



ESI

First record of *Caenocrepis arenicola* (Thomson, 1878) (Hymenoptera: Pteromalidae) from Iran

Mahla Shojaey¹, Mohammad Khayrandish^{1*}, Seyed Massoud Madjdzadeh² and Hossein Lotfalizadeh³

¹ Department of Plant Protection, Faculty of Agriculture, Shahid Bahonar University of Kerman, Kerman, Iran.

² Department of Biology, Faculty of Sciences, Shahid Bahonar University of Kerman, Kerman, Iran.

³ Department of Plant Protection, East-Azərbaycan Agricultural and Natural Resources Research & Education Center, AREEO, Tabriz, Iran.

Received:
27 May, 2019

Accepted:
03 June, 2019

Published:
06 June, 2019

Subject Editor:
Majid Fallahzadeh

ABSTRACT. *Caenocrepis arenicola* (Thomson, 1878) (Hymenoptera: Pteromalidae) is a new record for Iran. A female specimen of this species was collected from south of Kerman province by sweeping net on *Medicago sativa* in November 2016. It is egg parasitoid of *Pachycerus madidus* (Olivier, 1807) (Coleoptera: Curculionidae) which distributed in the Palaearctic region. Morphological characteristics and its geographical distribution are presented.

Key words: Fauna, Chalcidoidea, New record, Kerman, Iran

Citation: Shojaey, M., Khayrandish, M., Madjdzadeh, S.M. & Lotfalizadeh, H. (2019) First record of *Caenocrepis arenicola* (Thomson, 1878) (Hymenoptera: Pteromalidae) from Iran. *Journal of Insect Biodiversity and Systematics*, 5 (2), 121–126.

Introduction

Caenocrepis (Thomson, 1878) is a genus of the subfamily Pteromalinae (Hymenoptera: Pteromalidae) comprising four described species worldwide (Mitroiu, 2012). This genus is characterized by the following morphological features: Clypeal area transversely rugulose-reticulate; notauli incomplete; forewing especially at parastigma and stigma infumate, marginal vein widened at its base and shorter than stigmal vein; hind tibia with two spurs (Bouček & Rasplus, 1991). Recently Mitroiu (2012) provided an identification key to the species of this genus. He also reported *C. simonae* Mitroiu, 2012 and *C. formidolosa* Mitroiu, 2012 for the first time from the Afrotropical region. *Caenocrepis simonae*

and *C. formidolosa* were described from Mozambique and Zimbabwe, respectively (Mitroiu, 2012). Two species of this genus including *C. arenicola* (Thomson, 1878) and *C. bothynoderi* Gromakov, 1940 were reported from the Palaearctic region (Mitroiu, 2012). In Iran, *C. bothynoderi* was reported for the first time from Qazvin province (Huber & Vayssieres, 1990). They observed that *C. bothynoderi* cause mortality on eggs of *Pachycerus cordiger* Germar, 1818 (Coleoptera: Curculionidae) (Huber & Vayssieres, 1990). Also, this species is parasitoid of *Pachycerus segnis* (Germar, 1824) (Coleoptera: Curculionidae) and eggs of *Asproparthenis punctiventris* (Germar, 1824) (Coleoptera: Curculionidae) (Noyes, 2019).

Corresponding author: Mohammad Khayrandish, E-mail: m.khayrandish@uk.ac.ir

Copyright © 2019, Shojaey et al. This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Caenocrepis bothynoderi is distributed in Azerbaijan, Europe, Iran, Kazakhstan, Turkey, Turkmenistan and Ukraine (Noyes, 2019).

Abolhassanzadeh et al. (2017) provided last updated checklist of Pteromalidae (Hymenoptera: Chalcidoidea) of Iran. Lotfalizadeh et al. (2019) reviewed the genus *Notanisus* Walker, 1837 in Iran. Pteromalidae of Khuzestan in southwestern Iran was reviewed by Moravvej et al. (2018). Several studies have been carried out on Pteromalidae of Kerman (Mitroiu et al., 2011; Mahdavi & Madjzadeh, 2013; Mahdavi et al., 2015) and Tehran provinces (Davoodi et al., 2004; Kazemi et al., 2010; Rakhshani et al., 2003).

The aim of this study is to increase our knowledge of Iranian chalcid wasps and to complete with new information on the distributional data.

