

THE "ADASI" LACE BUG *URENTIUS EUONYMUS* DISTANT, 1909 (HEMIPTERA: HETEROPTERA: TINGIDAE) A NEW PEST ON *ALTHEA* SPP. (MALVACEAE) IN SOUTHEASTERN ANATOLIAN REGION OF TURKEY

Halil Bolu*, Hakan Çelik* and Nudem Kuştoğan*

* Dicle University, Faculty of Agriculture, Department of Plant Protection, TR 21280, Diyarbakır, TURKEY. E-mail: besni@dicle.edu.tr

[Bolu, H., Çelik, H. & Kuştoğan, N. 2019. The "Adasi" Lace Bug *Urentius euonymus* Distant, 1909 (Hemiptera: Heteroptera: Tingidae) a new pest on *Althea* spp. (Malvaceae) in Southeastern Anatolian Region of Turkey. Munis Entomology & Zoology, 14 (1): 265-269]

ABSTRACT: The present study was carried out in Diyarbakır (Kayapınar district) province in Southeastern Anatolian Region of Turkey between 2016 and 2017. Recently, nymphs of a lace bug were collected from the leaves of *Althaea* spp. (Malvaceae) in Diyarbakır province of Turkey during February-November 2016-2017 and were brought to the laboratory for rearing. The nymphs were reared at a temperature of 26±1°C, relative humidity of 65±5, and illumination of 3500 lux for 16 hours per day. *Urentius euonymus* Distant 1909, a new pest Lace Bug from Southern Anatolia of Turkey is reported. In addition to *Althaea officinalis* is the first host plant record for *Urentius euonymus* from Turkey.

KEY WORDS: *Urentius euonymus*, first record, Tingidae, Turkey

Asia, Middle East and Europe intersect at the point where Turkey has a rich natural diversity of flora and fauna due to the favorable geographical conditions and climate. There are more than 10,000 plant species in Turkey. Approximately 3,400 of these species are endemic (Özhatay et al., 2007).

There are many insect species that live in the Southeastern Anatolian Region and some of these species can cause significant damage to the plants cultivated economically and to plants growing in non-agricultural areas. Among these harmful species, the Tingidae family (Insecta: Hemiptera) has an important place (Lodos & Önder, 1983; Schaefer & Panizzi, 2000).

The family originated in the Middle Triassic, about 250 million years ago (Montagna et al., 2018).

Approximately 2600 species belonging to the Tingidae in the world, 77 species in Turkey and 44 species in the Eastern and Southeastern Anatolia regions have been identified (Guilbert, 2001; Önder et al., 2006). These species are delicate and their wings have special patterns in the form of a net, the length of which is usually less than 4 mm. The slowly moving insects are phytophagous in all developmental stages and they usually feed on the underside of leaves. They are of great importance because they have a wide range of hosts ranging from wild plants to cultivated plants, from forest trees to fruit trees and even to ornamental plants, and because they feed on plants in a wide range of plants. They live on the lower surfaces of the leaves and are fed by sucking the plant juice by sinking stylets to the parenchyma tissue.

White stains are formed at the places where these insects are sucked and sucked, and the foliage that comes in before them is poured before the time, thus weakening the plants and causing significant yield losses.

Teeth often leave their eggs in plant tissues. Some species cause gall formation in plants. They usually pass winter to mature. (Bodenheimer, 1958; Nizamlioğlu, 1961; Göksu, 1964; Drake & Ruhoff, 1965; Péricart, 1983; Lodos & Önder, 1983;

Lodos, 1989; Gülperçin & Önder, 1999; Neal & Schaefer, 2000; Schaefer & Panizzi, 2000; Guilbert, 2001; Demirsoy, 2006). Many studies have been carried out on species belonging to this family in Turkey (Göksu, 1964; Lodos & Önder, 1983; Maçan, 1986; Bolu, 2002, 2007; Bolu et al., 2007; Aysal & Kivan, 2007, 2008; Maral et al., 2012).

The current survey is aims to increase the knowledge on the biodiversity of tingid species.

MATERIAL AND METHODS

The present study was carried out in Diyarbakır (Kayapınar district) province in Southeastern Anatolia Region of Turkey between 2016 and 2017. Recently, nymphs of a lace bug were collected from the leafs of *Althaea officinalis* L. (Malvaceae) in Diyarbakır province of Turkey during February-November 2016-2017 and were brought to the laboratory for rearing (Fig. 1). The nymphs were reared at a temperature of $26\pm 1^{\circ}\text{C}$, relative humidity of 65 ± 5 , and illumination of 3500 lux for 16 hours per day.

