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Aphids and Their Predators in Malatya Region and Around, Turkey

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Abstract: Aphid and their predators of cultivated and noncultivated areas of Malatya Province, in east Anatolia, Turkey, were surveyed between 2000 and 2002. In this study, the 34 aphid species identified were found. Among these, *Aphis craccivora* Koch, *Hyalopterus pruni* (Geoffroy) *Myzus cerasi* (Fabricius) and *Myzus persicae* (Sulzer) were the most common species. A total of 29 species were detected as natural enemies of aphids. One species Neuroptera, one species Dermaptera, two species Hemiptera, sixteen species from Coleoptera, nine from Diptera were found as predators. Among the species *Chrysoperla carnea* Stephan (Neuroptera: Chrysopidae), *Forficula auricularia* L. (Dermaptera: Forficulidae), *Coccinella septempunctata* L. (Coleoptera: Coccinellidae), *Episyrphus baltaetus* De Geer (Diptera: Syrphidae) were the most common species.

Key words: Malatya, aphid, predator, survey, Turkey

INTRODUCTION

Aphids are the most important pests of agricultural and horticultural worldwide, damaging plants by sucking plant sap and by transmitting viral diseases during the feeding process (Kennedy *et al.*, 1962; Blackman and Eastop, 1985; Conti, 1985). The first records of Turkey's aphids were given by Trotter (1903) and Fahringer (1922), followed by Bodenheimer and Swirski (1957), Börner and Heinze (1957), Tuatay and Remaudiere (1964), Çanakçıoğlu (1975) and Düzgüneş *et al.* (1982). And also, some investigations of predators of aphid have been conducted in Turkey (Erkin, 1983; Toros *et al.*, 2002; Ölmez and Ulusoy, 2002; Aslan and Uygun, 2005).

In this study, Aphididae species and their predators were determined in the cultivated and noncultivated areas in Malatya province and around, Turkey.

MATERIALS AND METHODS

Aphid samples on various hosts were collected from different locations in cultivated and noncultivated areas of Malatya province and around in the east Anatolia regions from 2000-2002.

Plant parts with aphids on them were cut off and placed into separate polyethylene bags. The aphids sample were transferred into Eppendorf tubes containing 70% ethyl alcohol with a fine brush. Mounting was performed as described by Hille Ris Lambers (1950). The determined species were classified according to

Remaudiere and Remaudiere (1997). Aphid-infested plant pieces were placed into individual plastic bags and transported to the laboratory for predator species identification. Collected predator species were killed by ethyl acetate in a killing bottle and identified by authorities.

RESULTS

List of aphid species, with host plant, distribution data.

Aphidinae: Aphidini: Aphidina

Aphis Koch, 1857

Aphis affinis del Guercio, 1911

Material examined: Central province, 23.5.2000, -Karacakaya (Hekimhan), 6.VI.2000, from *Mentha arvensis* L.

Aphis craccivora Koch, 1854

Material examined: Yuvalı, 31.06.2001 and 19.06.2001 from *Robinia pseudoacacia* L. -Akçadağ, 13.5.2001, *Trifolium* sp-Dilek, 19.6.2001, -Pötürge, 5.07.2000, *Galium aparine* L., 01.07.2001, *Amaranthus retroflexus*, *Sonchus* sp., *Phaseolus vulgaris*, *Vicia fabae*, *Glycyrrhiza glabra*.

Aphis fabae Scopoli, 1763

Material examined: Dilek, 19.06.2001 from *Centaurea* sp., -Pınarlı, 20.06.2001 from *Chenopodium album* and *Phaseolus vulgaris*, -Ayvalı (Darende), 23.05.2000 from *Amaranthus retroflexus*, -Central province, 07.07.2000 from *Cucurbita pepo*

