

Correspondence

First report of the subgenus *Pachylaelaps* (*Longipachylaelaps*) Mašán (Mesostigmata: Eviphidoidea: Pachylaelapidae) from Iran

Ali Ahadiyat^{1*}, Peter Mašán², Zahra Cheraghali³ & Omid Joharchi⁴

1 Department of Entomology, Science and Research Branch, Islamic Azad University, Tehran, Iran; E-mails: a.ahadiyat@srbiau.ac.ir & ali.ahadiyat@hotmail.com

2 Institute of Zoology, Slovak Academy of Sciences, Bratislava, Slovakia; E-mail: peter.masan@savba.sk

3 Young Researchers Club, Garmsar Branch, Islamic Azad University, Garmsar, Iran; E-mail: z_cheraghali2005@yahoo.com

4 Department of Plant Protection, College of Agriculture, Yazd Branch, Islamic Azad University, Yazd, Iran; E-mail: joharchi@iauyazd.ac.ir

* Corresponding author

The Iranian fauna of the family Pachylaelapidae Berlese, 1913 is poorly known, with only five genera and 18 species reported till now. *Onchodellus* Berlese, 1904 and *Pachylaelaps* Berlese, 1888 are the most speciose genera in the country (Kazemi & Rajaei 2013).

The genus *Pachylaelaps* is large and cosmopolitan (Moraza & Peña 2005), and includes about 40 species that occur in various edaphic substrates in the Holarctic region (Mašán 2007). The genus contains two subgenera *Longipachylaelaps* Mašán, 2007 and *Pachylaelaps* s. str. In *Longipachylaelaps*, the clunal setae *J5* are normally developed, needle-like, and relatively long. In addition, there is only one pair of hypertrophied gland pores (gdS4) on the posteromarginal surface of the dorsal shield. In *Pachylaelaps*, the setae *J5* are strongly reduced to microsetae, and there are two pairs of hypertrophied gland pores (gdZ1, gdS4) on the posterolateral margin of the dorsal shield (Mašán 2007).

Hitherto, five species of the genus *Pachylaelaps* have been previously recorded from Iran, as follows: *P. grandis* Koroleva, 1977 (Ahadiyat & Cheraghali 2012), *P. imitans* Berlese, 1920 and *P. magnus* Halbert, 1915 (Ahmadi 2002), *P. pectinifer* (G. Canestrini, 1881) (Jalaeian *et al.* 2004; Ahadiyat & Cheraghali 2012; Ghasemi Moghadam & Ahadiyat 2012), *P. resinae* Karg, 1971 (Kamali *et al.* 2001; Ahmadi 2002). All these species belong to the subgenus *Pachylaelaps* (*Pachylaelaps*).

An extensive study of the fauna of pachylaelapid mites in Alborz and Tehran Provinces was carried out during 2008–2011. Specimens, identified as *Pachylaelaps* (*Longipachylaelaps*) *vicarius* Mašán, 2007 were collected from soil microhabitats and ant's nests from several localities in those provinces. They were extracted using a Berlese-Tullgren funnel, cleared in lactophenol, and mounted into permanent microscope slides using Hoyer's medium. All the measurements are given in micrometers (µm).

Pachylaelaps (Longipachylaelaps) vicarius Mašán, 2007

Morphological observations of studied materials

Dorsal shield oblong, well-reticulated, 790–880 long and 480–520 wide (length/width: 1.62–1.65). Clunal setae *J5* 35–43 long. Setae *J4* much longer than *J5*, 95–109 in length. All ventral shields with a well-developed reticulation pattern. Length of sternal shield 255–270. Length and width of genitiventral shield approximately equal, length 265–275, width 250–275. Anal shield wider than long (length: 110–118, width: 155–170). Tarsus II with two spur-like distal setae (*pl1*, *pl2*). Spermathecal tubes associated with coxae IV, not well-developed, sacculated basally, only with very short distalmost section tubiform and slightly protuberant above its enlarged base.

