

Short article

Preliminary study of oribatid mites (Acari: oribatida) in Assaluyeh and Lengeh ports, Iran

M. Alikhani^{*1}, T. Arkani¹, H. Hashemzadeh², R. Vafaei-Shoushtari³

1- Young Researchers Club, Arak Branch, Islamic Azad University, Arak, Iran

2- Department of Entomology, Islamic Azad University, Arak Branch, Arak, Iran

3- Assistant Professor, Department of Entomology, Faculty of Agriculture, Islamic Azad University, Arak, Iran

Abstract

The oribatid mites of south of Iran was studied during 2008-2009. Six genera belonging to six families were collected which, three genera and two species that marked by an asterisk are recorded for the first time from Iran. The species *Hypozetes translamellatus* has the most abundant in sampling sites. The family of Scheloribatidae (*Scheloribates* sp.) has the highest total identified species. According to sampling data the families of Scheloribatidae, Tegoribatidae and Oribatulidae have the highest distribution in sampling sites respectively. These species are:

*Heptacarus** sp., (Lohmanniidae); *Damaeolus asperatus** (Berlese, 1904), (Damaeolidae); *Oribatula* (*Zygoribatula*) *undulata* Berlese, 1916, (Oribatulidae); *Scheloribates fimbriatus* Thor, 1930. *S. praeincisus* (Berlese, 1910), (Scheloribatidae); *Hypozetes** *translamellatus** Wallwork, 1965, (Tegoribatidae); *Lamellobates** sp., (Mycobatidae).

Key words: Acari, New records, Oribatida, Assaluyeh and Lengeh ports, Iran

Introduction

Oribatid mites are one of the numerically dominant arthropod groups in the organic horizons of most soils. The role of oribatid mites in decomposition, nutrient cycling and soil formation is important (Akrami, 2007). Oribatid mites are mostly known as particle feeding saprophages and mycophages, but opportunistic predation on nematodes and other microfauna and scavengers on small dead arthropoda (necrophagy) are probably underestimated (Norton & Behan-Pelletier, 2009). These mites hold a great potential for using in ecotoxicology due to the structural and functional complexity of their communities, and several peculiarities not found in other arthropods (Lebrun & Van Straalen, 1995).

Faunal lists of oribatid from Iran containing descriptions of several new species have been published by Bayartogtokh & Akrami (2000); Mahunka & Akrami (2001); Haddad Irani-Nejad *et al.*, (2003); Akrami (2007); Bastan *et al.* (2008); Akrami *et al.* (2009).

The goal of present study was to determine oribatid mite species of south of Iran (Assaluyeh and Lengeh ports) for the first time.

Material and Methods

Soil and litter samples were taken from Assaluyeh and Lengeh ports at various times during 2008-2009. Each sample contains 2-4 trowels taken from the surface to a soil depth of 15 cm of crop plants and weeds. Samples were transferred to the Laboratory of the Department of Plant Protection, College of Agriculture, Islamic Azad University of Arak. Then, the mites in the soil

* Corresponding author, Email: mahmud.alikhani@gmail.com

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samples were extracted by using a Berlese funnel and preserved in 75% ethanol and cleared in lactophenol. Selected mite specimens were mounted in Hoyer's medium on glass microscopic slides for identification (Akrami, 2007). The slide mounting techniques mainly based on the method of Krantz (1978).

In a few cases identification of species was not yet possible, in which case the genus name is used, followed by "sp.". All specimens are deposited in the Department of Entomology, Islamic Azad University, Arak Branch, Arak, Iran and some specimens in the collection of Plant Protection, University of Shiraz, Iran.

Results

In total, six genera and five species belonging to six families were collected and identified. Among which, three genera and two species are new records to mite fauna of Iran. Oribatid species were listed below with the information of locality, date, number of specimens and gender.

List of Oribatids and collection data

Damaeolidae Grandjean, 1965

Damaeolus asperatus (Berlese, 1904)

Material examined: Assaluyeh port, Bushehr Province, soil under meadow, 27-XI-2008 (1♂).

Distribution: Holarctic (Palearctic: except North, and U.S.A.: Columbia) (Subias, 2004). New record from Iran.

Lohmanniidae Berlese, 1916

Heptacarus sp.

Material examined: Lengeh port, Hormozgan Province, soil under meadow, 31-VIII-2008 (4♀).

Distribution: unknown. New record from Iran.

Mycobatidae Grandjean, 1954

Lamellobates sp.

Material examined: Lengeh port, Hormozgan Province, soil under meadow, 1-IX-2008 (1♀).

Distribution: unknown. New record from Iran.

Oribatulidae Thor, 1923

Oribatula (Zygoribatula) undulata Berlese, 1916

Material examined: Lengeh port, Hormozgan Province, soil under meadow, 2-IX-2008 (1♂); Lengeh port, Hormozgan Province, soil under meadow, 5-IX-2008 (1♀).

Distribution: Pantropic (except Neotropic) and subtropic (Subias, 2004). Recorded from Iran by Haddad Irani-Nejad *et al.*, (2003), Bastan *et al.*, (2008) and Lotfollahi *et al.*, (2010).

