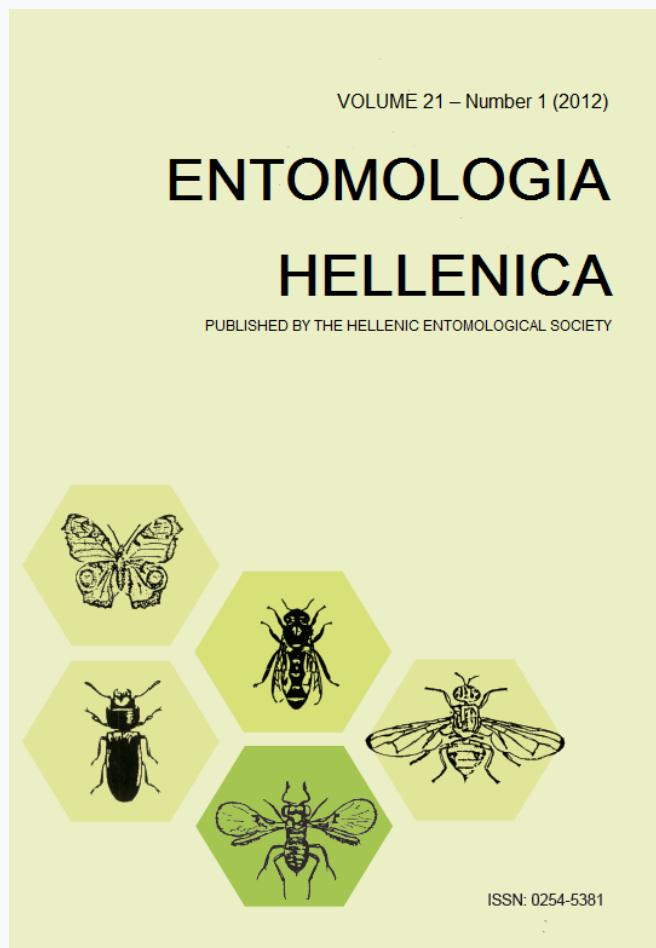


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## First record of *Siphoninus phillyreae* on pomegranate in Greece

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### ABSTRACT

On June 2012, the ash whitefly *Siphoninus phillyreae* (Haliday) (Hemiptera: Aleyrodidae) was recorded for the first time on pomegranate in Greece. Its occurrence was observed in a pomegranate orchard at Kato Tithorea, in Fthiotida. Information on its morphology, biology and distribution is presented.

KEY WORDS: Aleyrodidae, ash whitefly, first record.

Pomegranate is one of the oldest fruit species cultivated in Greece, known since the prehistoric years. The main cultivation places were mainly the Aegean islands (Chios, Lesvos, Samos, Rhodos, Kalymnos, Kos), Crete, Peloponnese (Argos, Astros), Central Greece (Lamia) and Macedonia (Veria, Edessa, Pella) (Pontikis 1987). After 2007, cultivation was expanded in new areas (Thessaloniki, Serres, Kavala, Rodopi etc.). Nowadays, the estimated total area with pomegranate orchards is about 1.500 ha (Drogoudi et al. 2012). Fruits can be found in the fresh market, or processed as spice or medical herb (Lionakis and Lidakis 2004, Lionakis 2005).

Known insect pests of pomegranate in Greece include the pomegranate aphid, *Aphis punicae* (Hemiptera: Aphididae), the grape cane borer beetle, *Amphicerus bimaculatus* (Coleoptera: Bostrichidae), the flatheaded woodborer, *Capnodis tenebrionis*

(Coleoptera: Buprestidae) and the woolly whitefly, *Aleurothrixus floccosus* (Hemiprera: Aleyrodidae) (Drogoudi et al. 2012).

The aim of the present study was to report the first record of the ash whitefly, *Siphoninus phillyreae* (Haliday) (Hemiptera: Aleyrodidae) on pomegranate in Greece. The infested pomegranate trees (cv. 'Wonderful') were located in an orchard near Kato Tithorea at Fthiotida Region, Central Greece on June 15th 2012 (Fig. 1). Identification of the specimens was made as described by Mound (1966).

The ash whitefly is a widely distributed insect pest. It occurs in Africa (Cameroon, Egypt, Ethiopia, Libya, Morocco, Sudan, South Africa, Tunisia), Asia (India, Iran, Israel, Japan, Pakistan, Saudi Arabia, Syria, Turkey), the Americas (Argentina, Chile, Mexico, U.S.A., Venezuela), Australia and in Europe (Austria, Bulgaria, Corsica, Czech



FIG. 1. Pomegranate leaves infested by *S. phillyreae*.



