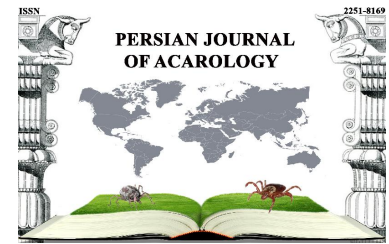




Persian J. Acarol., 2017, Vol. 6, No. 2, pp. 81–93.
<http://dx.doi.org/10.22073/pja.v6i2.28227>
Journal homepage: <http://www.biotaxa.org/pja>



<http://zoobank.org/urn:lsid:zoobank.org:pub:D5345AA0-B930-45F6-947D-E52ABF68F12E>

Article

Oribatid mites of Oripodoidea (Acari: Oribatida) from northwest of Iran with additional description of *Scheloribates (Scheloribates) labyrinthicus*

Tahereh Taghipour Gol¹, Mohammad Bagheri^{1*} and Mansoureh Ahaniazad²

1. Department of Plant Protection, Faculty of Agriculture, University of Maragheh, Maragheh, Iran; E-mails: taghipourgol@yahoo.com; mbagheri20022002.mb@gmail.com

2. Young Researchers and Elite Club, Maragheh Branch, Islamic Azad University, Maragheh, Iran; E-mail: man.ahaniazad@yahoo.com

* Corresponding author

ABSTRACT

A study on the oripodoid mites fauna (Oribatida: Oripodoidea) in Miandoab region (West Azerbaijan Province) was carried out during 2015–2016. In this survey, 16 species belonging to three families and five genera are known, of which the species *Scheloribates (Scheloribates) labyrinthicus* Jeleva, 1962 is recorded for the first time from Iran. An additional description is provided for *Scheloribates (S.) labyrinthicus* based on specimens collected from the northwest of Iran. Moreover, a checklist of 16 oripodoid mite species of Miandoab region is presented.

KEY WORDS: Brachypylina; mite; new data; new record; Sarcoptiformes.

PAPER INFO.: Received: 7 November 2016, Accepted: 5 January 2017, Published: 15 April 2017

INTRODUCTION

The superfamily Oripodoidea is one of the largest superfamilies of the oribatid mites which comprises 18 families. Oribatulidae Thor, 1929, Haplozetidae Grandjean, 1936 and Scheloribatidae Grandjean, 1933 are the three species richest and cosmopolite families of this superfamily, each with more than 300 species (Subías 2004, updated 2016; Norton and Behan-Pelletier 2009). According to Akrami (2015), 46 species belonging to 23 genera and nine families of this superfamily have been reported from Iran.

The genus *Scheloribates* was erected by Berlese (1908) with the type species *Zetes latipes* Koch, 1844 and currently includes three subgenera [*Scheloribates (Scheloribates)* Berlese, 1908; *Scheloribates (Bischeloribates)* Mahunka, 1988 and *Scheloribates (Grandjeanobates)* Ramsay, 1967] that only first subgenus was recorded from Iran. Csiszár and Jeleva (1962) described *Scheloribates (S.) labyrinthicus* from Bulgaria; afterwards it was recorded from Czechoslovakia (Miko 1987), Western Ukraine, Bohemia, Moravia (Karpainen *et al.* 1992), Spain (Pérez-Iñigo 1993), Romania (Ivan and Vasiliu 2008). The original description provides only figures of dorsal and ventral view of body; furthermore, there are not any complete redescription or detailed figures in the other literatures. It is therefore warranted to provide an additional description of this species.

The goal of the present work is to give an additional description and illustrate the morphology of *Scheloribates (S.) labyrinthicus*, a species until now known only from Western part of the Southern Palearctic and Spain.

MATERIALS AND METHODS

Mites were collected from soil and litter samples of a few trees in 2015 (See Table 2), extracted by using a Berlese funnel apparatus and preserved in 75% ethanol. Specimens were cleared in lactophenol and permanently mounted in Hoyer's medium on glass microscope slides for identification. The slides were placed in an oven at 45°C for 20–40 days. Specimens were examined by using a phase-contrast microscope (Olympus BX41). All measurements are given in micrometers (μm).

The body length was measured from the tip of the rostrum to the posterior edge of the ventral plate. Notogastral width refers to the maximum width in dorsal aspect. Formulas for leg setation are given in parentheses according to the sequence trochanter-femur-genu-tibia-tarsus (famulus included). Formulas for leg solenidia are given in square brackets according to the sequence genu-tibia-tarsus. Terminology used in this paper mostly follows that summarized by Grandjean (1965), and Norton and Behan-Pelletier (2009). All specimens are deposited in the Acarological Collection, Department of Plant Protection, Faculty of Agriculture, University of Maragheh, Maragheh, Iran.

RESULTS

In the course of a faunistic survey of oripodoid mites of Miandoab, West Azerbaijan province, northwest of Iran, we found 16 species from three families and five genera namely Oribatulidae [*Oribatula* (*Oribatula*) and *O.* (*Zygoribatula*)], Scheloribatidae [*Scheloribates* (*Scheloribates*)], Haplozetidae [*Baloghiella*, *Peloribates* and *Protoribates*] of which *Scheloribates* (*S.*) *labyrinthicus* is reported for the first time from Iran (marked by two asterisks) and five species are reported for the first time from West Azerbaijan province (marked by one asterisk).