Urentius euonymus identification was made by Dr. Paride Dioli (Natural History Museum, Milano-Italy, Department of Entomology, Milano-Italy).

RESULTS AND DISCUSSION

As a result of this study, the following 1 species of Lace bugs *Urentius euonymus* was obtained (Fig. 2). *Urentius euonymus* is a first record for the fauna of Turkey.

According to Drake & Ruhoff (1965) this pest was classified as follows:

Phyla Arthropoda (Arthropods)
Subphyla Hexapoda (Hexapods)
Class Insecta (Insects)
Order Hemiptera (True Bugs, Cicadas, Hoppers, Aphids and Allies)
Suborder Heteroptera (True Bugs)
Superfamily Miroidea (Tingioidea)
Family Tingidae (Lace Bugs)
Subfamily Tinginae Laporte

Urentius euonymus Distant, 1909

Synonyms: *Urentius abutilinus* Priesner & Alfieri

Urentius maculatus Drake

Urentius hoggari Bergevin

Urentius nanus Bergroth

Prionostirina nana Schumacher

Material examined: 20♀♀, 20♂♂; 15.VI.2016 (Multiple samples), Locality: Diyarbakır (Kayapınar district) ($37^{\circ}57.434'N$, $40^{\circ}10.410'E$, at altitude of about 751 m, $37^{\circ}57.485'N$, $40^{\circ}10.560'E$, at altitude of about 747 m), 10♀♀, 10♂♂; 30.10.2017 (Multiple samples), Locality: Diyarbakır (Kayapınar district) ($37^{\circ}57.463'N$, $40^{\circ}10.587'E$, at altitude of about 740 m).

Distribution in World: Egypt, Algeria, Iraq, Israel, Sinai, Saudi Arabia, India, Sri Lanka, Kenya, Sudan (Satti, 2003).

Distribution in Turkey: It is the first record for the fauna of Turkey.

Records of Host plants: *Cajanus cajan* (L.) Huth., *Rhynchosia memnonia* (Del.) DC. (Fabaceae); *Abutilon* spp., *Sida alba* L. (Malvaceae); *Chrozophora plicata* (Vahl.) (Euphorbiaceae) (Satti, 2003).

New record of host plant in Turkey: *Althaea* spp. (Malvaceae).

Description.

Adult: The male bug is smaller than the female. Oval to elongate, average 2.2 long and 1 mm broad (female), average 2.0 mm long and 0.9 mm broad. Legs light brown (coxa, trochanter and femur) to yellowish (tibia and tarsus). Compound eyes are prominent and reddish Brown in colour. Antennae, yellowish, have four segments with the third segment being rather long and the fourth one enlarged (clavate) (Figs. 3, 4). They are as long as the thorax.

This tingid species is also rare in the world. Finding Turkey is very important in terms of biodiversity. For this species of tingid a new record for Turkey: It is thought that this tingid species needs to be examined in detail in order to determine the biology, distribution and ecology of the different hosts and to study the relationship with natural enemies in the future.

ACKNOWLEDGEMENTS

The authors thank for the identification of *Urentius euonymus* to Dr. Paride Dioli (Natural History Museum, Milano-Italy, Department of Entomology, Milano-Italy).

