano-genital region smooth. Lyrifissures *iad* situated in para-anal position, adjacent to anal plates.

Legs (Figs. 4 & 5). Leg setation normal for the family. All tarsi monodactyle. Formula of leg setation including famulus (trochanter to tarsus): I (1-5-2-4-20); IV (1-2-2-3-10) and the formula of solenidia: I (1-2-2); IV (0-1-0). On tarsus I solenidia ω_1 and ω_2 nearly equal in length, famulus ε short and slender, situated proximal to ω_1. Tibia I with very long solenidion φ_1 and short φ_2, φ_1 about 5 times longer than φ_2. Genu I with long solenidion σ. Tibia IV with long solenidion φ, much longer than dorsolateral setae.

Remarks

The characters that differentiate the five subspecies of *Moritzoppia* (*Moritzoppia*) *unicarinata* are given in Table 1.

Table 1. Diagnostic characters of *Moritzoppia* (*Moritzoppia*) *unicarinata* subspecies

Subspecies / Characters	*M.* (*M.*) *unicarinata unicarinata* (Paoli, 1908)	*M.* (*M.*) *unicarinata clavigera* (Hammer, 1952)	*M.* (*M.*) *unicarinata unicarinatoides* (Subías & Rodríguez, 1986)	*M.* (*M.*) *unicarinata cristata* (Subías & Rodríguez, 1986)	*M.* (*M.*) *unicarinata yozgatensis* Toluk *et al*., 2007
Body size	280 × 130	290–300 × 160–180	262–291 × 144–160	252–274 × 133–147	296–320 × 124–140
Rostrum	slightly prominent	rounded	prominent	rounded	rounded
Rostral setae	barbed	smooth	barbed	barbed	only with one cilia
Rostral protuberance	absent	absent	absent	present	present
Transcostula	absent	present	absent	absent	present
Position of lamellar seta	near costula	on costula	near costula	near costula	near costula
Distribution (Subías, 2014)	Holarctic region	Boreoalpina	Palearctic region	Spain	Turkey

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بازتوصیف *Moritzoppia* (*Moritzoppia*) *unicarinata unicarinata* (Acari: Oribatida: Oppiidae) جمع‌آوری شده از ایران

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چکیده

کنهٔ نهان استیگمایی از خانواده‌ی Oppiidae با نام علمی *Moritzoppia* (*Moritzoppia*) *unicarinata unicarinata* (Paoli, 1908) بر اساس نمونه‌های جمع‌آوری شده از ایران بازتوصیف می‌شود.

واژگان کلیدی: کنه‌های اریباتید، Pycnonota، Oppiellinae، ریخت‌شناسی، رده‌بندی

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