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New Data on Zoogeography and Taxonomy of the East Black Sea Region Species of Braconinae (Hymenoptera: Braconidae) in Turkey

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ABSTRACT

In this study Braconinae (Braconidae: Hymenoptera) fauna of East Black Sea Region was invastigated during the years 2004-2005. During the study period, 58 species were collected and identified. *Bracon (Bracon) schmidti* Kokujev, 1912, *Bracon (Lucobracon) concavus* Tobias, 1957, *Bracon (Lucobracon) mirus* Szépligeti, 1901 are the first records for the Turkey Braconinae fauna. All the discovered species are the first records for the East Black Sea Region. Distribution of all species were compared with published species distribution records from the Caucasus, Central Asia and Europe.

Key words: East Black Sea Region, Braconinae, Braconidae, Hymenoptera, fauna, new record.

INTRODUCTION

Asia Minor has greatly fascinated not only geologists, botanists, zoologists and biogeographers, but also students of the most different human sciences. This comes mostly from the geomorphology and geographical position of the Anatolian peninsula, a large bridge between East and West along the eastern side of the Mediterranean sea, and a natural passage, in the past as well as in the present, for the migration of floras, faunas and humans from Asia to Europe (Casale &Taglienti, 1999).

The northern side of Anatolian peninsula is formed by a series of longitudinal chains and isolated massifs, with a long series of short and deep valleys perpendicular to the Black sea. The central and eastern part of this area is known with the collective name of Pontic chain. This chain is connected to the East with the Great Caucasus. Furthermore some of its peaks to the South and Southeast of Rize, reach or exceed 3000 m in altitude (Kackar Dağ, 3937 m) (Casale &Taglienti, 1999).

The Black Sea Region**,** which gets its name and characteristics by the adjacent sea, extends from the border of Georgia to the east to the eastern edge of the Adapazari Plain to the west. The region is divided into the three sections based on their geographical characteristics: east, central and west.

The current study was performed expecting that Braconinae (Braconidae: Hymenoptera) fauna of East Black Sea Region possess typical features of Black Sea Region climate and vegetation.

Braconinae is one of the largest subfamily of the family Braconidae. The members of this family are braconines are idiobiont ectoparasitoids of concealed holometabolous insect larvae, especially of the Lepidoptera and Coleoptera, though a few species, mostly in the genus *Bracon*, attack concealed dipterous or sawfly larvae (http://www.hymatol.org/Hym_course_powerpoint/Braconidae.pdf). Recently, Yu et.al. (2006) listed 434 species in the Western Palaearctic Region. The Turkey Braconinae are becoming increasingly well known both at the generic and the species levels. Beyarslan 1986a, 1986b, 1987, 1988, 1996, 1999, 2002a, 2002b; Beyarslan & Fischer 1990; Beyarslan & Tobias 2008; Beyarslan et al. 2002a; 2002b, 2005, 2006, 2008a, 2008b; Güler & Çağatay 2001 have reported distributional records for Braconids in Turkey. The current study was performed to evaluate the northern geographic distribution species of Braconinae (Hymenoptera: Braconidae) in East Black Sea Region.

MATERIAL AND METHODS

We collected our Braconinae specimens from various habitats such as woodland, orchards and cultivated areas of the East Black Sea Region in 2004 and 2005 (Fig. 1). Collections were made between May and September. Materials were collected with the help of a light trap at nights and a sweeping net during the day. Light trap shows an incandesent light bulb suspended over a glass jar (Robinson type). The jar filled 1/3 of the way with cotton absorbed ethyl acetate. Insects are attracted to they light, hit the light cover and fall into the funnel where they slip down into the jar (Fig. 2). We put one trap per location. Samples were transferred into small plastic tubes and kept in 70% ethanol prior to their transportation to the laboratory. The identifications were made by means of a NIKON SMZ stereomicroscope. Collections deposited at Trakya University as dry material (Science and Art Faculty, Biology Department). The specimens of Braconinae were identified by using the keys of Belokobylskij & Tobias (2000), Tobias (1986).

