

Cystiphora sonchi (Vallot, 1827) and ***Dasineura gleditchiae*** (Osten Sacken, 1866) (Diptera: Cecidomyiidae), two new records from Turkey

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Summary

Two gall midge species of the family Cecidomyiidae (Diptera), viz. ***Cystiphora sonchi*** (Vallot, 1827) on ***Sonchus asper*** (L.) Hill. subsp. ***glaucescens*** (Jordan) Ball. (Compositae) and ***Dasineura gleditchiae*** (Osten Sacken, 1866) causing galls on ***Gleditsia triacanthos*** L. (Caesalpiniaceae) were found in Ankara located in central part of Turkey. Both species are first records for the cecidomyiid fauna of Turkey.

Key words: Cecidomyiidae, gall midges, ***Cystiphora sonchi***, ***Dasineura gleditchiae***, Turkey

Anahtar sözcükler: Cecidomyiidae, galsinekleri, ***Cystiphora sonchi***, ***Dasineura gleditchiae***, Türkiye

Introduction

Recently, 71 species belonging to the family Cecidomyiidae (Diptera), have been recorded from Turkey (Skuhrová et al., 2005). Six species of the genus ***Dasineura*** Rondani, 1840 are known to occur in Turkey, viz. ***Dasineura affinis*** (Kieffer, 1886) (Iyriboz, 1942; Alkan, 1952), ***D. crataegi*** (Winnertz, 1853) (Trotter, 1903), ***D. oleae*** (F. Löw, 1885) (Trotter, 1903; Alkan, 1952; Iren & Ahmed, 1973), ***D. rosae*** (Vallot, 1827) (Karaca, 1956; Bayram et al., 1998), ***D. rufescens*** (Stefani, 1896) (Trotter, 1903), ***D. viciae*** (Kieffer, 1888) (Bodenheimer, 1939). All these six ***Dasineura*** species are phytophagous and cause galls on their host plants. The

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genus **Cystiphora** Kieffer, 1892 also includes phytophagous species which cause galls. Before this study was realized any representative of this genus was not known in Turkey.

The aim of this study is to contribute to the knowledge of gall midge fauna in Turkey. Galls of two gall midge species were found in Ankara and both are new records for the gall midge fauna of Turkey, viz. **Cystiphora sonchi** (Vallot, 1827) developing on **Sonchus asper** (L.) Hill. subsp. **glaucescens** (Jordan) Ball. (Compositae) and **Dasineura gleditchiae** (Osten Sacken, 1866) developing on **Gleditsia triacanthos** L. (Caesalpiniaceae).

Material and Methods

The leaves with galls on **Sonchus asper glaucescens** and **Gleditsia triacanthos** were collected from campus area of Ankara University. Ankara is in temperate zone and the University park includes very rich woody ornamentals and various herbaceous plants. The midges was found both on dry and moist conditions. The altitude is 850 m and the midges were collected on the plants growing among the grass inside the park.

The samples of host plants with galls were brought to the laboratory and kept in glass jars until adults emerge. Picture of the samples were taken by using image system with stereo microscope. Adults were put in 70% alcohol and were determined by the second author. The specimens were mounted on microscope slides and were deposited in the collection of M. Skuhrava in Prague, Czech Republic, and in collection of Ş. Bayram at the University of Ankara, Faculty of Agriculture, Plant Protection Department, Ankara, Turkey.

Results and Discussion

Adults of **Cystiphora sonchi** were reared from galls on **Sonchus asper glaucescens** and adults of **Dasineura gleditchiae** reared from galls on **Gleditsia triacanthos**. Both gall midge species are new records for the fauna of Turkey.

Cystiphora sonchi (Vallot, 1827)

Syn.: **Cecidomyia sonchi** Bremi, 1847; **Cecidomyia sonchi** Löw, 1875.

Material examined: Ankara, 12.VII.2005, larvae, pupae from leaf galls on **Sonchus asper glaucescens**; from these samples 78 adults (66 females and 12 males), were reared.