Checklist of Miandoab region oripodoid mites

Family Scheloribatidae Grandjean, 1933 Genus *Scheloribates* (*Scheloribates*) Berlese, 1908

Scheloribates (*S.*) *labyrinthicus*** Jeleva, 1962 (Figs. 1–18)

Additional description

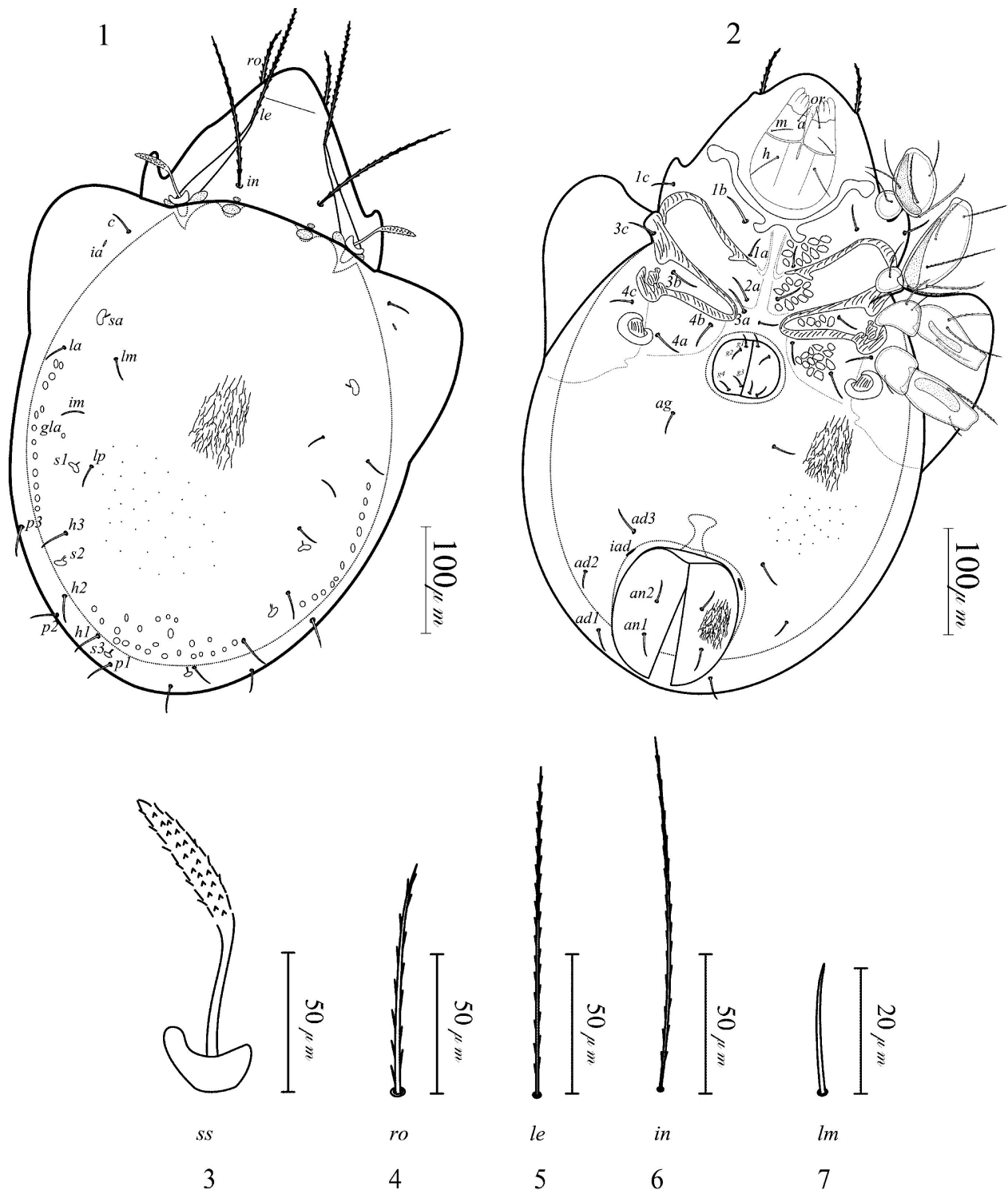
Measurements – Body length: 600–610, width: 425–450.

Integument – Body yellowish brown in colour. Integumental surface (excluding genital plates, prodorsum and subcapitulum) with undulating lines which constitute labyrinth-like ornamentation.

Prodorsum (Figs. 1, 3–6) – Rostrum rounded, weakly protruding in dorsal view; lamellae developed and approximately longer than half of the prodorsum length, thicker in base, slightly narrowed distally and without cusps; translamellar line absent; prolamellar lines present, reaching the insertion points of rostral setae; rostral setae (*ro*: 75–88) in middle length, inserted laterally (Fig. 4); lamellar setae (*le*: 128–133) thinner and longer than rostral ones (Fig. 5); interlamellar setae (*in*: 145–160) longer than lamellar ones (Fig. 6); exobothridial setae (*ex*: 60–67) developed. All setae setiform and barbed bilaterally; bothridial setae (*ss*: 80–100) curved, fusiform, with asymmetrical and barbed distal part (Fig. 3); porose areas *Al* elongated, ribbon shape, transverse oriented, located in sublammellar position; porose areas *Ad* small, oval, located posterolateral to interlamellar setae.

