



A contribution to the study of Eumeninae (Hymenoptera, Vespidae) in South-Eastern Iran

Fatemeh Hamzavi^{1*}, James Michael Carpenter² & Ting-Jing Li³

¹ Department of Entomology, Faculty of Agriculture, Higher Educational Complex of Saravan, Saravan, Iran.

² Division of Invertebrate Zoology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024, USA.

³ Institute of Entomology & Molecular Biology, College of Life Sciences, Chongqing Normal University, Chongqing 401331, China.

ABSTRACT. In this study thirteen species of subfamily Eumeninae are recorded from the Sistan-o Baluchestan province (South East of Iran). Among the studied material, five species including *Cyrtolabulus karachiensis* Gusenleitner, 2006; *Cyrtolabulus syriacus* (Giordani Soika, 1968); *Stenancistrocerus biblicus* (Giordani Soika, 1952); *Stenodynerus troztzinai* (Morawitz, 1895) and *Tachyancistrocerus quabosi* Giordani Soika, 1979 are recorded for the first time from Iran. *Stenancistrocerus biblicus* also represents a new generic record for the fauna of Iran.

Key words: Potter wasps, fauna, new records, Sistan-o Baluchestan

Received:

02 November, 2019

Accepted:

21 December, 2019

Published:

29 December, 2019

Subject Editor:

Ehsan Rakhshani

Citation: Hamzavi, F., Carpenter, J. M. & Ting-Jing, L. (2019) A contribution to the study of Eumeninae (Hymenoptera, Vespidae) in South-Eastern Iran. *Journal of Insect Biodiversity and Systematics*, 5 (4), 393–398.

Introduction

Vespidae, with more than 5000 species and 250 genera within the six subfamilies, is one of the largest families among aculeate Hymenoptera. A general review on the literatures focused on the Vespidae of Iran, was presented by Ebrahimi & Carpenter (2008) listed 51 genera and 182 species. Abbasi et al. (2008) studied the Vespidae fauna of Zanjan province and in the southern area; Khoobdel et al. (2014) collected and identified Vespidae on Iranian islands, Qeshm, Abu-Musa, Great Tunb and Lesser Tunb in the Persian Gulf. The subfamily Eumeninae (potter wasps) is

the largest and most diverse group within Vespidae, with 3579 described species in 210 genera distributed in all zoogeographical regions (Pickett & Carpenter, 2010). So far, 42 genera and 148 species of Eumeninae are recorded from Iran (Ebrahimi, 2015). Salehi Fard et al. (2013) recorded one species of Eumeninae from Mashhad. Gusenleitner et al. (2013) described two species of Eumeninae (*Pterocheilus persicus* Gusenleitner & Fallahadeh and *Eustenancistrocerus iranicus* Gusenleitner). Few Eumenine species (*Eustenancistrocerus amadanensis* (de

Corresponding author: Fatemeh Hamzavi, E-mail: fhamze@uma.ac.ir

Copyright © 2019, Hamzavi 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.

Saussure), *Eustenancistrocerus askhabadensis* (Radoszkowski), *Euodynerus posticus* (Herrich-Schaeffer), *Chlorodynerus infrenis* Giordani Soika) are already recorded from Sistan-o Baluchestan (Ebrahimi & Carpenter, 2008). Here we report the results of a survey of the Eumeninae in some selected areas in Sistan-o Baluchestan province in South East of Iran.

Material and methods

The specimens for this study were collected by Malaise traps, sweep net and pan traps in various habitats (rangelands, orchards), from different selected localities such as river sides and plains in Sistan and slopes of Taftan Mountain in Sistan-o Baluchestan province of Iran during 2014-2016. Collected specimens were kept on the Ethanol 75%, then pinned and labeled. The specimens were identified using reliable keys on the basis of their diagnostic morphological characters. Voucher specimens were deposited in the collection of Institute of Entomology & Molecular Biology, College of Life Sciences (CNU), in China.

Results

Thirteen species from eleven genera were collected and identified; one genus and five species are first recorded for the fauna of Iran. Seven genera and eleven species are newly recorded from Sistan-o Baluchestan province. They marked with single (*) and double (**) asterisks, respectively.

