

## New distribution records for Eucharitidae (Hym.: Chalcidoidea) in Iran

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**Abstract.** During the collection of Chalcidoidea (Hymenoptera) in the North and Northwest of Iran, two Eucharitidae species (Hym.: Chalcidoidea) were identified. Hitherto only one species of this family has been reported from Iran, therefore two new species, *Eucharis adscendens* (Fabricius) and *Eucharis rugulosa* Gussakovskiy were added to the Iranian fauna. The studied species may be parasitoids of *Formica glauca* Ruzsky and *Cataglyphis* sp. (Hym.: Formicidae, Formicinae), respectively.

**Key words:** Eucharitidae, *Eucharis adscendens*, *E. rugulosa*, new record, Northwest Iran

The Eucharitidae (Hymenoptera: Chalcidoidea), a family that includes 53 genera and 413 species, is the most diverse group of hymenopteran parasitoids of eusocial insects (Heraty 2002). Members of this family are distributed in almost every zoogeographical region of the world (Noyes 2007). Taxonomic researches on Eucharitidae include the Australia fauna (Bouček 1988), the Costa Rica fauna (Heraty 1995), the Palaearctic fauna (Nikol'skaya 1952) and the North American fauna (Heraty 1985, 1997). Bouček (1988) recognized five subfamilies of Eucharitidae (*s.l.*): Akapalinae, Echthrodapinae, Philomidinae, Oraseminae and Eucharitinae. Recently, Heraty (2002) revised this family at the generic level on a worldwide basis. This revision addresses the taxonomic and phylogenetic relationships all of the genera

in 2 subfamilies, providing keys for all genera and some species of the family.

World literature denotes ants as the hosts for Eucharitidae (Bouček 1988, Heraty 2002). Interestingly, Eucharitidae are indirect parasitoids of ants by ovipositing into plant tissues after which the active first instar or planidium seeks out the host ant (Bouček 1956). This larva attaches itself to a worker ant, and thus gets carried to the nest (Bouček 1956, Heraty 2002). Within the known subfamilies, Oraseminae are parasitic on Myrmicinae, while most Eucharitinae are parasitic on either Ponerinae or Formicinae (Heraty 2002). He believes this family beside Aphelinidae, Encyrtidae and Eulophidae is the most important biocontrol agent of ants.

In the lack of a comprehensive taxonomic work on Iranian species, here I present three species of the

genus *Eucharis* (Hymenoptera: Chalcidoidea, Eucharitidae), subgenus *Eucharis* with two new records for the fauna of Iran.

During spring and summer of 2007, whilst collecting Chalcidoidea (Hymenoptera) in the North and Northwest of Iran, I swept several specimens of Eucharitidae. From the collected material, I determined two species (based on ten specimens). The first one was collected from a garden in the Northwest of Iran (Azarbaijan-e-

Sharghi Province, Marnad) while the second one was collected from the Alborz Mountain chain, close to an anthill with the use of a net (Fig.1).

The collected specimens were mounted and identified as *Eucharis adscendens* (Fabricius) and *Eucharis rugulosa* Gussakovskiy. Up to now only *Eucharis carinifera* Gussakovskiy was listed in the Iranian fauna under Chalcidoidea (Noyes 2007). All of these three species belong to the subgenus *Eucharis*.



Figure 1. Map of Iran with collection localities of eucharitids: ■ *E. adscendens*, ● *E. rugulosa*.

**The genus *Eucharis* Fabricius**

The genus *Eucharis* belongs to the subfamily Eucharitinae; the tribe Eucharitini includes 46 genera. The

genus includes 45 species in the Palaearctic, including Europe, Middle East and North Africa (Heraty 2002). Bouček (1956) classified this genus in

three subgenera: *Eucharis*, *Psilogastrellus* and *Eucharisca*, that all of them were retained by Heraty (2002).