Aphis gossypii Glover, 1854

- Material examined: Yeşilyurt, 06.06.2000 from *Capsicum annuum*, -Akçadağ, 08.06.2000 *Euphorbia* sp., -Doğanşehir, 01.07.2001 from *Citrullus vulgaris* and *Lactuca sativa*
Aphis nerii Boyer de Fonscolombe, 1841
Material examined: Yeşilyurt, 04.07.2000 from *Nerium oleander*
Aphis pomi De Geer, 1773
Material examined: Çiğlik, 03.08.2000 from *Malus communis*
Aphis punicae Passerini, 1863
Material examined: Central province, 06.04.2001 from *Punica granatum*
Aphis rumicis Linnaeus, 1758
Material examined: Yeşilyurt, 21.06.2001 from *Rumex* sp.
Aphis solanella Theobald, 1914
Material examined: Central province, 07.07.2000 from *Solanum nigrum*
Aphis tirucallis Hille Ris Lambers, 1954
Material examined: Dilek, 19.06.2001 from *Euphorbia* sp.
Hyalopterus pruni
Material examined: Kaynarca, 23.05.2000 from *Prunus armeniaca*, -Darende, 23.05.2000 from *Prunus armeniaca*, -Akçadağ, 08.06.2000 from *Prunus armeniaca*, -Central province, 09.06.2001 from *Prunus armeniaca*, -Tecirli, 19.06.2001 from *Prunus armeniaca*, -Doğanşehir, 19.06.2001 from *Prunus armeniaca*, -Yeşilyurt, 21.06.2001 from *Amygdalus communis*
Rhopalosiphum maidis (Fitch, 1856)
Material examined: Central province, 06.07.2001 from *Zea mays*, -Pötürge, 04.07.2001 from *Avena sativa*
Rhopalosiphum padi (Linnaeus, 1758)
Material examined: Central province, 06.07.2001 from *Zea mays*
Acyrtosiphon pisum (Harris, 1776)
Material examined: Pınarlı, 09.06.2001 from *Trifolium* sp.
Brachycaudus amygdalinus
Material examined: Central province, 15.04.2001 from *Amygdalus communis*
Brachycaudus helichrysi (Kaltenbach, 1843)
Material examined: Hekimhan, 23.05.2000 from *Prunus domestica*
Brevicoryne brassicae (Linnaeus, 1758)
Material examined: Darende, 23.05.2000 from *Sinapis arvensis*
Dysaphis Börner, 1951
Dysaphis devectora (Walker, 1849)
Material examined: Doğanşehir, 20.06.2001 from *Malus communis*
Dysaphis plantaginea (Passerini, 1860)
Material examined: Akçadağ, 08.06.2000 from *Malus communis*
Dysaphis pyri (Boyer de Fonscolombe, 1841)
Material examined: Akçadağ, 08.06.2000 from *Pyrus communis*
Hayhurstia del Guercio, 1917
Hayhurstia atriplicis (Linnaeus, 1761)
Material examined: Hekimhan, 23.05.2000 from *Chenopodium album*
Hyperomyzus Börner, 1933
Hyperomyzus lactucae (Linnaeus, 1758)
Material examined: Yeşilyurt, 09.05.2001 from *Sonchus oleraceus*
Lipaphis Mordvilko, 1928
Lipaphis erysimi (Kaltenbach, 1843)
Material examined: Central province, 18.04.2001 from *Rhaphanus* sp.
Macrosiphum Passerini, 1860
Macrosiphum rosae (Linnaeus, 1758)
Material examined: Central province, 22.05.2000 from *Rosa* sp.
Myzus Passerini, 1860
Myzus ceraci (Fabricius, 1775)
Material examined: Central province and Yeşilyurt, 21.06.2000 from *Prunus avium*, -Doğanşehir, 03.07.2000 from *Prunus avium*
Myzus persicae (Sulzer, 1776)
Material examined: Akçadağ, 08.06.2000 from *Prunus armeniaca*, -Yeşilyurt, 21.06.2000 from Akçadağ, 08.06.2000 from *Prunus armeniaca*, -Central province, 22.05.2000 from *Prunus persicae*, -Yuvalı, 31.07.2001 from *Solanum melongena*, -Doğanşehir, 01.07.2001 from *Capsicum annuum*
Sitobion Mordvilko, 1914
Sitobion avenae (Fabricius, 1775)
Material examined: Darende, 23.05.2000 from *Senecio* sp.
Uroleucon Mordvilko, 1914
Uroleucon sonchi (Linnaeus, 1767)
Material examined: Kaynarca, 24.05.2000 from *Sonchus oleraceus*
Chaitophorus Koch, 1854
Chaitophorus leucomelas Koch, 1854
Material examined: Yeşilyurt, 06.07.2000 from *Populus* sp.
Chaitophorus niger Mordvilko, 1929
Material examined: Central province, 23.05.2000 from *Salix* sp.
Pterochloroides persicae Mordvilko, 1914
Material examined: Yeşilyurt, 09.05.2001. from *Prunus persicae*, -Central province, 07.06.2000 from *Prunus armeniaca*
Chromaphis Walker, 1870
Chromaphis juglandicola (Kaltenbach, 1843)
Material examined: Central province, 21.06.2000 from *Juglans regia*

Eriosoma Leach, 1818
Eriosoma lanigerum (Hausmann, 1802)
 Material examined: Yeşilyurt, 07.06.2000 from *Malus communis*, -Doğanşehir, 21.06.2000. from *Malus communis*
Pemphigus Hartig, 1837
Pemphigus immunis Buckton, 1896
 Material examined: Doğanşehir, 07.06.2000 *Populus* sp.

