Linzer biol. Beitr.	52/1	461-474	31.7.2020

New records of Chrysididae from Iran (Hymenoptera)

Paolo ROSA

A b s t r a c t : Eight species and one subspecies of cuckoo wasps are newly recorded for Iran: *Chrysis batyamensis* LINSENMAIER, 1969, *Chrysis pseudoincisa* BALTHASAR, 1953, *Chrysura cuprea cuprea* (ROSSI, 1790), *Chrysura nikolaji* (ROSA, 2017), *Elampus panzeri* (FABRICIUS, 1804), *Elampus spina* (LEPELETIER, 1806), *Holopyga kuthyana* (MOCSÁRY, 1911), *Pseudochrysis marqueti* (DU BUYSSON, 1887), *Spinolia dallatorreana taurosiaca* (LINSENMAIER, 1987). The occurrence of *Chrysis comparata* LEPELETIER, 1806 and *Chrysura ignifrons* (BRULLÉ, 1833) in Iran is confirmed. *Hedychridium feritatum* LINSENMAIER, 1959 is raised to species rank. New distributional data are provided for other 35 species.

K e y w o r d s : cuckoo wasps, taxonomy, new records.

Introduction

In the last years, a series of articles focusing on the Iranian fauna has been published, increasing the number of known taxa from 185 (179 species and 6 subspecies) (ROSA et al. 2013) to the current number of 291 taxa (279 species and 12 subspecies), including those here discussed.

During a recent visit to the Biologiezentrum in Linz (Austria), I examined more than 150 identified and unidentified Iranian chrysidids. About 90 specimens were already identified by Josef Schmidt and Walter Linsenmaier between 1977 and 1980, based on specimens collected by A.W. Ebmer, J. Gusenleitner, J. Holzschuh, F. Ressl, K. Warnke and another 60 specimens, unidentified, were collected by R. Menrad and K. Deneš senior in the nineties.

Since eight species and one subspecies were not yet recorded for Iran, the occurrence of two species is confirmed, and several distributional data are firstly provided for many Iranian provinces, I consider this material worthy to be published.

Materials and methods

All the examined specimens are housed at the Biologiezentrum in Linz. Specimens were examined under a Carton Togal SCZ stereomicroscope. Photographs were taken with a Nikon D-3400 camera connected to the Togal SCZ stereomicroscope and stacked with the Combine ZP software. New records for Iran are asterisked (*). For each species the following informations are given: number and sex of specimens; all labels, which are separated from each other by a slash; Iranian and general distribution; remarks (where necessary).

List of species

Subfamily C h r y s i d i n a e

Tribe E l a m p i n i

***Elampus constrictus* (FÖRSTER, 1853)**

M a t e r i a l e x a m i n e d : Gilan province: 1♀, Guilan [= Gilan], 65 km NW Ghazvin [= Qazvin], 16.v.1974, 800 m, leg. Holzschuh & Ressl / ♀ *Notozus panzeri* F. det. Lins. / Li egg. 89 ex. Coll. J. Schmidt.

I r a n i a n r e c o r d s : Markazi province (ROSA et al. 2013).

Elampus panzeri* (FABRICIUS, 1804)

M a t e r i a l e x a m i n e d : Kordestan province: 1♂, 20 km südl. Sanandaj, 11.v.1976, 1300 m, leg. Holzschuh & Ressl / ♂ *Notozus constrictus* F. det. Lins. / Li egg. 89 ex. Coll. J. Schmidt.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : Trans-Palaearctic: Europe, Western Asia, Manchuria (LINSENMAIER 1959, as *E. constrictus*).

Elampus spina* (LEPELETIER, 1806)

M a t e r i a l e x a m i n e d : Hamadan province: 1♀, 15 km NE Razan, 2100 m, 20.vi.1977, leg. Holzschuh u. Ressl. / ♀ *Omalus Notozus spina* LEP. det. Lins. 1990 / Li egg. 89 ex. Coll. J. Schmidt.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : West Palaearctic, from Iberian Peninsula and Northern Africa to Eastern Europe, Turkey and Western Asia (LINSENMAIER 1959, 1999).

Hedychridium feritatum* LINSENMAIER, 1959 stat.nov. (Figs 1, 3, 5)

M a t e r i a l e x a m i n e d : Mazandaran province: 1♂, Elburs, Damavend-Gebiet, Polur, 2000 m, 22.vii.1977, leg. J. Gusenleitner / *Hedychridium* AB. *aheneum* DHLB. ♂ det. J. Schmidt 1978 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Fars (TORABIPOUR et al. 2013, under the name *Hedychridium aheneum* DAHLBOM).

R e m a r k s : *Hedychridium feritatum* (Fig. 5) was described by LINSENMAIER (1959) as a subspecies of *Hedychridium aheneum* DAHLBOM, 1854. Nevertheless it is a separate species and can be recognised by metasomal punctation coarse, with large foveate punctures (Fig. 3) and genital capsule with shorter volsella (Fig. 1), whereas metasomal punctures in *H. aheneum* are smaller and evenly spaced (Fig. 4), and genital capsule has longer volsella (Fig. 2).

