

**First record of the black locust gall midge,  
*Obolodiplosis robiniae* (Haldeman) (Diptera: Cecidomyiidae),  
in Romania**

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**Abstract.** The black locust gall midge, *Obolodiplosis robiniae* (Haldeman), and detailed data on the currently known distribution of the pest are reported for the first time from Romania. Its rapid spread throughout Europe means a potential threat for conspicuous damage to black locust. Parasitized gall midge larvae were also observed. On the basis of the morphological characters of the parasitized larvae, the parasitoid species is most likely *Platygaster robiniae*.

**Key words:** new pest, *Obolodiplosis robiniae*, parasitoid, *Platygaster robiniae*, Romanian fauna.

Several dipteran species expansions have been reported in a last few years (Gharali & Rimmer 2008, 2010). Black locust (*Robinia pseudacacia* L.) (Fabaceae) is native to the eastern part of North America. It was introduced to Europe at the beginning of the 17th century, and first planted in France around 1601 and Italy in 1622 (Pignatti 1982). Nowadays, the species is widely distributed throughout Europe. It is used for forestation, as an ornamental plant in parks and gardens, and it is also planted along roads. The natural distribution area of the black locust gall midge *Obolodiplosis robiniae* (Haldeman 1847) coincides with its host plant, *R. pseudoacacia* (Gagné 1989). The pest was first reported outside of its original distribution area from the Far East, China, Korea and Japan in 2002 (Kodoi et al. 2003). In Europe, the damage of the gall midge was first observed in Northern Italy in July 2003, more than 400 years after the introduction of black locust (Duso &

Skuhrová 2003). After its appearance, the pest started invading the continent; it was recorded in the Czech Republic (Skuhrová & Skuhrová 2005) and Slovenia (Duso et al. 2005) in 2004. Two years later, it was found in Croatia, Germany, (Skuhrová et al. 2007, Wehrmaker 2007), Hungary (Csóka 2006), Slovakia (Zúbrík et al. 2007) and the Ukraine (Berest & Titar 2007). The pest was reported from the Netherlands (Roskam et al. 2007), Switzerland (Wermelinger & Skuhrová 2007), Austria, France, Poland, Serbia and the UK (Skuhrová et al. 2007, Laguerre & Dauphin 2007) in 2007, Luxemburg (Schneider & Walisch 2009) and Sweden (Molnár et al. 2009) in 2008 and Denmark (Jørgensen 2009) in 2009. Further data on the distribution of the pest were given by Skuhrová et al. 2010. According to this publication *O. robiniae* is also present in Albania, Macedonia and Russia (Fig. 1).

In Romania the species was recorded for

the first time in 2007 from București (Ilfov county), then in 2009 from Ploiești (Prahova county) and Mărunțișu (Dâmbovița county) and in 2010 from Arad (Arad county) and Pitești (Argeș county) (Fig. 2). In Romania, the characteristic damage of the black locust gall midge was observed on *R. pseudoacacia* trees planted by the side of a road. On the basis of infested leaves collected and the different developmental stages found in the galls, the species could be identified unambiguously. For the identification the description given by Duso & Skuhrová (2003) was used. One female and four third instar larvae were deposited at the Department of Horticulture, Sapientia – Hungarian University of Transylvania, Romania. These are the first records of this species in Romania.



Figure 1. Spread of *Obolodiplosis robiniae* (Haldeman) in Europe.

The adults of *O. robiniae* are yellowish brown in colour, male 2.6-2.8 mm, female 3-3.2 mm long. The antennae in both sexes are 2+12 segmented. The larvae of the third instar (fully grown larvae) are pale yellow, with a long spatula sternalis on the ventral side of the prothoracic segment (Duso & Skuhrová 2003). Detailed description of the morphology of the black locust gall midge was given by Duso & Skuhrová (2003).

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Figure 2. Spread of *Obolodiplosis robiniae* (Haldeman) in Romania.

The life cycle of *O. robiniae* in North America was studied by Barnes (1951), while in Europe, Kodoi et al. (2003), Duso et al. (2005), Skuhrová & Skuhrový (2005) and Skuhrová et al. (2007) investigated the biology of the species. On the basis of data found in these studies, the life cycle of the pest may be summarized as follows. Several generations (2, 3 or even 4) of the gall midge may develop in a year depending on the climatic conditions. The number of generations is also affected by the fact that newly growing leaves may occur on black locust throughout the vegetation period, and the females oviposit on the young leaflets. Adults of the first generation might emerge soon after the frondescence of the host plant from the middle of May until the end of June or the beginning of July. Adults of the second generation fly from the beginning of July until August and the adults of the third generation from September to October. Larvae of the summer generations pupate in the galls on trees, while those of the autumn generation pupate in the soil after leaf fall.

According to our observations, the margins of *R. pseudoacacia* leaflets are rolled downwards by the feeding of larvae (Fig. 3) forming a characteristic leaf gall. Usually 1-2 larvae can be found in a gall and 1-2 galls per leaflet. Sometimes, galls are formed on all leaflets of a

leaf, both parts of the leaflet blade are rolled along the midrib and they turn dark green or reddish in colour. Infestations were observed on trees of different age.



Parasitized gall midge larvae were also observed in the collected material (Fig. 4). Comparing the morphological characters of these larvae with the descriptions found in the relevant literature (Skuhrová et al. 2007, Buhl & Duso 2008) it may be presumed that the parasitoid species is *Platygaster robiniae* (Hymenoptera: Platygasteridae). However, this must be confirmed by rearing and identification of adult wasps.

The significance of *O. robiniae* as a pest of *R. pseudoacacia* in Romania can not be surely established, but severe damage in the future is possible. In the 19th century, in Pennsylvania, North America, Haldeman (1847) observed a serious defoliation of *R. pseudoacacia* caused by this pest. The attacked trees looked as if they had been killed by dry weather (Fitch 1859). In the past, *O. robiniae* was common and occasionally injurious but currently the economic importance of the insect needs to be determined (Duso & Skuhrová 2003).

**Figure 3.** Damage caused by the larvae of the black locust gall midge (Photo: G. Véték).



**Figure 4.** A parasitized larva of the black locust gall midge (Photo: G. Véték).

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