Material examined

Tehran Province, Shemirānāt County (Roodbār–Ghasrān Region): 1♀, Fasham (35° 55' N, 51° 31' E, altitude: 2,025 m a.s.l.), soil under cherry tree, 31 May 2011; 1♀, Fasham, Shāhed Boulevard (35° 55' N, 51° 31' E, altitude: 2,025 m a.s.l.), willow tree debris and humus, 29 November 2011; 1♀ Āhār (35° 90' N, 51° 48' E, altitude: 2,118 m a.s.l.), soil, 4 December 2011; 1♀, Igel (35° 33' N, 51° 35' E, altitude: 2,020 m a.s.l.), soil near root collar of willow tree, 4 December 2011. All collected by Z. Cheraghali. **Alborz Province**, Karaj County: 1♀, Karaj (35° 48' N, 50° 59' E, altitude: 1,786 m a.s.l.), in nest of *Tapinoma* sp. (Formicidae), 11 June 2009; 1♀, Karaj, Shahrestānak (35° 56' N, 51° 22' E, altitude: 2,330 m a.s.l.), in nest of *Camponotus* sp. (Formicidae), 18 September 2009. Both collected by O. Joharchi.

Specimens are deposited in the Acarology Collection of the Department of Entomology, College of Agriculture and Natural Resources, Science and Research Branch, Islamic Azad University, Tehran, Iran and in the Acarological Collection, Acarological Society of Iran, Department of Plant Protection, College of Agriculture, University of Tehran, Karaj, Iran, and in the senior author's personal collection.

Distribution

This is a new record for the subgenus *Longipachylaelaps* and the species from the acarofauna of Iran.

According to Mašán (2007), the species was misidentified as *Pachylaelaps longisetis* Halbert, 1915 by Koroleva (1977), so her records from former Soviet Union (Ukraine and Russia – Saint Petersburg region, Kursk region, Dagestan region), together with records from Slovakia in Central Europe (Mašán 2007) and Iran (here introduced), should be used as a preliminary source data for the consideration of the geographic distribution of *P. vicarius*. Mahmood (2003) identified the species *P. (L.) longisetis* from Iraq, which may be the same species *P. vicarius*, partly because of the probable misidentification, and partly because of the above-mentioned distribution of the misidentified species. One of the junior authors (PM) has examined several specimens of *P. (L.) longisetis* deposited in museums, and believes it is distributed in western parts of Europe.

Habitat preference

No male specimens of the species were found during this research, as Mašán (2007) did not find any male specimens during his researches. Therefore, it is probably a

thelytokous species.

The specimens were collected at relatively high altitudes, from 1,786 to 2,330 m a.s.l., while Mašán (2007) found it in lowland areas at altitudes of 135–370 m a.s.l. Therefore, it is the most interesting fact that the species can live in a wide range of altitudes, from lowland to highland areas.

Mašán (2007) mentioned that this species is a relatively uncommon soil-inhabiting mite, which is found in leaf-litter and soil detritus, mostly in southern regions of Slovakia. He found it in microhabitats situated in diverse broad-leaved deciduous forests and parks with trees from different genera, while we not only found it in soil substrates, including soil, debris and humus related to broad-leaved deciduous trees, e.g. cherry and willow, but also in association with nests of two genera of ants, including *Tapinoma* Förster, 1850 and *Camponotus* Mayr, 1861.

Acknowledgment

The authors are grateful to anonymous reviewers for their valuable suggestions on the manuscript draft.

