

## **New records of Isotomidae and Paronellidae for the Iranian fauna with an update Checklist of Entomobryomorpha fauna (Collembola) in Kermanshah province**

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### **Abstract**

In this study, the fauna of order Entomobryomorpha was investigated in different regions of Kermanshah province during 2012-2014. Totally 20 species of Entomobryomorpha belonging to 4 families, 8 subfamilies and 13 genera were collected and identified from Kermanshah. The genus *Subisotoma* (Stach, 1947) with two species *Subisotoma variabilis* Gisin, 1949 and *Cyphoderus bidenticulatus* Parona, 1888 are newly recorded for fauna of Iran. Families Paronellidae and Tomoceridae, two genera *Cyphoderus* Nicolet, 1842 and *Tomocerus* Nicolet, 1842 and two species *Tomocerus vulgaris* (Tullberg, 1871) and *Cyphoderus albinus* Nicolet, 1842 are also new for Kermanshah province. We also provided the checklist of the Entomobryomorpha fauna which have been reported in different reign of Kermanshah province until now. The present list contains 36 species belonging to 15 genera and 4 families. A key to the known Kermanshah genera of order Entomobryomorpha is provided too.

**Key words:** Collembola, fauna, Kermanshah, Iran, new records

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## Introduction

Collembola are one of most abundant soil animals in most terrestrial ecosystems. Among them, the Entomobryomorpha Börner, 1913 is the largest order and easily recognized by the reduction of the first thoracic segment, body is covered with chaetae and, sometimes, scales of different forms and sensilla are present on the body and antennae (Jordana, 2012).

Iranian collembolan fauna has not been investigated in many parts of the country. Farrahbakhsh (1961) was the first who provided some information on Iranian Collembola. He reported *Sminthurus viridis* Linnaeus, 1758 from wheat and alfalfa fields in Khuzestan (Southern Iran). The most comprehensive study on Collembola was carried out by Cox (1982). He listed 70 species belonging to 30 genera in 5 families from the northwestern and central northern provinces of the country, which 31 species (13 genera) of them were belonging to the Entomobryomorpha (Cox, 1982). In recent years, Moravvej *et al.* (2007) and Qazi & Shayanmehr (2014) from the province of Tehran, Nematollahi *et al.* (2009) from the province of Isfahan, Yahyapour (2011) and Daghighi *et al.* (2013 a,b) from the province of Guilan, Yoosefi-Lafooraki & Shayanmehr (2013) and Falahati-Hosseinabad *et al.* (2013 a,b) from the province of Golestan, Ahmadi Rad & Kahrarian (2015) from the province of Lorestan, Kahrarian & Arbea (2012), Ghahramani Nezhad *et al.* (2013) Kahrarian *et al.* (2012, 2013 and 2014) and Amiri & Kahrarian (2015) from the province of Kermanshah reported some fauna of Collembola for the first time for Iran.

Kermanshah is one of the Iranian provinces which is located in the middle of the western part of Iran. The preliminary investigation on springtails in Kermanshah was made by Kahrarian *et al.* (2012). They reported six families, 15 genera and 9 species from different regions of the province (7 species belong to Entomobryomorpha). Most of species in this research have been not identified and reported as sp. After that, Kahrarian & Arbea (2013) reported six species of Isotomidae from Kermanshah among them two species, *Desoria tigrina* (Nicolet, 1842) and *Folsomides* (aff. *marchicus*) were new for the Iranian fauna. Ghahramani Nezhad *et al.* (2013) reported 7 families, 8 genera and 8 species from different regions of Kermanshah which 3 species of them belonged to Entomobryomorpha. Kahrarian *et al.* (2014) reported 10 species and 5 genera of Entomobryidae which one genus and 6 species were new records for Iranian fauna. Recently, Amiri & Kahrarian (2015) reported 11 species and 6 genera of Isotomidae which one species, *Desoria zlotini* (Martynova, 1961) was new for the Iranian fauna.

