

APHID SPECIES (HEMIPTERA: APHIDIDAE) OF SOUTH EASTERN ANATOLIA REGION (TURKEY) AND THEIR HOST PLANTS

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Abstract

This study was carried out during 2006-2008. The research focused on the taxa in Aphididae family which is distributed on different plants in cultivated and uncultivated fields in the Southeastern Anatolia Region (Adiyaman, Batman, Diyarbakır, Mardin and Sanliurfa). Aphids were collected by checking shoots, branches and leaves of the different plants (cultivated and uncultivated). Species were identified by checking distinguishing characters and comparing with previous literatures. As a result, total of 45 aphid species belonging to 23 genus of the family Aphididae were determined.

Results of the presented study are also going to be important for the future studies in this area due to economical importance of aphid species.

Key Words: *South Eastern Anatolia Region, Aphididae, Hemiptera, Survey.*

Introduction

Aphid also called plant louse, greenfly, or ant cow, any of a group of sap-sucking, soft-bodied insects (order Hemiptera) that are about the size of a pinhead, most species of which have a pair of tubelike projections (cornicles) on the abdomen. Aphids may damage plants by sucking plant juices, which directly weakens the plant, by injecting toxins from their saliva that cause curled leaves and malformations, or by transmitting viral diseases that cause secondary plant injury (Kennedy et al., 1962; Blackman and Eastop, 1985; Conti, 1985).

Aphid species have very close relationship with their host plants and climatic conditions have a strong effect on the distribution of aphids worldwide. Turkey has diverse types of climatic conditions, very large agricultural land and rich flora consisting of 12000 plant species. Therefore, it can be expected that territory of Turkey is characterised by the presence of many aphid species. Studies related to the Turkish aphid fauna dated back to the beginning of the 1900s. (Enol, et. al, 2014). 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), Çanakçioğlu (1975) and Düzgüne et al. (1982).

In this study, Aphididae species were determined in the cultivated and noncultivated areas in South Eastern Anatolia province of Turkey. Results of the presented study are also going to be important for the future studies in this area due to economical importance of aphid species.

Materials and methods

Aphid samples on various hosts were collected from different locations in cultivated and noncultivated areas of South Eastern Anatolia province of Turkey during the period of 2006-2008.

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). The

aphids were systematically classified from the catalog of Remaudière and Remaudière (1997).

Results

A list of the species is given below together with their host plant in Adıyaman, Batman, Diyarbakır, Mardin andanlıurfa provinces (Table 1). As a result, it has been revealed that the variety of aphid fauna in this region depends on the rich different plants flora.

