*Cyrtophora citricola* (Araneae: Araneidae: Cyrtophorinae), a first record for Turkey

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**Abstract:** We recorded the tent-web spider *Cyrtophora citricola* (Forsskål, 1775) (Araneidae: Cyrtophorinae) from Turkey for the first time at two sites. Body measurements and a brief description of the female are presented as well as information on the sites (olive and orange orchards, shrubs) and the accompanying spider fauna.

**Keywords:** Mediterranean, orb-weaver, spider, tent-web

The spider family Araneidae currently includes 168 genera and 3029 described extant species and subspecies (PLATNICK 2012). 53 species and one subspecies are known from Turkey (BAYRAM et al. 2012).

The subfamily Cyrtophorinae was first established by SIMON (1895) for the genus *Cyrtophora*. Members of this subfamily differ from other araneid spiders, mainly by their distinctive tent-web architecture (SCHARFF & CODDINGTON 1997). Furthermore, as elucidated by LEVI (1997), *Cyrtophora* also differs from other araneids by the proportions of the leg articles, having the second to fourth combined patella and tibia slightly shorter than the femur of the same leg and also shorter than the combined metatarsus and tarsus of the same leg. As additional characters, the legs are relatively heavy and the lateral eyes are slightly separated. LEVI (1997) also noted that *Cyrtophora* differs from *Argiope*, *Gea*, *Kapoea* and *Mecynogea* by the arrangement of the posterior eye row, and from *Manogea* by the cephalic region being wider (for details see LEVI 1997: 250-251).

*Cyrtophora* includes 43 species and 9 subspecies which are distributed throughout the tropical and subtropical regions of the world (PLATNICK 2012). *Cyrtophora citricola* (Forsskål, 1775) originates from the Old World, but has also been recorded from the Americas (PLATNICK 2012). It is considered as both a useful and a harmful agent in biological control as a result of its characteristic bulky and 'permanent' web structure (EDWARDS 2006). In terms of proximity to Turkey, the species is already known from Malta, Greece and Israel (LEVY 1997, HELSDINGEN 2011).

The purpose of this brief article is to record the araneid spider *Cyrtophora citricola* as a new species record for the Turkish araneofauna. Consequently, the subfamily Cyrtophorinae and the genus *Cyrtophora* are also reported from Turkey for the first time.

**Material and methods**

All specimens were collected from two different provinces in Turkey (Fig. 1) using a hand aspirator and preserved in 70% ethanol. The carapace and abdomen measurements were taken after dissection, with each one measured separately and then combined to generate the total body length. All measurements are in mm.

**Results**

**Material examined:** 11 ♀, Antalya Province, Serik District, Eminçeler Village (36°53'58.72"N, 31°35'55.85"E), 02. May 2007, in orange orchard, 8 m a.s.l., leg. İ.Tekşam; 1 ♂, 10 ♀, Muğla Province, Milas District, Kıyıkışlacik Village (37°16'38.80"N, 27°33'47.97"E), 01. July 2010, in olive orchards and shrubs, 5-100 m a.s.l., leg. M. Elverici.

**Further data:** Muğla Province, Ortaca District, Dalyan Town – no details known (Dalyan Town: 36°50'15"N; 28°45'58"E, almost at sea level) (KÖCH 2012).


**Description:** Carapace usually brown, but varying from blackish-brown to yellowish-brown among individuals. Cephalothorax yellowish towards the posterior edge. Surface covered by tiny greyish hair,
which becomes intense in the cephalic region. Distance between anterior lateral and posterior lateral eyes one and a half times the diameter of the anterior lateral eye. Sternum heart-shaped, yellowish-brown, surface covered by sparse black hair. Aboral part of labium, exterior halves of gnathcoxae blackish-deep brown, interior halves bright yellowish at the surface and usually hairless. Legs yellowish brown; colour tones on segments variable among individuals, usually with deep brown or blackish annihilations. Abdomen colour and dorsal pattern variable among individuals. However, two pairs of dorsal tubercles and a pair of posterior tubercles are highly characteristic. Scapus absent on epigyne (generic character).

The only male individual was found dead on the web of an adult female from Muğla province. The remains of the male were deformed and desiccated, but the species-specific median apophysis on the relatively well preserved and still deformed palps enabled us to make an unequivocal identification.