EBRAHIMI (2015), TAVASOLI & FALLAHZADEH (2015), and STRUMIA et al. (2016b) reported *Hedychridium aheneum* (DAHLBOM, 1854) in Fars province. Very likely these specimens are *Hedychridium feritatum* too.

***Hedychrum mavromoustakisi* TRAUTMANN, 1926**

Material examined: Mazandaran province: 1♀, Kaspi-See Niederung, Babol-Sar [= Babolsar], 14.vii.1977 / J. Gusenleitner / ♀ *Hedychrum mavromoustakisi* TR. det. Lins. 1980 / Li egg. 89 ex. Coll. J. Schmidt.

Iranian records: Fars and Mazandaran provinces (ROSA et al. 2013).

***Holopyga amoenula oriensa* LINSENMAIER, 1959**

Material examined: Kordestan province: 1♀, Kaspi-See Niederung, Pahlavi Dezh [= Nanur], 15.vii.1977 leg. A. W. Ebmer / ♀ *Holopyga amoenula oriensa* LINS. det. Lins. 1980 / Li egg. 89 ex. Coll. J. Schmidt.

Iranian records: Alborz, Fars, Mazandaran and Qazvin provinces (ROSA et al. 2013; STRUMIA & FALLAHZADEH 2015; FARHAD et al. 2017).

***Holopyga cypruscula detrita* LINSENMAIER, 1987**

Material examined: Mazandaran province: 3♂♂, Elburs, Damavend-Gebiet, Polur, 2000 m, 21.vii.1977, leg. J. Gusenleitner / *Holopyga* DHLB. *cypruscula* LINS. ♂ det. J. Schmidt 1978 / Li egg. 89 ex. Coll. J. Schmidt.

Iranian records: Alborz, East-Azarbaijan, Fars, Kerman, Qazvin, and Mazandaran provinces (ROSA et al. 2013; EBRAHIMI 2015; FARZANEH 2015; IRANMANESH et al. 2017).

***Holopyga fervida* (FABRICIUS, 1781)**

Material examined: Gilan province: 1♀, Guilan [= Gilan] 45 km südlich Rasht, 17.v.1974, 80 m, leg. Holzschuh & Ressl / ♂ *Holopyga fervida* F. det. Lins. / ex coll. J. Schmidt 1989.

Iranian records: Kerman, Hormozgan, and Qazvin provinces (ROSA et al. 2013; FARHAD et al. 2015b, 2017; IRANMANESH et al. 2017).

Holopyga kuthyana* (MOCSÁRY, 1911) (Fig. 6)

Material examined: Mazandaran province: 4♀♀, Elburs, 50 km S (90 km Straße) Chalus, 2800 m, 26.vii.1977, leg. J. Gusenleitner and A.W. Ebmer / ♀ *Holopyga* DHLB. *inflammata* FÖRST. det. J. Schmidt 1979 / LI egg. 89 ex coll. J. Schmidt.

Iranian records: First record.

Distribution: Turkey (LINSENMAIER 1959; ROSA et al. 2017b).

***Holopyga minuma* LINSENMAIER, 1959**

Material examined: Mazandaran province: 1♀, Elburs, 75 km S Chalus, 2400 m, N. Paßhöhe, 24.vii.1977, leg. J. Gusenleitner / ♀ *Holopyga minuma* LINS. det. Lins. 1980 / LI egg. 89 ex coll. J. Schmidt.

Iranian records: Mazandaran province (previously listed for Iran by LINSENMAIER (1987) without further information).

***Omalus aeneus* (FABRICIUS, 1787)**

Material examined: Golestan province: 1♀, Gorgan, Schaskola-Wald, 300 m, 2.vi.1977, leg. Holzschuh u. Ressl / ♀ *Omalus aeneus* F. det. Lins. 1980 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : Alborz, Fars, Golestan, Khuzestan, and Mazandaran provinces (STRUMIA et al. 2016b; FARZANEH et al. 2017; FARHAD et al. 2018).

***Philoctetes kuznetzovi* (SEMENOV, 1932)**

M a t e r i a l e x a m i n e d : Isfahan province: 1♂, Iran North, Kašan [= Kashan] env. 3.v.1999, leg. K. Deneš sen.

I r a n i a n r e c o r d s : Fars and Isfahan provinces (FARHAD et al. 2018).

***Philoctetes tarnanii* (SEMENOV, 1932)**

M a t e r i a l e x a m i n e d : Isfahan province: 23♂♂, Nain env. 5.5.1999, leg. K. Deneš sen.

I r a n i a n r e c o r d s : previously listed for Iran without further information by KIMSEY & BOHART (1991).

***Pseudomalus auratus* (LINNAEUS, 1758)**

M a t e r i a l e x a m i n e d : Lorestan province: 3♂♂, 50 km sö Khorramabad, 15.v.1976, 1700 m, leg. F. Ressl / ♂ *Omalus* PZ. *auratus* L. Linsenmaier det. 1978 / LI egg. 89 ex coll. J. Schmidt; Kermanshahan province: 1 ex., 80 km NW Kermanshah Paveh, 20.v.1975, 1500 m, leg. Holzschuh & Ressl / *O. auratus* L. det. Lins. / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : Lorestan, Teheran (ROSA et al. 2013; STRUMIA & FALLAHZADEH 2015).