Note: Skuhravá (1986) in her Catalog gave this species as **Cystiphora sonchi** (Bremi, 1847) with a synonym **Cecidomyia sonchi** Löw, 1875. According the Gagné (2004), Vallot (1827) was the first author who described this species and used the name. Therefore, it is necessary to use the name **Cystiphora sonchi** in combination with Vallot, 1827.

Larvae produce pustule galls on leaves of *Sonchus asper glaucescens* (Fig. 1). It is a cosmopolitan plant species which is distributed all over Turkey (Davis, 1975). Galls of *C. sonchi* occur very commonly on all localities and are found frequently on this host plant. All of the examined 40 plants were attacked very heavily by this gall midge species in Ankara.

It has, more than one generation in a year and different stages of insect in one gall and to many pustule galls found on each leaf. The average number of the 26.73 (3-69) galls and 29.93 (9-94) larvae was observed on each leaf at the growing season (02.VIII.2005). It is the result of successive emergence of adults and successive laying of eggs by females in various terms.

Larvae of the summer generation pupate in cocoons inside the galls on the leaves (Figs. 2, 3). Larvae of the last generation in autumn leaf galls hibernate in the soil until spring of the following year. In the spring, they pupate in the soil and adults emerge after several days. The females after mating lay eggs on young leaves of the host plant and the developmental cycle repeats.

C. sonchi is the new record for Turkey. It is the only one species in this genus for Turkey.

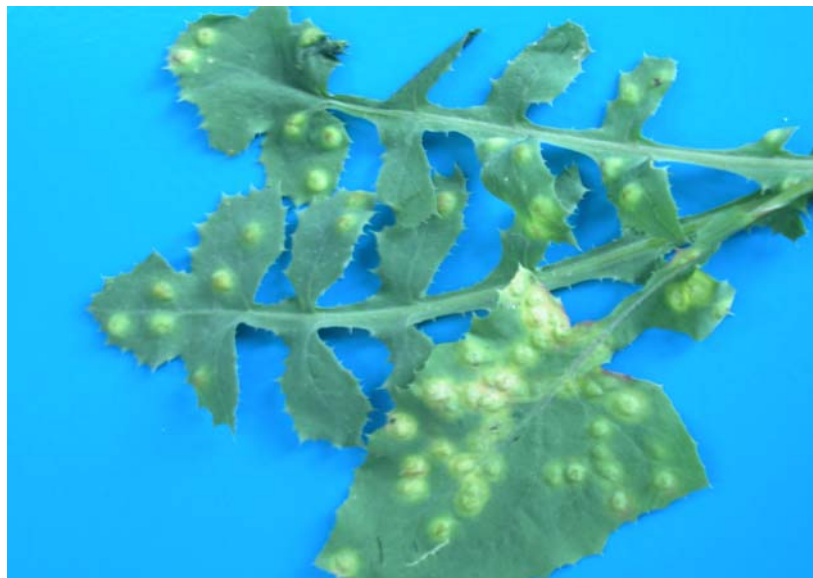


Figure 1. The galls of *Cystiphora sonchi* on the leaves of *Sonchus asper glaucescens*.

Distribution: Euro-Siberian (Skuhravá, 1986, 1997). Recently the galls of *C. sonchi* were found in Mediterranean Region, viz. in Mallorca (Skuhravá & Skuhravý, 2004), Malta (Skuhravá et al., 2002), Sardinia and Sicilia (Rizzo & Massa, 1998), Greece (Skuhravá & Skuhravý, 1997). It was reported from Asia: Siberia (Skuhravá & Skuhravý, 1993) and in Kazakhstan (Fedotova, 2000). *C. sonchi*

occurs also in North America where it was introduced from Europe and is at present used in the biological control of the noxious weed ***Sonchus arvensis*** (Peschken et al., 1989).



Figure 2. The larvae of ***Cystiphora sonchi*** on the leaves of ***Sonchus asper glaucescens*** (X20).