List of predators of aphids in the Malatya region.

Neuroptera

Family: Chrysopidae

Chrysoperla carnea Stephens

Recorded on *H. pruni*, *M. persicae*

Dermaptera

Family : Forficulidae

Forficula auricularia L.

Recorded on *H. pruni*, *M. persicae*

Hemiptera

Family: Anthocoridae

Orius sp.

Recorded on *H. pruni*

Family: Nabidae

Nabis punctatus (C.)

Recorded on *M. persicae*

Coleoptera

Family: Coccinellidae

Adalia bipunctata (L.)

Recorded on *H. pruni*, *M. persicae*

Adonia variegata (Goeze)

Recorded on *H. pruni*, *M. persicae*

Coccinella septempunctata L.

Recorded on *H. pruni*, *M. persicae*

Exochomus nigromaculatus Goeze

Recorded on *H. pruni*

Nephus nigricans (Ws.)

Recorded on *E. lanigerum*, *H. pruni*

Platynaspis luteorubra (Goeze)

Recorded on *M. persicae*

Propylae quatuordecimpunctata (L.)

Recorded on *H. pruni*

Psyllobora virgintiduopunctata (L.)

Recorded on *H. pruni*

Scymnus araraticus Iablokoff-Khznorian

Recorded on *H. pruni*

S. interruptus (Goeze)

Recorded on *H. pruni*

S. pallipediformis Günther

Recorded on *H. pruni*

S. rubromaculatus (Goeze)

Recorded on *H. pruni*

S. subvillosus (Goeze)

Recorded on *H. pruni*

Semiadalia undecimnotata Schneider

Recorded on *H. pruni*

Stethorus gilvifrons (Mulsant)

Recorded on *H. pruni*, *M. persicae*

Synharmonia conglobata (L.)

Recorded on *H. pruni*

Diptera

Family: Syrphidae

Episyrphus baltaetus De Geer

Recorded on *H. pruni*

Heringia heringi Zett.

Recorded on *C. leucomelas*

Ischiodon scutellaris F.

Recorded on *A. gossypii*

Meliscaeva cinctella (Zett.)

Recorded on *D. devector*

Metasyrphus corollae F.

Recorded on *H. pruni*

Paragus aegyptius Macquart

Recorded on *H. pruni*

Scaeva pyrastris (L.)

Recorded on *A. Fabae*, *B. brassicae*

Syrphus vitripennis Meigen

Recorded on *M. persicae*

Family: Cecidomyiidae

Aphidoletes aphidimyza (Rond.)

Recorded on *A. gossypii*, *M. Persicae*

DISCUSSION

In this study, the 34 aphid species identified were found to be from 15 genera and the subfamilies Aphidinae, Chaitophorinae, Lachninae. *Aphis craccivora* Koch, *Hyalopterus pruni* (Geoffroy) *Myzus cerasi* (Fabricius) and *Myzus persicae* (Sulzer) were the most common species. *Aphis craccivora*, *Eriosoma lanigerum*, *Hyalopterus pruni* and *Myzus cerasi* were found to have the highest number of hosts in descending order. A total of 29 species were detected as natural enemies of aphids. One species Chrysopidae (Neuroptera), one species Forficulidae (Dermaptera), one species Anthocoridae (Hemiptera), one species Nabidae (Hemiptera), sixteen species from the family Coccinellidae (Coleoptera), eight from Syrphidae (Diptera), one from Cecidomyiidae (Diptera) were found as predators. Among the species *Chrysoperla carnea* Stephan (Neuroptera: Chrysopidae), *Forficula auricularia* L. (Dermaptera: Forficulidae),

Coccinella septempunctata L. (Coleoptera: Coccinellidae), *Episyrphus baltaetus* De Geer (Diptera: Syrphidae) were the most common species.

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