References

- Ahadiyat, A. & Cheraghali, Z. (2012) Faunistic study of pachylaelapid mites (Mesostigmata: Eviphidoidea: Pachylaelapidae) in Roodbaar-Ghasraan region (Shemiraanaat county) of Tehran province. *In*: Sarafrazi, A., Asef, M.R., Mozhdehi, M., Mozhdehi, M., Solhjoui Fard, S. & Abdollahi, T. (Eds.), *Proceedings of the 20th Iranian Plant Protection Congress*, 26–29 August 2012, Shiraz University, Shiraz, Iran, p. 428.
- Ahmadi, K. (2002) New records of six mite species of the genus *Pachylaelaps* from (Acari: Pachylaelapidae) Kerman province, Iran. *Proceeding of the 15th Iranian Plant Protection Congress, Volume 1: Pests*, 7–11 September 2002, Razi University, Kermanshah, Iran, p. 149.
- Ghasemi Moghadam, S. & Ahadiyat, A. (2012) Fauna of mesostigmatic mites (Acari: Mesostigmata) associated with green spaces and parks of Tehran, Iran. *In*: Murariu, D., Adam, C., Chișamera, G., Iorgu, E., Ovidiu Popa, L. & Paula Popa, O. (Eds.), *Book of Abstracts of Fourth Annual Zoological Congress of “Grigore Antipa” Museum (CZGA 2012)*, 21–23 November 2012, “Ion Heliade Rădulescu” Amphitheatre of the Romanian Academy, Bucharest, Romania, p. 139.
- Jalaeian, M., Saboori, A. & Seyedoleslami, H. (2004) Report of mesostigmatic mites in Iran. *Journal of Entomological Society of Iran*, 23 (2): 125–126.
- Kamali, K., Ostovan, H. & Atamehr, A. (2001) *A catalog of mites & ticks (Acari) of Iran*. Islamic Azad University Scientific Publication Center, 192 pp.
- Kazemi, Sh. & Rajaei, A. (2013) An annotated checklist of Iranian Mesostigmata (Acari), excluding the family Phytoseiidae. *Persian Journal of Acarology*, 2 (1): 63–158.
- Koroleva, E.V. (1977) Family Pachylaelaptidae Vitzthum, 1931. *In*: Ghilyarov, M.S. & Bregetova, N.G. (Eds.), *A key to the soil-inhabiting mites, Mesostigmata*. Zoological Institute of the Academy of Sciences: Petrograd. Nauka, Leningrad, USSR, pp. 411–483 [In Russian].
- Mahmood, S.H. (2003) New records of some mite species inhabiting soil in Baghdad. *Bulletin of the Iraq Natural History Museum*, 10 (1): 19–23.


- Mašán, P. (2007) *A review of the family Pachylaelapidae in Slovakia, with systematics and ecology of European species (Acari: Mesostigmata: Eviphidoidea)*. Institute of Zoology, Slovak Academy of Sciences, Bratislava, 247 pp.
- Moraza, M.L. & Peña, M.A. (2005) The family Pachylaelapidae Vitzthum, 1931 on Tenerife Island (Canary Islands), with description of seven new species of the genus *Pachylaelaps* (Acari, Mesostigmata: Pachylaelapidae). *Acarologia*, 45 (2-3): 103-129.

Received: 5 October 2013

Accepted: 9 November 2013

Published: 15 January 2014

COPYRIGHT

 Ahadiyat *et al.* 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.

اولین گزارش از کنه‌ای از زیرجنس *Pachylaelaps (Longipachylaelaps)* Mašán از ایران (Mesostigmata: Eviphidoidea: Pachylaelapidae)

علی احدیت^۱، پیتر ماشان^۲، زهرا چراغعلی^۳ و امید جوهرچی^۴

۱ دانشگاه آزاد اسلامی واحد علوم و تحقیقات، گروه حشره‌شناسی، تهران، ایران

۲ مؤسسه جانورشناسی، فرهنگستان علوم اسلواکی، براتیسلاوا، اسلواکی

۳ باشگاه پژوهشگران جوان، دانشگاه آزاد اسلامی واحد گرمسار، گرمسار، ایران

۴ گروه گیاهپزشکی، دانشکده کشاورزی، دانشگاه آزاد اسلامی واحد یزد، یزد، ایران

تاریخ دریافت: ۱۳۹۲/۷/۱۳

تاریخ پذیرش: ۱۳۹۲/۸/۱۸

تاریخ چاپ: ۱۳۹۲/۱۰/۲۵