Notogaster (Figs. 1, 4, 5) – Notogaster U shaped, with well-developed pteromorphs; dorsosejugal suture straight medially; dorsophragmata (*D*) small, oval; surface of notogaster with labyrinth-like sculptures which create reticulate ornamentation; 10 pairs of notogastral setae simple, thin, but easily observable; 5 pairs of setae (*lm*, *lp*, *h1*, *h2*, *h3*) inserted medially, other setae (*c*, *la*, *p1*, *p2*, *p3*) inserted laterally; 4 pairs of sacculi (*Sa*, *S1*, *S2*, *S3*) present; lyrifissures *ia*, *im* and *ip* distinct. Setal

measurements as follows: *c* 16-19, *lm* 22-23 (Fig. 7), *la* 20-25, *lp* 15-17, *h1* 18-20, *h2* 25-26, *h3* 21-22, *p1* 22-24, *p2* 24-26, *p3* 22-23. Both the pteromorphs with labyrinth-like ornamentations, similar to that present on the notogaster.



Figures 1–7. *Schelorbates (S.) labyrinthicus* Jeleva, 1962 (female) – 1. Dorsal view of body; 2. Ventral view of body; 3. Sensillus; 4. Rostral seta; 5. Lamellar seta; 6. Interlamellar seta; 7. Seta *lm*.

Gnathosoma (Figs. 2, 12–14) – Subcapitulum longer than wide: $120\text{--}122 \times 78\text{--}80$; subcapitular setae setiform and smooth, *a* 15–16, *m* 16–18, *h* 29–35 (Fig. 12); palps (length 88–90) with setation 0-2-1-3-9(+ ω); solenidion thickened, blunt-ended, attached with eupathidium *acm* (Fig. 14); chelicerae with two setiform and barbed setae; *cha* (39–42) longer than *chb* (25–28); trögårdh's organ (Tg) distinct (Fig. 13).

Epimeral region (Fig. 2) – Epimeral region strongly sclerotized, apodemes I–III and sejugal apodeme distinct; epimeral setal formula: 3-1-3-3. All epimeral setae setiform, thin and smooth. Setal measurements as follows: *1a* 14–16, *1b* 28–30, *1c* 22–23, *2a* 13–14, *3a* 14–15, *3b* 29–31, *3c* 24–25, *4a* 24–30, *4b* 16–17, *4c* 24.

Anogenital region (Fig. 2) – Chaetotaxy of anogenital region typical; four pairs of genital (*g*₁–*g*₄), one pair of aggenital (*ag*), two pairs of anal (*an*₁, *an*₂) and three pairs of adanal (*ad*₁–*ad*₃) setae present; all setae setiform, thin, smooth; lyrifissures *iad* distinct, located parallel to anal plates. Setal measurements as follows: *g*₁–*g*₄ 12–15, *ag* 19–21, *an*₁ 12–18, *an*₂ 17–25, *ad*₁–*ad*₃ 15–23; *ad*₁ in postanal position.