***Pseudomalus turkestanicus* (MOCSÁRY, 1889)**

= *Ellampus masalskii* SEMENOV, 1932

M a t e r i a l e x a m i n e d : Isfahan province: 38♂♂, Nain env. 5.5.1999, leg. K. Deneš sen.; 5 exx., Isfahan, 20.iv.1992, leg. Menrad / Coll. K. Warncke O.Ö. Landesmuseum Linz/Austria-egg. 93. Mazandaran province: 1♀, Elburs, 60 km S Chalus, 1600 m, 28.vii.1977, leg. A. W. Ebmer / *Omalus masalskii* SEM.♀ det. J. Lins 1980 / *auratus* group <handwritten by Linsenmaier> / LI egg. 89 ex coll. J. Schmidt; 1♀, Elburs oberh. Karaj-See, 1800 m, 12.vii.1977, leg. J. Gusenleitner / *Omalus masalskii* SEM.♀ det. J. Lins 1980 / / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : Alborz, Fars, Gilan, Hormozgan, Kerman, Khuzestan, Mazandaran, and Qazvin provinces (TAVASOLI & FALLAHZADEH 2015; STRUMIA & FALLAHZADEH 2015; STRUMIA et al. 2016b; FARHAD et al. 2017; IRANMANESH et al. 2017).

R e m a r k s : FARHAD et al. (2018) synonymized *Pseudomalus masalskii* (SEMENOV, 1932) with *P. turkestanicus* (MOCSÁRY, 1889).

***Pseudomalus violaceus* (SCOPOLI, 1763)**

M a t e r i a l e x a m i n e d : Teheran: 1♂, Elburs-Gebirge, Shemschak, 27.v.1971, leg. Holzschuh / *Omalus* PANZ. *violaceus* SCOP. det. J. Schmidt 1972 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : Mazandaran, Teheran (TAVASOLI & FALLAHZADEH 2015; STRUMIA & FALLAHZADEH 2015).

Tribe *C h r y s i d i n i*

***Chrysidea pumila* (KLUG, 1845)**

M a t e r i a l e x a m i n e d : Gilan province: 1♂, Guilan [= Gilan], 75/39, Talesch [= Hashtpar], Assalem [= Assalem]-Herowabad [= Khalkhal], 1400-1800 m, 37°40'N 48°50'E, 30.v. / *Chrysis persica* RAD. ♂ det. J. Schmidt 1976 / Li egg. 89 ex. Coll. J. Schmidt.

I r a n i a n r e c o r d s : East-Azarbaijan, Fars, Hormozgan, Kerman provinces (ROSA et al. 2013; TAVASOLI & FALLAHZADEH 2015; FARHAD et al. 2015b; IRANMANESH et al. 2017).

***Chrysis aestiva* DAHLBOM, 1854**

M a t e r i a l e x a m i n e d : Mazandaran province: 1♂, Elburs, Damavend-Gebiet, Polur, 2000 m, 22.vii.1977, leg. J. Gusenleitner / *Chrysis aestiva* DHLB. ♂ det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Hormozgan province (FARHAD et al. 2015a).

Chrysis batyamensis* LINSENMAIER, 1969 (Fig. 7)

M a t e r i a l e x a m i n e d : Hormozgan province: 1♀, Bandar Abbas, 4.iv.1972, leg. Fr. Ressl / *Chrysis batjamensis* (!) LINS. det. Linsenmaier 1973 / ex. Coll. Schmidt 1989.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : Israel (LINSENMAIER 1969).

***Chrysis comparata* LEPELETIER, 1806** (Fig. 11)

M a t e r i a l e x a m i n e d : Mazandaran province: 1♀, Elburs, 60 km S Chalus, 1600 m, 25.vii.1977, leg. J. Gusenleitner / *Chrysis* L. *comparata* LEP.♀ det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990; 1♂, Elburs, Damavend-Gebiet, Polur, 2000 m, 22.vii.1977, leg. J. Gusenleitner / ♂ *Chrysis* L. *comparata* LEP. det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990; 1♂, same locality and collector, 21.vii.1977.

I r a n i a n r e c o r d s : Persia, without further information.

R e m a r k s : TRAUTMANN (1927) and BALTHASAR (1953) listed *Chrysis comparata* Lepeletier for Persia, without precise locality information and for this reason ROSA et al. (2013) considered it doubtfully for Iran. The occurrence of this species is now confirmed.

***Chrysis daphnis syriensis* LINSENMAIER, 1959**

M a t e r i a l e x a m i n e d : Mazandaran province: 2♀♀, Weisar SSE Nowshar [= Nowshahr], 1400 m, 11.vi.1977, leg. Holzschuh u. Ressl / ♀ *Chrysis* L. *daphnis syriensis* LINS. det. J. Schmidt 1978 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Fars, Qazvin, and Khorasan Razavi provinces (ROSA et al. 2013; STRUMIA & FALLAHZADEH 2015).

