

## **Biyolojik not (Biological note)**

# The Grapevine aphid, *Aphis illinoisensis* Shimer, 1866 (Hemiptera: Aphididae): An invasive pest in Isparta Province (Turkey)

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## **Summary**

Apterous and alate viviparous females of *Aphis illinoisensis* Shimer, 1866 (Hemiptera: Aphididae) were collected on grape, *Vitis vinifera* Linnaeus, 1758 in Isparta city at September, 2010. This is a new record for aphid fauna of Isparta Province. A key to the apterous females of aphid species known to infest grape in Turkey is provided.

**Key words:** Grapevine aphid, *Aphis illinoisensis*, grape, Isparta

**Anahtar sözcükler:** Bağ siyah yaprakbiti, *Aphis illinoisensis*, bağ, Isparta

## **Introduction**

The grape is one of the most important fruits that are widely grown in Turkey, where the vineyards comprise approximately 407,214 ha and produce a total of 3,448,157 tons of fruit per annum (Anonymous, 2008). Until our investigation *Aphis illinoisensis* Shimer, 1866 (Hemiptera: Aphididae) was recorded as an insect pest of grape in Adana, Hatay, İzmir, Kilis and Mersin provinces (Remaudière et al., 2003; Öztürk, 2007; Eser et al., 2008).

The grapevine aphid-*Aphis illinoisensis* is widespread in the USA, Central and South America (Blackman & Eastop, 2006). It was accidentally introduced to Turkey, Greece, Tunisia, Algeria, Montenegro and Israel (Remaudière et al., 2003; Tsitsipis et al., 2005; Kamel-Ben Halima & Mdellel, 2010; Laamari & Coeur d' Acier, 2010; Petrović-Obradović et al., 2010; Barjadze & Ben-Dov, 2011). In North America this aphid is a heteroecious holocyclic species, that migrates from the primary host - *Viburnum prunifolium* L. to the secondary hosts (species of several genera of Vitaceae including *Ampelocissus*, *Cissus*, *Parthenocissus*, *Vitis* (Baker, 1917; Blackman & Eastop, 2006), while in warmer climates and greenhouses it is probably anholocyclic (Blackman & Eastop, 2006). The grapevine aphid is a vector of Watermelon mosaic virus-2 (Webb et al., 1994).

## **Material and Methods**

Apterous and alate viviparous females were found on shoots and underside of leaves of *Vitis vinifera* Linnaeus, 1758 in Isparta city, 21 September 2010, coll. Sh. Barjadze; det. Sh. Barjadze. The aphids cleared

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and individually mounted in Canada balsam on microscope slides using J. Martin's technique (Martin, 1983). The specimens were studied using a Hirox microscope and each morphological character was measured by using special program software.

For aphid identification following literatures were used: Baker and Blackman and Eastop (Baker, 1917; Blackman & Eastop, 2006). Aphids slides are deposited at the Department of Plant Protection, Faculty of Agriculture, Süleyman Demirel University, Isparta, Turkey.

## Results

Our collected aphids were determined as *Aphis illinoisensis*. This is a new record from Isparta Province. This aphid can cause serious loss of the yield of the grape by mechanical injury, honeydew production and viral diseases transmission in Isparta Province in the future.

In addition, four aphid species, namely, *Aphis fabae* Scopoli, 1763, *Aphis gossypii* Glover, 1877, *Aphis solanella* Theobald, 1914 and *Viteus vitifoliae* (Fitch, 1855) was recorded as grape pest from Turkey (Bodenheimer & Swirski, 1957; Çanakçıoğlu, 1975; Özdemir, 2004).

The apterous females of aphid species which infest grape in Turkey can be distinguished from each other according to the following key:

1. Aphids live within leaf galls or on root; body pyriform or broadest anteriorly; antenna 3-segmented. Siphunculi absent.....***Viteus vitifoliae*** (Fitch, 1855)
- Aphids live on shoots, leaves and sometimes on fruit clusters; body not broadest anteriorly; antenna 6-segmented. Siphunculi present.....**2**
2. Hind tibia entirely black.....***Aphis illinoisensis*** Shimer, 1866
- Hind tibia pale on more than half its length.....**3**
3. Dorsal abdomen without dark markings anterior to siphunculi and without dark bands on ABD TERG VII-VIII. Cauda with 4-8 hairs.....***Aphis gossypii*** Glover, 1877
- Dorsal abdomen with dark markings anterior to siphunculi and with dark bands on ABD TERG VII-VIII. Cauda with 11-24 hairs.....**4**
4. Siphunculi 2.4-5.4 x longest marginal hairs on abdominal tergite I-III, 2.8-5.1 x their diameter at midlength and 0.8-1.6 cauda.....***Aphis fabae*** Scopoli, 1763
- Siphunculi 5.4-17 x longest marginal hairs on abdominal tergite I-III, 3.5-7.5 x their diameter at midlength and 1.3-1.9 cauda.....***Aphis solanella*** Theobald, 1914

## Özet

### Bağ siyah yaprakbiti, *Aphis illinoisensis* Shimer, 1866 (Hemiptera: Aphididae): Isparta (Türkiye) İli'nde önemli bir zararlı

*Aphis illinoisensis* Shimer, 1866 (Hemiptera: Aphididae)'in kanatlı ve kanatsız vivipar dişileri 2010 yılı Eylül ayında Isparta ilindeki bağ (*Vitis vinifera* Linnaeus, 1758) alanlarından toplanmıştır. Bu tür Isparta ili için yeni kayıt niteliğindedir. Bu çalışmada ayrıca Türkiye bağ alanlarında bulunan yaprakbiti türlerinin kanatsız dişilerine ait teşhis anahtarları verilmiştir.

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