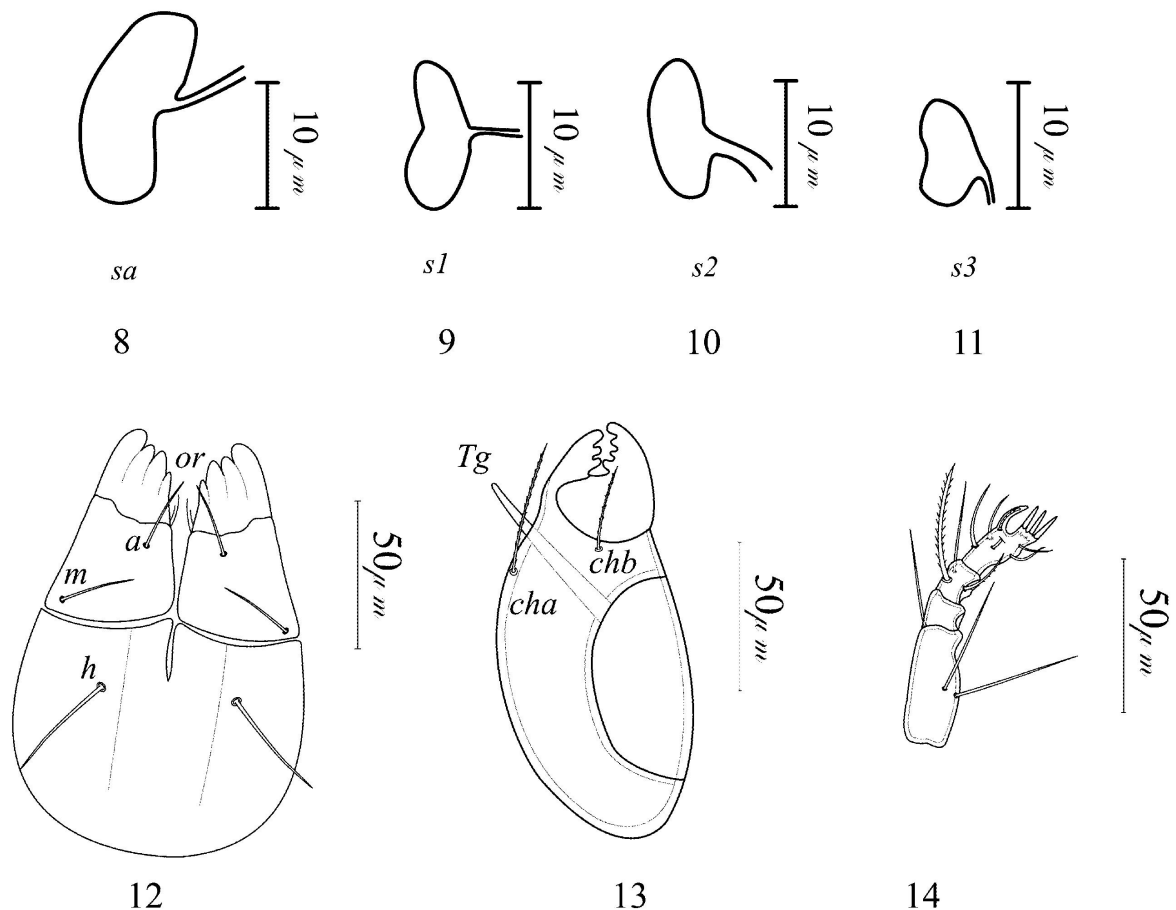
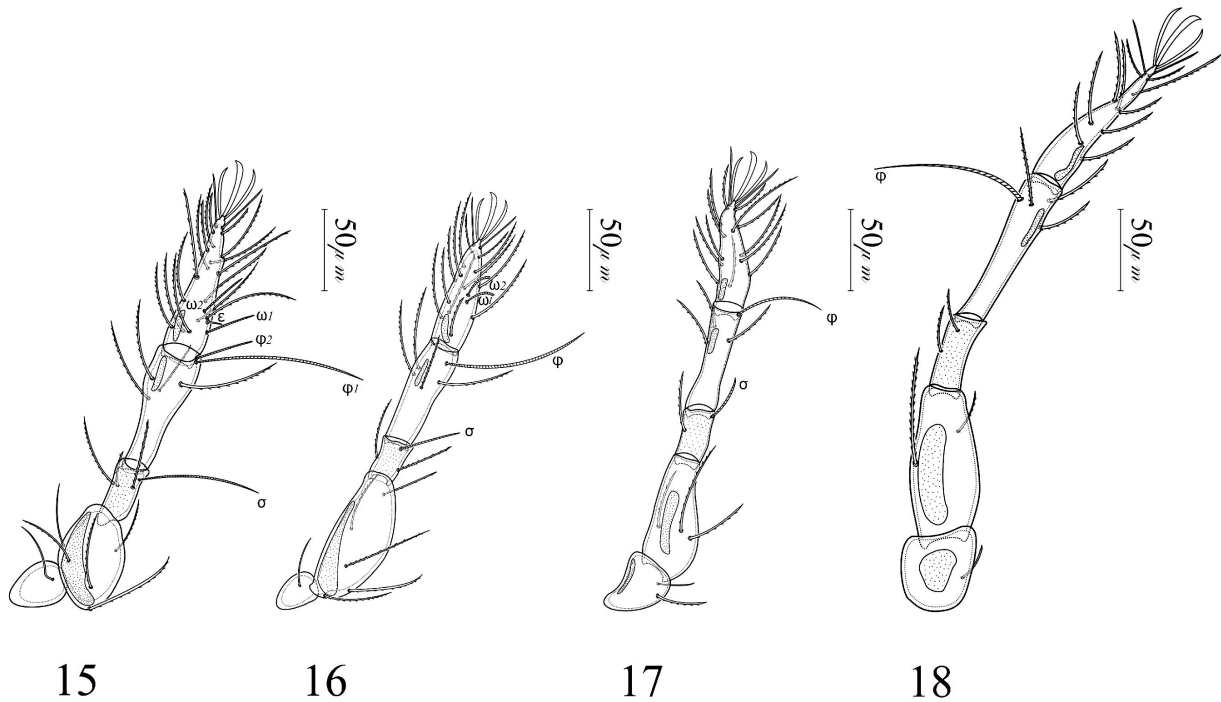


Figure 8–14. *Schelorbates* (*S.*) *labyrinthicus* (female) – 8. Sacculus *Sa*; 9. Sacculus *S*₁; 10. Sacculus *S*₂; 11. Sacculus *S*₃; 12. Subcapitulum; 13. Chelicerae (left); 14. Palp (left).

Legs (Figs. 15–18) – All legs heterotridactylous, medial claw thicker and larger than lateral claws. Formulae of leg setation and solenidia: I (1-5-3-4-19) [1-2-2], II (1-5-2-4-15) [1-1-2], III (2-3-1-3-15) [1-1-0], IV (1-2-2-3-12) [0-1-0] (Table 1). Famulus (ε) short, straight, blunted; all setae of legs (except setae *p* and trochanteral setae) slightly barbed; tarsus, tibia and femur I–IV and trochanter III and IV with porose areas.



Figures 15-18. *Schelorbates (S.) labyrinthicus* (female) – 15. Leg I (right, trochanter to tarsus), 16. Leg II (right, trochanter to tarsus), 17. Leg III (left, trochanter to tarsus), 18. Leg IV (right, trochanter to tarsus).

Table 1. Leg setation and solenidia of *Schelorbates (S.) labyrinthicus* (Based on Iranian material).

