

# Arj kf (Hgo kr vgt c: Arj kf qlf gc) Sr gelgu qhvj g Urla District of İzmir Region

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## Abstract

As a result of the study organized to determine aphid fauna of the Urla district of İzmir region, 38 species were identified. Of these species, *Chaitophorus saliciniger* (Knowlton, 1927) and *Aphis serpylli* Koch, 1954 are new records for Turkey aphid fauna. With these new records, the total number of aphid species in Turkey comes up to 450. Findings of the presented study and other recent studies showed that with the detailed study Turkey aphid fauna will be substantially increased.

## INTRODUCTION

World aphid fauna now consists of about 4500 species. Aphid species are an economically important group of insects in all over the world as they are an important disease vectors and direct plant sucking pests [1,2]. Despite chemical, biological and integrated control mechanisms applied against aphids, they rapidly invade new areas and their damages have been rising during recent years. Their damages can not be neglected as they cause about 40-45 % yield losses in developing countries and 30 % yield losses in developed countries. For example, it has been shown that wheat aphids caused 30 % reduction in wheat production and about 50 % in barley production in France.

The members of the family of Aphididae are economically important groups of insects in Turkey, as they are in the other countries of the world. Studies of the Turkish aphid fauna were limited up to last decade. Çanakcıoğlu [3] listed 258 species for Turkey aphid fauna. Tuatay [4, 5] added about 30 species as new records, three additional species reported by Düzgüneş *et al.* [6]. Recent studies have added more than 40 new records [7, 8, 9]. Remaudière *et al.* [10] revised studies conducted on Turkey aphid fauna and listed about 417 species. Akyürek [11], Toper Kaygin *et al.* [12], and Çıraklı *et al.* [13], added 13 new records. Gorur *et al.* [14] reported 5 new additions to Turkey aphid fauna from Black Sea Region of Turkey. Since Turkey is a very large country and there are still a lot of virgin areas, this study aimed to find out aphid species of Urla district of İzmir region of Turkey.

## MATERIALS and METHODS

Apterous and alateous forms of all samples were collected on various host plants grown in Urla district of İzmir region. Collection and preparation of samples have been done according to the principles of Martin [15]. Species were identified according to Blackman & Eastop [2,16] and Çanakcıoğlu [3]. Systematic knowledge, host plants and synonyms of determined species were taken from Blackman & Eastop [2,16], Remaudière & Remaudière [1] and Holman [17]. Voucher specimens kept at the Biology Department of Niğde University.

## RESULTS

As a results of the analyses of 180 samples from study area, 38 aphid species determined. Among these identified species *Chaitophorus saliciniger* (Knowlton, 1927) and *Aphis serpylli* Koch, 1954 are new records for Turkey aphid fauna. Determined species are listed alphabetically.

*Aphis craccivora* Koch 1854 (Aphidinae:Aphidini)

**Distribution:** Originated from Palearctic warm temperate region but now almost worldwide [17]. In Turkey, it was recorded from Bursa, Bolu (Gerede), İstanbul, Burdur, Artvin, Niğde and Ankara [5, 18,19].

**Material examined:** Collected on *Acacia* spp. on 29.IV.2007, *Cheiranthus cheiri* and *Euphorbia* sp. on 04.IV.2007, *Rumex patientia*, *Anthemis* sp. and *Arachis hypogaea* on 07.VI.2007, *Citrus* sp. on 08.VI.2007, *Mespilus germanica* on 08.VIII.2007, *Cirsium* sp. on 16.III.2008.

*Aphis farinosa* Gmelin, 1970 (Aphidinae:Aphidini)

**Distribution:** Occur throughout northern temperate parts of the world and in South America [16]. In Turkey, it was recorded from Ankara, Giresun, Erzurum, Van, Trabzon, Gümüşhane and Bartın [5,12].

**Material examined:** Sampled on *Salix* sp. on 04.V.2007.

*Aphis fabae* Scopoli 1763 (Aphidinae:Aphidini)

**Distribution:** Widespread around the world expect the warmest part of the tropics and Middle East [2]. Recorded almost all parts of the Turkey [3,18,20,5,19].

