

SOME CONTRIBUTIONS TO TURKISH *CHEILOSIA* MEIGEN (DIPTERA: SYRPHIDAE)

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ABSTRACT: Material of the genera *Cheilosia* sampled from Aksaray, Ankara, Bartın, Bolu, Çankırı, Kahramanmaraş, Kastamonu, Kayseri, Nevşehir, Niğde, Sinop and Zonguldak between 1993 and 2008 is presented. 17 species have been identified. Four species as *Cheilosia bracus* Vujic & Claussen, 1994, *Cheilosia himantopus* (Panzer, 1798), *Cheilosia transcaucasica* Stackelberg, 1960 and *Cheilosia vulpina* (Meigen, 1822) are new to the Turkish fauna.

KEY WORDS: Syrphidae, *Cheilosia*, new records, Turkey

The predominantly Holarctic genus *Cheilosia* Meigen, 1822 is one of the most diverse and species-rich genera of the family Syrphidae (Diptera), comprising about 450 species, 300 from the Palaearctic region, more than 80 from the Nearctic region, about 50 species from the Oriental region, and a couple of species which extend into the northern Neotropics. Among Palaearctic members of the subfamily Eristalinae, only the genera *Cheilosia* and *Volucella* contain species with various feeding modes of the larvae. All known larvae of the genus *Cheilosia* are saprophagous, phytophagous, fungivorous or are sap-feeders on coniferous trees. Most *Cheilosia* flies are all black in ground-color, with their color of pilosity ranging from black to yellow and red. Some *Cheilosia* species are good mimics of Hymenoptera, e.g., the color pattern of the pilosity resembles that of particular bumblebee species (Stähls et al., 2004).

Until now twenty species of the genus *Cheilosia* have been recorded from Turkey, by Turkish and foreign researchers. In this study, the species and the people who recorded them are listed in Table 1.

MATERIAL AND METHODS

The syrphids were collected by the author from 47 sites belonging to 12 provinces (AK: Aksaray, AN: Ankara, BA: Bartın, BL: Bolu, ÇA: Çankırı, KM: Kahramanmaraş, KS: Kastamonu, KY: Kayseri, NE: Nevşehir, Nİ: Niğde, Sİ: Sinop and ZN: Zonguldak) of the Turkey with hand net from April to September, mainly during spring and autumn between the years 1993 and 2008 (Fig. 1). The surveys have been carried out in habitats in valleys, river banks and mostly high mountainous regions. The flowers being visited by syrphids have been reported in Table 2. The identification of some materials have been made by the C. Claussen (Flensburg, Germany). All samples are kept by the author (Kastamonu, Turkey).

RESULTS

The provinces from which the syrphid materials were collected by author, are given in Table 2. The first two letters given in the locality indicate the provinces visited, and the subsequent numerals indicate the locality of the provinces. The

altitude is given for each locality. And the visited dates of localities are also mentioned.

Localities

Aksaray

AK01 Aksaray, Gülağaç, Kızılkaya village, 03.06.1997, 1100 m.

Ankara

AN01 Ankara, Kızılcahamam, Güvem village, 14.05.1994-22.07.1997, 950-1040 m.

AN02 Ankara, Çubuk, Karagöl, 25.05.1996, 1450 m.

AN03 Ankara, Çubuk, Ovacık village, 25.05.1996, 1150 m.

AN04 Ankara, Çubuk, Özlüce village, 05.05.1996, 1000 m.

AN05 Ankara, Çubuk, Kuruçay village, 25.05.1996, 1100 m.

Bartın

BA01 Bartın, Ulus, 24.V.1995, 60m.

Bolu

BL01 Bolu, Gölçük, 18.07.1995-03.08.199611001320m.

BL02 Bolu, Yedigöller, 20.07.1995, 780 m.

BL03 Bolu, Yedigöller, Köknarlı high plateau, 20.07.1995-03.08.1996, 1400-1500 m.

BL04 Bolu, Yedigöller main road 22. km., 09.07.1996, 1400 m.

BL05 Bolu, Mengen, Hızır Baba locality, 10.07.1996, 740 m.

BL06 Bolu, Gerede, Aktaş forest, 04.08.1996, 1400 m.

Çankırı

ÇA01 Çankırı, Çerkeş, Halkaoğlu village, 25.05.1995, 1150 m.

ÇA02 Çankırı, Ilgaz, Çomar village, 05.07.1996, 1400 m.

ÇA03 Çankırı, Ilgaz, Ilgaz Mountain, 12.07.1997, 1500 m.