Figure 3. The pupate of ***Cystiphora sonchi*** inside galls on the leaves of ***Sonchus asper glaucescens*** (X20).

Dasineura gleditchiae (Osten Sacken, 1866)

Material examined: Ankara, 03.VI.2005, larvae, pupae from leaf galls on ***Gleditsia triacanthos***; 267 (156 females and 111 males) adults were reared from the samples.

Larvae of ***D. gleditchiae*** cause galls on leaflets of ***G. triacanthos***. It is a tree belonging to the family Caesalpiniaceae (some authors ranked it to Fabaceae or Leguminosae) which is widely spread in subtropical parts of Northern America. The tree was introduced in Europe and it occurs also in Turkey. It is found all around the parks and recreation areas in Ankara (Karamanoğlu, 1974; Oğuz & Erdoğan, 2002). The galls of ***D. gleditchiae*** was observed on this tree in large amounts in Ankara. The galls are formed of pod-like and swollen small leaflets on the youngest part of the branches. These small soft leaflets are suitable for egg-laying of females. Several larvae develop (1-5) inside per gall and 16-20 galls are observed on each leaflet. Larvae pupate in the galls. At first the galls are green and later change in to purple (Fig. 4). At the end, all attacked leaves and pod-like formations died and fall off. Top branches of the trees become mostly leafless and considerable damage occurs at the end of the growing season (Figs. 4, 5). ***D. gleditchiae*** has several overlapping generations in a year (Simova-Tošić & Skuhřavá, 1995).

D. gleditchiae is the new record for the ceccidomyiid fauna of Turkey and as well as for Asia.



Figure 4. Newly emerged female of ***Dasineura gleditchiae*** on the leaflets of ***Gleditsia triacanthos*** changed into galls (X20).



Figure 5. Young branches of *Gleditsia triacanthos* without leaflets as a result of the attack of *Dasineura gleditchiae*.

Distribution: *D. gleditchiae* is Nearctic species widespread in North America. It was introduced from several countries of Europe. The galls of *D. gleditchiae* were discovered in western Europe, in the Netherlands for the first time (Nijveldt, 1980). Since that time the galls of *D. gleditchiae* were recorded in several other countries (Simova-Tošić & Skuhrová, 1995; Skuhrová, 2004). In Central Europe, *D. gleditchiae* is considered to be an invasive species (Šefrová & Laštůvka, 2005).

Considering the number of the species, *Dasineura* is the largest genus of the family of Cecidomyiidae: 288 species are known in the Palaearctic Region (Skuhrová, 1986) and 448 species have been described in the world (Gagné, 2004). The galls of *D. gleditchiae* were found in Turkey as a result the list of this genus where six species in 2005 (Skuhrová et al., 2005) was enriched. *Cystiphora* is a small genus including only six species in the Palaearctic Region (Skuhrová, 1986) and only one native species in the Nearctic Region (Gagné, 2004). *C. sonchi* the galls of which were discovered in Ankara was the first record of this genus and species in Turkey. The number of gall midges of Turkey has reached to 73 species including the new records therefore further investigation should be carried out for the cecidomyiid fauna.

Özet

Cystiphora sonchi (Vallot, 1827) ve ***Dasineura gleditchiae*** (Osten Sacken, 1866) (Diptera: Cecidomyiidae), Türkiye'den iki yeni kayıt

Cystiphora sonchi (Vallot, 1827) ve ***Dasineura gleditchiae*** (Osten Sacken, 1866) olmak üzere iki cecidomyiid (Diptera) tür, sırasıyla ***Sonchus asper*** (L.) Hill. subsp. ***glaucescens*** (Jordan) Ball. (Compositae) ve ***Gleditsia triacanthos*** L. (Caesalpiniaceae) bitkileri üzerinden elde edilmiştir. Bitki örnekleri Ankara'dan toplanmış olup, her iki tür de Türkiye Cecidomyiidae faunası için yeni kayıttır.

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