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Notes on Cantharidae (Coleoptera) species occurring in sweet cherry orchards in Kemalpaşa (Izmir) province of western Turkey

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Abstract: In this paper, information on four species, namely *Cantharis delagrangei* DELKESKAMP, 1939, *C. livida* LINNAEUS, 1758, *C. prusiensis* MARSEUL, 1864 and *Rhagonycha fulvaliena* ŠVIHLA, 1995 have been given from sweet cherry orchards in Kemalpaşa (Izmir) province of western Turkey.

Key words: Cantharidae, Fauna, Sweet cherry, Turkey.

Introduction

Sweet cherry is a fruit which has significant role in Turkish economy. There are 20 615 760 sweet cherry trees in Turkey and annual production is 535 600 tons (ANONYMOUS 2015a). Cherries are extensively grown in the Aegean, Marmara and Mediterranean regions of Turkey. In the Aegean region, Kemalpaşa (Izmir) is the area where they are commonly widespread (ANONYMOUS 2015b) and 8,8% of Turkish sweet cherry production is realized in this province (ANONYMOUS 2015a). According to 2015 data, there are 2112800 trees bearing fruits in 8681,1 hectares of land in Kemalpaşa province (ANONYMOUS 2015a).

There have been many studies on the pests and the beneficial species found in sweet cherry orchards in Turkey. However, apart from ERTOP & ÖZPINAR (2011) no other study was found which went as far down as the species belonging to Cantharidae (Coleoptera). In this study *Cantharis decipiens* BAUDI, 1871 was reported from sweet cherry orchards in Çanakkale province of Turkey without giving an information on feeding effects and damage (ERTOP & ÖZPINAR 2011).

SAHLBERG (1912-1913), WITTMER (1967-1968, 1969, 1971, 1972, 1975), GÜL-ZÜMREOĞLU (1972), TUATAY et al. (1972), ŠVIHLA (1993, 1994, 1995, 1998, 1999, 2002, 2004, 2009), LODOS (1998), SAYAN (2010), YILDIRIM et al. (2011), SILKIN (2012) and DEMİRÖZER & KARACA (2014) were the other studies conducted on Cantharidae fauna of Turkey.

In some other studies, species belonging to Cantharidae have been evaluated by means of their feeding habits as predators (LANGENSTÜCK & HEIMBACH 1999; RAMSDALE 2002; ALFORD 2003; PRODANOVIĆ et al. 2010). But there is not detailed information on feeding

of these species in sweet cherry orchards. For the purpose of overcoming this absence, conducting a study in the sweet cherry orchards in Kemalpaşa was deemed necessary.

Material and Methods

The material of this study consisted of species within the Cantharidae collected from sweet cherry orchards from the villages of Kemalpaşa province in the months between April and June of 2015.

Studies were conducted in 142 sweet cherry orchards in 24 localities with sizes ranging between 1 to 5 decares. These localities and the number of orchards which were sampled were as follows: Akalan (3), Armutlu (14), Aşağıkızılca (3), Bağyurdu (14), Bayramlı (3), Beşpınar (3), Central province (13), Çambel (3), Damlacık (3), Kamberler (3), Kızılüzüm (3), Kurudere (3), Ovacık (3), Ören (20), Örnekköy (8), Sarılar (3), Sinancılar (3), Sütçüler (5), Ulucak (6), Vişneli (5), Yenikurudere (3), Yenmiş (3), Yiğitler (10), Yukarıkızılca (5). - 142 Orchards in total.

In these orchards by walking along the transects of the orchard with the beating tray, falling samples by 25 impact on randomly selected trees in every orchard was collected with the aspirator; sampling was conducted using 25 swings of sweep net for collection of the individuals likely to be found on lower vegetation. Furthermore, in each orchard for 10 minutes the insects on trees were observed and insect samples were collected with aspirator. This was repeated three times for the early, mid-season and late maturing varieties of cherries. The confirmation and identification of the samples were done by Dr. Andreas Kopetz (Naturkundemuseum, Erfurt, Germany).

Results

As a result of this study, a total of four species, namely *Cantharis delagrangei* DELKESKAMP, 1939, *C. livida* LINNAEUS, 1758, *C. prusiensis* MARSEUL, 1864 and *Rhagonycha fulvaliena* ŠVIHLA, 1995 were determined and they were indicated in Table 1.

Those species were reported for the first time from sweet cherry orchards in Turkey. The most common species in the province is *C. livida* sampled 118 orchards (83,09%) from total of 142. This species was followed by *R. fulvaliena* (112 orchards, 78,87%), *C. prusiensis* (20 orchards, 14,08%) and *C. delagrangei* (1 orchard, 0,70%), respectively.

When the numerical and percentage status of the collected samples within the total sample was observed *C. livida* was the most prominent one with 846 samples (59,12%). It was followed by *R. fulvaliena* with 487 samples (34,03%), *C. prusiensis* with 97 samples (6,78%) and *C. delagrangei* with 1 sample (0,07%).

A total of 1431 samples which belong to four species collected. Among those, 664 samples (46,40%) were collected with beating tray, 577 (40,32%) were with aspirator and 190 (13,28%) were with sweep net.

During this study, feeding of *C. prusiensis* and *C. delagrangei* on sweet cherry fruits have not been observed both in nature and in the laboratory. *C. livida* has been observed

as feeding on early and mid-season sweet cherry varieties while *R. fulvaliena* on late season varieties especially on the fruits of high economic variety of 0900 Ziraat both in nature and in laboratory (Fig. 1).



Fig 1: *Rhagonycha fulvaliena* adults feeding on sweet cherry fruit.

Similar studies in other sweet cherry production areas need to consider in Turkey. In this way, it may contribute to the increase of knowledge on this group of insects.

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Zusammenfassung

Vorliegende Arbeit gibt Informationen zu den vier Cantharidae-Arten (Coleoptera) *Cantharis delagrangei* DELKESKAMP, 1939, *C. livida* LINNAEUS, 1758, *C. prusiensis* MARSEUL, 1864 und *Rhagonycha fulvaliena* ŠVIHLA, 1995 aus Untersuchungen in einem Süßkirschen-Obstgarten in Kemalpaşa in der türkischen Provinz Izmir im Westen der Türkei.

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Table 1: List of Cantharidae species according to the genera and collection methods in Kemalpaşa (Izmir) province of western Turkey.

Species	Number of surveyed orchards	Number of orchards occurring specimens	Rate of orchards occurring specimens (%)	Collection methods, varieties and number of specimens												Total number and rate of collected specimens (%)		
				Insect net			Beating tray			Aspirator			Total					
				E*	M*	L*	E*	M*	L*	E*	M*	L*	E*	M*	L*	E*	M*	L*
<i>Cantharis delagrangi</i>	142	1	0,70	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0,07
<i>Cantharis livida</i>	142	118	83,09	105	14	0	283	79	3	310	48	4	698	141	7	846	59,12	
<i>Cantharis prusienis</i>	142	20	14,08	29	0	0	29	7	0	27	5	0	72	25	0	97	6,78	
<i>Rhagozycha fulvalitena</i>	142	112	78,87	1	3	37	8	42	213	6	22	155	15	49	423	487	34,03	
Total				136	17	37	320	128	216	343	75	159	786	215	430	1431	100,00	
				190			664			577			1431					

* E: early season varieties, M: mid-season varieties, L: late season varieties

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