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## *Xenylla mediterranea* da Gama, 1964 (Collembola: Poduromorpha: Hypogastruride): A new record for Iranian fauna (Mazandaran province)

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**ABSTRACT.** During the collecting of Hypogastruridae (Collembola) in Mazandaran province, *Xenylla mediterranea* da Gama, 1964 was reported for the first time from Iran. With the new record in this study, the number of *Xynella* species known from Iran increased to four. Information for specie including material examined, description, ecology, distribution, and illustrations are given.

**Key words:** *Xenylla mediterranea*, Hypogastruridae, Collembola, Iran, New record

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### Introduction

The family of Hypogastruridae Börner, 1906 is common and wide-spread and sprigtails with cosmopolitan distribution (Park & Park, 2006). This family consists of three main lineage of Ceratophysellan, Hypogastruran and Xenyllan (Thibaude *et al.*, 2004). *Xenylla* Tullberg, 1869 has 134 species with the highest number of species in the Xenyllan lineage (Bellinger *et al.*, 2017). Members of this genus are usually dark and small or medium sized animals resembling *Hypogastrura*. They differ from other Hypogastruridae by the absence of Post-antennal Organ. Fourth antennal segment with simple apical bulb and six curved sensilla. Thoracic terga II and III without lateral microsensilla, chaeta  $m_2$

absent. Retinaculum in various stages of reduction, never more than two setae on dens. Anal spines present, always shorter than claws (Fjellberg, 1998). Cox (1982) reported *Xenylla humicola* (Fabricius, 1780) and *Xenylla maritima* Tullberg, 1869 for the first time from Gilan, East and west Azarbaijan provinces for Iran fauna. Yahyapour (2012) reported the species *Xenylla welchi* Folsom, 1916 for the first time in Iran from Mazandaran and Falahati *et al.* (2012) from Kohgiluyeh and Boyer Ahmed. Shayanmehr *et al.* (2013) published a checklist of Iranian springtails which includes three species of *Xenylla*, including, *X. humicola* (Fabricius, 1780), *X. maritima* Tullberg, 1869 and *X. welchi*

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Folsom, 1916. Yoosefi Lafooraki & Shayanmehr (2015) reported the *Xenylla maritima* Tullberg, 1869 for the first time in Mazandaran province. *Xenylla boernerii* Axelson, 1905 is recognized as a saffron bulb pest in South Khorasan (Tabadkani, 2016), but this has not been reported for the Iranian Collembola fauna. Özata *et al.* (2017) reported *X. mediterranea* da Gama, 1964 for the first time from Turkey.

### Material and methods

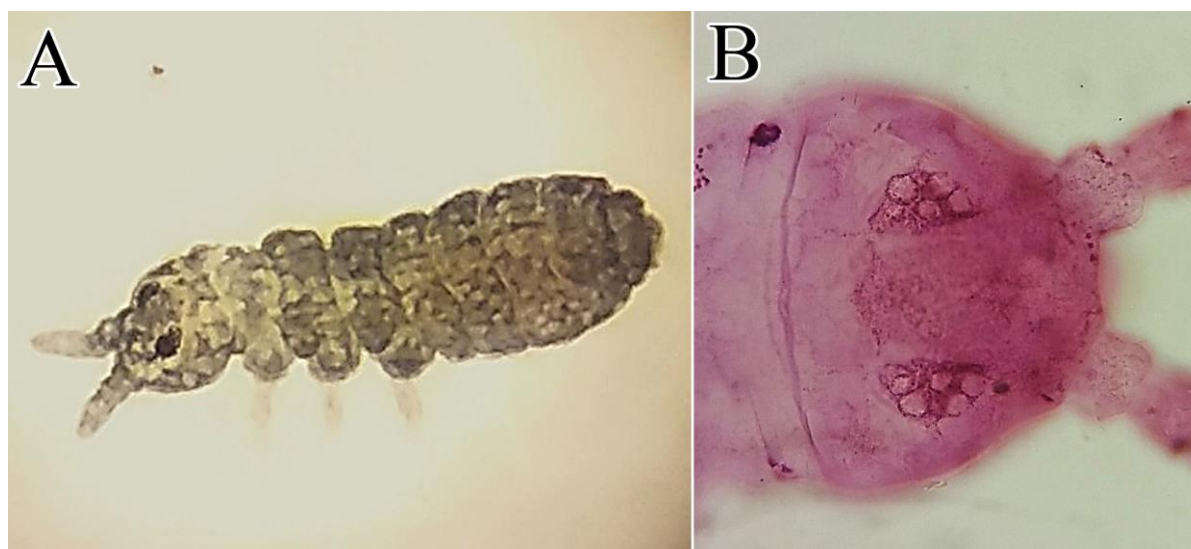
The study area is located in the Amol Halomsar forest park, and the Babol Bezchaft forest park. Collembola specimens were collected from mosses on the tree in the Halomsar forest park (19 May, 2017) and mosses on the rock in the Bezchaft forest park (01 June, 2017). The species were extracted by Berlese Funnel and stored in 85% ethanol. After clearing, they fixed on the Hoyer medium for preparing microscopic slides and was identified by valid identification keys. Confirmation of genus and species was done by Dr. Dariusz Skarżyński (Poland).

