

New records of aphid species (Hemiptera: Aphidoidea) for the Turkish fauna from Samsun province

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Abstract: Nine aphid species from the Ondokuz Mayıs University Kurupelit campus in Samsun province, Turkey, were determined as new records for the Turkish fauna. These species were *Aphis helianthi* Monell in Riley & Monell, 1879; *Macrosiphum impatientis* (Williams, 1911); *Macrosiphum mordvilkoii* Miyazaki, 1968; *Macrosiphum pallidum* (Oestlund, 1887); *Uroleucon pseudoambrosiae* (Olive, 1963); *Cinara maghrebica* Mimeur, 1934; *Cinara wahluca* Hottes, 1952; *Stomaphis cupressi* (Pintera, 1965); and *Maculolachnus submacula* (Walker, 1848).

Key words: Aphididae, Samsun, aphid fauna, Turkey

Samsun ilinden Türkiye faunası için yeni kaydedilen afit türleri (Hemiptera: Aphidoidea)

Özet: Samsun İli, Ondokuz Mayıs Üniversitesi Kurupelit Kampüs alanından dokuz afit türünün Türkiye afit faunası için yeni kayıt olduğu belirlenmiştir. Bu türler *Aphis helianthi* Monell in Riley & Monell, 1879, *Macrosiphum impatientis* (Williams, 1911), *Macrosiphum mordvilkoii* Miyazaki, 1968, *Macrosiphum pallidum* (Oestlund, 1887), *Uroleucon pseudoambrosiae* (Olive, 1963), *Cinara maghrebica* Mimeur, 1934, *Cinara wahluca* Hottes, 1952, *Stomaphis cupressi* (Pintera, 1965) and *Maculolachnus submacula* (Walker, 1848)' dir.

Anahtar sözcükler: Aphididae, Samsun, afit fauna, Türkiye

Approximately 4400 species of aphids have been identified worldwide. About 250 species are serious pests and cause important losses of yield (Remaudière and Remaudière, 1997; Blackman and Eastop, 2006). In the United States, crop losses caused by pests annually have been about 30%, despite the best available pest control technologies. However, in

developing countries, including Turkey, pest-caused losses are much more than 50% (Ruberson, 1999). Turkey is one of the largest countries in Europe, has its richest flora, and agriculture plays an important role in the country's economy. Despite this, there is still limited knowledge of Turkey's aphid species and their economic importance. However, there has been a

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growing interest in aphid studies during recent decades (Toros et al., 2002; Görür, 2004; Aslan and Uygun, 2005; Remaudière et al., 2006; Çıraklı et al., 2008). As a result of these studies, the number of aphid species in Turkey has reached 421 from 300. The current study aimed to complement these studies by determining the aphid fauna of the Ondokuz Mayıs University Campus in Samsun, Turkey.

The study area was the Ondokuz Mayıs University (OMU) campus, which is located in the mid-coastal Black Sea region of Turkey. Samples were collected from the whole campus area. The main flora consisted of *Quercus petraea* subsp. *iberica* - *Carpinus orientalis* associations, *Trifolium fragiferum* var. *fragiferum* - *Medicago minima* var. *minima* grass associations, and *Eryngium maritimum* - *Silene dichotoma* subsp. *euxina* associations (Özen, 1988). There were also various ornamental plants. Following the sampling process, specimens were prepared for identification based on the methods of Martin (1983). Taxonomically important characters were examined by Leica DM 4000 B research microscope at 10 × 20 magnification. Species were verified by Prof. Dr. Juan Nieto Nafria from the University of Leon, Spain. Systematics, synonyms, and host plants were referenced from Blackman and Eastop (1994, 2006) and Remaudière and Remaudière (1997). The taxonomic statuses of the determined species were further checked according to the recent update of European Fauna [<http://www.faunaeur.org/>]. Voucher specimens have been deposited at the Biology Department of Ondokuz Mayıs University.