Material and methods

During our collecting program of chalcidoid wasps (Hymenoptera: Chalcidoidea) in Kahnooj county, Sargorich (28°08'29.5" N 57°33'59.5" E, 679 m a.s.l.), Kerman province, southeast of Iran (Fig. 1), a female specimen of the family Pteromalidae was found among the material which were swept on *Medicago sativa* L. in November 2016.



Figure 1. Geographic map of Kahnooj in south of Kerman province. Red point indicates the study site in Kerman province.

Identification was made using Bouček (1958) and Mitroiu (2012). The morphological terminology follows Bouček & Rasplus (1991). External morphology was illustrated using an Olympus™ SZH, equipped with a Canon™ A720 digital camera.

The identified specimen is deposited in Zoological Museum of Shahid Bahonar University of Kerman, Iran (ZMSBUK HY-M 5683).

Results

Caenocrepis arenicola (Thomson, 1878) (Fig. 2)

Synonym: *Dimachus* (*Caenocrepis*) *arenicola* Thomson, 1878

Material examined: (1♀), Kerman province, Kahnooj, Sargorich (28°08'29.5" N 57°33'59.5" E, 679 m a.s.l.), 05.XI.2016, 1♀, Swept on *Medicago sativa*, Leg.: M. Changizi.

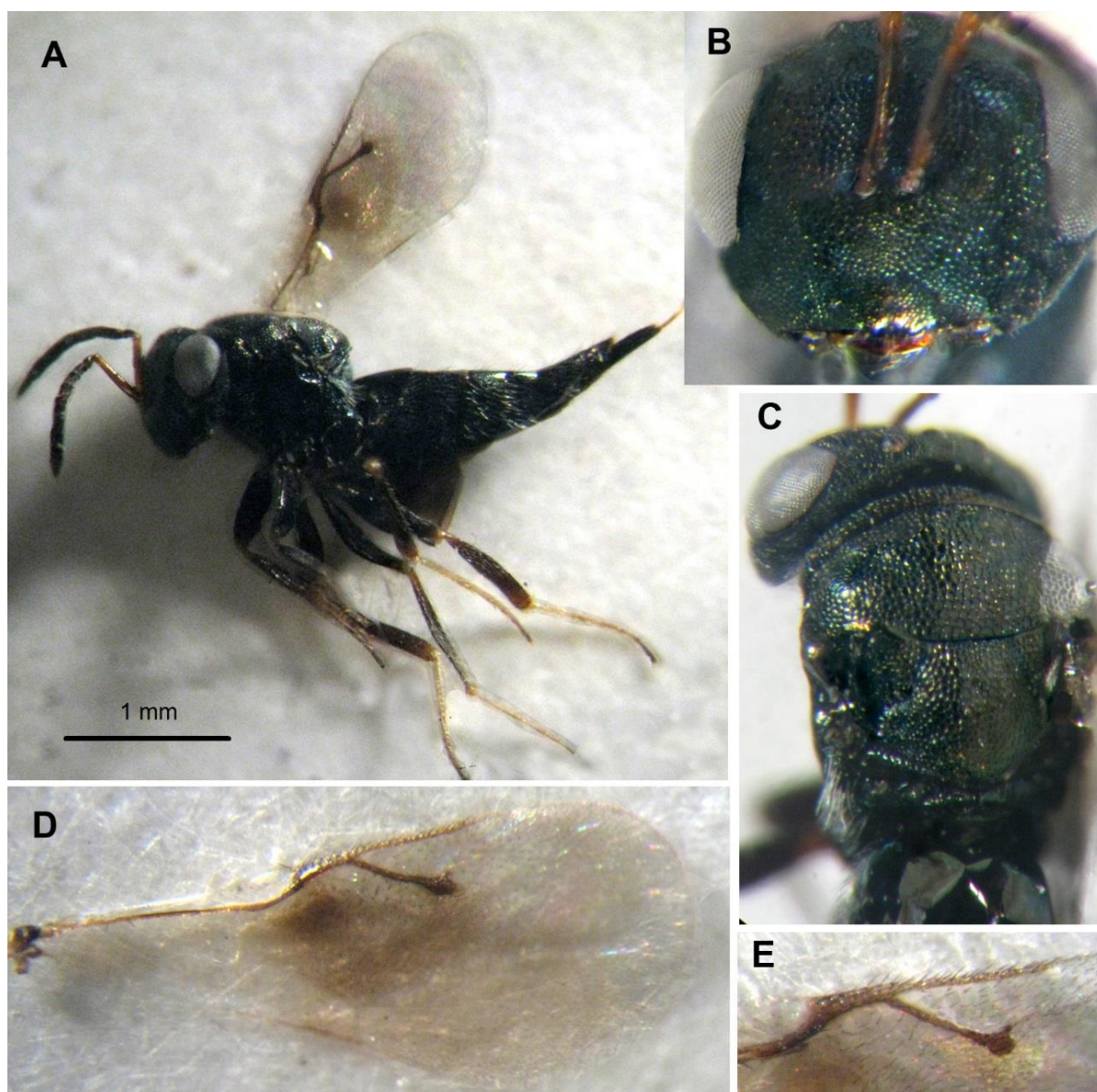


Figure 2. *Caenocrepis arenicola*: A. female in lateral view, B. head in frontal view, C. head and thorax in dorsal view, D. forewing, E. forewing venation.

Diagnosis: Body dark and metallic; antennal formula 1, 1, 2, 6, 3 (scape, pedicel, ring segments, funicle, clava); clava without spicula, antenna inserted lower than the center of face; clypeus has a deeply incised in the middle; pronotum shorter than mesonotum, mesoscutum and scutellum distinctly reticulate, notauli incomplete, propodeum with median carina, spiracles much nearer to metanotum, the corners of propodeum with tuft of white hairs; hind tibia with two spurs; wing densely pubescent, surface of forewings infuscate and not completely pilose, marginal vein widened in proximal and much shorter than postmarginal and stigmal vein, postmarginal vein longer than stigma vein; metasoma sessile and about as long as head combined with mesosoma, the sides of tergites covered by white hairs, first tergite deeply incised in middle of hind margin.

Host: *Caenocrepis arenicola* is egg parasitoid of *Pachycerus madidus* (Olivier, 1807) (Coleoptera: Curculionidae) (Mitroiu, 2012).

