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New records of two gall midge species (Diptera: Cecidomyiidae) from Armenia

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Abstract. The galls of *Obolodiplosis robiniae* (Haldeman, 1847) on leaves of *Robinia pseudoacacia* L. (Fabaceae) and *Dasineura gleditchiae* (Osten Sacken, 1866) on *Gleditchia triacanthos* L. (Fabaceae) were found in Armenia (Yerevan city). Both gall midge species are new members of the gall midge fauna of the country. At present the fauna the gall midges of Armenia includes 126 species. Both gall midges are Nearctic species which were unintentionally introduced into Europe. They may be considered as alien and invasive species.

Key words. Distribution, Diptera, Cecidomyiidae, Armenia, Palaearctic region.

INTRODUCTION

The first article of Armenian gall midge fauna (Mirumian 2011) has included 96 species. Recently, 2012–2020 (Mirumian & Skuhravá 2022), additional twenty eight species of phytophagous gall midges were recorded. This article is devoted to two gall midge species newly found in Armenia.

MATERIAL AND METHODS

Locations: Armenia, Yerevan, botanic garden, 1240 m a. s. l., 21 June 2021, leg. L. Mirumian (hand collection, galls with larvae *Dasineura gleditchiae*); Armenia, Yerevan, Avan, 1310 m a. s. l., 22 June 2021, leg. L. Mirumian (hand collection, galls with larvae *Obolodiplosis robiniae*).

The method of collecting is described in detail by Mamaev (1968).

RESULTS AND DISCUSSION

Faunal studies in Armenia in 2020 have discovered two gall midge speciesin the parks of capital city Yereven (botanic garden, Avan district): rolled margins of leaflets on *Robinia pseudoacacia* and swollen and folded leaflets of *Gleditchia triacanthos.* Galls on *Robinia pseudoacacia* were identified as *Obolodiplosis robiniae* and galls on *Gleditchia triacanthos* as *Dasineura gleditchiae*. The gall midge *Obolodiplosis robiniae* was recently found by Gubin (2021) in tree plantations of Dilijan, Armenia; the second species, *Dasineura gleditchiae*, is described in Armenia for the first time.

Larvae of *Obolodiplosis robiniae* cause galls on the leaflets of *Robinia pseudoacacia* in the form of rolled leaf margings (Fabaceae; Fig. 1a). The development from egg to larva and pupa lasts three-four weeks. During a vegetative season this species goes through several generations and spread quickly from one tree to another. It is a Nearctic species, unintentionally introduced into Europe. In Europe it is evaluated as an alien and invasive species. It is native to the eastern

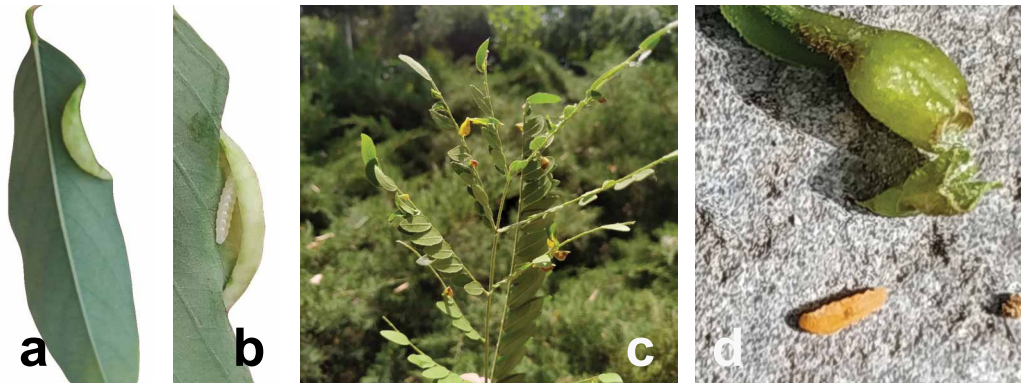

Fig. 1. a, b – *Obolodiplosis robiniae* (Haldeman, 1847) on *Robinia pseudoacacia* L.: a – galls, b – larva. c, d – *Dasineura gleditchiae* (Osten Sacken, 1866) on *Gleditsia triacanthos* L.: c – galls, d – larvae.

part of the North America. This species probably arrived in Europe with plant material imported from the USA. The galls appeared suddendly in the north-eastern Italy at Paese, Treviso Province in 2003, but the source of the infestation remains unknown. In 2004 the galls were found in large amount in northern Italy, Czech Republic, and Slovenia. As quick as four years the species has spread to several European countries; at present it occupies a large distribution area from England to Ukraine (Doneck) and from northern Germany to southern Italy. The galls of *O. robiniae* appeared suddendly also in Korea and Japan in 2002. The cause of its quick spread in Europe may be the active international traffic. Larvae may drop from galls and be transported over large distances. Adult midges may be transferred also by the wind due to their small size. Young seedlings from tree and shrub nurseries infected by the gall midge may be transported at new places. The high fecundity of the gall midge and the exponential growth rate of its population during the vegetative season also contributed to the rapid distribution of this species in Europe.

The galls of *O. robiniae* were found in the following countries: UK, Portugal, Spain, Sweden, Denmark, Netherlands, Belgium, Lucemburg, France, Italy, Switzerland, Luxembourg, Germany, Poland, Austria, Czech Republic, Slovakia, Hungary, Ukraine, Yugoslavia, Bulgaria, Latvia, Lithuania, Romania, Greece, Georgia (Skuhravá & Skuhravý 2016), Korea, and Japan (Skuhravá & Skuhravý 2020).

After 2015, the occurrence of *O. robiniae* galls rapidly fell. Recently it is very difficult to find the insect even in locations where it was very abundant earlier.

Larvae of *Dasineura gleditchiae* cause galls on the leaflets of *Gleditchia triacanthos* (Fabaceae; Fig. 1c). The attacked leaflet is swollen, folded andasquires a form of a pod. Several generations develop per year. Females lay eggs on the new foliage along the rachis or on the edges of developing leaf buds. Larvae hatch usually in two days. Young larvae crawl along the leaf and begin to feed. Only one larva develops in one small gall where it also pupates. After emergence of the adult midge from the gall, the leaf tissue dies and drops prematurely.

Dasineura gleditchiae is a North-American species, alien and invasive species in Europe. The galls were recorded in the following coutries: UK, Denmark, Sweden, Switzerland, Portugal, Spain, France, Netherlands, Belgium, Luxembourg, Germany, Poland, Austria, Hungary, Ukraine, Bulgaria, Greece, Italy, Serbia, Slovenia, Czech Republic, and Slovakia. This species reaches to

Georgia and Turkey (Skuhravá et al. 2013, Skuhravá & Skuhravý 2016). Galls were found also in Corsica (Skuhravá & Skuhravý 2020).

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