Scheloribatidae Granjean, 1953

Scheloribates praeincisus (Berlese, 1910)

Material examined: Lengeh port, Hormozgan Province, soil under meadow, 2-IX-2008 (2♀); Lengeh port, Hormozgan Province, soil under meadow, 1-IX-2008 (1♀); Hormozgan Province, soil under meadow, 8-VIII-2008; Lengeh port, Hormozgan Province, soil under meadow, 5-IX-2008 (1♂).

Distribution: Pantropic and subtropic (Subias, 2004). Recorded from Iran by Bayartogtokh & Akrami (2000).

***Scheloribates fimbriatus* Thor, 1930**

Material examined: Lengeh port, Hormozgan Province, soil under meadow, 6-IX-2008 (6♀ 2♂); Lengeh port, Hormozgan Province, soil under meadow, 31-VIII-2008; Hormozgan province, soil under meadow, 6 IX 2008.

Distribution: Cosmopolitan (Subias, 2004). Recorded from Iran by Bayartogtokh & Akrami (2000) and Haddad Irani-Nejad *et al.* (2003).

Tegoribatidae Grandjean, 1954***Hypozetes translamellatus* Wallwork, 1965**

Material examined: Lengeh port, Hormozgan Province, soil under meadow, 2-IX-2008 (1♀ 9♂); Lengeh port, Hormozgan Province, soil under meadow, 8-VIII-2008; Lengeh port, Hormozgan Province, soil under meadow, 5-IX-2008 (3♀ 3♂); Lengeh port, Hormozgan Province, soil under meadow, 6-IX-2008 (2♀); Lengeh port, Hormozgan Province, soil under meadow, 31-VIII-2008 (4♀, 5♂).

Distribution: Ethiopia (Chad and Congo) and Saudi Arabia (Subias, 2004). New record from Iran.

Discussion

Five and forty seven specimens were identified to genus and species level, respectively. One species was recorded exclusively in the Assaluyeh port and 5 genera and 4 species in the Lengeh port ecosystem. All of the species were found in the edaphic substrates.

The family of Scheloribatidae (*Scheloribates* sp.) had the highest identified species. In the past, Scheloribatidae have been found in early successional habitats in high numbers due to their relatively high fecundity and short life cycle with 2-3 generation per year (Maribie *et al.*, 2011).

According to sampling data, the families of Scheloribatidae, Tegoribatidae and Oribatulidae had the highest distribution in sampling sites respectively. This result is in good accordance with study by Franklin *et al.* (2006) who, in diversity and distribution of oribatida in Peru and Brazil, found that the species with the largest home ranges was *Rostrozetes foevolatus* Sellnick, *Scheloribates* sp. and *Galumna* sp. registered in more than 65% of the 26 environments.

Moraza and Pena (2005) who study oribatid mite in selected habitats of La Gomera (Canary island, Spain) found that the most frequent species (found in the largest samples) were *Zygoribatula frisiae* (Oudemans) (66%), *Scheloribates laevigatus* (Koch) and *Tectocephus sarekensis* Trägårdh (36%).

The species of *Hy. translamellatus* Wallwork had the most numerically specimens in sampling sites. With current study of oribatid mites of south of Iran, little species were identified that comprehensive studies are necessary.

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مقاله کوتاه

مطالعه مقدماتی کنه‌های Oribatida (Acari) در بنادر عسلویه و لنگه، ایران

محمود علی خانی*^۱، تورج ارکانی^۱، حسین هاشم‌زاده^۲، رضا وفایی شوشتری^۳

۱- دانشگاه آزاد اسلامی، واحد اراک، باشگاه پژوهشگران جوان، اراک

۲- گروه حشره‌شناسی، دانشکده کشاورزی، دانشگاه آزاد اسلامی، واحد اراک

۳- استادیار، گروه حشره‌شناسی، دانشکده کشاورزی، دانشگاه آزاد اسلامی، واحد اراک

چکیده

طی سال‌های ۱۳۸۷-۱۳۸۸ در مطالعه کنه‌های اربیاتید در جنوب ایران، ۶ جنس متعلق به ۶ خانواده جمع‌آوری شدند که تعداد ۵ نمونه در سطح گونه شناسایی شدند. در بین آن‌ها، ۳ جنس و ۲ گونه که با علامت ستاره مشخص شده‌اند برای اولین بار از ایران گزارش می‌شود.

گونه *Hypozetes translamellatus* دارای بیشترین تعداد نمونه در محل‌های نمونه‌برداری بوده است. خانواده Scheloribatidae دارای بیشترین گونه شناسایی شده است. خانواده‌های Scheloribatidae، Tegoribatidae و Oribatulidae به ترتیب دارای بیشترین پراکنش در محل‌های نمونه‌برداری بودند. اسامی علمی جنس و گونه‌ها به شرح ذیل است:

*Heptacarus** sp., (Lohmanniidae); *Damaeolus asperatus** (Berlese, 1904), (Damaeolidae); *Oribatula (Zygoribatula) undulata* Berlese, 1916, (Oribatulidae); *Schelorbates fimbriatus* Thor, 1930. *S. praeincisus* (Berlese, 1910), (Scheloribatidae); *Hypozetes* translamellatus** Wallwork, 1965, (Tegoribatidae); *Lamellobates** sp., (Mycobatidae).

واژه‌های کلیدی: کنه‌های اربیاتید، گزارش جدید، بنادر عسلویه و لنگه، ایران

* نویسنده رابط، پست الکترونیکی: mahmud.alikhani@gmail.com

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