***Chrysis distincta* MOCSÁRY, 1887**

M a t e r i a l e x a m i n e d : Kerman province: 1♂, 10 km W of Rafsanjan 26.v.1978, 1450 m leg. Warncke / *Alhagi pseudalhagi* (Papilionaceae) / ♂ *Chrysis* L. *distincta* MOCS. det. J. Schmidt / ex Coll. J. Schmidt 1989. North Khorasan province: 1♀, Chaman-Bid-Kuh-e Aladagh-Gebirge, 1600 m, 17.vii.1977, leg. J. Gusenleitner / ♀ *Cornuchrysis distincta* M. det. Lins. 1980 / ex Coll. J. Schmidt 1989.

I r a n i a n r e c o r d s : Sistan & Baluchistan province (ROSA et al. 2013).

***Chrysis frivaldszkyi frivaldszkyi* MOCSÁRY, 1882**

M a t e r i a l e x a m i n e d : Mazandaran province: 1♀, Elburs, 75 km S Chalus, 2400 m, N. Paßhöhe, 24.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis frivaldskyi* [!] M. det. Lins. 1980 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Khorasan province (SAMIN et al. 2014).

***Chrysis grohmanni bolivari* MERCET, 1902**

M a t e r i a l e x a m i n e d : Mazandaran province: 1♂, Elburs, Damavend-Gebiet, Polur, 2000 m, 21.vii.1977, leg. J. Gusenleitner / ♂ *Chrysis* L. *grohmanni bolivieri* [!] MERC. det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : East-Azarbaijan (POURRAFEI et al. 2011).

R e m a r k s : Previous citations for *Chrysis grohmanni* DAHLBOM, 1854 in Iran (MOCSÁRY 1889; BISCHOFF 1913; TRAUTMANN 1927; BALTHASAR 1953) should be referred to *C. grohmanni bolivari*, which is likely a valid species.

***Chrysis inaequalis* DAHLBOM, 1845**

M a t e r i a l e x a m i n e d : Golestan province: 3♀♀, 1♂, 60 km E of Minudasht, 600 m, Eichenwald, 20.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis* L. *inaequalis* DHLB. det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Fars, Kerman, Teheran (ROSA et al. 2013; IRANMANESH et al. 2017).

***Chrysis interjecta hemichlora* LINSENMAIER, 1951**

M a t e r i a l e x a m i n e d : Mazandaran province: 1♂, Elburs, Damavend-Gebiet, Polur, 2000 m, 21.vii.1977, leg. J. Gusenleitner / ♂ *Chrysis* L. *interjecta hemichlora* LINS. det. J. Schmidt 1978 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Qazvin province (ROSA et al. 2013).

Chrysis pseudoincisa* BALTHASAR, 1953 (Fig. 10)

M a t e r i a l e x a m i n e d : Mazandaran province: 1♀, Elburs, 75 km S Chalus, 2400 m, 12.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis pseudoincisa* B. det. J. Schmidt 1979 / LI egg. 89 ex coll. J. Schmidt; 1♀, Elburs, 50 km S (90 km Straße) Chalus, 2800 m, 26.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis pseudoincisa* B. det. J. Schmidt 1979 / LI egg. 89 ex coll. J. Schmidt; 1♂, Elburs, 75 km S Chalus, 2400 m, 21.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis pseudoincisa* B. det. J. Schmidt 1979 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : Israel, Rhodes, Cyprus, Turkey (LINSENMAIER 1959, 1968).

***Chrysis schencki* LINSENMAIER, 1968**

M a t e r i a l e x a m i n e d : Gilan province: 1♀, Guilan [= Gilan], 45 km südlich Rasht, 17.v.1974, 80 m, leg. Holzschuh & Ressl / ♀ *ignita schencki* LINS. det. / ex coll. J. Schmidt 1989.

I r a n i a n r e c o r d s : Golestan and Mazandaran provinces (ROSA et al. 2013).

***Chrysis soror* DAHLBOM, 1854**

M a t e r i a l e x a m i n e d : Golestan province: 1♀, 60 km E Minudasht, 600 m, Zerreichenwald, 20.vii.1977, leg. A. W. Ebmer / ♀ *Chrysis soror calandra* S. det. Lins. 1980 / LI egg. 89 ex coll. J. Schmidt; 1♀, 2♂♂, 60 km E Minudasht, 600 m, Eichenwald, 20.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis soror calandra* S. det. Lins. 1980 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : Alborz, East-Azarbaijan, Fars, Golestan, and Kerman provinces (ROSA et al. 2013; FARZANEH et al. 2017, as *C. soror consobrina* MOCSÁRY, 1889; IRANMANESH et al. 2017, as *C. soror gracilia* LINSENMAIER, 1959).

***Chrysis splendidula* ROSSI, 1790**

M a t e r i a l e x a m i n e d : Razavi Khorasan province: 1♂, oberhalb Zoshk bei Shandiz W Mashad, 1600-2000 m, 29.vii.1977, leg. J. Gusenleitner / ♂ *Chrysis splendidula chlorisans* B. det. Lins. 1980 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Gilan province (ROSA et al. 2013, as *C. splendidula chlorisans* DU BUYSSON, 1895).