General distribution: Austria, Azerbaijan, Caucasus, Croatia, Czech Republic, Slovakia, France, Greece, Kazakhstan, Morocco, North Africa, Romania, Serbia, Spain, Sweden and Turkey (Noyes, 2019).

Distribution in Iran: This species is reported from Iran for the first time (current study).

Discussion

Kerman province is situated in southeastern Iran and covers an area of 11.15 % of whole country. However several faunistic studies have been carried out on the family Pteromalidae in central and northern parts of the province (Mitroiu et al., 2011; Mahdavi & Madjdzadeh, 2013; Mahdavi et al., 2015), southern areas of the province has not been investigated in details from the faunistic view. So the present activity

focused on the southern areas. The number of the Iranian species and genera of the pteromalids based on the last updated checklist was 129 species in 62 genera (Abolhassanzadeh et al., 2017). According to recent studies, seven other species of this family were discovered from Iran (Moravvej et al., 2018; Lotfalizadeh et al., 2019). So the total number of Pteromalid species reported from Iran including the present study increased to 137 species in 63 genera.

Acknowledgments

This research was supported by Shahid Bahonar University of Kerman and East-Azarbaijan Agricultural and Natural Resources Research & Education Center, which is greatly appreciated. Our special thanks are expressed to Mrs. M. Changizi for helping us in sample collection.

Conflict of Interests

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

References

- Abolhassanzadeh, F., Lotfalizadeh, H. & Madjdzadeh, S.M. (2017) Updated checklist of Pteromalidae (Hymenoptera: Chalcidoidea) of Iran, with some new records. *Journal of Insect Biodiversity and Systematics*, 3(2), 119-140.
- Bouček, Z. (1958) To the taxonomy of *Schizonotus* and *Caenocrepis* - parasites of economic importance - with notes, and some new synonymy in Pteromalidae and Eurytomidae (Hym.). *Acta Entomologica Musei Nationalis Pragae*, 32, 395-404.
- Bouček, Z. & Rasplus, J.Y. (1991) *Illustrated key to West-Palearctic genera of Pteromalidae (Hymenoptera: Chalcidoidea)*. INRA Editions, série Techniques et Pratiques, Paris, 140 pp.
- Davoodi, A., Talebi, A.A., Rajabi, G.R., Fathipour, Y., Rezaei, V. & Rakhshani, E. (2004) An Identification of parasitoids and Hyperparasitoids of the most common soft