Habitat and ecology

The specimens from Muğla were collected in the course of field studies aiming to determine the spider fauna of olive orchards found in Kıyıkışlacık Village. Olive orchards and associated shrubby vegetation were surveyed periodically over one year using several techniques, at altitudes from sea level up to 100 m. All C. citriola specimens were collected or observed by beating and during direct searching of shrubs. Specimens were often observed on Myrtus communis shrubs, and it was quite common to see several spiders on adjacent webs upon a single tree. The first adult female was observed in June and they were quite common in July, while the last adult individual was observed in September.

Distribution

Europe: France (Mainland, Corsica); Greece; Italy (Sicily & Sardinia); Malta; Portugal (Mainland & Madeira); Spain (Mainland, Balearic & Canary Islands) (Heldsingen 2011), Asian Near East: Israel (Levy 1997); Old World (Platnick 2012), also introduced into the Americas: Greater Antilles, Costa Rica, Colombia (Platnick 2012), and Brazil (Alvares & De Maria 2004).

Accompanying species

In a few cases during the sampling of shrubs in Kıyıkışlacık, specimens of the kleptoparasitic spiders Argyrodes argyrodes (Walckenaer, 1842) and Neospinthurus syriacus (O. P.-Cambridge, 1872) were found together with C. citriola within the beating samples acquired from the same branches. We suspect that both of these species were kleptoparasites in the webs of C. citriola.

Besides C. citriola, the following species of araneid spiders were also recorded from Kıyıkışlacık: Ageleneaeae riedii (Scopoli, 1763), Araneus cirs (Audouin, 1826), Araniella cucurbitina (Clerck, 1757), Argyope lobata (Pallas, 1772), Cyclosa conica (Pallas, 1772), Gibbaranea bituberculata (Walckenaer, 1802), Hyposina sanguinea (C.L. Koch, 1844), Larinioides suspicax (O. P.-Cambridge, 1876), Mangora acalypba (Walckenaer, 1802), Neoscona adianta (Walckenaer, 1802), Neoscona subfuscus (C.L. Koch, 1837), and Parazygiella
Cyrtophora citricola in Turkey

montana (C.L. Koch, 1834). Among these, A. circe, A. cucurbitina, C. conica, M. acalypha, and N. subsusca were collected on shrubs along with C. citricola, while other species were more abundant in other types of habitats.

A. circe, N. subsusca and C. citricola were the three most abundant araneids on shrubs. A. circe had its peak of activity earlier than the other two, in May and early June, later it completely disappeared. N. subsusca was active for a longer period of time from June to October, showing a large overlap with the activity of C. citricola. The remaining species were rare in the sampling area and represented by only few specimens in the collection.

Discussion

With the addition of C. citricola, the number of araneid spiders known from Turkey has increased to 54 and the number of subfamilies of Araneidae has increased to four. Based on the previously known distribution of C. citricola, the geographical position of Turkey and the zoogeographical distributions of other araneids recorded from Turkey, the discovery of C. citricola in Turkey is not particularly surprising. Its presence at three locations in Muğla and Antalya provinces may indicate that C. citricola is widely distributed throughout the Turkish Mediterranean coast. The specimens from Antalya were collected in orange orchards by direct searching, and found on webs built on orange trees. Adults were collected more than one month earlier than in Muğla. This was probably due to latitudinal differences between the two localities, or to annual climatic fluctuations, as specimens were collected with a time interval of three years between samples.

Occurrence of the kleptoparasitic spiders A. argyrodés and N. syriacus near C. citricola webs is interesting, but not surprising, as N. syriacus was first described from Lebanon on webs of C. citricola and A. argyrodés is also known from webs of C. citricola. Still, both of these species can also live freely or can be found on webs of other species (of Araneidae, Theridiidae, Pholcidae, Linyphiidae, Uloboridae) (EDWARDS 2006, KAYA et al. 2009, 2010).

C. citricola is a well-known species both in terms of ecology and systematics (LUBIN 1974, BUSKIRK 1975, LEVI 1997, LEBORNE et al. 1998, LEVI 1997). All information about the Turkish specimens and their habitats fits with the hitherto existing data.

References