**Material examined:** Sampled on *Beta vulgaris* on 29.IV.2007, *Vicia fabae*, *Pisum sativum* and *Euphorbia* sp. on 01.V.2007, *Papaver rhoeas* on 02.V.2007, *Citrullus lanatus* on 07.VI.2007, *Phaseolus vulgaris* on 08.VIII.2007, *Vitis* sp. on 09.VIII.2007.

*Aphis gossypii* Glover 1877 (Aphidinae:Aphidini)

**Distribution:** Originated from Palearctic region but now distributed worldwide [2]. In Turkey, it was recorded from Aegean region, Iğdır, Mersin, Antalya, Bolu, Niğde, Kahramanmaraş and Eastern Mediterranean region [18, 19, 20].

**Material examined:** Collected on *Chrysanthemum leucanthemum* on 01.V.2007, *Salix* sp. on 04.V.2007, *Punica granatum* on 05.VI.2007, *Convolvulus* sp. and *Citrus* sp. on 06.VI.2007, *Hibiscus esculentus* and *Citrullus lanatus* on 08.VIII.2007, *Phaseolus vulgaris* on 10.VI.2008, *Hibiscus*

*esculentus* and *Capsicum annuum* on 08.VIII.2007, *Hibiscus esculentus* on 10.VIII.2007, *Cucumis melo* on 24.VIII.2007, *Capsicum annuum* on 03.III.2008 and *Raphanus sativus* on 16.III.2008.

*Aphis illinoisensis* Shimer, 1866(Aphidinae:Aphidini)

**Distribution:** Distributed in Eastern, South and Central USA[2]. Recorded from Adana, Hatay, Kilis and Niğde in Turkey [18,21].

**Material examined:** Collected on *Vitis vinifera* on 09.VIII.2007.

*Aphis nasturtii* Kaltenbach, 1843(Aphidinae:Aphidini)

**Distribution:** It is widespread throughout Europe, the Middle East, northern India, Pakistan, Japan, North America and Chile [2]. It was recorded from the Isparta, İzmir, Muğla, Çankırı, Bolu, Konya and Erzurum in Turkey.[5,22]

**Material examined:** Sampled on *Raphanus sativus* on 01.V.2007 and *Malva sylvestris* on 16.III.2008.

*Aphis nerii* Boyer de Fonscolombe, 1841 (Aphidinae:Aphidini)

**Distribution:** Widely distributed through the Old and New World tropics and subtropics including many Pacific island[2]. In Turkey, it was recorded from Adana, Ankara, Antalya, Diyarbakır, İçel and İzmir[19, 22,23].

**Material examined:** Found on *Nerium oleander* on 01.V.2007.

*Aphis punicae* Passerini, 1863 (Aphidinae:Aphidini)

**Distribution:** Throughout the Mediterranean region, Middle East, Ethiopia, India, and Pakistan[2]. Recorded almost all parts of the Turkey[3,19, 23].

**Material examined:** Sampled on *Punica granatum* on 30.V.2007.

*Aphis ruborum* (Börner, 1932) (Aphidinae:Aphidini)

**Distribution:** Europe, North America, the Middle East, India, Pakistan and China [2]. Recorded from Adana and Bitlis(Tatvan) in Turkey[19].

**Material examined:** Found on *Rubus sanctus* on 08.VIII.2007 and 24.VIII.2007.

*Aphis serpylli* Koch, 1854 (Aphidinae:Aphidini)

**Distribution:** Throughout Europe, the Mediterranean region, the Middle East and central Asia.[2]. It is the first time recorded from Turkey.

**Material examined:** Sampled on *Thymus* sp. on 02.V.2007.

*Aphis spiraecola* Patch, 1914 (Aphidinae:Aphidini)

**Distribution:** Almost world-wide[2]. In Turkey, it was recorded from Ankara, Diyarbakır, Adana, Hatay, İçel and Kahramanmaraş[19,20,24]

**Material examined:** Found on *Mespilus germanica* on 04.V.2007 and 08.VI.2007, *Cydonia oblonga* on 06.VI.2007 and 24.VIII.2007, *Hoya carnosa* on 30.V.2007, *Hibiscus rosa-chinensis* on 10.IX.2007 and *Pyrus communis* on 13.III.2008.