LITERATURE CITED

- Aysal, T. & Kıvanç, M. 2007. Armut Kaplanı *Stephanitis pyri* (F.) üzerine bazı konukçu bitkilerin etkileri. Türkiye II. Bitki Koruma Kongresi Bildirileri, 27-29 Ağustos 2007, Isparta, s. 342.
- Aysal, T. & Kıvanç, M. 2008. Development and population growth of *Stephanitis pyri* (F.) (Heteroptera: Tingidae) at five temperatures. Journal of Pest Science, 81 (3): 135-141.
- Bodenheimer, F. S. 1958. Türkiye’de ziraate ve ağaçlara zararlı olan böcekler ve bunlarla savaş hakkında bir etüt. Bayur Matbaası, Ankara, 346.
- Bolu, H. 2002. Güneydoğu Anadolu Bölgesi antepfıstığı alanlarındaki böcek ve akar faunasının saptanması. Türkiye Entomoloji Dergisi, 26 (3): 197-208.
- Bolu, H. 2007. Population dynamics of Lacebugs (Heteroptera: Tingidae) and its natural enemies in almond orchards of Turkey. Journal of the Entomological Research Society, 9 (1): 33-37.
- Bolu, H., Özgen, I., Bayram, A. & Çınar, M. 2007. Güneydoğu Anadolu ve Doğu Anadolu Bölgelerinde antepfıstığı, badem ve kiraz bahçelerindeki avcı Coccinellidae türleri, yayılış alanları ve avları. Harran Üniversitesi Ziraat Fakültesi Dergisi, 11 (1/2): 39-47.
- Demirsoy, A. 2006. Yaşamın Temel Kuralları (Omurgasızlar-Böcekler) (Cilt- II /Kısım- II). Meteksan Yayınları, Ankara, 945.
- Drake, C. J. & Ruhoff, F. A. 1965. Lacebugs of the World (A Catalog) (Hemiptera: Tingidae). Smithsonian Institution, Washington, p. 634.
- Göksu, M. E. 1964. Sakarya ve Kocaeli Bölgeleri Meyve Ağaçlarında Zarar Yapan Armut Kaplanının (*Stephanitis pyri* Fabr.) Biyolojisi ve Mücadelesi Üzerinde Araştırmalar. T.C. Tarım Bakanlığı Göztepe Zirai Mücadele Enstitüsü Yayınları, İstanbul, s. 58.
- Guilbert, E. 2001. Phylogeny and evolution of exaggerated traits among the Tingidae (Cimicomorpha, Heteroptera). Zoolica Scripta, 30: 313-324.
- Gülperçin, N. & Önder, F. 1999. Bornova koşullarında *Stephanitis pyri* (F.)’nin biyolojisi ve doğal düşmanları üzerinde çalışmalar. Türkiye Entomoloji Dergisi, 23 (1): 51-56.
- Lodos, N. & Önder, F. 1983. Preliminary List of Tingidae with Notes on Distribution and Importance of Species in Turkey. Ege Üniversitesi Ziraat Fakültesi Yayınları, No: 449, İzmir. s. 51.
- Lodos, N. 1989. Türkiye Entomolojisi II (Genel, Uygulamalı ve Faunistik). Ege Üniversitesi Ziraat Fakültesi Yayınları, No: 429, İzmir, s. 580.
- Maçan, G. 1986. Güneydoğu Anadolu Bölgesinde Bademlerde Zarar Yapan Böcek Türleri, Önemlerinin Tanınmaları, Yayılışları ve Ekonomik Önemleri Üzerinde Araştırmalar. Tarım Orman ve Köyişleri Bakanlığı Diyarbakır Bölge Zirai Mücadele Araştırma Enstitüsü Müdürlüğü, Araştırma Eserleri Serisi No:5, Ankara, s. 82.
- Maral, H., Ulusoy, M. R. & Bolu, H. 2012. Diyarbakır, Mardin ve Elazığ İllerinde Tarım ve Tarım Dışı Alanlardaki Ağaçlarda Bulunan Tingidae (Hemiptera) Türleri. Ç.Ü Fen ve Mühendislik Bilimleri Dergisi, 28 (1): 155-164.
- Montagna, M., Strada, L., Dioli, P. & Tintori, A. 2018. The Middle Triassic lagerstätten of Monte San Giorgio reveals the oldest lace bugs (Hemiptera: Tingidae): Archetingis ladinicca gen. n. sp. n. Rivista Italiana Paleontologia e Stratigrafia, 124 (1): 35-44.
- Neal, J. W. & Schaefer, C. W. 2000. Lace Bugs (Tingidae)-In: Schaefer C.W. & A.R. Panizzi (Eds), Heteroptera of economic importance. CRC Press, Boca Raton, London, New York, Washington, D.C.: 85-137.
- Nizamhoğlu, K. 1961. Türkiye Ziraatında Zararlı Olan Böcekler ve Mücadelesi. Zirai Mücadele Enstitüsü, İstanbul, 1-11, 510.

- Özhatay, N., Byfield, A. & Atay, S. 2007. Türkiye'nin 122 Önemli Bitki Alanı, Doğal Hayatı Koruma Vakfı, İstanbul, s. 476.
- Péricart, J. 1983. Hémiptères Tingidae Euro-Méditerranéens. Fédération Française des Sociétés de Sciences Naturelles, Faune de France, 69: 626.
- Satti, A. A. 2003. Ecological Studies on Lace Bugs (Hemiptera: Tingidae) on Their Major Host Plants in Khartoum State. Department of Crop Protection, Faculty of Agriculture, University of Khartoum. Doctor Thesis, s. 198.
- Schaefer, W. C. & Panizzi, A. R. 2000. Heteroptera of Economic importance. Boca Raton, FL: CRC Press, LLC, p. 824.



Figure 1. *Urentius euonymus* nymph's stages.



Figure 2. *Urentius euonymus* adult (female ♀) stage.



Figure 3. The appearance dorsal and ventral of adult female (♀) of *Urentius euonymus*.



Figure 4. The appearance dorsal and ventral of adult male (♂) stages of *Urentius euonymus*.