### Results

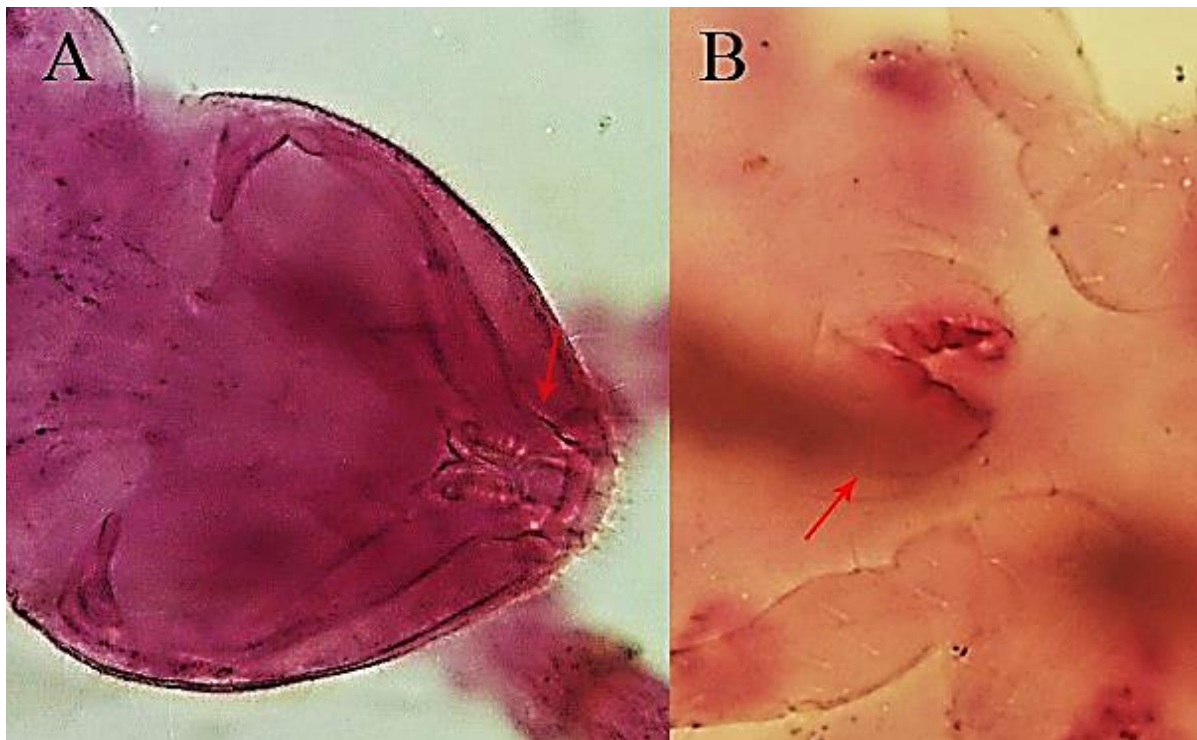
**Material examined:** 47 specimens, Halomsar forest park (N36°23'E52°20'), moss, 19.V.2017; 68 specimens, Bezchaft forest park (N36°22'E52°46'), moss, 01.VI.2017.

**Description:** Size 1 mm, colour bluish-grey (Fig 1A). 5+5 ommatidia (Fig 1B). Body hairs slightly longer and coarser, with relatively shorter lateral sensilla on thoracic and abdominal terga. Mandibles is developed (Fig 2A). Ventral tube with 4+4 setae (Fig 2B). Retinaculum with 2+2 teeth. Mucro smaller, not clearly set off from dens. Mucrodens significantly longer (Fig 3A). Dens with twosetae. Two anal spines (Fig 3B).