Order Hymenoptera

Family Vespidae

Subfamily Eumeninae Leach, 1815

Genus *Antepipona* de Saussure, 1855

Antepipona deflenda (S. S. Saunders, 1853)**

Material examined. Iran, Sistan-o Baluchestan province, Saravan (27°22'42" N, 62°19'31" E), Malaise trap, 01.V.2015, 1♀, Leg.: F. Hamzavi.

Distribution: Armenia, Azerbaijan, China, Cyprus, Europe, Georgia, Iran, Iraq, Israel, Jordan, Kazakhstan, Lebanon, North Africa, Russia, Tajikistan, Turkey, Turkmenistan, Uzbekistan (Fateryga et al., 2019).

Genus *Cyrtolabulus* Van der Vecht, 1963

Cyrtolabulus karachiensis Gusenleitner, 2006*

Material examined. Iran, Sistan-o Baluchestan province, Saravan (27°22'42" N, 62°19'31" E): Pan trap, 03.VI.2016, 1♂; Malaise trap, 03.VI.2014, 1♀; Zahedan (28°53'22" N, 60°23'28" E), swept on weeds, 12.V.2014, 1♂, Leg.: F. Hamzavi.

Distribution: Iran (new record), Pakistan (Gusenleitner, 2006).

Cyrtolabulus syriacus (Giordani Soika, 1968)*

Material examined. Iran, Sistan-o Baluchestan province, Zahedan (28°53'22" N, 60°23'28" E), swept on weeds, 12.V.2014, 1♀, Leg.: F. Hamzavi.

Distribution: Iran (new record), Israel, Pakistan, Syria (Gusenleitner, 2006).

Genus *Delta* de Saussure, 1855

Delta dimidiatipenne (de Saussure, 1852)

Material examined. Iran, Sistan-o Baluchestan province: Zahedan (28°53'22" N, 60°23'28" E), swept on weeds: 02.VI.2016, 1♀; 03.VI.2016, 2♀♀; Zabol (31°01'02" N, 61°29'07" E), swept on weeds, 04.V.2015, 1♀; Saravan (27°22'42" N, 62°19'31" E), swept on weeds: 15.IX.2016, 2♀♀; 03.IV.2016, 1♀; Khash (27°34'12" N, 61°7'48" E), swept on weeds, 07.VII.2016, 2♀1♂; Zabol: Doust-Mohammad (31°08'14" N, 61°47'32" E), Malaise trap, 23.V.2016, 1♀1♂; Hirmand (31°8'52" N, 61°47'22" E), swept on weeds, 03.IV.2016, 1♂, Leg.: F. Hamzavi.

Distribution: Afghanistan, Algeria, Chad, Djibouti, Egypt, Eritrea, Ethiopia, India, Iran, Jordan, Mauritania, Morocco, Nepal, Niger, Oman, Pakistan, Qatar, Saudi Arabia, Spain,

Somalia, South Africa, Sudan, Syria, Tajikistan, Turkey, Turkmenistan, U.A.E., Uganda, Yemen (Rafi et al., 2017).

***Delta esuriens* (Fabricius, 1787)**

Material examined. Iran, Sistan-o Baluchestan province: Khash (27°34'12" N, 61°7'48" E), swept on weeds, 07.VII.2016, 1♀; Zabol (31°01'02" N, 61°29'07" E), Malaise trap, 06.VIII.2016, 1♀, Leg.: F. Hamzavi.

Distribution: Afrotropics, India, Indonesia, Iran, Iraq, Israel, Laos, Mauritius, Myanmar, New Caledonia, North Africa, Oman, Pakistan, Philippines, Qatar, Saudi Arabia, Sechelles, Sri Lanka, Thailand, U.A.E., Vietnam (Rafi et al., 2017).

Genus *Euodynerus* Dalla Torre, 1904

Euodynerus* (*Pareuodynerus*) *enodatus* (Kostylev 1940)*

Material examined. Iran, Sistan-o Baluchestan province: Zabol, Arbab Village (31°3'25" N, 61°35'38" E), Pan trap, 06.VII.2016, 2♀♀; Saravan (27°22'42" N, 62°19'31" E), Malaise trap, 16.VII.2016, 1♂, Leg.: F. Hamzavi.