In this study, the fauna of order Entomobryomorpha was investigated in different regions of Kermanshah province during 2012-2014. We also provided an update to the list of Entomobryomorpha fauna which have been reported in different reign of Kermanshah province until now.

## Material and Methods

The checklist of the Entomobryomorpha from Kermanshah province is provided based on bibliographic references from different regions and the results of sampling campaigns of Entomobryomorpha by authors from different regions in Kermanshah during 2012–2014.

In the latter studies, a total of 20 sites of Kermanshah province were selected for Sampling. Samples were collected from the surface layer of soil (Wheat farms: *Triticum aestivum* L.) surface layer of soil and leaf litter that exists under the Oak (*Quercus infectoria* Oliv) and Walnut trees (*Juglans regia* L.). All samples were retained in white plastic boxes and transferred into the laboratory. Specimens were extracted by Berlese funnel for 4-5 days and kept in 75% ethanol. The specimens were manipulated under a stereomicroscope with a flat needle provided with a handle. Before mounting the heavily pigmented specimens, Nesbitt's fluid (Chloral hydrate 40gr, concentrated hypo chloric acid 2.5 cc and distilled water 25 cc) was used for clearing (Jordana, 2012). The specimen was soaked for several

minutes in Nesbitt's fluid until it became clear, then returned to 70% ethanol for one hour, to wash out the HCl from Nesbitt's fluid. Thereafter, specimen was mounted on a slide with Hoyer's medium.

The Fjellberg's terminology (1998, 2007) was applied for preliminary recognition. Some specimens were confirmed by Dr. Rafael Jordana and Dr. Javier from Arbea. The material is deposited in the insect collections of Islamic Azad University, Kermanshah and Arak Branch, Iran.

Abbreviations used in this paper are as follows: Ant.= antennal segment; Abd.= abdominal segment; Cl = claw; Man = manubrium; Omma = Omatidium/tidia; PAO = postantennal organ; Ret = retinaculum; Th. = thoracic tergite; Tita = tibiotarsus; VT = Ventral tub.

## **Results**

Totally 20 species of Entomobryomorpha belonging to 4 families, 8 subfamilies and 13 genera were collected and identified from Kermanshah by this research. The information of collected species is presented in Table 1. The genus *Subisotoam* with two species *S. variabilis* and *Cyphoderus bidenticulatus* Parona, 1888 are newly recorded for fauna of Iran. Families Paronellidae and Tomoceridae, two genera *Cyphoderus* Nicolet, 1842 and *Tomocerus* Nicolet, 1842 and two species *T. vulgaris* (Tomoceridae) and *C. albinus* (Paronellidae) are also new for Kermanshah province. Moreover, two specimens from the genus *Entomobrya* and one species from the genus *Seira* were found in current research, but in a preliminary study they could not been assigned to any of the currently known species (whether they are new to science, needs confirmation with a study including more and better preserved material). These specimens are included into our checklist as *Entomobrya* sp. I and sp. II, and *Seira* sp. Their specific identification will be the aim of further field and laboratory work. We also provided an identification key for the families and genera of Entomobryomorpha. This key includes all the genera which have reported from Kermanshah province in previous studies as well as this study.