Chrysura cuprea cuprea* (ROSSI, 1790)

M a t e r i a l e x a m i n e d : Mazandaran province: 1♀, Weisar SSE Nowshar [= Nowshahr], 1400 m, 11.vi.1977, leg. Holzschuh u. Ressl / ♀ *Chrysis* L. *cuprea* R. det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : South Europe, warmer areas of Central Europe, Caucasus, Turkey.

R e m a r k s : *Chrysura cuprea demelti* (LINSENMAIER, 1987) was previously cited for Zanjan (ROSA et al. 2013)

***Chrysura ignifrons* (BRULLÉ, 1833)** (Fig. 8)

M a t e r i a l e x a m i n e d : Razavi Khorasan province: 1♀, Mashad [= Mashhad], ca. 1600 m, 30.v.1977, leg. Holzschuh u. Ressl / ♀ *Chrysis* L. *ignifrons* BR. det. J. Schmidt 1977 / ex Coll. J. Schmidt 1989.

I r a n i a n r e c o r d s : An old record for Persia (TRAUTMANN 1927) was found in literature, without further information.

R e m a r k s : *Chrysura ignifrons* (BRULLÉ) was listed by TRAUTMANN (1927) for Persia, yet later considered as a doubtful identification by ROSA et al. (2013), because the citation could be also referable both to *Chrysura smaragdina* (TRAUTMANN, 1926) or *Chrysura anatolica* (TRAUTMANN, 1926).

Chrysura nikolaji* (ROSA, 2017) (Fig. 9)

= replacement name for *Chrysis medea* SEMENOV, 1967, *nec* BALTHASAR, 1953.

M a t e r i a l e x a m i n e d : Mazandaran province: 1♀, Elburs, 75 km S Chalus, 2400 m, 12.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis pustulosa* AB. det. J. Schmidt 1978 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : Georgia, Caucasus (ROSA et al. 2017a).

***Chrysura pyrogaster pyrogaster* (BRULLÉ, 1833)**

M a t e r i a l e x a m i n e d : Golestan province: 4♂♂, 50-70 km E Minudasht, 29.v.1977, Golestan-Forst, Holzschuh u. Ressl / ♂ *Chrysis* L. *pyrogaster* BR. det. J. Schmidt 1977 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : West-Azarbaijan (SAMIN et al. 2014).

R e m a r k s : *Chrysura pyrogaster turca* (LINSENMAIER, 1997) was also listed for Iran (Fars province) (ROSA et al. 2013).

Chrysura simuldichroa* (LINSENMAIER, 1969)

M a t e r i a l e x a m i n e d : Teheran province: 1♀, Shemschak, Elburs-Geb., 27.v.1970, leg. Holzschuh / ♀ *Chrysis* L. *loevigata fortiterpunctata* LINS. det. Linsenmaier 1973 / ♀ *Chrysura simuldichroa* P. Rosa det. 2018 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : Iran, without further information (Linsenmaier 1987).

R e m a r k s : KIMSEY & BOHART (1991) synonymised *Chrysura simuldichroa* (LINSENMAIER, 1969) with *Chrysura lydiae* (MOCSÁRY, 1889). LINSENMAIER (1997) revalidated the species.

***Chrysura sulcata sulcata* (DAHLBOM, 1845)**

M a t e r i a l e x a m i n e d : North Khorasan province: 1♀, 16 km W Bojnurd, ca. 1000 m, 17.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis* L. *sulcata* DHLB. det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Fars province (ROSA et al. 2013).

***Chrysura varicornis* (SPINOLA, 1838)**

M a t e r i a l e x a m i n e d : North Khorasan province: 2♀♀, 16 km W Bojnurd, ca. 1000 m, 17.vii.1977, leg. J. Gusenleitner / ♀ *Chrysis* L. *varicornis* SP. det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990; 1♀, 16 km W Bojnurd, ca. 1000 m, 17.vii.1977, leg. A.W. Ebmer / ♀ *Chrysis* L. *varicornis* SP. det. J. Schmidt 1977 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : Fars and North Khorasan provinces (STRUMIA & FALLAHZADEH 2015).

***Pseudochrysis humboldti* (DAHLBOM, 1854)**

M a t e r i a l e x a m i n e d : Hamadan province: 1♀, 15 km NE Razan, 2100 m, 20.vi.1977, leg. Holzschuh u. Ressl / ♀ *Pseudospinolia* Lins. *humboldti* DHLB. det. J. Schmidt 1977 / ex coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Qazvin province (ROSA et al. 2013).

Pseudochrysis marqueti* (DU BUYSSON, 1887)

M a t e r i a l e x a m i n e d : Fars province: 1♀, Paß E Neyriz/Fars, 2060 m, 18.v.1978, leg. Klaus Warncke / *Ferula* spec. (Umbelliferae) / ♀ *Pseudospinolia* LINS. *marqueti* BUYSS. det. J. Schmidt 1979 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : South-East Europe, Turkey, Israel, Palestine (LINSENMAIER, 1959).