Distribution: Afghanistan, Iran, Pakistan (Gusenleitner, 2013).

Genus *Eustenancistrocerus* Bluthgen, 1938

Eustenancistrocerus* *jerichoensis* (von Schulthess, 1928)*

Material examined. Iran, Sistan-o Baluchestan province, Saravan (27°22'42" N, 62°19'31" E), Pan trap, 04.VI.2016, 2♂♂, Leg.: F. Hamzavi.

Distribution: Azerbaijan, Jordan, Iran, Israel, Syria, Russia, Turkey (Fatoryga & Mokrousov, 2019).

Genus *Jucancistrocerus* Bluthgen, 1938

Jucancistrocerus* *citrodecoratus* Giordani Soika, 1970*

Material examined. Iran, Sistan-o Baluchestan province: Zabol (31°01'02" N, 61°29'07" E), Malaise trap, 06.VIII.2016, 1♂; Doust-

Mohammad (31°08'14" N, 61°47'32" E), Malaise trap, 23.V.2016, 1♂, Leg.: F. Hamzavi.

Distribution: Iran, Serbia (Gusenleitner, 2013); Turkey (Yildirim & Kojima, 1999).

Genus *Paravespa* Radoszkowski, 1886

Paravespa grandis* (Morawitz, 1885)*

Material examined. Iran, Sistan-o Baluchestan province, Zabol (31°01'02" N, 61°29'07" E), Malaise trap, 29.IV.2016, 2♂♂, Leg.: F. Hamzavi.

Distribution: Afghanistan, Azerbaijan, Iran (Morawitz, 1885); Lebanon (Gusenleitner, 2013); Turkey (Yildirim & Kojima, 1999).

Genus *Pseudodontodynerus* Bluthgen, 1939

Pseudodontodynerus* *peculiariventris* (Giordani Soika, 1952)*

Material examined. Iran, Sistan-o Baluchestan province, Zabol (31°01'02" N, 61°29'07" E), Malaise trap, 02.VIII.2016, 1♀1♂; Arbab Village (31°3'25" N, 61°35'38" E), Pan trap, 25.VIII.2016, 1♀, Leg.: F. Hamzavi.

Distribution: Iran, Israel (Gusenleitner, 2013).

Genus *Stenancistrocerus* De Saussure 1863*

Stenancistrocerus* (*Paratropancistrocerus*) *biblicus* (Giordani Soika, 1952)

Material examined. Iran, Sistan-o Baluchestan province: Zabol, Arbab Village (31°3'25" N, 61°35'38" E), Pan trap, 06.VII.2016, 1♀; Zahedan (29°31'37" N, 60°53'41" E), swept on weeds, 03.VI.2016, 1♂, Leg.: F. Hamzavi.

Distribution: Iran (new record), Israel (Gusenleitner, 2013).

Genus *Stenodynerus* De Saussure, 1863

Stenodynerus* *trotzinai* (Morawitz, 1895)

Material examined. Iran, Sistan-o Baluchestan province, Zabol (31°01'02" N, 61°29'07" E), Malaise trap, 02.08.2016, 1♀; Hirmand (31°8'52" N, 61°37'22" E), swept on weeds: 03.IV.2016, 1♀; 15.VII.2016, 1♀, Leg.: F. Hamzavi.

Distribution: Iran (new record), Pakistan, Turkey, Turkmenistan (Gusenleitner, 2006; Yildirim & Gusenleitner, 2012).

Genus *Tachyancistrocerus* Giordani Soika, 1952

Tachyancistrocerus quabosi Giordani Soika, 1979*

Material examined. Iran, Sistan-o Baluchestan province, Zabol (31°01'02" N, 61°29'07" E), Malaise trap, 02.VIII.2016, 1♂, Leg.: F. Hamzavi.

Distribution: Iran (new record), Oman, U-A-E. (Gusenleitner, 2013).