*Aphis urticata* J.F.Gmelin, 1970 (Aphidinae:Aphidini)

**Distribution:** In Europe, Middle East, Central Asia and North America[20]. In Turkey, it was recorded from Ankara and İzmir[5]

**Material examined:** Found on *Urtica* sp. on 29.IV.2007.

*Aphis viticis* Ferrari,1872 (Aphidinae:Aphidini)

**Distribution:** South Europe and Middle East[2]. Recorded from İzmir(Bornova), Hatay, Manisa and Aydın in Turkey [5,22].

**Material examined:** Sampled on *Vitex agnus-castus* on 08.VIII.2007.

*Aulacorthum magnoliae* (Essig and Kuwana 1918) (Aphidinae : Macrosiphini)

**Distribution:** China, Japan, Korea, Jordan, Far East Russia and India.[2]. It was recorded from Bartın in Turkey[12].

**Material examined:** Collected on *Castanea sativa* on 05.VI.2007.

*Aulacorthum solani* (Kaltenbach, 1843) (Aphidinae : Macrosiphini)

**Distribution:** Probably of European origin, but now almost world-wide.[2] Recorded from Eskişehir, Erzincan, Van, İstanbul, Niğde and East Mediterranean region[19,25].

**Material examined:** Sampled on *Dianthus anatolicus* on 09.III.2008.

*Brachycaudus cardui* (Linnaeus, 1758) (Aphidinae : Macrosiphini)

**Distribution:** In Europe, Asia, North Africa, North America[2]. In Turkey, it was recorded from Ankara, Konya, İçel, Hatay, Adana, Niğde and İçel [19,20].

**Material examined:** Recorded on *Convolvulus* sp. on 07.VI.2007.

*Brachycaudus helichrysi* (Kaltenbach, 1843) (Aphidinae : Macrosiphini)

**Distribution:** Widespread around the world [2]. It has been recorded from Ankara, Adıyaman, Kahramanmaraş, Mardin, Siirt, İstanbul and Niğde in Turkey [18,19,20, 23].

**Material examined:** Sampled on *Citrus* sp. on 29.IV.2007, *Punica granatum* on 01.V.2007, *Euphorbia* sp. on 06.VI.2007, *Anthemis* sp. on 07.VI.2007, *Citrus sinensis* on 08.VII.2006, *Euphorbia* sp. on 09.III.2008 and *Anthemis* sp. on 23.III.2008.

*Brevicoryne brassicae* (Linnaeus, 1758) (Aphidinae : Macrosiphini)

**Distribution:** It is widespread throughout all the temperate and warm parts of the world [2]. It was recorded from a lot of places such as Adana, Ankara, Amasya, Ordu, Samsun, Sinop, Urfa, İzmir, Van, Diyarbakır, Hatay, Mersin, Kahramanmaraş in Turkey [18, 20,22,25].

**Material examined:** Collected on *Raphanus sativus* on the 01.V.2007 and *Brassica acephala* 05.VI.2007

*Capitophorus elaeagni* (del Guercio, 1894) (Aphidinae : Macrosiphini)

**Distribution:** Throughout all the temperate and warm temperate region of the world[2]. It was recorded from Adana, Ankara, Çankırı, Burdur, Bitlis and Niğde in Turkey [19,20]

**Material examined:** Recorded on *Elaeagnus angustifolia* on 29.IV.2007

*Chaitophorus populiabae* (Boyer de Fonscolombe, 1841) (Chaitophorinae: Chaitophorini)

**Distribution:** Middle East, France, South-North-West Africa and North America [2]. It was recorded from İstanbul, Ankara, İçel, Burdur, Konya and Niğde [3,18,19,26,31,32]

**Material examined:** Collected on *Populus* spp. on 06.VI.2007, 25.VIII.2007 and 24.VIII.2007.

*Chaitophorus saliciniger* (Knowlton, 1927) (Chaitophorinae : Chaitophorini)

**Distribution:** USA and Canada[16]. It is the first time recorded from Turkey.

**Material examined:** Collect on *Salix* sp. on 06.VI.2007.

*Dysaphis reaumuri* (Mordvilko, 1928) (Aphidinae : Macrosiphini)

**Distribution:** Europe and Asia[2]. In Turkey, it was recorded only from Adana[19]

**Material examined:** Collected on *Pyrus communis* on

23.III.2008.