R e m a r k s : *Pseudochrysis marqueti* (DU BUYSSON) was listed for Iran by ROSA et al.

(2013, as *Pseudospinolia*), based on the record of *Pseudochrysis chamaleon* (SEMENOV, 1967) collected at Sargad (North Khorasan), Kulku, 8.v.1901, by N. Zarudny. Later ROSA et al. (2017a) revalidated *Pseudochrysis chamaleon* as a valid species; therefore this specimen from Fars province is actually the first record of *Pseudochrysis marqueti* for Iran.

***Pseudochrysis uniformis* (DAHLBOM, 1845)**

M a t e r i a l e x a m i n e d : Mazandaran province: 1♀, Weisser bei Nowshar [= Nowshahr], 1400, 3.vi.1976, leg. F. Ressl / ♀ *Pseudospinolia* LINS. *uniformis* DHLB. det. J. Schmidt 1977 / LI egg. 89 ex coll. J. Schmidt. Kerman province: 1♂, Sonnateh, 11.v.1976, 1450 m, leg. F. Ressl / ♂ *Pseudospinolia* LINS. *uniformis* DHLB. det. J. Schmidt 1977 / LI egg. 89 ex coll. J. Schmidt. Qazvin province: 1♂, 90 km SW Qazvin, 1500 m, 19.v.1976, leg. F. Ressl / ♂ *Pseudospinolia* LINS. *uniformis* DHLB. det. J. Schmidt 1977 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : Fars, Isfahan, Khorasan Rasavi, Qazvin and Teheran provinces (ROSA et al. 2013; STRUMIA & FALLAHZADEH 2015).

Spinolia dallatorreana taurosiaca* (LINSENMAIER, 1987) (Fig. 12)

M a t e r i a l e x a m i n e d : 1♀, 160 km öst. Schahpaszudzd (locality not found), 1000 m, 1.vi.1977, leg. F. Ressl / ♀ *Spinolia* Dhlb. *dallatorreanus taurusiacus* LINS. det. J. Schmidt 1977 / LI egg. 89 ex coll. J. Schmidt.

I r a n i a n r e c o r d s : First record.

D i s t r i b u t i o n : Turkey (LINSENMAIER 1987).

***Trichrysis cyanea* (LINNAEUS, 1758)**

M a t e r i a l e x a m i n e d : Gorgan province: 1♀, Gorgan Schaskola-Wald, 300 m, 2.vi.1977, leg. Holzschuh u. Ressl / ♀ *Chrysis* L. *persica* RAD. det. J. Schmidt 1977 / ex. Coll. J. Gusenleitner Eingang 1990. Mazandaran province: 1♀, Khalardasht 50 km SW Chalos, 1500 m, 5.vi.1977, leg. F. Ressl / ♀ *Chrysis* L. *persica* RAD. det. J. Schmidt 1977 / LI egg. 89 ex coll. J. Schmidt; 1♂, Weisar, SSE Nowshar [= Nowshahr], 1400 m, 11.vi.1977, leg. Holzschuh u. Ressl / ♂ *Chrysis* L. *persica* RAD. det. J. Schmidt 1977 / ex. Coll. J. Gusenleitner Eingang 1990.

I r a n i a n r e c o r d s : Alborz, East-Azarbaijan, Fars, Mazandaran, and Semnan province (ROSA et al. 2013; SAMIN et al. 2014; STRUMIA & FALLAHZADEH 2015).

Discussion

TORABIPOUR et al. (2013a, b), SAMIN et al. (2014), FARHAD et al. (2015), TAVASSOLI & FALLAHZADEH (2015), STRUMIA & FALLAZAHDEH (2015), EBRAHIMI (2015), FARHAD et al. (2016), STRUMIA et al. (2016a, b), STRUMIA & FALLAHZADEH (2016), FARHAD et al. (2017), FARZANEH et al. (2017), IRANMANESH et al. (2017), FARHAD et al. (2018, 2019), and FALAHATPISHEH et al. (2019) contributed to a better understanding of the distribution of the cuckoo wasps in Iran. All authors agree that the number of known species is still far from being known and extensive investigations are needed for a better knowledge of the Iranian fauna and its composition. In fact, due to the geographic position, the climate conditions and the diverse habitats, a more rich and diverse chrysidid fauna is still expected.

All these studies provided new and interesting data, yet sometimes misidentifications were

published (e.g. see the pictures of *Elampus violascens* (MOCSÁRY, 1889) in TORABIPOUR et al. (2013a), which is a member of the genus *Chrysis* LINNAEUS; *Holopyga chrysonota appliata* LINSENMAIER, 1959 in IRANMANESH et al. (2017), which is an *Hedychridium* species, related to *Hedychridium moricei* DU BUYSSON, 1904, etc.; *Hedychridium tarnanii* in TORABIPOUR et al. (2013a) and STRUMIA et al. (2016b), which is a *nomen nudum*). A few misleading taxonomical discussions were published too, as well as a large series of *lapsus calami* and incorrect subsequent spellings (STRUMIA et al. 2015, 2016b; STRUMIA & FALLAHZADEH 2015); some identifications are doubtful because based on dichotomous keys provided for the Northern African fauna and published by LINSENMAIER (1999), whereas Central Asian species are completely mistreated (STRUMIA & FALLAHZADEH 2015, and STRUMIA et al. 2016b); as a consequence, data on Iranian chorology and composition show an apparently incorrect affinity with the Northern African fauna rather than with the Central Asian one (STRUMIA & FALLAHZADEH 2015).