Table 1. Aphid species and their hosts

Species	Host plants
Alt Familya: Aphidinae Tribe: Aphidini-Aphidina Cins: Aphis Linnaeus, 1758 Species: Aphis affinis del Guercio, 1911	<i>Mentha</i> sp.
Species: Aphis chloris Koch, 1854	<i>Hypericum</i> sp.
Species: Aphis craccivora Koch, 1854	<i>Robinia pseudoacacia</i> , <i>Glychiriyza</i> sp., <i>Vicia</i> sp., <i>Capsella bursapastoris</i> , <i>Phaseolus vulgaris</i> , <i>Urtica urens</i> , <i>Gossypium</i> sp.
Species: Aphis fabae Scopoli, 1763	<i>Phaseolus vulgaris</i> , <i>Galium</i> sp., <i>Salvia</i> sp., <i>Chenopodium</i> sp., <i>Rumex</i> sp., <i>Malva</i> sp., <i>Circium arvense</i>
Sub-Species: Aphis fabae subsp. solanella Theobald, 1914	<i>Solanum nigrum</i>
Species: Aphis gossypii Glover, 1877	<i>Citrullus vulgaris</i> , <i>Lactuca sativa</i> , <i>Lycopersicon esculentum</i> , <i>Cucurbito pepo</i> , <i>Gossypium</i> sp., <i>Cucumis melo</i> , <i>Solanum</i> <i>melongena</i> , <i>Capsicum annuum</i> , <i>Tribulus</i> <i>terrestris</i> , <i>Pyracantha</i> sp
Species: Aphis euphorbiae Kaltenbach, 1843	<i>Euphorbia</i> sp.
Species: Aphis polygonata (Nevsky, 1929)	<i>Polygonum</i> sp.
Table Contuned	
Species: Aphis pomi de Geer, 1773	<i>Malus communis</i>
Species: Aphis punicae Passerini, 1863	<i>Punica granatum</i>
Species: Aphis rumicis Linnaeus, 1758	<i>Rumex</i> sp.
Species: Aphis salviae Walker, 1852	<i>Salvia</i> sp.
Species: Aphis tirucallis Hille Ris Lambers, 1954	<i>Euphorbia</i> sp.
Species: Aphis umbrella (Börner, 1950)	<i>Bifora</i> sp.
Species: Aphis urticata Gmelin, 1790	<i>Urtica</i> sp.
Tribe: Aphidini-Rhopalosiphina Genus: Hyalopterus Koch, 1854 Species: Hyalopterus amygdali (Blanchard, 1840)	<i>Amygdalus communis</i>
Species: Hyalopterus pruni (Geoffroy, 1762)	<i>Prunus armeniaca</i> , <i>Phragmites</i> sp.
Species: Rhopalosiphum maidis (Fitch, 1856)	<i>Zea mays</i>
Species: Rhopalosiphum padi (Linnaeus, 1758)	<i>Triticum aestivum</i> , <i>Typha latifolia</i>
Tribe: Macrosiphini	<i>Medicago sativa</i> , <i>Pisum sativum</i>

Genus: <i>Acyrtosiphon</i> Mordvilko, 1914 Species: <i>Acyrtosiphon pisum</i> (Harris, 1776)	
Species: <i>Brachycaudus helichrysi</i> (Kaltenbach, 1843)	<i>Prunus</i> sp., <i>Prunus domestica</i>
Subgenus: <i>Acaudus</i> van der Goot, 1913 Species: <i>Brachycaudus cardui</i> (Linnaeus, 1758)	<i>Cirsium arvense</i>
Subgenus: <i>Appelia</i> Börner, 1930 Species: <i>Brachycaudus (Appelia) tragopogonis</i> (Kaltenbach, 1843)	<i>Tragopogon</i> sp.
Genus: <i>Brevicoryne</i> van der Goot, 1915 Species: <i>Brevicoryne brassicae</i> (Linnaeus, 1758)	<i>Sinapis arvensis</i> , <i>Diplotaxis</i> sp., <i>Brassica oleracea</i> var. <i>capitata</i> , <i>Rhaphanus sativus</i> , <i>Sinapis</i> sp., <i>Brassica napus</i> var. <i>oleifera</i>
Genus: <i>Dysaphis</i> Börner, 1931 Species: <i>Dysaphis devectora</i> Walker, 1849	<i>Malus communis</i>
Subgenus: <i>Pomaphis</i> Börner, 1939 Species: <i>Dysaphis (Pomaphis) plantaginae</i> (Passerini, 1860)	<i>Malus communis</i> , <i>Pyrus malus</i>
Species: <i>Dysaphis (Pomaphis) pyri</i> (Boyer de Fonscolombe, 1841)	<i>Pyrus communis</i>
Genus: <i>Hyperomyzus</i> Börner, 1933 Species: <i>Hyperomyzus lactucae</i> (Linnaeus, 1758)	<i>Sonchus oleraceus</i> , <i>Lactuca serriola</i>
Genus: <i>Lipaphis</i> Mordvilko, 1928 Species: <i>Lipaphis erysimi</i> (Kaltenbach, 1843)	<i>Rhaphanus sativus</i> , <i>Sinapis arvensis</i>
Genus: <i>Macrosiphum</i> Passerini, 1860 Species: <i>Macrosiphum euphorbiae</i> (Thomas, 1878)	<i>Euphorbia</i> sp.
Species: <i>Macrosiphum rosae</i> (Linnaeus, 1758)	<i>Rosa</i> sp.
Genus: <i>Myzus</i> Species: <i>Myzus cerasi</i> Fabricius, 1775	<i>Gallium</i> sp., <i>Prunus cerasus</i>
Species: <i>Myzus (Nectarosiphon) persicae</i> (Sulzer, 1776)	<i>Prunus persicae</i> , <i>Capsicum annuum</i> , <i>Solanum melongena</i>
Genus: <i>Sitobion</i> Mordvilko, 1914 Species: <i>Sitobion avenae</i> (Fabricius, 1775)	<i>Triticum</i> sp., <i>Hordeum</i> sp.
Genus: <i>Uroleucon</i> Mordvilko, 1914 Species: <i>Uroleucon (Uroleucon) sonchi</i> Linnaeus, 1767	<i>Sonchus oleraceus</i> , <i>Sonchus</i> sp.
Subfamily: Chaitophorinae Tribe: Chaitophorini Genus: <i>Chaitophorus</i> Koch, 1854 Species: <i>Chaitophorus leucomelas</i> Koch, 1854	<i>Populus</i> sp., <i>Salix</i> sp.
Subfamily: Lachninae Tribe: Cinarini Genus: <i>Eulachnus</i> del Guercio, 1909 Species: <i>Eulachnus tuberculostemmatus</i> (Theobald, 1915)	<i>Pinus</i> sp.
Tribe: Lachnini Genus: <i>Pterochloroides</i> Mordvilko, 1914	<i>Prunus persicae</i>