Nine aphid species were determined as new records for the Turkish fauna. Of these species, 5 belong to the subfamily Aphidinae and 4 to the subfamily Lachninae. World distribution, taxonomic categories, collection dates, and host plants are given for each new record:

Subfamily: Aphidinae

Tribe: Aphidini

Genus: *Aphis* Linnaeus, 1758

Aphis helianthi Monell in Riley & Monell, 1879

A. heraclii Cowen ex Gillette & Baker, 1815 nec. Koch, 1854, *A. carduella* Walsh, 1863, *A. apigraveolens* Essig, 1938

Distribution: North America and Brazil (Blackman and Eastop, 1994, 2006).

Collected host plants and date: 19.10.2005 *Daucus carota* (Umbelliferae), 07.12.2005 *Senecio vulgaris* (Compositae).

Tribe: Macrosiphini

Genus: *Macrosiphum* Passerini, 1860

Macrosiphum impatientis (Williams, 1911)

Distribution: North-east and Mid-west America (Blackman and Eastop, 2006).

Collected host plants and date: 06.08.2004, *Crepis foetra* (Compositae); 20.05.2005, *Rosa canina* (Rosaceae); 30.06.2005, ornamental plant; 26.07.2005, *Sonchus oleraceus* (Compositae); 02.08.2005, *Scorzanera cana* var. *cana* (Compositae).

Macrosiphum mordvilko Miyazaki, 1968

M. rosae subsp. *orientale* Mordvilko, 1919 nec *orientale* van der Goot, 1912

Distribution: Japan, Korea, and Russia (Blackman and Eastop, 2006).

Collected host plants and date: 03.08.2004, 19.10.2005, *Picris strigosa* (Compositae); 24.06.2005, *Mycelis muralis* (Compositae); 19.10.2005, *Urospermum picroides* (Compositae).

Macrosiphum pallidum (Oestlund, 1887)

M. pseudorosae Patch, 1919

Distribution: North America (Blackman and Eastop, 2006).

Collected host plants and date: 03.08.2004, 26.07.2005, ornamental plant; 26.07.2005, *Centaurea solstitialis* (Compositae).

Genus: *Uroleucon* Mordvilko, 1914

Uroleucon pseudoambrosiae (Olive, 1963)

Distribution: South-east America (Blackman and Eastop, 2006).

Collected host plants and date: 09.08.2004, *Cichorium intybus* (Compositae).

Subfamily: Lachninae

Tribe: Cinarini

Genus: *Cinara* Curtis, 1835

Cinara maghrebica Mimeur, 1934

C. pasheki Pintera, 1966, *C. maghrebica* subsp. *garganica* Binazzi, 1983

Distribution: Morocco, France, Spain, and Italy (Blackman and Eastop, 1994).

Collected host plants and date: 27.07.2005, *Pinus nigra* (Pinaceae).

Cinara wahlua Hottes, 1952

Distribution: Colorado, USA (Blackman and Eastop, 1994).

Collected host plants and date: 02.08.2005, *Juniperus oxycedrus* (Cupressaceae).

Tribe: Lachnini

Genus: *Stomaphis* Walker, 1870

Stomaphis cupressi (Pintera, 1965)

Distribution: France, Italy, and Kenya (Blackman and Eastop, 1994).

Collected host plants and date: 19.10.2005, *Cupressus sempervirens* (Cupressaceae).

Genus: *Maculolachnus* Gaumont, 1920

Maculolachnus submacula (Walker, 1848).

Distribution: Europe, East Ukraine, and India (Blackman and Eastop, 2006).

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Collected host plants and date: 20.08.2006, *Rosa canina* (Rosaceae).

In most areas of Turkey, aphids have not yet been studied systematically. Compared with the entire area of the Turkey, the study area was extremely small. Despite this, 9 new aphid species are recorded and most of the new records are originally widespread in the USA. Thus, the number of recorded species of aphids in Turkey has reached 430. Turkey's geographical situation, floristic richness, and climatic range have created a great diversity of suitable habitats for exploitation by aphid species. The 430 species known from Turkey may not accurately reflect its total number of species because Italy, Greece, and Romania, which are smaller than Turkey, have more recorded species. In studies from different areas, Ozdemir et al. (2005), Uysal et al. (2006), and Kaygın et al. (2008) reported new records for Turkish aphid fauna. It would therefore be logical to assume that widespread, systematic studies, especially in areas of high biodiversity, would reveal many more species.

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