FIG. 2. Adult of *S. phillyreae*.



FIG. 3. Nymphs of *S. phillyreae* producing wax in the central strip on their dorsal surface. A characteristic dark brown spot is visible in the anal area.



FIG. 4. Colony of *S. phillyreae* with honeydew excretions on pomegranate leaf.

Republic, Cyprus, England, France, Germany, Hungary, Ireland, Italy, Poland, Romania, Spain) (Nguyen and Hamon 2011, CABI 2012). In Greece it has been referred in the past as a pest causing severe damage on pear (Costacos 1963).

*Siphoninus phillyreae* is polyphagous, feeding on plants belonging to more than ten families. It is generally associated with Oleaceae (*Fraxinus*, *Olea*, *Phillyrea*), Rosaceae (*Crataegus*, *Cydonia*, *Malus*, *Prunus*, *Pyrus*), Rutaceae (*Citrus*), Punicaceae (*Punica*) (Mound and Halsey 1978, Bellows et al. 1990, Sorensen et al. 1990).

High density whitefly populations can damage the host plant, with symptoms including chlorosis of leaves (Priesner and Hosny 1932), premature defoliation (Priesner and Hosny 1932, Costacos 1963), and reduced fruit size (Costacos 1963).

In California initially produced numerous generations per year (Nguyen and Hamon 2011), whereas only two to three generations were reported in Egypt (Priesner and Hosny 1932).

The adult whitefly has a light dusting of white wax on the wings and the body (Fig. 2). Winged females lay eggs on the underside of the leaves. When the nymphs emerge, they rarely move far and feed on the plant sap until pupation (Gillespie 2000). The vasiform orifice is surrounded by dark brown derma (inner, thicker layer of the cuticle) with the anal area appearing as a dark brown spot (Fig. 3). Lateral areas of the pupal case are light beige. Depending on the age, lesser or greater amounts of white wax will be present, due to the two longitudinal tufts of white wax on the pupal case, which makes the formatted colonies similar to snow scales (Fig. 3). The dorsal surface has numerous long, glassy tubercles which produce a droplet of glassy wax. The pupal case size is 0.8 to 1.0 mm long by 0.55 to 0.7 mm wide and is tan or beige in color (Mound 1966, Stocks and Hodges 2010).

The occurrence of *S. phillyreae* on infested leaves is detected by the spots of

honeydew covering the leaves (Fig. 4), as well as by the sooty mould fungi which quickly covers the honeydew. In cases of heavy infestation, the honeydew and sooty mould may cover the whole aerial part of the plant.

Several natural enemies are referred that can control the ash whitefly population under economic thresholds. These natural enemies include predators (*Clitostethus arcuatus* (Rossi), *Menochilus sexmaculatus* (Fabricius), *Scymnus pallidivestis* Mulsant) (Coleoptera: Coccinellidae) and parasitoids (*Coccophagus eleaphilus* Silvestri, *Encarsia inaron* (Walker), *E. partenopea* Masi, *E. formosa* Gahan, *E. galilea* Rivnay, *E. punicae* Hayat, *E. pseudopartenopea* Viggiani and Mazzone, *E. siphonini* Silvestri, *Eretmocerus corni* Haldeman, *E. siphonini* Viggiani and Battaglia) (Hymenoptera: Aphelinidae) (Stocks and Hodges 2010).

Outbreaks of *S. phillyreae* seem to occur only when natural enemies are disrupted by insecticide applications (Tremblay 1969, 1973) or when it is introduced into previously uninfested areas.

## References

Bellows, T.S., T.D. Paine, K.Y. Arakawa, C. Meisenbacher, P. Leddy and J. Kabashima. 1990. Biological control sought for ash whitefly. California Agric. 44: 4-6.

CABI. 2012. Invasive Species Compendium. [Internet]. Available from <http://www.cabi.org/isc/?compid=5&dsid=51036&loadmodule=datasheet&page=481&site=144> .

Costacos, T.A. 1963. [On a severe attack by *Siphoninus phillyreae* Haliday subsp. *inequalis* Gautier on fruit trees and its control.] Geponika 105: 3-7 [in Greek].

