A short review of the family Leucospidae (Hym.: Chalcidoidea) in Iran

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Abstract. The family Leucospidae (Hymenoptera: Chalcidoidea) is reviewed in the Iranian fauna. Four leucospid species of the genus Leucospis Fabricius (L. bifasciata Klug, L. biguetina Jurine, L. dorsigera Fabricius and L. gigas Fabricius) are listed from Iran with some new distributional records. Distribution of these species is mapped. Two colours forms of L. gigas are discussed based on Iranian material.

Key words: Leucospidae, Chalcidoidea, new records, fauna, distribution.

Introduction

The superfamily Chalcidoidea (Hymenoptera), is one of the largest group of insect natural enemies. The family Leucospidae includes the largest insects among Chalcidoidea and are a distinct family with having a characteristic morphology. Their longitundinally folded fore wings (Fig. 2) and curved upward ovipositor (Fig. 4) are characteristic within Hymenoptera. Most leucospids mimic species of wasps or bees (Bouček 1974) and are relatively uncommon. These wasps with yellow vespid-like patterns may be confused with aculeates. Leucospids are known from all continents but is particularly well represented in the Neotropical region (53 species). It is probably a reflection of taxonomic activity rather than the actual distribution and extent of the fauna. This family includes four genera: Leucospis Fabricius, Microcranius Kriechbaumer, Neleucospis Bouček and Pedistomorpha Westwood, from which only Leucospis is known from the Palaearctic region (Bouček 1974, Schmid-Egger 2010).

Bouček (1974) treated 130 species known worldwide in the four genera, giving keys, hosts, and distributions for all species. He has discussed the characters of species-groups in each zoogeographical region and considered three species-groups for the Palaearctic region. Baur & Amiet (2000) treated the Swiss species presenting a key to the European groups for the Palaearctic region. Baur & Amiet (2000), Bouček (1959, 1974), Nikolskaya (1960), Pagliano (1998) were used for identification of Leucospidae. Studied materials are deposited in the HMIM. Leucospid species in this study are listed alphabetically.

Results

In this study two species groups were determined in the genus Leucospis (dorsigera and gigas groups). This genus is represented in Iran with four species listed here, but of this number only two have hitherto been regarded as Iranian fauna (Noyes 2010). Their geographical distribution was mapped in Iran (Fig. 5).

The morphological characters of the family include: having robust body, swollen and toothed hind femur (Fig. 3), arched hind tibiae (Fig. 1), short second gastric tergum (shorter than first tergum), narrowly elongate tegula (reaches the pronotum), long postmarginal vein (much longer than stigmal vein and slightly longer than marginal vein) (Grissell & Schaff 1990, Bouček 1974).

Systematic account

1. Leucospis bifasciata Klug, 1814 (Fig. 1)

Leucospis gibba Klug, 1814; Synonymy by Bouček 1974; page 146.


Diagnosis: Leucospis bifasciata is like to L. dorsigera with having long and subhorizontal ovipositor, narrow gap between hind femur teeth. But with relatively shorter ovipositor, narrow ovipositorial furrow and mostly yellow scutellum can be distinguished.

Bouček (1959) reported this species from Iran (Alborz Mountains) and this study extends its distribution in Iran. It belongs in the dorsigera-group (with seven species in the Palaearctic region). Leucospis bifasciata is widely distributed in Caucasian, Central Asia, Europe and Middle East countries (Noyes 2010).
Figures 1-4. Female Leucospidae of Iran, habitus in lateral view:
(1) *Leucospis bifasciata*; (2) *Leucospis dorsigera*; (3) *Leucospis gigas* (Yellow form); (4) same species (Red form).

Figure 5. Distribution map of Leucospidae known from in Iran.

Its biology is little known and only two apid species [*Anthidium strigatum* (Panzer) and *Anthidium strigatum* (Panzer)] have been recorded as host of this species (Bouček 1959).

2. *Leucospis biguetina* Jurine, 1807
*Leucospis parviceps* Moesbrg, 1879; Synonymy by Bouček 1974: page 147.

**Diagnosis:** This species has two pronotal carinae, bidentated dorsellum, coarsely sculptured and flatted hind femur with large triangular basal tooth and relatively short ovipositor (not reaches basal gastral tergite).

No specimen of this species was examined but it was recorded from south-eastern Iran (Bouček 1974). It is known in the Palaearctic region from Europe, Middle East and North Africa (Noyes 2010). This species belongs to the *dorsigera*-group. *Leucospis biguetina* is a parasitoid of two hymenopterous families Apidae (Baur & Amiet 2000, Le Goff 1997) and Sphecidae (Le Goff 1997).
3. Leucospis dorsigera Fabricius, 1775 (Figs. 2, 3)

Diagnosis: Leucospis gigas is characterized by strongly produced clypeus, by elongate basal flagellar segments of antenna in female and bidentate dorsellum and by short basal tooth of hind femur (shorter than the second).

The gigas-group was discussed and divided in several subgroups by Bouček (1974). This group is widely distributed in the Mediterranean area. Leucospis gigas is widely distributed in the Nearctic, North Africa, the whole of Europe and Central Asia (Noyes 2010) and was reported from Iran by Peck (1963). It is known as a parasitoid of Apidae (Hym.) (Noyes 2010).

In the studied specimens, there are two forms; orange and yellow forms which both exist in European fauna (Bouček 1974). Orange form was observed on specimens of Sistan-Baluchestan Province (southeast of Iran). While specimens from Khorasan and Fars provinces (respectively from northeast to south of Iran) are yellow form. Bouček (1974) believes they are separated geographically and orange form is restricted to southern part of its distribution area in the Palearctic region with relatively arid conditions (such as Iran). But this study showed two forms are found in Iran. Also, intermediated forms have been reported (Nikolskaya 1960, Bouček 1974).

Acknowledgments. We thank the curator of Hymenoptera collection in the Department of Insect Taxonomy, Iranian Research Institute of Plant Protection who permitted us to study deposited materials in HMIM.

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