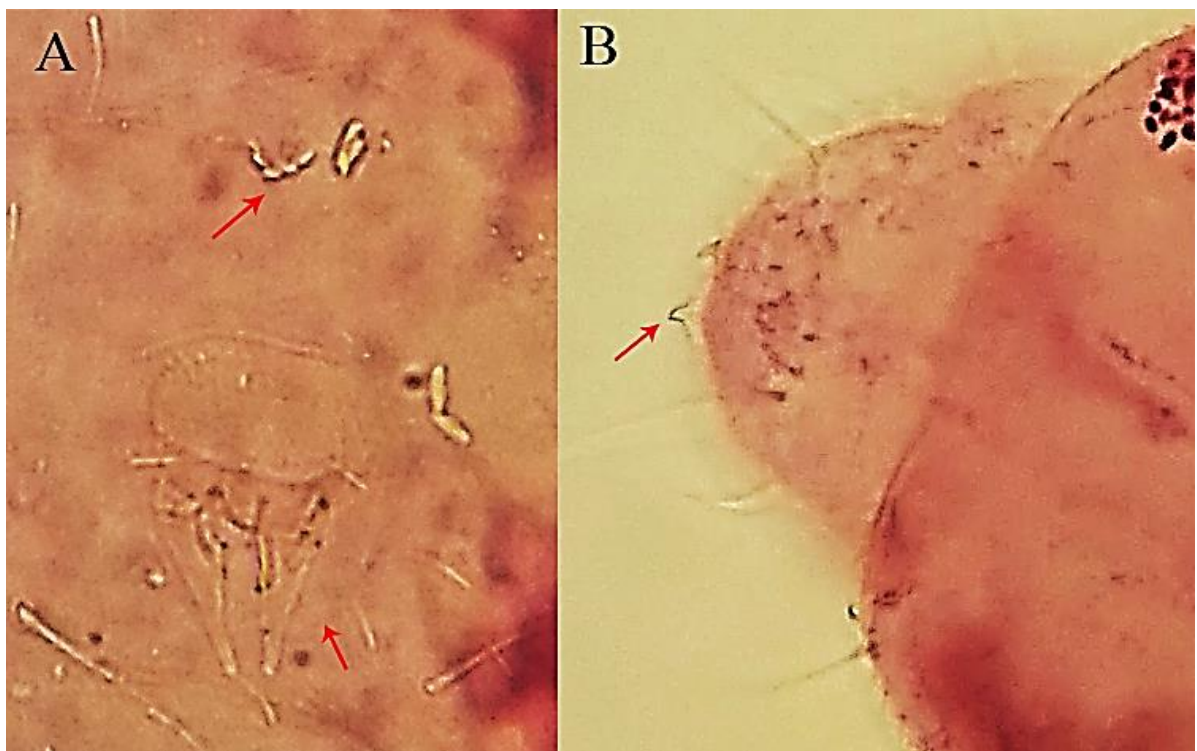
**Distribution:** Canary Islands, Corsica, Croatia, Greece, Italy, Morocco Sicily, Portugal, Scandinavia, Spain and Ukraine, (Fjellberg, 1998; Thibaud *et al.*, 2004) – New to Iran (Mazandaran: Amol, Babol) (this study). The specimens were collected on mosses and rock vegetation.



**Figure 1.** *Xenylla mediterranea* da Gama, 1964: **A.** General habitus, dorso-lateral view (Original); **B.** Ommatidia, 40x.



**Figure 2.** *Xenylla mediterranea* da Gama, 1964: A. Mandibles, 40x (Original); B. Ventral tube, 40x.



**Figure 3.** *Xenylla mediterranea* da Gama, 1964: A. Furca and retinaculum, 40x (Original); B. anal spines, 40x.

## Discussion

The species was originally described as a subspecies of *X. brevisimilis* Stach, 1949. It is distinguished from it by the fact that the number of teeth in the retinaculum is 2+2 instead of 3+3 (Fjellberg, 1998). Babenko *et al.* (1994) found that *X. mediterranea* da Gama, 1964 has sublobal hair and seta  $m_5$  present on Abdominal tergum IV, and ranked it as a full species. With our new records in this study, the number of *Xenylla* species known from Iran increased to a total of four. So far, the species *X. humicola*, *X. maritima*, *X. welchi* and *X. mediterranea* have been reported for Iran.

## Acknowledgments

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## Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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**گونه‌ی *Xenylla mediterranea* da Gama, 1964 (Collembola: Poduromorpha: Haypogastruride)، گزارش جدید برای فون ایران از استان مازنداران**

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**چکیده:** طی نمونه‌برداری از خانواده Hypogastruridae (Collembolla) در استان مازندران، گونه *Xenylla mediterranea* da Gama, 1964 برای اولین بار از ایران گزارش می‌شود. با ثبت این گونه، تعداد گونه‌های جنس *Xenylla* در ایران به چهار مورد افزایش یافت. اطلاعات مربوط به گونه، شامل مواد بررسی شده، توصیف، اکولوژی، پراکندگی و تصاویر خصوصیات مرفولوژیک ارائه شد.

**واژگان کلیدی:** *Xenylla mediterranea*, Hypogastruridae، پادمان، ایران، گزارش جدید