Table 1- Checklist of Entomobryomorpha fauna of Kermanshah province

Taxonomy	Reference	Distribution in Kermanshah County (Location)
<b>Family: Entomobryidae</b> Folsom, 1937		
<b>Subfamily: Entomobryinae</b> Schäffer, 1896		
<b>Genus: Entomobrya</b> Rondani, 1861		
<i>E. mesopotamica</i> Rusek, 1971	Kahrarian <i>et al.</i> (2014)	Sahneh (Sarab-e-Bid Sorkh) Gahvareh (Gahvareh)
<i>E. schoetti</i> Stach, 1922	Kahrarian <i>et al.</i> (2014)	Gahvareh (Gahvareh)
<i>E. nigrocinata</i> Denis, 1923	Kahrarian <i>et al.</i> (2014) present work	Eslamabad-e-gharb (Qaleh Harasam) Kermanshah Char Zebar
<i>E. lindbergi</i> Stach, 1960	Kahrarian <i>et al.</i> (2014) present work	Kermanshah, Sarab-e-Nilufar Sahneh, Derkah Harsin
<i>E. handschini</i> Stach, 1922	Kahrarian <i>et al.</i> (2014) present work	Harsin, Harsin, Kermanshah, Sarab-e-Nilufar
<i>E. atrocincta</i> Schött, 1896	Kahrarian <i>et al.</i> (2012) present work	Kermanshah/ Harsin
<i>Entomobrya</i> sp. I	present work	
<i>Entomobrya</i> sp. II	present work	
<b>Subfamily: Lepidocyrtinae</b> Wahlgren, 1906		
<b>Genus: Pseudosinella</b> Schaefer, 1897		
<i>Pseudosinella baghadica</i> Rusek, 1981	Kahrarian <i>et al.</i> (2014) present work	Sahneh (Derkah) Harsin (Harsin, Tamark) Sonqor (Satar) Paveh (Quri Qal'eh) Tazeh abad (Gerdeh Now)

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Taxonomy	Reference	Distribution in Kermanshah County (Location)
<i>Pseudosinella octopunctata</i> Börner, 1901	Kahrarian <i>et al.</i> (2014), present work	Sar-e-pol-e- Zahab (Patagh, Qareh Bolagh, Rijab, Habibvand) Sahneh (Derkah, Samangan-e-Olya) Sonqor (Khaneghah-e-Sofla) Gilan-e-Gharb (Kaseh Gara) Qasr-e-shirin (Parviz khan) Kangavar (Ghoreh jil) Paveh (Shahu) Harsin (Harsin, Tamark) Kermanshah (Sarab-e-Nilufar, Char Zabar) Gahvareh (Kand-e-Rashid Khan) Eslamabad-e-gharb (Qal'eh Harasam, , Sia Khor) Tazeh abad (Sia Tahir, Gerdeh Now) Javanrud (Safi Abad, Kani Gavhar) Sonqor (Satar, Kartoej)
<i>Pseudosinella sexoculata</i> (Schött, 1902)	Ghahramaninezhad <i>et al.</i> (2013)	Kermanshah
<b>Subfamily: Seirinae</b> Yosii, 1961		
<b>Genus: Seira</b> Lubbock, 1870		
<i>Seira domestica</i> (Nicolet, 1842)	Kahrarian <i>et al.</i> (2012)	Kermanshah
<i>Seira</i> sp I.	present work	Eslamabad-e-gharb (Siah Khor) Sar-e-pol-e- Zahab (Patagh)