***Eucallipterus tiliae*** (Linnaeus, 1758) (Myzocallidinae: Myzocallidini)

**Distribution:** It is generally widespread through Europe, North Africa, Southwest and Middle Asia, North America and New Zeland[16]. In Turkey, it was recorded from Ankara, Trabzon, İstanbul and Niğde[3,30].

**Material examined:** Collected on *Tilia* sp. on 15.VI.2007.

***Forda hirsuta*** (Mordvilko, 1928)(Eriosomatinae:Fordini)

**Distribution:** Crimea, Caucasus, Iran, Iraq, Asia, Portugal, Russia, Siberia, Israel, Saudi Arabia, China, Pakistan, Tajikistan and Turkmenistan.[2,16,17]. It was recorded from Gaziantep, Kahramanmaraş and İstanbul in Turkey [20]

**Material examined:**Collected on *Pistacia lentiscus* on 09.VI.2007.

***Hyalopterus amygdali*** (E. Blanchard, 1840) (Aphidinae: Aphidini)

**Distribution:** Europe, the Mediterranean region, the Middle East, Central Asia, Pakistan and China[2]. In Turkey, it was recorded from Ankara, Kahramanmaraş, Siirt, Urfa, Diyarbakır and Niğde [6,18,19,20, 23].

**Material examined:** Sampled on *Amygdalus communis* and *Euphorbia* sp. 01.V.2007

***Hyalopterus pruni*** (Geoffroy, 1762) (Aphidinae: Aphidini)

**Distribution:** It is a cosmopolitan species [2]. It is also cosmopolitan in Turkey [3,6,19,23].

**Material examined:** Sampled on *Prunus domestica* on 29.IV.2007

***Macrosiphum euphorbia*** (Thomas, 1878) (Aphidinae : Macrosiphini)

**Distribution:** It is originated from the North America but now widespread around the world[2]. It has been recorded from İstanbul, Ankara, İzmir, Erzurum, Amasya, Sakarya, Adana, Hatay and Niğde in Turkey [19].

**Material examined:** Collected on *Lycopersicum esculentum* on 08.VI.2007, *Rosa* spp. 02.V.2007 and *Raphanus sativus* 01.V.2007.

***Macrosiphum mordvilkoii*** Miyazaki, 1968 (Aphidinae : Macrosiphini)

**Distribution:** Japan, Korea, Russia and Asia[2]. It was recorded from Bartın, Niğde and Samsun in Turkey [29].

**Material examined:** Sampled on *Rosa* sp. on 07.VI.2007

***Macrosiphum rosae*** (Linnaeus, 1758) (Aphidinae : Macrosiphini)

**Distribution:** Japan, East and Southeast Asia[2]. It is almost cosmopolitan in Turkey[3,22].

**Material examined:** Sampled on *Rosa* spp. on 29.III.2007, 02.V.2007, 04.V.2007, 05.VI.2007, 10.VI.2007, 30.V.2007 and *Cirsium* sp. 01.V.2007.

***Myzaphis turanica*** Nevsky,1929 (Aphidinae : Macrosiphini)

**Distribution:** Central Asia, Middle East, India, Mongolia, Israel, Italy, Sweden and recently found in Brazil [2]. It is recorded from the Isparta, Tatvan, Bitlis in Turkey [13,26]

**Material examined:** Collected on *Camellia japonica* on 17.VII.2007 and *Hoya carnosa* on 24.VIII.2007.

***Myzus persicae*** (Sulzer, 1776) (Aphidinae : Macrosiphini)

**Distribution:** Probably of Asian origin, now distributed world-wide[1]. It is almost cosmopolitan in Turkey[19,31].

**Material examined:** Sampled on *Foeniculum vulgare* on

09.VII.2007.

