Twenty Three Aphid Species New to the Greek Aphidofauna Caught in Yellow Water Traps in Tobacco Fields

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ABSTRACT

Aphid species abundance was studied by means of yellow Moericke water traps in several tobacco fields in two tobacco growing areas, Aitoloakarnania and Pieria, Greece. In 1992, from alate catches, in three different localities in Aitoloakarnania, a total number of 69, 40 and 31 taxa were caught and identified. Five of them are new records for the Greek aphidofauna. In 1993, from the traps established near Agrinio and in Nea Ephessos, Pieria, a total number of 55 and 139 aphid taxa were caught and identified. Twenty one of them aphid species are new records for Greece of which 3 had been already recorded in the previous year. In total, 23 aphid species recorded for the first time in Greece are presented in this work.

Introduction

Fewer aphids are recorded from Greece than some other mediterranean or neighbouring countries. The lists of Remaudiere (1982) and Lykouressis and Tsitsipis (1987) included 133 species. Three more species were recorded by Panayotou and Katis (1986), Katsoyannos et al. (1989) and Lykouressis and Polatsidis (1990), whilst recently, in the known list of 136 species another 20 new species were added by Lykouressis et al. (1992).

Although the number of aphid species found in Greece is increasing, further efforts must be made to document the aphid fauna. Information on the spatial distribution of the various aphid species and their abundance over Greece is desirable. Since aphids are one of the major group of insect pests, the knowledge of the species and their bioecology is necessary elements for a better understanding of the direct and indirect damages they cause. These data are basic to aphid population management.

Therefore, following our previous efforts, in the present study new records of aphid species are documented. These species were caught in Moericke traps as part of a major project aimed at the study of bioecology and control of some of the most injurious aphid species occurring in Greece.

Materials and Methods

Moericke type water traps (Moericke 1951) were used to capture alate aphids. They were square steel trays (60 x 60 x 10 cm) similar to those used by Robert and Rouze-Jouan (1978) and painted yellow inside (with 580 nm reflectance). In 1992, three
TABLE 1. New records of aphid species caught in Moericke traps placed in tobacco fields in three different locations in the County of Aitoloakarnania in 1992

<table>
<thead>
<tr>
<th>SPECIES</th>
<th>Agrinio Presence</th>
<th>Dates</th>
<th>Total no. of alates</th>
<th>Sfina Presence</th>
<th>Dates</th>
<th>Total no. of alates</th>
<th>Kerasovo Presence</th>
<th>Dates</th>
<th>Total no. of alates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Acyrthosiphon malvae* (Mosley)</td>
<td>+</td>
<td>25/4, 11/5</td>
<td>3</td>
<td>+</td>
<td>17/7</td>
<td>1</td>
<td>+</td>
<td>22/4</td>
<td>1</td>
</tr>
<tr>
<td>2 Capitophorus hippophaes (Walker)</td>
<td>+</td>
<td>29/6</td>
<td>1</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Lipaphis lepidii (Nevsky)</td>
<td>+</td>
<td>4/5</td>
<td>1</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Aulacorthum palustre* (Del Guercio)</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Neotrama caudata</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Tentative identification of numbers of species complexes not previously recorded from Greece.

Results and Discussion

In 1992, during the period in which the traps were placed in three different tobacco fields located near Agrinio, Sfina and Kerasovo in Co. Aitoloakarnania, Western Greece. In Agrinio, the trap was positioned on April 13 and remained till July 23, whilst in Sfina and Kerasovo the traps were set up on April 13 and remained till July 17. In 1993, three traps were also placed in a tobacco field near Agrinio, and three in another tobacco field located in Nea Ephessos Co. Pieria in Macedonia. Traps were placed in Agrinio on April 17 and remained till August 26. The main crops in the areas where traps were placed in Aitoloakarnania, were tobacco, olives, corn, lucerne and citrus whilst in the area of Nea Ephessos in Pieria were tobacco, cereals, potato and beans.

The traps were placed inside the tobacco fields between rows, each on a metal base 70 cm from the ground. The traps were inspected twice a week and all insects collected. In each trap, a few drops of detergent were added to facilitate retention of aphids. Aphids were separated from the other insects and stored in appropriate size plastic vials containing preserving fluid (2 volumes of ethyl alcohol 90-95% and 1 volume lactic acid 75% W/W) (Eastop and van Emden 1972).


From the traps established in 1993, the total number of taxa of alate aphids, which were caught and identified, amounted to 55 and 139 in the Agrinio and Nea Ephessos area, respectively. From those catches, 21 aphid species are new records to the Greek aphidofauna of which Acyrthosiphon malvae, Capitophorus hippophaes and Lipaphis lepidii had been already recorded from the catches of the previous year. Consequently, the new records of aphid species for Greece are 23 from the results of alate monitoring in both years.

The newly recorded species, during 1993, are shown in Table 2 in which the dates of alate catches and the total number of aphids caught in the traps are shown.