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Taxonomy	Reference	Distribution in Kermanshah County/Location
<b>Subfamily: Orchesellinae Börner, 1901</b>		
<b>Genus: Heteromurus Wankel, 1860</b>		
<i>Heteromurus sexoculatus</i> Brown, 1926	Kahrarian et al. (2014) Present work	Kermanshah (Char Zebar)
<i>Heteromurus major</i> (Moniez, 1889)	Kahrarian et al. (2014) Present work	Kermanshah (Chalabeh, Char Zabar) Paveh (Shahu, Quri Qal'eh) Harsin (Harsin, Tamark, Chaqa Kabud )
<i>Heteromurus nitidus</i> (Templeton, 1835)	Kahrarian et al. (2014) Present work	Harsin (Harsin)
<b>Family: Isotomidae Schäffer, 1896</b>		
<b>Subfamilia: Isotominae Schäffer, 1896</b>		
<b>Genus: Desoria Agassiz &amp; Nicolet, 1841</b>		
<i>Desoria tigrina</i> Nicolet, 1842	Kahrarian & Arbea (2015) Arbea & Kahrarian (2015) Present work	Kermanshah Derkah village
<i>Desoria zlotini</i> Martynova, 1962	Amiri & Kahrarian (2015)	Osmanevad area (Sragool village)
<b>Genus: Isotoma Bourlet, 1839</b>		
<i>Isotoma iranica</i> Arbea & Kahrarian, 2015	Arbea & Kahrarian (2015)	Paveh, Shahu city
<i>Isotoma viridis</i>	Present work	
<b>Genus: Isotomodes Axelson, 1907</b>		
<i>Isotomodes korkorensis</i> Arbea & Kahrarian, 2015	Arbea & Kahrarian (2015)	Char zabar (Kor Kor Mountain)
<b>Genus: Parisotoma Bagnall, 1940</b>		
<b>Taxonomy</b>		
<b>Reference</b>		
<b>Distribution in Kermanshah County/Location</b>		
<i>Parisotoma notabilis</i> (Schäffer, 1896)	Kahrarian et al. (2012) Arbea & Kahrarian (2015) Present work	Kermanshah Shabankareh village, Patagh area
<b>Genus: Isotomiella Bagnall, 1939</b>		
<i>Isotomiella minor</i> Schäffer, 1896	Ghahramaninezhad et al. (2013) Arbea & Kahrarian (2015) Present work	Kermanshah Shabankareh village, Patagh area
<b>Genus: Hemisotoma Bagnall, 1942</b>		
<i>Hemisotoma orientalis</i> (Stach, 1947)	Arbea & Kahrarian (2015) present work	Patagh area
<i>Hemisotoma pontica</i> Stach, 1947	Kahrarian et al. (2012)	
<i>Hemisotoma thermophila</i> (Axelson, 1900)	Arbea & Kahrarian (2015)	Derkah village, Shikh salaeh village, Rijab city
<b>Subfamily: Proisotominae Stach, 1947</b>		
<b>Genus: Folsomia Willem, 1902</b>		
<i>Folsomia asiatica</i> Martynova, 1971	Arbea & Kahrarian (2015)	Quri Qual'eh
<i>Folsomia binoculata</i> (Wahlgren, 1899)	Ghahramaninezhad et al. (2013)	Kermanshah
<i>Folsomia manolachei</i> Bagnall, 1939	Arbea & Kahrarian (2015)	Bilevar city
<i>Folsomia penicula</i> Bagnall, 1939	Arbea & Kahrarian (2015)	Shikh salaeh village, Ghap Gholi village
<i>Folsomia quadrioculata</i> (Tullberg, 1871)	Arbea & Kahrarian (2015)	Char zabar, Shikh salaeh village, Ghap Gholi village, Sia Khor village
<i>Folsomia similis</i> Bagnall, 1939	Arbea & Kahrarian (2015)	Paveh: Shabankareh village
<b>Genus: Folsomides Stach, 1922</b>		

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Taxonomy	Reference	Distribution in Kermanshah County/Location
<i>F. halshinicus</i> Arbea & Kahrarian, 2015	Arbea & Kahrarian (2015)	Shabankareh village, Islam Abad-e Gharb (Sia Khor village, Char zabar, Hassan Abad village)
<i>F. marchicus</i> (Frenzel, 1941)	Kahrarian & Arbea (2012) Arbea & Kahrarian (2015)	Kermanshah, sahneh, Harsin Patagh area
<i>F. parvulus</i> Stach, 1922	Kahrarian <i>et al.</i> (2012) Arbea & Kahrarian (2015) present work	Kermanshah, Sahneh, Harsin Bilevar city
<i>F. subvinosus</i> Arbea & Kahrarian, 2015	Arbea & Kahrarian (2015)	Shabankareh village, Islam Abad-e Gharb (Sia Khor village, Char zabar.)
<b>Genus: <i>subisotoma</i>** (Stach, 1947)</b>		
<i>Subisotoma variabilis</i> ** (Gisin, 1949)	present work	Kermanshah, Sar-e-pol-e-Zahab
<b>Family: Paronellidae* Börner, 1913</b>		
<b>Subfamily:</b>		
<b>Genus: <i>Cyphoderus</i>* Nicolet, 1842</b>		
<i>Cyphoderus albinus</i> * Nicolet, 1842	present work	Qasr-e-shirin, Parviz Khan,
<i>Cyphoderus bidenticulatus</i> ** Parona, 1888	present work	Qasr-e-shirin, Parviz Khan,
<b>Family: Tomoceridae* Schäffer, 1896</b>		
<b>Subfamily:</b>		
<b>Genus: <i>Tomocerus</i>* Nicolet, 1842</b>		
<i>Tomocerus vulgaris</i> * (Tullberg, 1871)	Kahrarian <i>et al.</i> (2014) present work	Kermanshah