***Nasonovia ribisnigri*** (Mosley, 1841) (Aphidinae : Macrosiphini)

**Distribution:** Throughout Europe, south Central Asia, Middle East, America[2]. In Turkey, it was recorded from Niğde and Eastern Mediterranean region[18,19].

**Material examined:** Collected on *Lactuca sativa* on 09.III.2008.

***Rhopalosiphum padi*** (Linnaeus, 1758)(Aphidinae:Aphidini)

**Distribution:** Possibly palaeartic in origin, now virtually world wide[2]. Recorded from İçel, Adana, Diyarbakır, Hatay, Ankara, Kahramanmaraş, Tatvan, Niğde[3,18,20, 23].

**Material examined:** Sampled on *Cichorium intybus* on 24.III.2008.

***Sipha maydis*** Passerini, 1860 (Chaitophorinae :Siphini)

**Distribution:** Europe, The Mediterranean, The Middle East, Central Asia, India, Pakistan and South Africa[2]. In Turkey, it was recorded from Bitlis, Tatvan, Ankara, Van, Trabzon, Sinop, Tekirdağ, Edirne, Konya, Niğde [18,31,32].

**Material examined:** Collected on *Triticum sativum* on 01.V.2007, 05.VI.2007 and *Zea mays* on 08.VIII.2007.

***Sitobion avenae*** (Fabricius, 1775) (Aphidinae : Macrosiphini)

**Distribution:** Europe, the Mediterranean, the Middle East, Central Asia, India, Nepal, Pakistan, Africa(Ethiopia, Libya, Morocco, Zimbabwe, South Africa), America[2]. İstanbul, Batı Anadolu, Kahramanmaraş, Adana, Konya, Burdur, Samsun, Malatya, Kırklareli, Tekirdağ, Erzurum, Bolu and Niğde[4,18, 19,20]

**Material examined:** Founded on Poaceae on 17.VII.2007.

***Thelaxes suberi*** (del Guercio, 1911) (Thelaxinae: Thelaxini)

**Distribution:** England, Mediterranean region and Middle East ( Portugal, Italy, Sardinia, Madeira, Algeria, Morocco, Israel, Iraq, Turkey)[2]. In Turkey, from Kocaeli, Bitlis, Uşak, İstanbul, Artvin, Ankara, Çankırı [32]

**Material examined:** Collected on *Quercus* sp. on 22.VIII.2007.

***Toxoptera aurantii*** Koch, 1856 (Aphidinae: Aphidini)

**Distribution:** Disturbed throughout the tropics and subtropics including the Pacific Island and in glasshouses in temperate climate[2].In Turkey, it is recorded from İçel, Adana, Hatay and Osmaniye [19].

**Material examined:** Collected on *Punica granatum* on 01.V.2007

***Wahlgreniella nervata*** ( Gillette, 1908) (Aphidinae : Macrosiphini)

**Distribution:** America, England, Mexico, Brazil, Chile, Argentina, Africa (Burundi), Pakistan, Austria, Belgium, Germany, Spain, Ukraine, Italy[2,17]. It was recorded from Bartın, Niğde and Denizli in Turkey[12,13].

**Material examined:** Sampled on Boraginaceae on 01.V.2007.

## CONCLUSION

Due to their reproduction style, invading new areas and resulting in considerable amount of decrease in agricultural production, aphids fascinate researchers. Despite these facts, there are still many places that their aphid fauna has not studied yet in Turkey. During last decades a lot of information about Turkey aphid fauna has accumulated and number of species raised up to 448 [9,12,13,14,32]. It is the first detailed scientific



study dealing with the aphid species of Urla district of İzmir region. Compared with whole Turkey, study area is very small but 38 aphid species are recorded. Among these determined species *Chaitophorus saliciniger* (Knowlton, 1927) and *Aphis serpylli* Koch, 1954 are new records for Turkey aphid. With these 2 additions, Turkey aphid fauna consist of 450 species.

Despite that, it can be considered that this number is much lower compared with records in neighbouring countries as Turkey has particular geographical, agricultural, climatic and floristic characteristics. Organization of the similar local studies is going to play an important role in faunistic and applied entomological studies.

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