Leg	Trochanter	Femur	Genu	Tibia	Tarsus
I	v'	d, (l), v'', bv''	l, v', σ	(l), (v), φ ₁ , φ ₂	(ft), (tc), (it), (p), (u), (a), s, (pv), (pl), v', ε, ω ₁ , ω ₂
II	v'	d, (l), v'', bv''	(l), σ	(l), (v), φ	(ft), (tc), (it), (p), (u), (a), s, (pv), ω ₁ , ω ₂
III	l', v'	d, l', ev'	l', σ	l', (v), φ	(ft), (tc), (it), (p), (u), (a), s, (pv)
IV	v'	d, ev'	d, l'	l', (v), φ	ft'', (tc), (p), (u), (a), s, (pv)

Roman letters refer to normal setae, Greek letters refer to solenidia and ε to the famulus, parentheses indicate pairs of setae. Setae on the anterior side of a leg segment are indicated with a single accent (') and setae on the posterior side with a double accent ('').

Material examined

Three females were collected from the soil of red delicious apple orchards (*Malus domestica* Borkh.; Rosaceae), Norouz Lu Village and six females were collected from the soil of walnut orchards (*Juglans regia* L.; Juglandaceae), Ag Kand E Baroog Village, Miandoab region, West Azerbaijan province, Iran; 6 August 2015, by Tahereh Taghipour Gol (See Table 2).

Remarks

Csiszár and Jeleva (1962) described *Schelorbates (s) labyrinthicus* from Bulgaria; afterwards it was recorded from Czechoslovakia (Miko 1987), Western Ukraine, Bohemia, Moravia (Karppinen *et*

al. 1992), Spain (Pérez-Iñigo 1993), Slovakia (Stary 2006) and Romania (Mahunka and Mahunka-Papp 2008; Ivan and Vasiliu 2008). Weigmann *et al.* (2015) considered *S. laevigatus* as a synonym of *S. labyrinthicus* but they did not give any reason for their action. We do not follow these authors because the labyrinth-like ornamentation is unique and consistent in all populations of *S. labyrinthicus*. The original description provides only figures of dorsal and ventral view of body; figures for the legs, chelicera and palps were not drawn. Furthermore, there are not any complete redescription or detailed figures in the other literatures. It is therefore warranted to provide an additional description of this species. According to Pérez- Iñigo *et al.* (1987) presence of seta C_3 is very inconstant and shows variation in different populations of *S. labyrinthicus* for example in Spanish specimens, only one specimen shows bilaterally fully developed setae C_3 on tip of pteromorph (a male), seven specimens (three males and four females) have the seta C_3 only on one pteromorph and eight specimens (five males and three females) show no traces of seta C_3 on both sides (Pérez- Iñigo *et al.* 1987) however, Iranian specimens follow the Miko (1987), and Ivan and Vasiliu (2008) in absence of seta C_3 (there are only 10 notogastral setae). In addition, length of body in Iranian specimens is longer [541 in Csiszár and Jeleva 1962; 540–576 in Pérez- Iñigo (1993) and 600–610 in present study].

***Scheloribates (S.) fimbriatus fimbriatus* Thor, 1930**

Material examined – Table 2 (6, 35, 40, 49, 50).

Distribution – Cosmopolitan (Southern Palearctic, Nearctic and Pantropical) (Subías 2004, updated 2016).

Iranian localities – Abarkouh, Miandoab, Behshahr, Miankaleh, Rasht, Shiraz, Assaluyeh and Lengeh ports, Larestan, Estahban, Mashhad and Ahvaz (Akrami 2015); Marand (Lotfollahi *et al.* 2016).

***Scheloribates (S.) laevigatus** (C.L. Koch, 1835)**

Material examined – Table 2 (37, 40, 48).

Distribution – Semicosmopolitan (Holarctic and Paleotropical) (Subías 2004, updated 2016).

Iranian localities – Heyran, Arasbaran and Jolfa (Akrami 2015); Marand (Lotfollahi *et al.* 2016).

Note – Weigmann *et al.* (2015) considered *S. laevigatus* as a synonym of *S. labyrinthicus* but, they did not give any reason for their action. We do not follow these authors because the labyrinth-like ornamentation is unique and consistent in all populations of *S. labyrinthicus* but all populations of *S. laevigatus* cuticle is smooth and without obvious ornamentation.

Family Oribatulidae Thor, 1929

Genus *Oribatula* Berlese, 1896

***Oribatula (Oribatula) tibialis tibialis** Nicolet, 1855**

Material examined – Table 2 (25, 30, 39, 50).

Distribution – Holarctic and India (Sikkim) (Subías 2004, updated 2016).

Iranian localities – Tehran, Firoozabad, Many places in Mazandaran province, Shabestar, Shendabad, Shiraz, Estahban, Heyran & Arasbaran, and Zanjan (Akrami 2015); Dasht-e Arjan and Parishan (Iranpoor and Akrami 2016).

***Oribatula (O.) tibialis allifera* Subias, 2000**

Material examined – Table 2 (19).

Distribution – Holarctic (Mediterranean and Northern Nearctic) (Subías 2004, updated 2016).

Iranian localities – West Azerbaijan Province (Hashemi Khabir *et. al.* 2014); Nashtarood, Noor, Nowshahr, Shabestar, Shendabad, Rasht, Heyran & Arasbaran (Akrami 2015); Marand (Lotfollahi *et. al.* 2016).

Oribatula (Zygoribatula) Berlese, 1916

Oribatula (Z.) exarata Berlese, 1916

Material examined – Table 2 (24).