### Key to the families and genera of Entomobryomorpha in Kermanshah province (Iran)

1. Body setae mostly ciliate; multilaterally ciliate macrosetae sometimes cylindrical, usually truncate or broadened at the tip; scales absent or present..... 2
- Body setae usually smooth or unilaterally ciliate; multilaterally ciliate macrosetae always acuminate; scales absent (Isotomidae family)..... 8
2. Mucro short, hook-like (Entomobryidae family) ..... 3
- Mucro long, elongate (Tomoceridae and Paronellidae) ..... 7
3. Abd. IV in dorsal midline more than twice as long as Abd. III; Ant I not subdivided (Subfamily Entomobryinae) ..... 4
- Abd. IV in dorsal midline about 1.5 as long as Abd. III; Ant. I with a basal short subsegment (Subfamily Orchesellinae). body with scales, 1+1 Omma ..... *Heteromurus*
4. Body with normal hairs only, no scales..... 5
- Body with hairs and scales..... 6
5. Mucro with 2 teeth with basal spine, 8+8 Omma. .... *Entomobrya*
- Mucro falcate with basal spine, large macrochaeta present on anterior margin on Th II ..... *Drepanura*
6. Scales on ventral surface of dens is coarse ribs, 8+8 Omma. .... *Seira*
- Scales on ventral surface of dens without ribs, 0–4 Omma. .... *Pseudosinella*
7. Antennae strongly prolonged, mucro with two dorsal lamellae, all tibiotarsi with several differentiated macrochaetae on inner side..... *Tomocerus*

- PAO absent, mucro only with apical and subapical teeth, peculiar scale-like setae on dens. living with ants ..... *Cyphoderus*
- 8. Abd IV–VI dorsally fused to a single segment ..... *Folsomia*
- At least Abd IV–V distinctly separated..... 9
- 9. Eyes and PAO absent, Abd V–VI fused. White species ..... *Isotomiella*
- PAO present only few species without eyes ..... 10
- 10. Without eyes ..... *Isotomedes*
- At last 1–2 Omma on each side ..... 11
- 11. Manubrium without or only with few (2–6) ventral setae ..... 12
- Manubrium with many (at least 8) ventral setae ..... 14
- 12. Manubrium without ventral setae ..... 13
- Manubrium with 2–6 ventral setae and/or spines, dens long and slender with more than one ventral seta, abd.5–6 fused ..... *Hemisotoma*
- 13. 1–2 Omma. on each side, dens with one ventral seta and dorsally with 1–5 setae. .... *Folsomides*
- 4–8 Omma. on each side, dens and mucro fused, dens is elongate or mucro bidentate ..... *Subisotoma*
- 14. Anteromedial group of manubrial chaetae spine-like ..... *Isotoma*
- Anteromedial group of manubrial chaetae not spine-like ..... 14
- 15. at most 4–5 Omma. on each side, in a squarish or punctual eye spot, eye spots small, fifth and sixth first abdominal segments separate ..... *Parisotoma*
- 6–8 Omma. on each side in long eye spot. tibiotarsi mostly with 11 apical setae, manubrium and/or body without papillate or strongly glandular setae, manubrium with normal, slender ventroapical setae ..... *Desoria*

**Genus *Subisotoma* (Stach, 1947)**

This genus is widely distributed in the Palaearctic (Potapov, 2002). It is the first citation of this genus in Iran.

