

Correspondence

Oribatid mites (Acari: Oribatida) collected in the Iranian Kerman Province

Marcelo E. Kun^{1*} and Malihe Latifi²

1. *Laboratorio de Zoología, Centro Regional Universitario Bariloche, Universidad Nacional del Comahue, Quintral 1250, Bariloche, Provincia de Río Negro, Argentina; E-mail: marcelo.kun@crub.uncoma.edu.ar*
2. *Department of Plant Protection, Vali-e-Asr University of Rafsanjan, Rafsanjan, Iran; E-mail: latify_malihe@yahoo.com*

* Corresponding author

Oribatid mites were collected from soils sampled in Iran by students of the Vali-e-Asr University of Rafsanjan in the Kerman Province. Nearly all oribatid species could be taxonomically recognized to the specific level excepting two which were only recognized to genus level and award future description. Although many oribatid mites of Iran are known, one previous work identified only one oribatid mite species for the Kerman Province. This work gives the additional 13 oribatid mite species which constitute new citations for the Kerman Province. A few new citations from Provinces of Isfahan and Mazandaran are also included.

Important works on oribatid mites have been carried out in some Provinces of the Iranian territories; a recent list has been published by the renowned Iranian oribatologist, Mohammad Ali Akrami (2015). Before the work presented here *Epilohmannia styriaca* Schuster is the only oribatid species so far identified for the Kerman Province (Akrami and Saboori 2004). As a contribution to the knowledge of oribatids of Iran, students at the Plant Protection Department of Vali-e-Asr University of Rafsanjan carried out a collection by sampling soils to reach species-level identification mainly in the Kerman Province, although information for a few oribatids collected in other localities are included in the present work.

Samples were taken mainly from soils of the Province of Kerman but some others were taken in the Provinces of Mazandaran and Isfahan. Soils were put on a Berlese-Tullgren funnel and extracted during two days. Mites were separated from other microfauna by means of a stereoscopic microscope, cleared in Nesbitt's fluid, mounted on glass slides using Hoyer's medium and analyzed with an Olympus CHS2600 optical microscope.

Identification keys (Balogh and Balogh 2002) as well as descriptions whose references were tracked from the world catalog of oribatid mites (Subías *et al.* 2012, 2014) were used to identify the oribatid mite species to generic, subgeneric, species, or subspecies level. The number of specimens examined is given in parentheses. Slides are deposited in the collection of oribatid mites of the Department of Zoology of Centro Regional Universitario Bariloche of the Universidad Nacional del Comahue (Province of Río Negro). The list of oribatid taxa found follows:

***Hypochthonius luteus* Oudemans, 1917**

New Province citation for Iran. Kerman city (Kerman Province). (1) Soil 2011. Previously cited in Iran (for a list see Akrami 2015).

Distribution: Holarctic, northeast of Oriental, New Zealand.

***Hypochthonius rufulus* Koch, 1835**

New Province citation for Iran. Kerman city (Kerman Province). (2) Soil 2009. Other records: Tonekabon (Mazandaran Province). (4) Soil 3 Nov. 2009. Previously cited in Iran (Akrami 2015).

Distribution: Semicosmopolitan: Holarctic, Oriental (Southeast China and India: West Bengal), Seychelles and Mexico.

***Lohmannia paradoxa* (Haller, 1884)**

New Province citation for Iran. Kerman city (Kerman Province). (3) Soil 2011. Previously cited in Iran (Akrami 2015).

Distribution: Western Palearctic.

***Papillacarus* sp.**

Rafsanjan (Kerman Province). Soil 2011 and Kerman city (Kerman Province). (3) Soil 24 Oct. 2011. Other record Tonekabon (Mazandaran Province). (1) Soil 3 Nov. 2009.

Nine species of this genus have been cited for Iran (Akrami 2015). Thirty two species of *Papillacarus* have been described (Subías 2014). Given a careful check of all previous descriptions we arrived to the point that the specimens belong to an undescribed species.

***Papillacarus ondriasi* Mahunka, 1974**

New Province citation for Iran. Kerman and Rafsanjan cities (Kerman Province). (2) Soil 2011. Previously cited for East Azerbaijan Province in Shabestar (Mirzaie *et al.* 2011).

Distribution: South East Europe and Southeast China.

***Epilohmannia cylindrica cylindrica* (Berlese, 1904)**

New Province citation for Iran. Kerman city (Kerman Province). (1) Soil. 2011.

New Province citation for Iran. Isfahan city (Isfahan Province). (1) Soil 12 Oct. 2012. Other record: Tonekabon city (Mazandaran Province). (1) Soil 12-Oct-2012. Previously cited for various Provinces of Iran (Akrami 2015).

Distribution: Cosmopolitan.

***Epilohmannia cylindrica minima* Schuster, 1960**

New Province citation for Iran. Kerman city (Kerman Province). (1) Soil 2011. Only previously cited for Rasht in the Province of Guilan (Akrami 2015).

Distribution: Southern Europe.

***Acrotitia hyeroglyphica* (Berlese, 1916)**

New Province citation for Iran. Kerman city (Kerman Province). (8) Soil of grapes

23 Oct. 2011 and 16 Nov. 2011. Previously cited in Iran (Akrami 2015).

Distribution: Semicosmopolitan (Holarctic, Ethiopian: Somalia, Oriental and Neotropical: Panama).