Kahramanmaraş

KM01 K.Maraş, Andırın, Kesik high plateau, 13.08.1995-14.06.1999, 1250 m.

Kastamonu

KS01 Kastamonu, Ilgaz Mountain National Park, 03.06.1995-20.08.2008, 1600-1900 m.

KS02 Kastamonu, Ilgaz Mountain, Tüfekçi village, Diphan locality, 10.06.2000-25.06.2008, 1500-1700 m.

KS03 Kastamonu, Bostan village, 12.07.1997-23.06.1999, 1200-1400 m.

KS04 Kastamonu center, 07.06.1994-10.05.2000, 720 m.

KS05 Kastamonu, Girdalı village, 05.07.1996, 1100 m.

KS06 Kastamonu, Oyrak locality, 11.05.1996, 800 m.

KS07 Kastamonu, Çatören and Bostan villages, 12.07.1997-06.08.1999, 1250 m.

KS08 Kastamonu, Yukarı İsmaili village, 07.08.1999, 1400 m.

KS09 Kastamonu, Girdalı village, , 08.06.1996, 1100 m.

KS10 Kastamonu, Seydiler, Sabuncular village, 10.07.1995, 1400 m.

KS11 Kastamonu, Ağıl, 08.07.1996, 1160 m.

KS12 Kastamonu, Biden high plateau, 21.07.1995, 1200 m.

KS13 Kastamonu, Tosya, Bürnük village, 05.07.1996, 1190 m.

KS14 Kastamonu, Tosya, Ilgaz Mountain pass, 08.06.1996, 1650 m.

KS15 Kastamonu, Tosya, Dipsiz göl, 24.06.2000, 1000 m.

KS16 Kastamonu, Hanönü, Çakırçay village, 09.06.1996, 450 m.

KS17 Kastamonu, Daday, Balhıdağ locality, 10.05.2008-30.09.2008, 1400-1700 m.

Kayseri

KY01 Kayseri, Yılanlıdağı, Koyunlubaba locality, 19.05.1993-26.06.1993, 1200-1250 m.

KY02 Kayseri, Develi, Erciyes Mountain, 20.05.1993, 1700 m.

KY03 Kayseri, Develi, Yazıbaşı and Dereşimli village, 20.05.1993, 1350 m.

KY04 Kayseri, Yahyalı-Mansurlu main road 5. km., 21.05.1993, 1300 m.

KY05 Kayseri, Develi-Tomarza main road 8. km., 22.05.1993, 1450 m.

KY06 Kayseri, Yahyalı-Mansurlu main road 5.km., 12.06.1993, 1500 m.

KY07 Kayseri, Hisarcık, 13.06.1993, 1600 m.

KY07 Kayseri, Yeşilhisar, Güzelöz locality, 02.06.1997, 1260 m.

Neveşehir

NE01 Neveşehir, Göre village, 19.05.1997, 1260 m.

Niğde

NI01 Niğde, Ulukışla, 01.06.1997-23.06.1997, 1280-1400 m.

Sinop

Sİ01 Sinop, Boyabat, 07.07.1996, 1300 m.

Zonguldak

ZN01 Zonguldak, Devrek, 22.05.1995, 220 m.

ZN02 Zonguldak, Alaplı-Akçakoca main road 5. km., 21.05.1995, 10 m.

Table 1. The list of reported *Cheilosia* species. In the second column references are given to literatures in which the species has previously been recorded for Turkey.