**Diagnosis:** Body shape from slender to broad. 4-8 ocelli on each side of head. 2 prelabral setae. Outer maxillary lobe with simple or bifurcate palp and 3-4 sublobal hairs. Tita I, II sometimes with reduced set of setae (20). Clavate tibiotarsal hairs present or absent. VT with 4+4 laterodistal setae. Furca present in all parts. No anterior setae on Man. Dens with 0-2 anterior and up to 6 posterior setae. Mucro bidentate, fused or separate from dens, sometimes absent. In most species, sens on Abd I - III are within or slightly in front of p-row. Mac hardly differentiated (Potapov, 2002).

***Subisotoma variabilis* (Gisin, 1949)**

**Diagnosis:** Total body length 0.65 - 0.75 mm. Greyish blue. Body shape cylindrical. Profile of Abd IV – VI evenly curved (unlike in *Folsomides*, Figure 1). 5+5 Omma. PAO 3.5 times as long as Omma. Cl without teeth, no clavate tibiotarsal hairs (Figure 2). Tita with 21, 21, 25 setae. VT with more than 2 posterior setae. Ret with 3+3 teeth and 1 seta. Man without anterior setae. Mucro bidentate.



**Fig. 1- *Subisotoma variabilis*, Habitus (40x)**



**Fig. 2- Lateral view of claw and tibiotalar setae in *Subisotoma variabilis* (40x)**



**Examined material:** 4ex, soil and leaf litter under Oak trees (*Q. infectoria*), Patagh area, Sar-e-pol-e-Zahab County (N 34°25.773` / E 046°00.136` / 1034 m a.s.l), January and March, 2014.

**Occurrence:** It is known from Switzerland, Austria, Poland, Slovakia, France. The records from the Iberian Peninsula, Siberia, Kazakhstan, and Central Asia (Potapov, 2002). It represents the first record of this species in Iran.

### ***Cyphoderus bidenticulatus* Parona, 1888**

#### **Diagnosis:**

Body size 1.5 mm. white color, eye absent (Figure 3). Body shape flattened, Claw slender, apically expanded. Empodium as long as Claw (Figure 4). Dens dorsally with a double row of blade like setae. Mucor long with two Subequal teeth (Figure 5) and this feature distinguishes this species from other species.



**Fig. 3- *Cyphoderus bidenticulatus* Habitus (10x)**



**Fig. 4- The Empodium and Claw in *Cyphoderus bidenticulatus* (40x)**



**Fig. 5- *Cyphoderus bidenticulatus*: Mucro with two Subequal teeth (40x)**

**Examined material:** 3 ex, soil and litter, walnut orchard, Harsin, Tamark, (E47°39' N34°15'/1208 m a.s.l) June, 2012.

**Occurrence:** This species was recorded from some countries, such as Italy, Poland, Mediterranean countries up to Switzerland, France, the Balkans (Gisin, 1960), United Kingdom, Ukraine (Bondarenko-Borisova Sandu, 2002), Moldova (Busmachi, 2010) and Lebanon (Christiansen, 1957). In Iran this species was recorded for the first time.