Lastly, I here advise that several taxonomic changes were published in the last years, after ROSA et al. (2013) checklist of the Iranian cuckoo wasps: e.g. the genera *Chrysellampus* SEMENOV, 1932 and *Colpopyga* SEMENOV, 1954 were reinstated (ROSA et al. 2015, ROSA 2017); the name *Pseudochrysis* SEMENOV, 1891 was reintroduced for *Pseudospinolia* LINSENMAIER, 1959 (ROSA et al. 2017c); *Chrysis zonata* DAHLBOM, 1854 was found to be the correct name for *C. pyrrhina* DAHLBOM, 1845 (ROSA 2018b), *Chrysis confluens* DAHLBOM, 1845 for *C. interrogata* LINSENMAIER, 1959 (ROSA & VÅRDAL 2015); *Chrysis poetica* SEMENOV, 1954 for *C. inaequalis sapphirina* sensu LINSENMAIER (1959) (ROSA 2018a); lastly, some species were revalidated (e.g. *Spinolia chamaleon* (SEMENOV, 1967) by ROSA et al. 2017a) and others synonymised (e.g. *Pseudomalus masalskii* (SEMENOV, 1932) by FARHAD et al. 2018).

Acknowledgements

I am grateful to Mag. Esther Ockermüller (Biologiezentrum, Linz, Austria), who entrusted me in the study of the Iranian Chrysididae in the Museum collection, and PhD. Michael Greeff (ETH Zurich, Switzerland) for the translation of the German abstract.

Zusammenfassung

Acht Arten und eine Unterart werden hier erstmals im Iran nachgewiesen: *Chrysis batyamensis* LINSENMAIER, 1969, *Chrysis pseudoincisa* BALTHASAR, 1953, *Chrysura cuprea cuprea* (ROSSI, 1790), *Chrysura nikolaji* (ROSA, 2017), *Elampus panzeri* (FABRICIUS, 1804), *Elampus spina* (LEPELETIER, 1806), *Holopyga kuthyana* (MOCSÁRY, 1911), *Pseudochrysis marqueti* (DU BUYSSON, 1887), *Spinolia dallatorreana taurosiaca* (LINSENMAIER, 1987). Das Vorkommen von *Chrysis comparata comparata* LEPELETIER, 1806 und *Chrysura ignifrons* (BRULLÉ, 1833) im Iran wird bestätigt. *Hedychridium feritatum* LINSENMAIER, 1959 wird in den Rang einer Art gehoben. Neue Daten zur Verbreitung von weiteren 35 Arten werden geliefert.