Discussion

In this study thirteen Eumeninae species were collected and identified. Seven genera with eleven species are first recorded from Sistan-Baluchestan province. The total number of Iranian Vespidae and subfamily Eumeninae was 190 and 148 species, respectively (Ebrahimi, 2015; Ghahari et al. 2016), which is now raised to 195 and 153 species, respectively. Two species, *Antepipona deflenda* and *Delta dimidiatipenne* are widely distributed in Central and Western Asia (Yildirim & Kojima, 1999; Khan et al., 2018). On the other hand, some species (*Pseudodontodynerus peculiariventris*, *Stenancistrocerus biblicus* and *Tachyancistrocerus quabosi*) are not reported from the neighboring countries, i.e. Pakistan and Turkey (Yildirim & Kojima, 1999; Khan et al., 2018). A large area in Sistan-o Baluchestan province (Chabahar, Nicshahr and Iranshahr) are not explored yet, so that occurrence of many more Eumeninae species is expected.

Acknowledgments

We are most grateful to Dr. Ehsan Rakhshani (University of Zabol) for helpful comments on the earlier version of the manuscript and guidance for collecting the specimens.

Conflict of Interests

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

References

- Abbasi, R., Pashaei Rad, S.H., Ebrahimi, E. & Sheidaei, M. (2008) Faunistic study of vespid wasps in Zanjan Province (Northwest of Iran) with some, ecological measures. *Environmental Sciences*, 6 (1), 65-74.
- Ebrahimi, E. & Carpenter, J.M. (2008) Catalog of the vespid wasps of Iran (Hymenoptera, Vespidae). *Zootaxa*, 1785, 1-42.
<https://doi.org/10.11646/zootaxa.1785.1.1>
- Ebrahimi, E. & Carpenter, J.M. (2012) Distribution pattern of the hornets *Vespa orientalis* and *V. crabro* in Iran (Hymenoptera: Vespidae). *Zoology in the Middle East*, 56, 63-66.
<https://doi.org/10.1080/09397140.2012.10648942>
- Ebrahimi, E. (2015) Review Paper: Aculeate wasps and their role in natural equilibrium and pest control (with a review of the Iranian species). *Biocontrol in Plant Protection*, 2 (2), 59-68.
- Fateryga, A.V. & Mokrousov, M.V. (2019) New records of eumenine wasps (Hymenoptera: Vespidae: Eumeninae) from Russia with description of a new species of *Leptochilus* de Saussure, 1853. *Zootaxa*, 4612 (3), 412-422.
<https://doi.org/10.11646/zootaxa.4612.3.7>
- Fateryga, A.V., Proshchalykin, M.Y., Aliyev, K.A. & Maharramov, M.M. (2019) To the knowledge of eumenine wasps (Hymenoptera: Vespidae: Eumeninae) of Nakhchivan Autonomous Republic of Azerbaijan. *Far Eastern Entomologist*, 379, 25-32.
<https://doi.org/10.25221/fee.379.2>
- Ghahari, H., Gadallah, N.S. & Wahis, R. (2016) A faunistic study on Pompilidae and Vespidae (Hymenoptera: Vespoidea) from the west and northwest of Iran, with addition of new records. *Entomologie Faunistique - Faunistic Entomology*, 69, 21-27.
- Gusenleitner, J. (2006) Über Eumeninae, aufgesammelt in Pakistan (Hymenoptera:

- Vespidae). *Linzer Biologische Beiträge*, 38 (2), 1295-1305.
- Gusenleitner, J. (2013) Die gattungen der Eumeninae im Nahen Osten, in Nordafrika und in Arabien (Hymenoptera: Vespidae: Eumeninae). *Linzer Biologische Beiträge*, 45 (1), 5-107.
<https://doi.org/10.11646/zootaxa.4362.1.1>
- Gusenleitner, J., Fallahzadeh M., Haghighi, A. & Dousti, A.F. (2013) Two new species of Eumeninae from Iran (Hymenoptera: Vespidae). *Linzer Biologische Beiträge*, 45 (1), 109-116.
- Khan, M.T., Rafi, M.A., Soltana, R., Munir, A. & Aahmad, S. (2018) Wasps of subfamilies Eumeninae, Vespinae and Polistinae from Sindh-Pakistan. *Journal of Entomology and Zoology Studies*, 6 (2), 892-897.
- Khoobdel, M., Tavassoli, M., Salari, M. & Firozi, F. (2014) The stinging Apidae and Vespidae (Hymenoptera: Apocrita) in Iranian islands, Qeshm, Abu-Musa, Great Tunb and Lesser Tunb on the Persian Gulf. *Asian Pacific Journal of Tropical Biomedicine*, 4 (1), 258-262.
<https://doi.org/10.12980/APJTB.4.2014C1153>
- Morawitz, F. (1885) Eumenidarum species novae. *Horae Societatis Entomologicae Rossicae*, 19, 135-181.
- Pickett, K.M. & Carpenter, J.M. (2010) Simultaneous analysis and the origin of eusociality in the Vespidae (Insect Hymenoptera). *Arthropod Systematics & Phylogeny*, 68 (1), 3-33.
- Rafi, M.A., Carpenter, J.M., Qasim, M., Shehzad, A., Zia, A., Khan, M.R., Mastoi, M.I., Naz, F., Yas, M., Shah, M. & Bhati, A.R. (2017) The vespid fauna of Pakistan. *Zootaxa*, 4362 (1), 1-28.
<https://doi.org/10.11646/zootaxa.4362.1.1>
- Salehi Fard, M., Modarres Awal, M. & Gusenleitner, J. (2013) First record of *Allodynerus dignotus* (Morawitz, 1895) (Hym: Vespidae: Eumeninae) from Iran. *Journal of Plant Protection*, 26 (4), 486-488. (in Persian, English summary).
- Yildirim, E. & Kojima, J. (1999) Distributional checklist of the species of the family Vespidae (Insecta: Hymenoptera; Aculeata) of Turkey. *Natural History Bulletin of Ibaraki University*, 3, 19-50.
- Yildirim, E. & Gusenleitner, J. (2012) Contribution to the knowledge of the Vespidae (Hymenoptera, Aculeata) of Turkey, with a checklist of the Turkish species. *Turkish Journal of Zoology*, 36 (3), 361-374.

زنبورهای زیر خانواده Eumeninae (Hymenoptera, Vespidae) در جنوب شرق ایران

فاطمه حمزوی^{۱*}، جیمز میکائیل کارپنتر^۲ و تین جینگ لی^۳

۱ گروه گیاهپزشکی، دانشکده کشاورزی، مجتمع آموزش عالی سراوان، سراوان، ایران.

۲ موزه تاریخ طبیعی، بخش جانورشناسی بی مهرگان، نیویورک، آمریکا.

۳ دانشگاه چانگ کینگ، مؤسسه بیولوژی و مولکولی حشرات، چین.

پست الکترونیکی نویسنده مسئول مکاتبه: fhamze@uma.ac.ir

تاریخ دریافت: ۱۱ آبان ۱۳۹۸، تاریخ پذیرش: ۳۰ آذر ۱۳۹۸، تاریخ انتشار: ۸ دی ۱۳۹۸

چکیده: در این مطالعه ۱۳ گونه از زنبورهای زیر خانواده Eumeninae از استان سیستان و بلوچستان واقع در جنوب شرق ایران ثبت شدند. در بین نمونه‌های جمع‌آوری شده، پنج گونه *Cyrtolabulus*، *Cyrtolabulus karachiensis* Gusenleitner, 2006، *Stenancistrocerus biblicus* (Giordani) *syriacus* (Giordani Soika, 1968) و *Stenodynerus trotzinai* (Morawitz, 1895) Soika, 1952 و *Tachyancistrocerus quabosi* Giordani Soika, 1979 برای اولین بار از ایران گزارش می‌شوند. گونه *Stenancistrocerus biblicus* نیز گزارشی از یک جنس جدید برای فون ایران است.

واژگان کلیدی: زنبورهای کوزه‌گر، فون، گزارش جدید، سیستان و بلوچستان