## Discussion

Up to now 12 genus and 34 species from family Isotomidae have been reported from Iran (Moravvej *et al.*, 2007; Qazi & Shayanmehr, 2014; Yahyapour, 2011; Daghighi *et al.*, 2013 a; Yoosefi-Lafooraki & Shayanmehr, 2013; Falahati- Hosseinabad *et al.*, 2013 a,b; Ahmadi Rad & Kahrarian, 2015; Kahrarian & Arbea, 2013; Ghahramani Nezhad *et al.*, 2013; Kahrarian *et al.*, 2012 and 2014; Amiri & Kahrarian, 2015). In this study the genus *Subisotoma* with species *S. variabilis* are newly recorded for fauna of Iran. With new reports of this paper, the number of genera and species of family Isotomidae in Iran is increased to 13 genera and 35 species and in Kermanshah province is increased to 9 genera and 21 species.

The species *Cyphoderus albinus* is the only species of family Paronellidae which has been reported from Iran (Daghighi, 2012 and Lafooraki, 2014). In this study *Cyphoderus bidenticulatus* Parona, 1888 are newly recorded for fauna of Iran.

Until now one species of the genus *Seira* (*S. domestica*) belonging to family of Entomobryidae was reported from Iran. This species was reported by Yahyapour *et al.* (2011) and Daghighi *et al.* (2013b) from Guilan and Kahrarian *et al.* (2012) from Kermanshah province. Some sample of this genus were found in current research, but in a preliminary study they could not be assigned to any of the currently known species (whether they are new to science, needs confirmation with a study including more and better preserved material).

Until now two families of order Entomobryomorpha have been reported from Kermanshah and West Part of Iran. In this paper Family Paronellidae and Tomoceridae and two genera, *Cyphoderus* and *Tomocerus* are reported for the first time from this part of Iran. *Tomocerus vulgaris* (Tomoceridae) and *Cyphoderus albinus* (Paronellidae) are also new for Kermanshah province. The only reported of these species in Iran was done by Cox (1928) and Yoosefi- Lafooraki & Shayanmer, 2014 (*T. vulgaris*) and Daghighi (2012) and Lafooraki, 2014 (*C. albinus*).

A total of 26 genera and 65 species belonging to 5 families of Entomobryomorpha have been reported from Iran (Shayanmehr *et al.*, 2013; Yoosefi Lafooraki & Shayanmehr, 2013; Kahrarian *et al.*, 2014; Yoosefi Lafooraki and, 2014) and 33 species and 12 genera belonging to 2 families have been reported from Kermanshah province. The number of genera and species Entomobryomorpha in Kermanshah province is increased to 36 species, 15 genera and 4 families with new finding of this paper.

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## گزارش گونه‌های جدید از پادمان خانواده Isotomidae و Parnoellidae

### به همراه آخرین فهرست از پادمان راسته Entomobryomorpha

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#### چکیده

در این تحقیق فون پادمان راسته Entomobryomorpha در مناطق مختلف استان کرمانشاه طی سال‌های ۹۱-۱۳۹۳ مورد بررسی قرار گرفت. در مجموع ۲۰ گونه متعلق به ۱۳ جنس از ۸ زیرخانواده و ۴ خانواده مختلف پادمان شناسایی شدند که جنس *Subisotoma* (Stach, 1947) و دو گونه *Subisotoma variabilis* Gisin, 1949 و *Cyphoderus bidenticulatus* Parona, 1888 برای بار اول از ایران گزارش گردید. علاوه بر آن دو خانواده Tomoceridae و Paronellidae، دو جنس *Cyphoderus* Nicolet, 1842 و *Tomocerus* Nicolet, 1842 و دو گونه *Tomocerus vulgaris* (Tullberg, 1871) و *Cyphoderus albinus* Nicolet, 1842 نخستین بار از استان کرمانشاه گزارش گردید. از سوی دیگر یک چک لیست نهایی از فون پادمان راسته Entomobryomorpha موجود در استان کرمانشاه شامل ۴ خانواده، ۱۵ جنس و ۳۶ گونه، به همراه کلید شناسایی آن‌ها در سطح جنس تهیه گردید.

واژه‌های کلیدی: پادمان، فون، کرمانشاه، ایران، رکورد جدید

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