Drogoudi, P., M. Vassilakakis, Th. Thomidis, E. Navrozidis and G. Pantelidis. 2012. Handbook on cultivation of pomegranate. NAGREF,

Naoussa, Greece, 32pp. (in Greek).

Gillespie, P.S. 2000. A new whitefly for NSW - The ash whitefly. NSW Agriculture. [Internet]. Available from <http://www.agric.nsw.gov.au/Hort/ascu/insects/ashwf.htm>.

Lionakis, S.M. 1995. Present status and future prospects of the cultivation in Greece of the plants: fig, loquat, Japanese persimmon, pomegranate and Barbary fig. In: Llácer G., Aksoy U. and Mars M. (eds). Underutilized fruit crops in the Mediterranean region. Zaragoza: CIHEAM-IAMZ, 1995. Zaragoza (Spain), pp. 21-30.

Lionakis, S.M. and D. Lidakis. 2004. Development of plants qualitative characteristics of fruits belonging to Pomegranate genotype. Proc. 21<sup>st</sup> Conf. Greek Society of Science of Vegetables, 8-10 October 2003, Ioannina, pp. 249-263.

Mound, L.A. 1966. A revision of the British Aleyrodidae (Hemiptera: Homoptera). Bull. Br. Mus. Nat. Hist. Entomol. 17: 419-420.

Mound, L.A. and S.H. Halsey. 1978. Whitefly of the world. A systematic catalogue of the Aleyrodidae (Homoptera) with host plant and natural enemy data. Chichester, UK: John Wiley and Sons.

Nguyen, R. and A.B. Hamon. 2011. Ash Whitefly, *Siphoninus phillyreae* (Haliday) (Insecta: Hemiptera: Aleyrodidae: Aleyrodinae)[Internet]. 2001-2011. University of Florida Cooperative Extension Service, IFAS, Gainesville, FL, USA. Available from: <http://edis.ifas.ufl.edu/in304>.

Pontikis, K. 1987. Fruit Crops. Agricultural University of Athens. Greece.

Priesner, H. and M. Hosny. 1932. Contribution to a knowledge of the White Flies (Aleyrodidae) of Egypt (I). Cairo, Egypt: Bull. Minist. Agric. Egypt, tecn. and scient. Serv, Government Press.

Sorensen, J.T., R.T. Gill, R.V. Dowell and R.W. Garrison. 1990. The introduction of *Siphoninus phillyreae* (Haliday) (Homoptera: Aleyrodidae) into North America: niche competition, evolution of host plant acceptance, and a prediction of its potential range in the Nearctic. Pan-Pac. Entomol. 66: 43-54.

Stocks, I. and G. Hodges. 2010. Ash whitefly, *Siphoninus phillyreae* (Haliday), a new exotic whitefly (Hemiptera: Aleyrodidae) in central Florida, and *Encarsia inaron*, its parasitoid (Hymenoptera: Aphelinidae). Division of Plant Industry. [Internet]. Available from [http://www.freshfromflorida.com/pi/pest\\_alerts/pdf/ash-whitefly-pest-alert.pdf](http://www.freshfromflorida.com/pi/pest_alerts/pdf/ash-whitefly-pest-alert.pdf)

Tremblay, E. 1969. The control of *Siphoninus phillyreae* (Haliday) in Campania. Studies of the working party of the C.N.R. for integrated control of the animal pests of plants: XL. Boll. Lab. Entomol. Agrar. Filippo Silvestri 27: 161-176 [in Italian].

Tremblay, E. 1973. Principi di lotta chimica razionale ai fitofage. Nora Divulgative, Instituto di Entomologia Agraria della Universita di Napoli, 6: 15pp. [in Italian].

## Πρώτη καταγραφή του *Siphoninus phillyreae* σε ροδιά στην Ελλάδα

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### ΠΕΡΙΛΗΨΗ

Στην παρούσα εργασία γίνεται η πρώτη καταγραφή του είδους *Siphoninus phillyreae* (Haliday) (Hemiptera: Aleyrodidae) επί της ροδιάς στην Ελλάδα. Η παρουσία του είδους αυτού διαπιστώθηκε από δειγματοληψία που πραγματοποιήθηκε τον Ιούνιο του 2012 σε οπωρώνα με ροδιές στην Κάτω Τιθορέα Φθιώτιδας. Δίδονται πληροφορίες σχετικά με τα μορφολογικά και βιολογικά χαρακτηριστικά, όπως και για την εξάπλωση του εντόμου.