



## First checklist of the chrysidid wasps (Hymenoptera: Chrysididae) of Iran

PAOLO ROSA<sup>1</sup>, HOSSEINALI LOTFALIZADEH<sup>2,4</sup> & LEYLI POURRAFEI<sup>3</sup>

<sup>1</sup>Via Belvedere 8/d I-20881 Bernareggio (MB), Italy. E-mail: [rosa@chrysis.net](mailto:rosa@chrysis.net)

<sup>2</sup>Department of Plant Protection, East-Azarbaijan Research Center for Agriculture & Natural Resources, Tabriz, Iran.  
E-mail: [lotfalizadeh2001@yahoo.com](mailto:lotfalizadeh2001@yahoo.com)

<sup>3</sup>Former MSc student of Payam-e Nour University of Tehran, Department of Biology

<sup>4</sup>Corresponding author

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### Abstract

A first checklist of the Iranian Chrysididae is proposed. The list includes 184 species in 20 genera. Seventy species and genera *Spinolia* Dahlbom, 1854, *Spintharina* Semenov, 1892, *Trichrysis* Lichtenstein, 1876 are newly recorded from Iran. New combination is proposed for *Chrysura laconiae* (Arens, 2001), **comb. nov.** (from *Chrysis*) and *Chrysura pyrogaster turca* (Linsenmaier, 1997), **comb. nov.** (from *Chrysis*). New synonymy is proposed for *Chrysura barbatula* (Linsenmaier,

1968) = *Chrysura barbatica* Bohart, 1991, **syn. nov.** The status of *Chrysis transcaspica* Mocsáry, 1889 is resurrected. Historical data with the comments of current taxonomic position and the specific validity of some species are given.

**Key words:** Chrysididae, catalogue, taxonomy, Iran

## Introduction

The family Chrysididae includes 2,509 described species in 87 genera (Aguilar *et al.* 2013) distributed all over the World. Kimsey and Bohart (1991) divided this family into four subfamilies (Amiseginae, Chrysidinae, Cleptinae, and Loboscelidinae), while Mocsáry (1889), Linsenmaier (1959), Mingo (1994), and Rosa (2006) considered also Parnopinae as a valid subfamily. We follow the latter taxonomical interpretation. Chrysidids are treated as Aculeata with usually reduced sting; yet unlike other Aculeata groups, they have the same number of flagellomeres in males and females. Unlike most groups of Hymenoptera, they have a reduced number of visible abdominal segments. The subfamily Cleptinae shows five external segments in males and four in females, Parnopinae four in males and three in females, Chrysidinae only three, nearly always with no sexual dimorphism in number; only the American genus *Ipsiura* Linsenmaier has males with external fourth sternite. The internal abdominal segments are shaped to form a telescopic genital apparatus (in males) or an ovipositor tube (in females). The phylogeny of the family has been discussed by Kimsey and Bohart (1991). Recently Niehuis and Wägele (2004) and Soon and Saarma (2011) have studied phylogeny of the Chrysidinae using molecular data. Faunistic studies of this family have been carried out in different geographical regions of USA (Kimsey & Bohart 1982; Kimsey 2006); Europe (Linsenmaier 1959, 1968, 1987, 1997b; Kunz 1994; Mingo 1994; Morgan 1984; Niehuis 2001; Rosa 2006; Tyrner 2007) and northern Africa (Linsenmaier 1999). Concerning the Middle East, some studies have been published, especially on the Palestinian fauna (Balthasar 1953; Linsenmaier 1959, 1969), on the Turkish fauna (Schmidt 1977; Linsenmaier 1968, 1987, 1997; Arens 2004, 2010; Strumia & Yildirim 2009), and on the fauna of the Arabian Peninsula (Linsenmaier 1994; Strumia 2008; Strumia & Dawah 2008).

Currently, chrysidid fauna of Iran is still poorly known. There are only a few scattered records and descriptions in the literature (109 valid taxa). The actual taxonomic position of some taxa described from Iran is not clear, and some identifications could be wrong or ambiguous. In particular, the papers of Semenov (Semenov-Tian-Shanskij 1954, 1967; Semenov-Tian-Shanskij & Nikol'skaya 1954) have been ignored by all European authors, and consequently some synonyms might be present in the list given here.

## Material and methods

The present paper includes data of material studied in museum and private collections, data given in the literature. The material has been collected in 2005–2009 by H. Lotfalizadeh and L. Pourrafei by nets, Malaise traps, and yellow pan traps in East-Azərbayjan province, north-western Iran, and yielded 115 specimens, including 20 taxa firstly recorded from Iran. These chrysidids are housed in the collection of the Department of Plant Protection in the East-Azərbayjan Research Centre for Agriculture & Natural Resources in Tabriz (DPP). Another important material used for this study are the chrysidids collected by J. Gusenleitner, A. Giordani Soika, A. Mavromoustakis and D. Baiocchi, which are conserved in the Linsenmaier collection, Natur Museum, Luzern, Switzerland (NML); and in the private collections of Paolo Rosa collection, Milan, Italy (PR) and Daniele Baiocchi collection, Roma, Italy (DB). A few specimens have been studied from the Biologiezentrum, Oberösterreichische Landesmuseen, Linz, Austria (BZL). Totally 250 specimens in these collections belong to 125 species, 60 of them are newly recorded from Iran. Specimens housed in Linsenmaier's collection were mainly collected on the Elburz [Alborz] mountain range, in the northern Iranian provinces of Alborz (Alborz, Guilan, Mazandaran, and Qazvin). Historical data are mostly referable to Tehran province, and the north-eastern Khorasan and Golestan provinces. The newly recorded species are collected mainly in East-Azərbayjan and West-Azərbayjan provinces, north-east Iran, and in the southern provinces: Kerman, Fars, Kuhgiluyeh & Boyerahmad, Sistan & Baluchestan (Fig. 1).

Some distributional data remain uncertain, as in the case of the locality Kamal-Abad (probably in Alborz or East-Azərbayjan provinces). In the references old name “Persia” often includes localities currently from adjacent countries (i.e. Ashkhabad from Turkmenistan). Many old records are wrong and refer to species described later as