Distribution – Southern Palearctic, Iran (Subías 2004, updated 2016).

Iranian localities – West Azerbaijan province (Hashemi Khabir *et. al.* 2014); Babol, Amol-Tehran road (35 Km. after Amol), Rasht and Mashhad (Akrami 2015).

Oribatula (Z.) connexa connexa Berlese, 1904

Material examined – Table 2 (5, 6, 10, 12, 14, 15, 16, 17, 18, 19, 21, 22, 24, 25, 26, 29, 30, 31, 36, 37, 39, 40, 43, 44, 47, 48, 49).

Distribution – Subtropical (Southern Palearctic, Neotropical and Australian); Iran (Subías 2004, updated 2016).

Iranian localities – Tabriz, Many places in Hamadan province, Abarkouh, Ardabil, Moghan plain, Tabriz, Miandoab, Darab, Firoozabad, Tehran, Juybar, Soofian, Marand, Zenooz, Shabestar, Jolfa, Shabestar, Shendabad, Shiraz, Mashhad, Heyran & Arasbaran and Zanzan (Akrami 2015); Dasht-e Arjan and Parishan (Iranpoor and Akrami 2016); Marand (Lotfollahi *et. al.* 2016).

Note – In the Miandoab specimens, porose area Aa and A_1 are oval and large, but in main description and supplementary description, all porose area are round.

Oribatula (Z.) connexa ucrainica Berlese, 1904

Material examined – Table 2 (1, 3, 6, 40).

Distribution – Eastern Mediterranean; Iran (Subías 2004, updated 2016).

Iranian localities – West Azerbaijan province (Hashemi Khabir *et. al.* 2014); Babol, Marand, Shabestar, Shendabad, Heyran & Arasbaran, and Ahvaz (Akrami 2015); Marand (Lotfollahi *et. al.* 2016).

Note – In our specimens porose areas Aa and A_2 are ribbon shape and larger than in main description. Furthermore lamellar and interlamellar setae in our specimens are larger than in main description.

Oribatula (Z.) undulata Berlese, 1916

Material examined – Table 2 (27).

Distribution – Pantropical (except in the Neotropical region) and Subtropical; Iran (Subías 2004, updated 2016).

Iranian localities – Many places in Hamadan province, Miandoab, Nowshahr, Kandelus, Qaemshahr road to Sari (8 km.), Arak, Soofian, Jolfa, Shabestar, Shendabad, Rasht, Shiraz, Assaluyeh and Lengueh ports (Akrami 2015); Dasht-e Arjan & Parishan (Iranpoor and Akrami 2016).

Oribatula (Z.) Skrjabini Bulanova-Zachvatkina, 1967

Material examined – Table 2 (2, 3, 4, 7, 38, 40).

Distribution – Southern Palearctic; Iran (Subías 2004, updated 2016).

Iranian localities – West Azerbaijan province (Hashemi Khabir *et. al.* 2014); Tabriz, Darab, Firoozabad, Behshahr, Arak, Shabestar, Shendabad, Zanjan, and Shiraz (Akrami 2015); Dasht-e Arjan & Parishan (Iranpoor and Akrami 2016).

Note – In the Miandoab specimens, all notogasteral, epimeral and anogenital setae are barbed as in the original description, but in other Iranian specimens these setae are smooth.

***Oribatula (Z.) glabra* Michael, 1890**

Material examined – Table 2 (10, 25, 33).

Distribution – Palearctic (Subías 2004, updated 2016).

Iranian localities: Many places in Hamadan province, Ardabil, Moghan plain, Miandoab, and Marvdasht (Akrami 2015).

***Oribatula (Z.) frisiae* Oudemans, 1900**

Material examined – Table 2 (10, 25).

Distribution – Holarctic (Subías 2004, updated 2016).

Iranian localities – West Azerbaijan province (Hashemi Khabir *et. al.* 2014); Soofian, Marand, Zenooz, Shabestar, Jolfa, and Shendabad (Akrami 2015); Dasht-e Arjan & Parishan (Iranpoor and Akrami 2016).

Family Haplozetidae Grandjean, 1936
Genus *Baloghiella* Bulanova-Zachvatkina, 1966

***Baloghiella foveolata** Akrami and Ebrahimi, 2013**

Material examined – Table 2 (3).

Distribution – Iran

Iranian localities – Shiraz (Akrami and Ebrahimi 2013); Dasht-e Arjan & Parishan (Iranpoor and Akrami 2016); Marand (Lotfollahi *et. al.* 2016).

Genus *Peloribates* Berles, 1908

***Peloribates formosus** Nakatamari, 1985**

Material examined – Table 2 (11, 13).

Distribution – Japan; Iran (Subías 2004, updated 2016).

Iranian localities: Malayer (Khanjani 1996).

Genus *Protoribates* Berles, 1908

***Protoribates (Protoribates) paracapucinus* Mahunka, 1988**

Material examined – Table 2 (10, 25, 33).

Distribution – Oriental, Eastern Palearctic, Ethiopian and Neotropical; Iran (Subías 2004, updated 2016).

Iranian localities – West Azerbaijan province (Hashemi Khabir *et. al.* 2014); Abarkouh, Tehran, Firoozabad, Arak, Mazandaran province, Shabestar, Shendabad, Rasht, Shiraz, Estahban, Larestan, Sistan and Balouchestan, Soofian, Jolfa, Marvdasht, Heyran & Arasbaran, Zanjan and Tabriz (Akrami 2015); Dasht-e Arjan & Parishan (Iranpoor and Akrami 2016); Marand (Lotfollahi *et. al.* 2016).