- scales (Hom.: Coccidae) in Tehran and Guilan provinces. *Iranian Journal of Agricultural Science*, 35 (4), 887–899.
- Huber, J.T. & Vayssieres, J.F. (1990) Life cycle and host specificity of the heliotrope weevil *Pachycerus cordiger* equals *madidius* auct. (Coleoptera: Curculionidae). *Entomophaga*, 35 (3), 475–484.
<https://doi.org/10.1007/BF02375273>
- Kazemi, F., Talebi, A.A. & Fathipour Y. (2010) The reproduction and population growth parameters of *Anisopteromalus calandrae* (Hym.: Pteromalidae), a parasitoid of *Callosobruchus maculatus* (Col.: Bruchidae). *Journal of Entomological Society of Iran*, 29 (2), 1–10.
- Lotfalizadeh, H., Rasplus, J.Y. & Asadi-Farfar, M. (2019) Review of the genus *Notanisus* Walker, 1837 (Hymenoptera: Pteromalidae) in Iran. *Journal of Insect Biodiversity and Systematics*, 5 (1), 59–68.
- Mahdavi, M. & Madjdzadeh, S.M. (2013) Contribution to the knowledge of Chalcidoidea (Pteromalidae and Eupelmidae) of Iran. *North- Western journal of Zoology*, 9 (1), 94–98.
- Mahdavi, M., Madjdzadeh, S.M. & Mitroiu, M.D. (2015) Pteromalidae (Hymenoptera: Chalcidoidea) associated with plant galls in the south-eastern Iran, with three new records. *Journal of Insect Biodiversity and Systematics*, 1 (1), 47–54.
- Mitroiu, M.D. (2012) The genus *Caenocrepis* Thomson (Hymenoptera: Pteromalidae) in the Afrotropical region, with a key to world species. *Zootaxa*, 3557, 49–55.
<http://dx.doi.org/10.11646/zootaxa.3557.1.5>
- Mitroiu, M.D., Abolhassanzadeh, F. & Madjdzadeh, S.M. (2011) New records of Pteromalidae (Hymenoptera: Chalcidoidea) from Iran, with description of a new species. *North- Western journal of Zoology*, 7 (2), 243–249.
- Moravvej, S.A., Lotfalizadeh, H. & Shishehbor, P. (2018) A contribution to the study of Pteromalidae (Hymenoptera: Chalcidoidea) of Khuzestan in southwestern Iran. *Journal of Insect Biodiversity and Systematics*, 4 (2), 91–97.
- Noyes, J.S. (2019) *Universal Chalcidoidea Database*. The Natural History Museum, London. Available from: <http://www.nhm.ac.uk/chalcidooids> (Accessed 20th March 2019).
- Rakhshani, E., Talebi, A.A., Sadeghi, E., Ebrahimi, E. & Rhurczy, S. (2003) Report of five wasp's species associated with dog rose galls in Iran. *Journal of Entomological Society of Iran*, 23 (1), 108.

اولین گزارش *Caenocrepis arenicola* (Thomson, 1878) (Hymenoptera: Pteromalidae) از ایران

مهلا شجاعی^۱، محمد خیراندیش^{۱*}، سیدمسعود مجدزاده^۲ و حسین لطفعلی زاده^۳

۱ گروه گیاهپزشکی، دانشکده کشاورزی، دانشگاه شهید باهنر کرمان، کرمان، ایران.

۲ گروه زیست شناسی، دانشکده علوم، دانشگاه شهید باهنر کرمان، کرمان، ایران.

۳ بخش تحقیقات گیاهپزشکی، مرکز تحقیقات و آموزش کشاورزی و منابع طبیعی آذربایجان شرقی، سازمان تحقیقات، آموزش و ترویج کشاورزی، تبریز، ایران.

* پست الکترونیکی نویسنده مسئول مکاتبه: m.khayrandish@uk.ac.ir

تاریخ دریافت: ۰۶ خرداد ۱۳۹۸، تاریخ پذیرش: ۱۳ خرداد ۱۳۹۸، تاریخ انتشار: ۱۶ خرداد ۱۳۹۸

چکیده: گونه‌ی *Caenocrepis arenicola* (Thomson, 1878)

(Hymenoptera: Pteromalidae) یک رکورد جدید برای ایران می‌باشد. یک

نمونه ماده از این گونه از جنوب استان کرمان بوسیله‌ی تور از روی *Medicago*

sativa در آبان ۱۳۹۵ جمع‌آوری شد. این گونه پارازیتوئید تخم *Pachycerus*

madidus (Olivier, 1807) (Coleoptera: Curculionidae) است که در

منطقه پالئارکتیک پراکنش دارد. ویژگی‌های مورفولوژیک و پراکنش جغرافیایی آن

ارائه شده است.

واژگان کلیدی: فون، Chalcidoidea، گزارش جدید، کرمان، ایران