Genus	Species	References pertaining to Turkey
<i>Cheilosia</i>	1. <i>Cheilosia aerea</i> Dufour, 1848	Dirickx (1994), (Reemer & Smit (2007), Sarıbiyik (2009)
	2. <i>Cheilosia albitarsis</i> (Meigen), 1822	Tuatay et al. (1967, 1972) Sarıbiyik & Hasbenli (2006), (Hurkmans et al.(1997), Sarıbiyik (2009)
	3. <i>Cheilosia bracus</i> Vujic&Claussen, 1994	New record
	4. <i>Cheilosia canicularis</i> (Panzer), 1801	Hurkmans et. al. (1997), Sarıbiyik, (1999, 2001, 2003b, d, 2009), Stuke & Claussen (2000), Reemer & Smit (2007), Speight (2008)
	5. <i>Cheilosia himantopus</i> (Panzer), 1798	New record
	6. <i>Cheilosia illustrata</i> (Harris), 1776	Sarıbiyik (2001, 2003b, d, 2009)
	7. <i>Cheilosia mutabilis</i> (Fallen), 1817	Speight (2008),
	8. <i>Cheilosia nigripes</i> (Meigen), 1822	Séguy (1961), Peck (1988), Dirickx (1994), Speight (2008)
	9. <i>Cheilosia pagana</i> (Meigen), 1822	Tuatay et al. (1967, 1972), Dirickx (1994), Speight (2008)
	10. <i>Cheilosia proxima</i> (Zetterstedt), 1843	Dirickx (1994), Speight (2008), Sarıbiyik (2009)
	11. <i>Cheilosia scutellata</i> (Fallén), 1817	Sack (1932), Özgür (1987), Sarıbiyik (1999, 2001, 2003b, c, d, 2009), Sarıbiyik & Hasbenli (2006), Speight (2008)
	12. <i>Cheilosia soror</i> (Zetterstedt), 1843 = <i>Cheilosia rufipes</i> (Preyssler, 1793)	Özgür (1987), Dirickx (1994), Aktaş & Sarıbiyik (1996), Sarıbiyik, (1999, 2001, 2003a, b, c, d, 2009), Sarıbiyik & Hasbenli (2006), Reemer & Smit (2007)
	13. <i>Cheilosia transcaucasica</i> Stackelberg, 1960	New record
	14. <i>Cheilosia urbana</i> (Meigen), 1822 = <i>Cheilosia praecox</i> (Zetterstedt, 1843) = <i>Cheilosia ruralis</i> (Meigen, 1822)	Özgür (1987), Claussen & Lucas (1988), Dirickx (1994), Speight (2008), Sarıbiyik (2009)
	15. <i>Cheilosia variabilis</i> (Panzer), 1798	Dirickx (1994), Hurkmans et. al. (1997), Sarıbiyik, (1999, 2001, 2003b, d, 2009), Speight (2008)
	16. <i>Cheilosia vicina</i> (Zetterstedt), 1849 = <i>Cheilosia nasutula</i> (Becker, 1894)	Dirickx (1994), Speight (2008)
	17. <i>Cheilosia vulpina</i> (Meigen), 1822	New record

Table 2. The list of *Cheilosia* species. The locality codes are explained in the text. In some cases the number and sex of the specimens are given between brackets (f=female, m=male). In the last column, visited flowers are given.

No	Species	Localities	Flower visited
1	<i>Cheilosia aerea</i> Dufour, 1848	AN01 (1m) AN03 (1m) AN04 (1m) BA01 (3m, 2f) KM01 (1f) KS13 (1f) KS16 (1f) KY01 (5m, 1f) KY02 (2m) KY03 (1f) KY04 (5m, 2f) KY05 (1m, 2f) KY06 (1f) KY07 (2m) KY08 (1m) Nİ01 (1m, 1f)	<i>Crataegus</i> sp. Rosaceae and White Umbelliferae
2	<i>Cheilosia albitarsis</i> (Meigen, 1822)	AK01 (1f) AN01 (2m, 2fm) AN02 (2m, 5f) AN05 (1f) BL01 (1f) ÇA01(5m, 2f) ÇA02(1f) KS01 (2f) KS02 (6m, 7f) KS04 (1m) KS14 (4m 6f) KS15 (1m) KS09 (1m 2f) KY04 (2f) NE01 (1m) ZN01(1m)	<i>Ranunculus</i> sp. Ranunculaceae and White Umbelliferae
3	<i>Cheilosia bracusi</i> Vujic & Claussen, 1994	KS01 (1f)	White Umbelliferae
4	<i>Cheilosia canicularis</i> (Panzer, 1801)	KS01 (1m, 1f) Sİ01(2m) KS17 (2m, 2f)	yellow composites
5	<i>Cheilosia himantopus</i> (Panzer, 1798)	ÇA03 (1f) KS02 (1f) Sİ01(1m, 1f)	yellow composites
6	<i>Cheilosia illustrata</i> (Haris, 1776)	BL01 (1m) BL02 (2m) BL03 (8m, 5f) KS01 (4m,6f) KS09 (1m)	<i>Heracleum</i> sp. Umbelliferae
7	<i>Cheilosia mutabilis</i> (Fallen, 1817)	KS07 (1f) ZN02 (1m)	White Umbelliferae
8	<i>Cheilosia nigripes</i> (Meigen, 1822)	KS14 (1f) KY03 (1m)	<i>Ranunculus</i> sp. Ranunculaceae
9	<i>Cheilosia pagana</i> (Meigen, 1822)	BL03 (1m)	White Umbelliferae
10	<i>Cheilosia proxima</i> (Zetterstedt, 1843)	BA01 (2m, 1f)BL04 (1f) BL05 (3f) KS01 (1m) KSo4 (3m, 2f) KS10 (1f) KS11 (1f)	<i>Ranunculus</i> sp. Ranunculaceae White umbellifers; <i>Crataegus</i>
11	<i>Cheilosia scutellata</i> (Fallén, 1817)	BA01 (3m, 4f) BL01 (1m) BL02 (1m) BL06 (3m) KS01 (1m, 1f) KS12 (1m)	White Umbelliferae
12	<i>Cheilosia soror</i> (Zetterstedt, 1843) = <i>Cheilosia rufipes</i> (Preyssler, 1793)	BA01 (1m, 2f) KM01 (3m, 4f)	White Umbelliferae
13	<i>Cheilosia transcaucasica</i> Stackelberg, 1960	AN01 (fm) KS02 (1m) KS07 (1f)	White Umbelliferae
14	<i>Cheilosia urbana</i> (Meigen, 1822) = <i>Cheilosia praecox</i> (Zetterstedt, 1843) = <i>Cheilosia ruralis</i> (Meigen, 1822)	AN01 (1m) KS01 (1f) KS04 (1f) KS06 (1m) KS07 (1f) KY01 (1m) KY02 (3f) KY06 (1f)	White Umbelliferae