Species: <i>Pterochloroides persicae</i> (Cholodkovsky, 1899)	
Genus: <i>Tuberolachnus</i> Mordvilko, 1909 Species: <i>Tuberolachnus salignus</i> (Gmelin, 1790)	<i>Salix</i> sp.
Subfamily: Myzocallidinae Tribe: Myzocallidini Genus: <i>Chromaphis</i> Walker, 1870 Species: <i>Chromaphis juglandicola</i> Kaletnbach, 1843	<i>Juglans regia</i>
Genus: <i>Panaphis</i> Kirkaldy, 1904 Species: <i>Panaphis juglandis</i> (Goeze, 1778) (= <i>Callaphis juglandis</i> Walker, 1870)	<i>Juglans regia</i>
Subfamily: Pemphiginae Tribe: Eriosomatini Genus: <i>Eriosoma</i> Leach, 1818 Species: <i>Eriosoma lanigerum</i> (Hausmann, 1802)	<i>Malus communis</i>
Tribe: Fordini Genus: <i>Forda</i> von Heyden, 1837 Species: <i>Forda formicaria</i> von Heyden, 1837	<i>Pistacia</i> sp.
Tribe: Pemphigini Genus: <i>Pemphigus</i> Hartig, 1839 Species: <i>Pemphigus immunis</i> Buckton, 1896	<i>Populus</i> sp.

Conclusion

In this study, the 45 aphid species and subspecies identified were found to be from 23 genera and the subfamilies Aphidinae, Chaitophorinae, Lachninae, Myzocallidinae, Pemphiginae and *Aphis craccivora* Koch, *Aphis fabae* Scopoli, *Aphis gossypii* Glover, *Hyalopterus pruni* (Geoffroy), *Myzus cerasi* (Fabricius) and *Myzus persicae* (Sulzer) were the most common species. *Aphis craccivora* Koch, *Aphis fabae* Scopoli and *Aphis gossypii* Glover were found to have the highest number of hosts in descending order.

Acknowledgements

We wish to thank Turkey Prime Ministry State Planning Organization (DPT) for providing the funding for this research.

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