New findings of two *Torymus* species (Hym.: Chalcidoidea, Torymidae) of *cupreus*-group in Iran

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**Abstract.** Two *Torymus* species (Hymenoptera: Chalcidoidea: Torymidae) of *cupreus*-group were collected in the northwest of Iran via a Malaise trap. These specimens identified as *Torymus calcaratus* Nees and *T. cupreus* (Spinola) that are new to Iranian fauna. These species illustrated and their diagnostic characters were discussed.

**Key words:** *Torymus*, Parasitoid, New record, *cupreus*-group, distribution.


Based on available literatures (Lotfalizadeh and Ghahari 2009) only five species of the genus have been reported from Iran: *Torymus auratus* (Müller, 1764), *T. bedeguaria* (Linnaeus, 1758), *T. erucarum* (Schrank, 1781), *T. gerani* (Walker, 1833) and *T. lapsanae* (Hoffmeyr, 1930).

In the recently collected specimens from northwest of Iran, East-Azarbaijan province via a Malaise trap, I found two specimens with some distinctive morphological characters (see below).

Specimens were preserved in 75% Ethanol until they were mounted on cards and identified. Images were made with an Olympus™ SZH stereomicroscope, a dome light system (Kerr et al., 2008), and a Canon™ A720 digital camera. The images were then processed using Helicon Focus® 4.60 and Adobe Photoshop® 7.0 programs.

Morphological terminology follows Grissell (1995). The material reported in this paper is deposited in the HMIM (Hayk Mirzayans Insect Museum, Tehran, Iran). Abbreviations of morphological terms used are: M = Length of marginal vein; PM= Length of postmarginal vein; ST= Length of stigmal vein; T1-7= First to seven gastral tergites.

Based on Graham & Gijswijt (1998) these specimens identified as *Torymus calcaratus* Nees and *T. cupreus* (Spinola). These two species belong to *cupreus*-group of *Torymus* that characterize by 1) rugose or areolate-rugose propodeum medially (Fig. 2A), 2) hind femura with distinct ventral tooth, 3) scutellum with distinct frenum (share with some other species-groups such as *austriacus*, *boudysi*, *cyanus*, *varians* and *arattus*) (Fig. 2A) and 4) head and mesosoma coarsely punctured (Fig. 2A).

This group includes *T. calcaratus* (Nees), *T. cupreus* Spinola, *T. pulcher* Boucek (Graham & Gijswijt 1998).

**Torymus calcaratus Nees, 1834** (Figs 1 & 2)

**Material examined.** Iran, East-Azarbaijan province, Marand, Malaise trap, 25.vii.2007, (H. Lotfalizadeh), 1 Female.

**Diagnose.** Body length 9.8 mm (excluding ovipositor 5.4 mm). Predominantly metallic green (Fig. 1A) (blue to violet in European collections after Graham & Gijswijt (1998)), fore and mid tibiae, tarsomers yellowish-brown. Scape, hind legs and ovipositor reddish-brown. Ovipositor sheath, funicular segments dark-brown. Metasomal sterna brown. Pedicle and all coxae concolor with mesosoma. T1 metallic green, T2-T5 mostly metallic green with fiery red reflection laterally (Fig. 1A). Fore wing hyaline with veins light brown with dark brown ST and distal end of parastigma.

Occipital carina well defined (Fig. 1C). Malar space 0.36 of eyes (slightly longer than European collection (0.3-0.35) after Graham & Gijswijt (1998)). Scutellum with a distinct frenal cross furrow, posteriorly smooth, frenum 0.25 of scutellum (Fig. 2A). Hind coxae smooth externally with a distinct dorsal carina and bare dorsally, hind femur with a ventral tooth. Fore wing (Fig. 1F) about 2.35 times longer than wide (113.48), M (21) longer than ST (12), PM (15) shorter than M (while Graham & Gijswijt (1998) mentioned PM 2 times of ST). Basal cell entirely bare, speculum reduced to a narrow stripe behind parastigma.

This species is widely distributed in Europe and has been reported from Caucasus, China and India (Noyes 2014) but is new record for Iran.

**Torymus cupreus** (Spinola, 1808) (Figs 3A-D)

**Material examined.** Iran, East-Azarbaijan province, Khorosrosh, Malaise trap, 5.ix.2009, (H. Lotfalizadeh), 1 Male.

**Diagnose.** Body length 4 mm. This species is very similar to *T. calcaratus* with posterior hair of hind coxae in basal half and some violet sheen on mesosoma (Fig. 3D).

This species is distributed in Europe but not as wide as *T. calcaratus* (Noyes 2014). It is new record for Iranian fauna.

New findings of as *T. calcaratus* and *T. cupreus* extend their geographical distribution. These species have been reported as parasitoids of some hymenopterous families such as Apidae, Cynipidae, and Sphecidae (Graham & Gijswijt 1998) but present specimens were trapped by a Malaise trap where sphecid population was abundant and that may be confirms their association with the family Sphecidae.

**References**


New findings of two Torymus in Iran

Figure 1. Torymus calcaratus: A- Female in lateral view, B- Head in frontal view, C- Head in dorsal view, D- Female antenna, E- Hind femur, F- Fore wing venation.

Figure 2. Torymus calcaratus: A- Mesosoma in dorsal view, B- Metasoma in dorsal view.

Figure 3. Torymus cupreus: A- Mesosoma and metasoma in lateral view, B- Male in dorsal view, C- Mal antenna, D- Mesosoma in lateral view.