***Acrotritia sinensis* (Jacot, 1923)**

New Province citation for Iran. Kerman city (Kerman Province). (1) Soil 2011. Previously cited for Ahvaz (Khuzestan Province) by Ramezani and Mossadegh (2014).

Distribution: Pantropical (excluding neotropical) and subtropical (Southern Palearctic).

***Nothrus anauniensis* Canestrini & Fanzago, 1876**

New Province citation for Iran. Rafsanjan (Kerman Province). (2) Soil of pomegranate 24 Oct. 2012. Previously cited in Iran (Akrami 2015).

Distribution: Cosmopolitan (except Antarctic): common in Palearctic.

***Oppiella (Oppiella) nova nova* (Oudemans, 1902)**

New Province citation for Iran. Kerman city (Kerman Province). (1) Soil 2011. Previously cited in Iran (Akrami 2015). *Distribution*: Cosmopolitan.

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

New Province citation for Iran. Kerman city (Kerman Province). (1) Soil. 2011. The specimen found nearly coincides with the description of Ivan 2013 for *Oribatula amblyptera* Berlese, 1916 today considered a synonym of *Oribatula tibialis* (Subías 2014). Previously cited in Iran (Akrami 2015).

Distribution: Holarctic and India (Sikkim).

***Oribatula (Zygoribatula) bonairensis* (Willmann, 1936)**

New Province citation for Iran. Rafsanjan (Kerman Province). (5) Soil of pistachio 18 Nov. 2011. Previously cited for Iran in Ardabil and Moghan Plain (Ardabil Province) by Haddad Irani-Nejad *et al.* (2002).

Distribution: Neotropical, Malagasy, Mauritio Islands and U.S.A.

Oribatula (Zygoribatula) sp.

Including *O. bonairensis* other nine species of the subgenus have been cited for Iran (Akrami 2015). None of the descriptions for coincides with the specimens found, future description is needed. Kerman (4) Soil 9 Dec. 2011, 11 Dec. 2011, Kahnooj (1) Soil 13 Dec.2011 (Kerman Province).

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

New Province citation for Iran. Kerman city (Kerman Province). (4) Soil 2011.

Distribution: Oriental, Eastern Palearctic (Iran), Ethiopian (Congo) and Neotropical (Ecuador).

This work intended to acquire skills in the identification of the little known fauna of oribatid mites in an unexplored Province of Iran such as Kerman and constitutes a modest contribution to the knowledge of this tiny fauna. The taxonomic analysis results in 15 different taxa. Thirteen identified taxa belong to species cited previously for Iran.

Two taxa could only be ascertained to genus and subgenus level. The analysis of all previously published descriptions of these taxa do not show an exact match with characters proposed as diagnostic in the bibliography. This work brings about 15 new records for Kerman Province in soil samples and indicates still a lot of work is needed to know thoroughly the oribatid fauna of this country. Apart from soil, a great amount of substrates as plants, bark, and decaying plant material sources in unvisited Provinces of Iran still remains unexplored.

References

- Akrami, M.A. (2015) An annotated checklist of oribatid mites (Acari: Oribatida) of Iran. *Zootaxa*, 3963 (4): 451–501.
- Akrami, M.A. & Saboori, A. (2004) Report of thirteen species of macropyline oribatid mites (Acari: Oribatida), new to the fauna of Iran. *Iran Agricultural Research*, 23 (1): 111–117.
- Balogh, J. & Balogh, P. (2002) *Identification keys to the oribatid mites of the extra-Holarctic regions I*. Well-Press Publishing Ltd. Budapest, Hungary, 451 pp.
- Balogh, J. & Balogh, P. (2002) *Identification keys to the oribatid mites of the extra-Holarctic regions II*. Well-Press Publishing Ltd. Budapest, Hungary, 501 pp.
- Haddad Irani-Nejad, K., Kamali, K. & Maleki Milani, H. (2002) Poronotic brachypylinae oribatid mites of cotton fields in Moghan plain. *Applied Entomology and Phytopathology*, 69 (2), 17–47 [In Persian].
- Mirzaie, M., Haddad Irani-Nejad, K. & Akrami, M.A. (2011) New records of primitive oribatid mites (Acari: Oribatida) from the Shendabad region (East Azerbaijan Province), Iran. *Zoology in the Middle East*, 53, 137.
- Ramezani, L. & Mossadegh, M.S. (2014) Faunal study of cryptostigmatic mites (Acari: Oribatida) of Ahvaz, with introducing of two species, new records for Iran fauna. *Journal of Plant Protection*, 37 (1), 69–79 [In Persian with English abstract]
- Subías, L.S., Shtanchaeva, U.Ya. & Arillo, A. (2012) Listado de los ácaros oribátidos (acariformes, oribatida) de las diferentes regiones biogeográficas del mundo. *Monografías electrónicas S.E.A.*, 4: 1–805.
- Subías, L.S., Shtanchaeva, U.Ya. & Arillo, A. (2014) Online update of "Listado de los ácaros oribátidos (acariformes, oribatida) de las diferentes regiones biogeográficas del mundo". Available from: http://sea-entomologia.org/Publicaciones/MonografiaElectronica4/ACARI_ORIBATIDA_MESEA4.pdf (Accessed on February 2015).

Received: 26 November 2015

Accepted: 25 December 2015

Published: 15 January 2016

COPYRIGHT



Kun and Latifi. Persian Journal of Acarology is under free license. This open-access article is distributed under the terms of the Creative Commons-BY-NC-ND which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.