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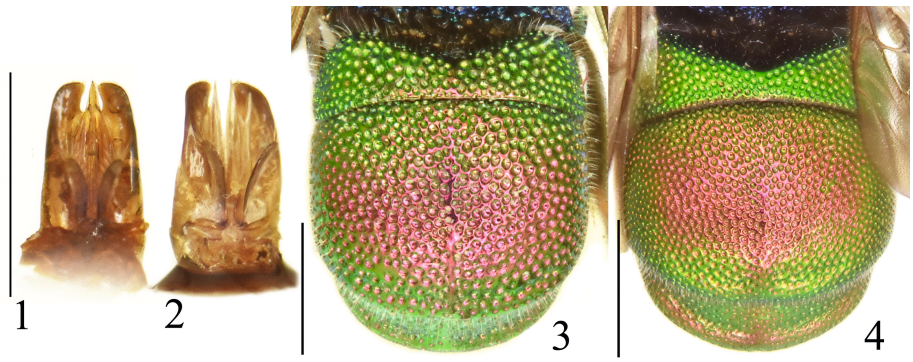
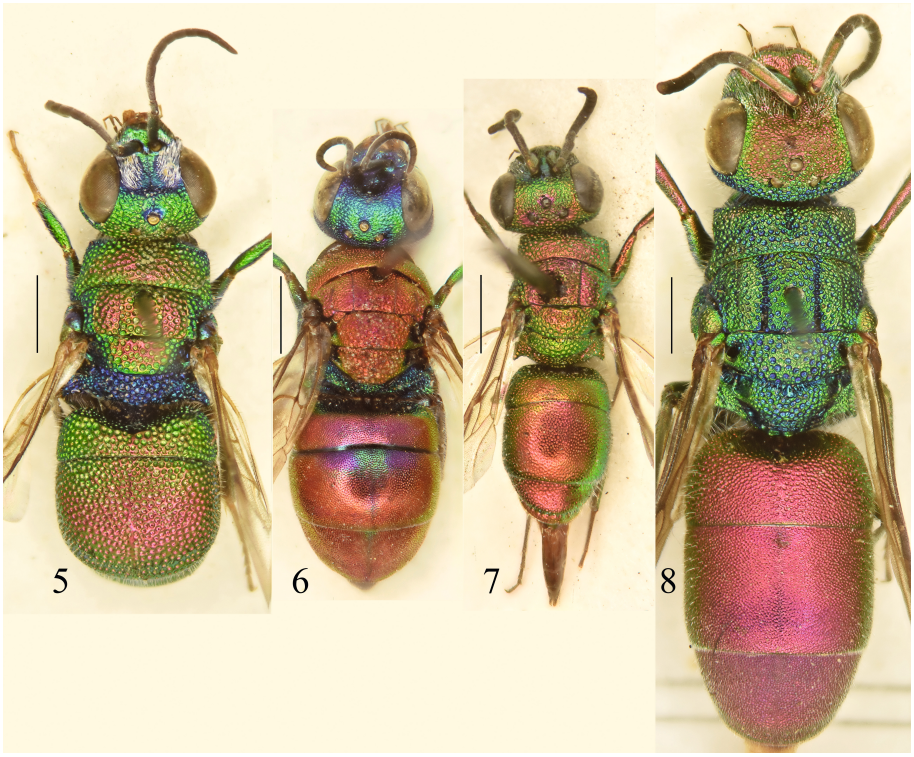
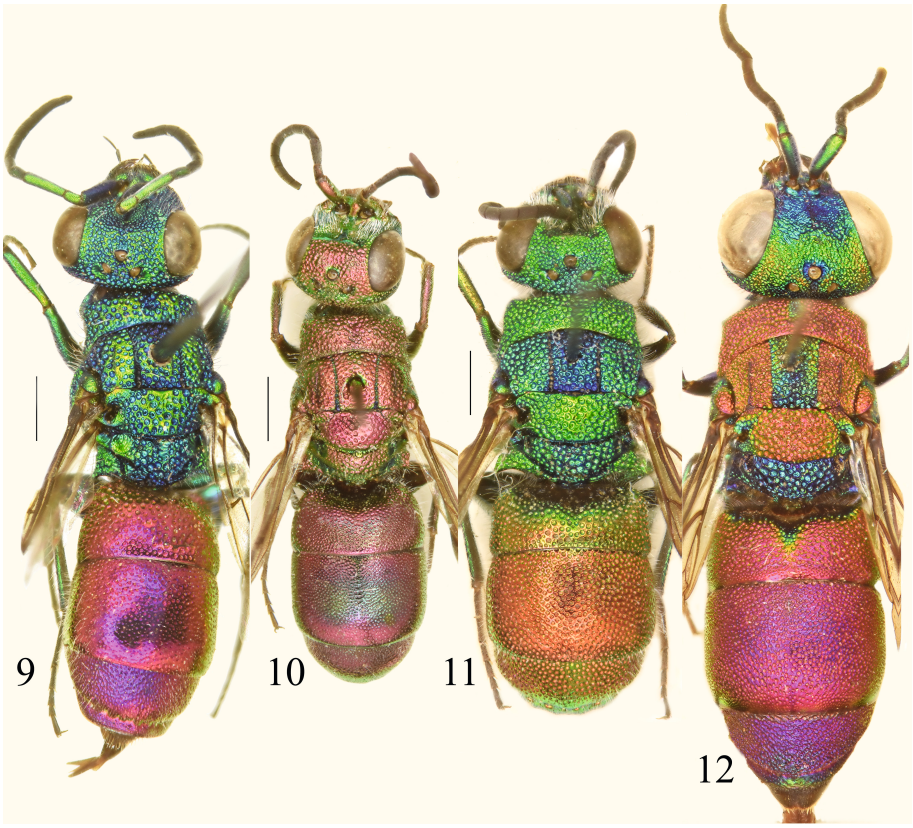


Figs 1-2. Genital capsula; **(1)** *Hedychridium feritatum*; **(2)** *Hedychridium aheneum.* **Figs 3-4**. Metasoma, dorsal view; **(3)** *Hedychridium feritatum*; **(4)** *Hedychridium aheneum*. Scale bar = 1.0 mm.



Figs 5-8. Habitus, dorsalv iew; **(5)** *Hedychridium feritatum*; **(6)** *Holopyga kuthyana*; **(7)** *Chrysis batyamensis*; **(8)** *Chrysura ignifrons*. Scale bar = 1.0 mm.



Figs 9-12. Habitus, dorsal view; **(9)** *Chrysura nikolaji*; **(10)** *Chrysis pseudoincisa*; **(11)** *Chrysis comparata*; **(12)** *Spinolia dallatorreana taurosiaca*. Scale bar = 1.0 mm.

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Zeitschrift/Journal: Linzer biologische Beiträge

Jahr/Year: 2020

Band/Volume: 0052_1

Autor(en)/Author(s): Rosa Paolo

Artikel/Article: New records of Chrysididae from Iran (Hymenoptera) 461-474