

NEW RECORDS OF ISOTOMIDAE (COLLEMBOLA) FROM GOLESTAN PROVINCE (IRAN)

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ABSTRACT: Family of Isotomidae belongs to the order of Collembola. These springtails with elongate and high cover of setae on surface of the body and equal abdomen segments differed from others. In faunistic study of Isotomidae family, several samples were taken from soil and leaf litter in different locations from Gorgan regions during 2010-2011. The specimens were extracted by heat in Berlese funnel and mounted on microscopic slides using Hoyer's medium. Totally, Six species of the family Isotomidae are recorded from Gorgan area (Northern Iran): *Anurophorus coiffaiti*, *Folsomia penicula*, *Isotomurus punctiferus*, *Isotomurus maculatus*, *Isotomurus* sp. (aff. *palustris-unifasciatus*) and *Isotoma* sp. (aff. *decorata-spinicauda*). Apart from *F. penicula*, all species are new for Iran. Two species are possibly new for science.

KEY WORDS: Collembola, Arthropoda, Isotomidae, Golestan, Gorgan, Iran.

Isotomidae is one of the largest families in Holarctic (Hopkin, 2005). Most of species of this family live in soil and are the primary and secondary consumers (Chahartaghi et al., 2005). Fauna of the family of some territories of Asia remains, however, poorly studied. Iran, a big country with diverse nature conditions, was paid very little (if not the least) attention by collembologists. Cox (1982), was the first to publish the list of Collembola recorded in Iran. 70 species (with 17 of which belonging to the family Isotomidae) from the Northwestern and Northern Provinces of the country was recorded by him. Moravvej et al. (2007) reported 5 isotomid species and so far the fauna of the family comprises 19 members. Our material was collected by the first author and is deposited in the insect collections of the Gorgan University of Agricultural Sciences and Natural Resources, Iran, and the Moscow State Pedagogical University, Russia. The fauna of Iran is still poorly studied, no keys to species is available, and new species are waiting their examination in future.

MATERIALS AND METHODS

Collection springtails: Soil and leaf litter samples were collected mainly from Gorgan areas, during 2010 and 2011. All samples were retained in white plastic boxes and then were transferred to the Entomology Laboratory of, Department of

plant protection, of Gorgan University of Agricultural Sciences and Natural Resources

Extracted Springtails: The Collembola were extracted by Tullgren funnels. Afterwards transferred to small vials with camel hair brush, and were preserved in 75% alcohol for further study.

Preparation of slides: Specimens were cleared in a Nesbitt solution and mounted on slides with Hoyer medium. Afterwards the slides were transferred to oven for 3-5 day. The slides were examined under Olympus BX51-TF microscope.

Identification: The monograph of Potapov (2001) was primarily applied to identify the genera and species.

RESULTS

Six species of Isotomidae belonging to four genera are discovered in our material (Table 1).

DISCUSSION

Three species, *A. coiffaiti*, *I. punctiferus* and *I. maculatus*, are new for Iranian fauna. Two ones, *Isotomurus* sp. & *Isotoma* sp. probably new for science. Members of the genus *Isotomurus* are very similar in chaetotaxy and differ mostly by coloration and special ecological and molecular study call for ultimate decision on status of the species. *Folsomia penicula* was already recorded by Cox (1982) under the name *F. multisetata*

Anurophorus coiffaiti. Species was recorded in Lebanon, Syria, E Egypt (new), and Armenia. The records of *A. sylvaticus* from Azerbaijan possibly refers to this species.

Folsomia penicula. It is a common European forest mountain species. It is also abundant in Caucasus (including area of S Azerbaijan).

Isotomurus punctiferus. The species was described from Japan, recorded in Pakistan.

Isotomurus maculatus. It is common in Europe. The species is possibly distributed wider and is artificially introduced in many countries.

Isotomurus sp. (aff. *palustris-unifasciatus*). It belongs to "palustris" group. The species shares the color pattern with these two species but male ventral organ is developed only on Abdomen. IV like in *I. italicus*. *Isotoma* sp. (aff. *decorata-spinicauda*). Only one specimen with damaged furca was found.

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Table 1. Species of Isotomidae recorded.

Species	habitat	location	coordinate	altitude (m)	date
<i>Anurophorus coiffaiti</i> Cassagnau & Delmare, 1955 *	Soil	Spinach garden -Karim abad village	N 36 47 53 E 56 23 29	350	2010/9/12
<i>Folsomia penicula</i> Bagnal, 1939 *	Soil	Forest- Zyarat village	N 36 47 43 E 56 23 29	345	2011/8/13
<i>Isotomurus punctiferus</i> Yosii, 1963 *	Soil and Moss	Forest Naharkhoran	N 36 49 33 E 57 35 59	412	2010/11/12
<i>Isotomurus maculatus</i> (Schaeffer, 1896) *	Soil	Forest- Zyarat village	N 36 47 53 E 56 23 29	350	2010/12/18
<i>Isotomurus</i> sp. (aff. <i>palustris-unifasciatus</i>) **	Soil and Moss	Forest Naharkhoran	N 36 49 33 E 57 35 59	412	2011/11/12
<i>Isotoma</i> sp. (aff. <i>decorata-spinicauda</i>) **	Soil	Wheat farm- Zyarat village	N 36 47 53 E 57 35 59	360	2011/1/11