Within eucharitids, *Eucharis* is a monophyletic genus, based on some morphological characters discussed by Heraty (2002). He based the *Eucharis* clade on a reduction of the notauli, reduction in pilosity of the wings, and a lack of definition of the wing veins.

Heraty (2002) listed the characters that the species of this genus share: transverse head (in frontal view), short scape and non-geniculate antennae, large toruli with the intervening area smooth and lacking any median ridge, reduction of mouthparts (mandibles small with minute subapical teeth, or peg-like without teeth), absence of palpi, globose mesosoma, lack of any distinct projections from the scutellum (at most with an emarginate flange), fused prepectus reaching the tegula, and mostly smooth petiole which is often dorsoventrally flattened.

Adults are usually dark-green to blue, but may be yellow with dark patches, and the gaster may be rufous. The forewing is usually bare and the venation clear and poorly defined. The gastral terga are bare and have a single apical line of weakness, and lack a tergal scar. The antennae are usually stout and may be cylindrical, serrate or ramose.

**(1.) *Eucharis (Eucharis) adscendens* (Fabricius, 1787)**

***Material examined:* Azarbaijan-e-Sharghi, Marand, 1360 m, N 38° 25' 28"**

E 45° 46' 59" (Fig.1), 20.vi.2007, (H. LOTFALIZADEH), 8♀♀ & 1♂.

**Note.** The adults of this parasitoid were observed flying slowly above low vegetation in the studied garden, especially above Persian leek *Allium ampeloprasum* ssp. *persicum* Mousavi & Kashi, near *Formica* nests, later identified as belonging to *Formica glauca* Ruzsky, 1895 (Hymenoptera: Formicidae, Formicinae) by H. Alipanah (Dept. of Insect Taxonomy, Iranian Research Institute of Plant Protection, Tehran). Bouček (1956) found this species ovipositing into blossoms of *Falcaria vulgaris* Bern. Eggs are laid in groups of eight to 15. The egg and first-instar larvae were also described and illustrated by Bouček (1956).

The adults of this species can be observed only for one or two weeks during a year (especially June) because of its rudimental mouthparts that induce early death, leading to the earlier consideration as a rare species (Bouček 1956).

This most common European species of Eucharitidae is parasite of ants, *Formica rufa* L. (Formicinae) (Bouček 1956) and *Messor barbarus* L. (Myrmicinae) (Bouček 1977, Heraty 2002). Bouček (1977) believes that this is a widely distributed species from Southern and Central Europe to Transcaucasia. Recently Heraty (2002) recorded the species from Austria, Czech Republic (former Czechoslovakia), Germany, Romania, Turkey and former Yugoslavia. Based on the available literature, this species has not been reported from Iran before.



**Figures 2-3.** The collected specimens of the Eucharitidae family in Iran:  
2- *E. adscendens*, 3- *E. rugulosa*.

**(2.) *Eucharis (Eucharis) carinifera*  
Gussakovskiy, 1940**

**Note.** This species is known from West-Palaearctic region (Armenia, Kazakhstan, Russia, Ukraine, Uzbekistan, former Yugoslavia and Serbia) (Bouček 1977). He also reported this species from Iran, without exact locality, date of collection and other complementary information but Nikol'skaya (1952) mentioned it for North of Iran.

**(3.) *Eucharis (Eucharis) rugulosa*  
Gussakovskiy, 1940**

**Material examined:** *Tehran, Firuzkuh (Fig.1), 10.vi.2007, (H. LOTFALIZADEH), 1 ♀.*

**Note.** This single specimen was swept on grass beside the nest of *Cataglyphis* sp. (Formicidae, Formicini). This species is an addition to the Iranian list Eucharitidae and the genus *Eucharis* but was hitherto known to occur in the Palaearctic region including: Russia and Ukraine (Gussakovskiy 1940, Trjapitzin 1978).

This species is easily recognizable for its sculptured mesonotum, longer than wide funicular segments and hyaline wings from *E. adscendens* in our collection.

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