Protoribates (P.) capucinus Berles, 1908

Material examined – Table 2 (16, 18, 22, 35, 50).

Distribution – Cosmopolitan (except Antarctic) (Subías 2004, updated 2016).

Iranian localities – Tabriz, Ardabil, Moghan plain and Miandoab (Akrami 2015); Dasht-e Arjan & Parishan (Iranpoor and Akrami 2016).

Table 2. Collection data.

No.	Locality	No. of specimens	Related plant/Habitat	Sample	Date	UTM parameters	Elevation
1	Gol E Soleiman Abad	16	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	12/05/2015	38 S 612861 4090097	1345 m
2	Gol E Soleiman Abad	12	Fallow land	Soil	12/05/2015	38 S 612861 4090097	1345 m
3	Gol E Soleiman Abad	38	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	12/05/2015	38 S 612941 4090126	1347 m
4	Shorje Hamidieh	13	<i>Ophiopigon jaburan</i> (Sieb.) Lodd. (Liliaceae)	Soil	12/05/2015	38 S 624240 4090183	1525 m
5	Tak Aghaj	17	<i>Ophiopigon jaburan</i> (Sieb.) Lodd. (Liliaceae)	Soil	12/05/2015	38 S 627713 4091975	1601 m
6	Jan Aga	41	<i>Medicago sativa</i> L. (Fabaceae)	Soil	12/05/2015	38 S 629775 4088292	1491 m
7	Jan Aga	11	<i>Malus domestica</i> Borkh. (Rosaceae)	Soil	12/05/2015	38 S 630664 4086621	1430 m
8	Jan Aga	9	<i>Ophiopigon jaburan</i> (Sieb.) Lodd. (Liliaceae)	Soil	12/05/2015	38 S 631146 4087100	1448 m
9	Gatar	9	<i>Malus domestica</i> Borkh. (Rosaceae)	Soil	12/05/2015	38 S 623613 4097811	1413 m
10	Heidar Abad	54	<i>Malus domestica</i> Borkh. (Rosaceae)	Soil	15/06/2015	38 S 603307 4089498	1320 m
11	Heidar Abad	17	<i>Populus nigra</i> L. (Salicaceae)	Soil	15/06/2015	38 S 603235 4087502	1329 m
12	Heidar Abad	21	<i>Malus domestica</i> Borkh. (Rosaceae)	Rotten Tree Trunk	15/06/2015	38 S 604712 4088908	1341 m
13	Gar Yaghdi	13	<i>Salix babylonica</i> L. (Salicaceae)	Tree Trunk	15/06/2015	38 S 606137 4087071	1317 m
14	Gol E Soleiman Abad	16	<i>Solanum lycopersicum</i> L. (Solanaceae)	Soil	15/06/2015	38 S 612831 4090128	1331 m
15	Gol E Soleiman Abad	20	<i>Allium cepa</i> L. (Alliaceae)	Soil	15/06/2015	38 S 614307 4090159	1341 m
16	Gol E Soleiman Abad	39	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	15/06/2015	38 S 614623 4090084	1362 m
17	Gol E Soleiman Abad	17	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	08/07/2015	38 S 614467 4090210	1343 m
18	Gol E Soleiman Abad	31	<i>Medicago sativa</i> L. (Fabaceae)	Soil	08/07/2015	38 S 613490 4090421	1362 m
19	Gol E Soleiman Abad	29	<i>Beta vulgaris</i> L. (Chenopodiaceae)	Soil	08/07/2015	39 S 613475 4090436	1362 m
20	Ahad Kore	8	Fallow land	Soil	08/07/2015	38 S 609393 4089831	1368 m
21	Norouz Lu	13	<i>Malus domestica</i> Borkh. (Rosaceae)	Soil	08/07/2015	38 S 610450 4087811	1335 m
22	Norouz Lu	42	<i>Medicago sativa</i> L. (Fabaceae)	Soil	08/07/2015	38 S 609513 4085493	1332 m
23	Norouz Lu	7	<i>Malus domestica</i> Borkh. (Rosaceae)	Soil	08/07/2015	38 S 609661 4084196	1343 m
24	Norouz Lu	26	<i>Populus nigra</i> L.; Salicaceae	Soil	08/07/2015	38 S 609774 4083500	1322 m
25	Norouz Lu	72	<i>Malus domestica</i> Borkh. (Rosaceae)	Soil	08/07/2015	38 S 609409 4083638	1322 m

Table 2. Continued.