15	<i>Cheilosia variabilis</i> (Panzer, 1798)	BL01 (1m) KSo2 (2m) KSo7 (1m) KS10 (1f)	<i>Ranunculus</i> sp. and white umbellifers
16	<i>Cheilosia vicina</i> (Zetterstedt, 1849) = <i>Cheilosia nasutula</i> (Becker, 1894)	KSo1 (2m, 1f) KS17 (4m, 2f)	<i>Ranunculus</i> sp. and yellow Compositae
17	<i>Cheilosia vulpina</i> (Meigen, 1822)	ÇA03 (1m) KSo1 (3m) KSo4 (1m, 1f) KSo6 (1f) KSo7 (1f) KSo8 (1f)	<i>Cistus</i> sp. and <i>Ranunculus</i> sp. and white Umbelliferae

DISCUSSION

The genus *Cheilosia* Meigen, 1822 (Syrphidae, Diptera) is the largest genus of European hoverflies with more than 175 European species. It is primarily distributed in the Palaearctic, with the highest diversity in the forest habitats, especially in broad-leaved woodlands (Vujić, 1996).

Until now, twenty species of the genus *Cheilosia* have been recorded from Turkey, by Turkish and foreign researchers. The number of *Cheilosia* reaches 24 with newly 4 records in the study.

It is accepted that *Cheilosia* genus is the second largest genus of hoverflies in Turkey till now and it can be expected that it would be probably the largest genus of Turkey, if is compared with genus number in Europe. Because, many collected *Cheilosia* samples have not been identified.

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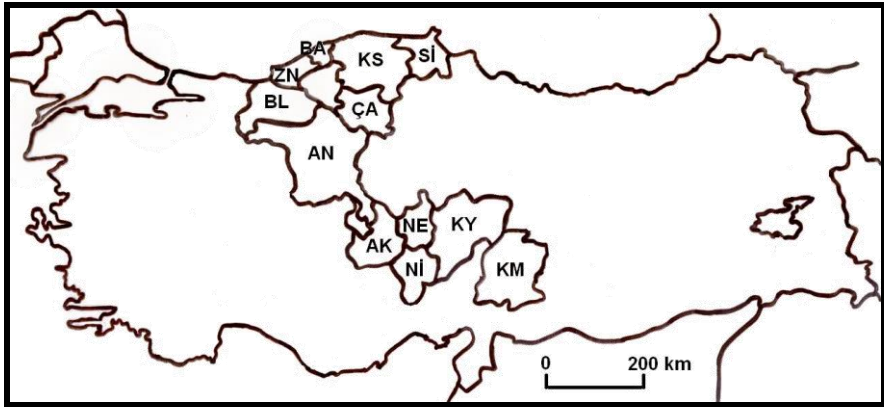


Figure 1. The research areas (AK: Aksaray, AN: Ankara, BA: Bartın, BL: Bolu, ÇA: Çankırı, KM: Kahramanmaraş, KS: Kastamonu, KY: Kayseri, NE: Nevşehir, Nİ: Niğde, Sİ: Sinop, and ZN: Zonguldak).