

A New Dipteran Parasitoid of Rose Sawfly from Turkey: *Vibrissina turrata* (Meigen, 1824)

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Abstract

Aim of study: The aim of this study was to determine the parasitoid species of, *Arge ochropus* (Gmelin, 1790), which is an important pest of culture and wild roses.

Area of study: *Arge ochropus* larvae were collected from *Rosa canina* in Bartın province.

Material and Methods: Larvae collecting damages on *Rosa canina* species, which are distributed in different localities and were brought to the laboratory. Observations were continued and photographed under a microscope.

Main results: *Arge ochropus* (Gmelin, 1790) is a significant pest of cultivated and wild roses in Turkey. Leaf surface is consumed as a result of intense damage of larvae and this affects growth and blooming in the plant. It was observed that the larvae collected from the field were infected by a new parasitoid in the laboratory. This tachinid parasitoid was defined as *Vibrissina turrata*.

Research highlights: *Vibrissina turrata* (Meigen, 1824) was detected in Turkey as a Tachinidae fauna and *Arge ochropus* parasitoid for the first time in this study.

Keywords: *Vibrissina turrata*, new record, Tachinidae, parasitoid, *Arge ochropus*, Turkey

Türkiye' den Gül Yaprak Arısının Yeni Bir Parazitoiti: *Vibrissina turrata* (Meigen, 1824)

Öz

Çalışmanın amacı: Kültür ve yabani güllerin önemli zararlısı *Arge ochropus* (Gmelin, 1790) yaprak arısının, parazitoid türünün tespiti amaçlanmıştır.

Çalışma alanı: *Arge ochropus* larvaları Bartın ilinde *Rosa canina* üzerinden toplanmıştır.

Materyal ve Yöntem: Farklı lokalitelerde yayılış gösteren *Rosa canina* türleri üzerinde zarar yapan larvalar laboratuvara getirilerek, gözlemlere devam edilmiş ve mikroskop altında incelenerek fotoğraflanmıştır.

Sonuçlar: *Arge ochropus* Türkiye'de kültür ve yabani güllerin önemli bir zararlısıdır. Larvaların yoğun zararı sonucu yaprak yüzeyi tüketilir, bitkide büyüme ve çiçeklenmede etkili olur. Araziden toplanan larvaların laboratuvarında yeni bir parazitoid tarafından enfekte edildiği gözlemlenmiştir. Bu tachinid parazitoid *Vibrissina turrata* olarak tanımlanmıştır.

Önemli vurgular: *Vibrissina turrata* (Meigen, 1824), bu çalışmada Türkiye Tachinidae faunası ve *Arge ochropus* parazitoidi olarak ilk kez tespit edilmiştir.

Anahtar sözcükler: *Vibrissina turrata*, yeni kayıt, Tachinidae, parazitoid, *Arge ochropus*, Türkiye



Introduction

Arge ochropus (Gmelin, 1790) is a species that is highly dispersed and abundantly found in Turkey (Çalmaşur and Özbek, 2006). Çalmaşur and Özbek (2013) and Baş (1973) report that this species is a pest for roses. Özbek and Çalmaşur (2005) and Özbek and Yıldırım (2014) indicate that the species creates damage in cultivated and wild roses. As we state in our study, Yıldırım and Eroğlu (2015) found it on rosehip. Due to intensive damage by larvae, leaves are skeletonized and this affects growth and blooming in the plant (Figure 1).

The number of tachinidae species in the world is 1552 in about 10,000 palearctic areas worldwide, and about 750-800 species in Europe (Ziegler, 1992). Kenan Kara (2002) mentions 204 species of Tachinidae in Turkey. In the study conducted in 2008 by Korkmaz in the Western Black Sea Region, 23 Tachinidae species were detected, and these included 9 new entries.



Figure 1. Larvae damage on leaf.

Tachinidae species live as endoparasitoids in lepidoptera larvae and pupa, and in the nymphs and adults of heteroptera and orthoptera species, as well as different stages of live in Hymenoptera and Coleoptera species, and they play an important role in regulating the population of host insect species (Oğurlu, 2000; Tschorsnig and Herting, 1994).

They leave their eggs on the host's body or food, and the larvae hatching from the eggs start feeding by entering inside the host species. After the development of the pupa in

the shape of a cube made out of the last larvae skin is complete, adult individuals exit (Oğurlu, 2000).

Vibrissina turruta's hosts are generally species from Tenthredinidae and Argidae families. They produce at least two generations in Europe from the middle of June to the middle of October (Tschorsnig & Herting, 1994).

The first- and second-instar larvae feature closely clustered posterior spiracles, at the peritreme, have a process like a knifeblade function is to pierce the large tracheal trunks of their victims. The posterior stigma of the dipteran larvae are then introduced into the aperture thus pierced so as to gain access to the host's air supply. Pupation takes place within the victim's inner cocoon. The aperture made by the mature larva in the inner cocoon is circular in shape and with clear-cut edges while that at the cephalic pole of the outer cocoon is smaller and with rough edges. The puparium emerges with the cephalic cap through the circular aperture, the edges of which appear to be invaginated (Campadelli, 1997). *Vibrissina turruta* (Meigen) has anal hooks and develops in the host midgut (Shima, 2003). *Vibrissina* group that injects larvae directly into the host with a sickle-shaped ovipositor (Shima, 1983).

Vibrissina turruta was found as a dominant parasitoid in *Arge pullata*, which is a birch pest (Li, Sheng, Sun & Luo, 2012). Nagasaka (1988) reported the species *Athalia rosae* as a new host of *V. turruta*.

Materials and Methods

During field studies in the province of Bartın in the year 2010, 4 *A. ochropus* larvae feeding on *Rosa canina* on a 25-m altitude at the coordinates 41°37'09"N, 32°19'07"E were brought to the laboratory with their host and started to be observed. As a result of pupa processes, 2 adult flies exited on the day 20.04.2010.

Result

It was observed that the larvae collected from the field were infected by a new parasitoid in the laboratory. This tachinid parasitoid was defined as *Vibrissina turruta*. *Vibrissina turruta* (Meigen, 1824) was detected in Turkey as a Tachinidae fauna and

Arge ochropus parasitoid for the first time in this study.

Subfamily: Exoristinae

Tribe: Blondeliini

Vibrissina turrata (Meigen, 1824) ♂ (Figure 2)



Figure 2. *Vibrissina turrata* a. Dorsal view b. c. Lateral view d. Head in dorsal view

Remarks

3rd antennal segment in males 4.7 - 6.4x, in females 3.9 - 4.5x as long as the 2nd. The abdominal dusting covers \pm evenly 3/5 - 4/5 of tergites 3 and 4; the black longitudinal middle stripe is weak and at certain lighting angles sometimes almost extinguished. The bristlets above the vibrissa rise to 1/2 - 4/5 of the facial ridges. Males: frons 0.63 - 0.88x as wide as one eye, without oe; anterior claws

about as long as the last tarsal segment (Tschorsnig & Herting, 1994)

Distribution

Andorra, Austria, Bulgaria, Czech Republic, French mainland, Germany, Greek mainland, Hungary, Italian mainland, Northwest European Russia, Poland, Serbia, Slovakia, Sweden, Switzerland, The Netherlands, Yugoslavia (URL-1, Hubenov, 2008)

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