No.	Locality	No. of specimens	Related plant/Habitat	Sample	Date	UTM parameters	Elevation
26	Norouz Lu	28	<i>Malus domestica</i> Borkh. (Rosaceae)	Soil	06/08/2015	38 S 608629 4084329	1319 m
27	Norouz Lu	15	<i>Phragmites australis</i> (Cav.) (Gramineae)	Soil	06/08/2015	38 S 608674 4083864	1319 m
28	Norouz Lu	13	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	06/08/2015	38 S 609650 4086281	1329 m
29	Chalkhamaz	18	<i>Medicago sativa</i> L. (Fabaceae)	Soil	06/08/2015	38 S 614108 4085643	1343 m
30	Chalkhamaz	32	<i>Allium cepa</i> L. (Alliaceae)	Soil	06/08/2015	38 S 614108 4085643	1343 m
31	Ag Kand E Baroog	15	<i>Allium cepa</i> L. (Alliaceae)	Soil	06/08/2015	38 S 615522 4086892	1345 m
32	Ag Kand E Baroog	9	<i>Beta vulgaris</i> L. (Chenopodiaceae)	Soil	06/08/2015	38 S 616436 4087935	1354 m
33	Ag Kand E Baroog	42	<i>Juglans regia</i> L. (Juglandaceae)	Soil	06/08/2015	38 S 616436 4087935	1354 m
34	Mohsen Abad	8	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	31/08/2015	38 S 608491 4092906	1329 m
35	Shirin Kandi	27	<i>Prunus domestica</i> L. (Rosaceae)	Soil	31/08/2015	38 S 612479 4094614	1370 m
36	Sharif Lu	13	<i>Medicago sativa</i> L. (Fabaceae)	Soil	31/08/2015	38 S 606297 4092281	1316 m
37	Chalkhamaz	25	<i>Prunus domestica</i> L. (Rosaceae)	Soil	25/09/2015	38 S 607715 4091566	1322 m
38	Gol E Soleiman Abad	19	<i>Triticum aestivum</i> L. (Gramineae)	Soil	25/09/2015	38 S 614376 4090170	1341 m
39	Gol E Soleiman Abad	33	<i>Triticum aestivum</i> L. (Gramineae)	Soil	25/09/2015	38 S 614800 4090247	1345 m
40	Gol E Soleiman Abad	83	<i>Medicago sativa</i> L. (Fabaceae)	Soil	25/09/2015	38 S 614634 4090087	1341 m
41	Gol E Soleiman Abad	8	<i>Malus domestica</i> Borkh. (Rosaceae)	Soil	25/09/2015	39 S 614634 4090087	1341 m
42	Gol E Soleiman Abad	8	<i>Triticum aestivum</i> L. (Gramineae)	Soil	25/09/2015	38 S 614760 4090244	1345 m
43	Gol E Soleiman Abad	17	<i>Juglans regia</i> L. (Juglandaceae)	Soil	25/09/2015	38 S 616588 4090322	1359 m
44	Baroogh	15	<i>Medicago sativa</i> L. (Fabaceae)	Soil	25/09/2015	38 S 616458 4091858	1372 m
45	Baroogh	6	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	25/09/2015	38 S 617023 4092466	1376 m
46	Baroogh	9	<i>Triticum aestivum</i> L. (Gramineae)	Soil	25/09/2015	38 S 617023 4092466	1376 m
47	Baroogh	18	<i>Medicago sativa</i> L. (Fabaceae)	Soil	25/09/2015	38 S 618502 4093357	1386 m
48	Heidar Abad	32	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	27/10/2015	38 S 603529 4087394	1310 m
49	Heidar Abad	35	<i>Vitis vinifera</i> L. (Vitaceae)	Soil	27/10/2015	38 S 613614 4090403	1350 m
50	Heidar Abad	56	<i>Triticum aestivum</i> L. (Gramineae)	Soil	27/10/2015	38 S 618571 4089755	1363 m

ACKNOWLEDGEMENTS

We greatly appreciate the support of the Research Divisions of University of Maragheh, Maragheh, Iran.


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فون کنه‌های اریباتید بالاخانواده *Oripodoidea* (Acari: Oribatida) شمال‌غرب ایران با
توصیف تکمیلی گونه *Scheloribates (Scheloribates) labyrinthicus*

طاهره تقی‌پور گل^۱، محمد باقری^{۱*} و منصوره آهنی‌آزاد^۲

۱. گروه گیاهپزشکی، دانشکده کشاورزی، دانشگاه مراغه، مراغه، ایران؛ رایانامه: mbagheri20022002.mb@gmail.com، taghipourgol@yahoo.com

۲. باشگاه دانش‌پژوهان جوان، شاخه مراغه، دانشگاه آزاد اسلامی، مراغه، ایران؛ رایانامه: man.ahaniazad@yahoo.com

* نویسنده مسئول

چکیده

فون کنه‌های Oripodoid شهرستان میاندوآب در طول فصول زراعی سال‌های ۱۳۹۴-۱۳۹۵ مطالعه شد. در این مطالعه ۱۶ گونه متعلق به پنج جنس از سه خانواده شناسایی شد که از میان آنها گونه *Scheloribates (Scheloribates) labyrinthicus* Jeleva, 1962 برای نخستین بار از ایران گزارش می‌شود. هم‌چنین توصیف تکمیلی گونه *S. (S.) labyrinthicus* با استناد به نمونه‌های جمع‌آوری شده از شمال‌غرب ایران ارایه شده است. افزون بر این چک‌لیستی برای ۱۶ گونه جمع‌آوری شده از شهرستان میاندوآب نیز تهیه شده است.

واژگان کلیدی: Brachypylina؛ کنه؛ داده‌های جدید؛ گزارش جدید؛ Sarcoptiformes.

اطلاعات مقاله: تاریخ دریافت: ۱۳۹۵/۸/۱۷، تاریخ پذیرش: ۱۳۹۵/۱۰/۱۶، تاریخ چاپ: ۱۳۹۶/۱/۲۶