Most of these species were caught in very low numbers. A few like Acyrthosiphon malvae, Anaphorophora rubi and C. hippophaes appeared in moderate numbers and only Phorodon humuli in the area of Nea Ephessos, in Macedonia, was numerous and showed a continuous flight from early to late May.

Neotrama caudata was found only once in 1992 (Table 1). This species develops on roots of Compositae like Lactuca sativa, Sonchus asper, Sonchus oleraceus, Taraxacum officinale etc. It is encountered only in Europe, and it reproduces anchalocyclically producing alate throughout the year but most in autumn (Eastop 1985).

A. rubi showed a flight during May 1993 (Table 2). It develops on wild and cultivated blackberries (Blackman and Eastop 1985). In Greece, plants of Rubus are quite common in
hedges of fields and uncultivated pieces of land.

C. hippocastani showed a long lasting flight from May to the end of August (Table 2). This aphid develops populations, on Elaeagnus spp. and Hippophae spp. in spring, and later alates migrate on Polygonum species where they develop populations, on Elaeagnus and Hippophae and lay winter eggs (Hill Ris Lambers 1953).

Chaetophorus populalis was found in May, July and August 1993 in low numbers. It occurs in the Palaearctic region, in north, west and southern Africa, and has been introduced and is widespread in North America. It develops small colonies usually on the undersides of leaves of various Populus spp. Oviparae and both apterous and alate males occur in September-November (Eastop 1994).

Hydaphis foeniculi was recorded from May to July 1993. It is a cosmopolitan aphid occurring in Europe and other parts of the world and a vector of about 12 viruses such as celery crinkle leaf mosaic, celery mosaic and celery yellow spot. It is heteroecious holocyclic species, migrating from Lonicera to species of Umbelliferae on which it forms colonies in the flower heads. A few alates of Myzus cerasi were recorded only in May 1993. This species occurs in Europe and other parts of the world, and is able to transmit wilt and decline disease of cherries as well as other viruses (Blackman and Eastop 1985). It is a heteroecious holocyclic species having as primary hosts Prunus cerasus, P. avium and sometimes other Prunus and as secondary hosts species in Rubiaceae, Scrophulariaceae and Cruciferae (Gallium, Veronica, Capsella, Cardamine, Lepidium).

Ph. humuli was the most numerous among the new record species and showed a continuous flight from the end of April till the end of August in Nea Ephessos. This species occurs in Europe, Central Asia and North America, and is a vector of hop mosaic and hop split leaf blotch viruses as well as other viruses (Blackman and Eastop 1985). Primary hosts are species of Prunus and the secondary host is Humulus lupulus.

The most numerous species caught in the traps near Agrinio were M. persicae, Acyrthosiphon pisum (Harris), A. craccivora and Theroaphis trifolii (Monell).

In the area of Nea Ephessos the most numerous species were A. gossypii, M. persicae, Ph. hu-
There were more aphid species in Pieria than Aitoloakarnania. This is probably due to the greater diversity of crops and to more favourable conditions for aphid development and reproduction for a longer period of the year.

Acknowledgement

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References


Είκοσι Τρεις Νέες Καταγραφές Ειδών Αφίδων που Συνελήφθησαν σε Παγίδες Moericke Τοποθετημένες σε Φυτείες Καπνού στην Ελλάδα

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ΠΕΡΙΛΗΨΗ

Η αφθονία των ειδών αφίδων σε διάφορες φυτείες καπνού μελετήθηκε με τη βοήθεια κίτρινων παγίδων νερού τύπου Moericke. Το 1992, από μία παγίδα τοποθετήθηκε σε τρεις φυτείες καπνού στις περιοχές Αγρίνιο, Σφήνα και Κεράσοβο στην Αιτωλοακαρνανία. Το 1993, από τρεις παγίδες τοποθετήθηκαν σε φυτείες καπνού κοντά στο Αγρίνιο και στη Νέα Έφεσσα Πιερίας. Τα τόξα που συνελήφθησαν στις παγίδες στις περιοχές Αγρίνιο, Σφήνα και Κεράσοβο ανήλθαν στον αριθμό 69, 40 και 31 αντίστοιχα. Από αυτά, τα 5 είδη αφίδων είναι νέες καταγραφές. Το 1993, από τις παγίδες που είχαν τοποθετηθεί σε φυτεία καπνού πλησίον του Αγρινίου και από αυτές στη Νέα Έφεσσο Πιερίας συνελήφθησαν συνολικά 55 και 139 είδη αφίδων αντίστοιχα. Εξ αυτόν 21 είναι νέες καταγραφές για την Ελλάδα και σε αυτά περιλαμβάνονται 3 τα οποία ήδη είχαν σημειωθεί από τις συλλήψεις του προηγούμενου έτους. Ετσι, το σύνολο των νέων καταγραφών από τη μελέτη αυτή ανέρχεται σε 23. Η πλειοψηφία των ειδών αυτών εμφανίστηκε με πολύ μικρούς αριθμούς, λίγα με μέτριους και μόνο το Phorodon humuli (Schrank) συνελήφθη σε μεγάλους αριθμούς στις παγίδες στη Νέα Έφεσσο Πιερίας.