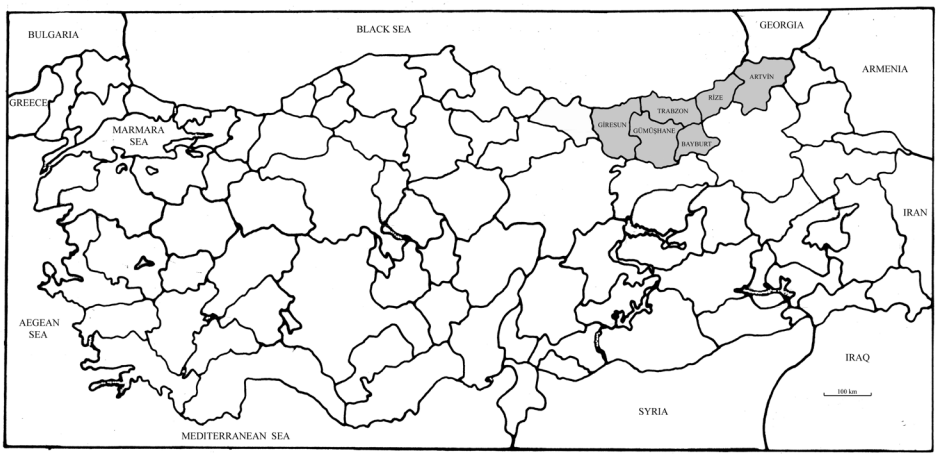

Fig. 1. Provinces situated in the East Black Sea Region, Turkey.

Fig. 2. Light trap.

RESULT AND DISCUSSION

Four genera and 58 species belonging to Braconinae were identified in the East Black Sea Region. All identified species are the first records for the East Black Sea Region. Three of these species *Bracon (Bracon) schmidti* Kokujev, 1912, *Bracon (Lucobracon) concavus* Tobias, 1957, *Bracon (Lucobracon) mirus* Szépligeti, 1901) are also the first records for the Turkey Braconinae fauna.

Braconinae species were taken from 6 provinces in East Black Sea region. (Table 1). The most frequently observed species are *Bracon* (*Glabrobracon*) *atrator* Nees,1834, *Bracon* (*G.*) *delibator* Haliday,1833, *Bracon* (*G.*) *variator* Nees,1811, *Bracon* (*Pigeria*) *piger* (Wesmael,1838).

The distribution of all species was compared with published species distribution records from the Caucasus, Central Asia and Europe. As one can see from the data given above, fifty-eight species that were detected in the northern part of Turkey show similarities with the Braconinae fauna of Caucasus, Central Asia and Europe. The Braconinae fauna of East Black Sea Region includes 47 European species. The majority of them are also known also from Caucasus and Central Asia (Table 1).

Table 1. Distribution of the species that determined in East Black Sea Region and in neighboring countries. Asterisk, * , means first record for Turkey.

GENUS: ***BRACON***	EAST BLACK SEA REGION						CAUCASUS			CENTRAL ASIA					EUROPEA
	Artvin	Bayburt	Giresun	Gümüşhane	Rize	Trabzon	Azarbaijan	Armenia	Georgia	Kazakhtsan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan	
SUBGENUS: *BRACON*															
Bracon chagrinicus Beyarslan,2002	*														
Bracon fulvipes Nees,1834	*	*		*		*	*			*				*	*
Bracon intercessor Nees,1834	*	*	*	*	*	*			*	*		*	*	*	*
Bracon kozak Telenga,1936	*												*	*	
Bracon leptus Marshall,1897				*					*	*				*	*
Bracon longicollis (Wesmael,1838)	*	*		*	*	*	*		*	*					*
Bracon luteator Spinola,1808		*		*			*		*	*		*	*	*	*
Bracon mariae Dalla Torre,1898		*					*	*		*					*
Bracon minutator (Fabricius,1798)	*	*					*		*	*		*			*

Table 1. continued.

Bracon nigratus (Wesmael,1838)		*		*											*
Bracon pectoralis (Wesmael, 1838)	*	*		*			*		*	*		*	*	*	*
**Bracon schmidti* Kokujev,1912						*	*							*	*
Bracon subglaber Szépligeti,1901	*			*						*					*
Bracon trucidator Marshall,1888	*		*			*	*	*	*	*		*			*
Bracon variegator Spinola,1808		*		*	*	*				*					*
SUBGENUS: *CYANOPTERABRACON*															
Bracon fallax Szépligeti,1901		*								*		*			*
Bracon illyricus Marshall,1888	*						*	*	*					*	*
Bracon spectabilis Telenga,1936	*								*	*		*			
SUBGENUS: *GLABROBRACON*															
Bracon bilgini Beyarslan, 2002	*			*	*	*									
Bracon atrator Nees,1834	*	*	*	*	*	*	*		*	*					*
Bracon delibator Haliday,1833	*	*	*	*	*	*	*		*				*		*
Bracon dolichurus Marshall,1897		*													*
Bracon fadiche Beyarslan, 1996				*		*									*
Bracon frater Tobias,1957			*										*		
Bracon hemiflavus Szépligeti,1901		*					*			*			*	*	*
Bracon immutator Nees,1834		*													*
Bracon lividus Telenga,1936		*	*	*		*		*							*
Bracon negativus Tobias,1957	*												*		
Bracon obscurator Nees,1811	*	*	*	*		*	*			*		*			*
Bracon osculator Nees,1811	*	*		*		*	*		*	*			*		*
Bracon otiosus Marshall,1885	*					*			*						*
Bracon parvicornis Thomson,1892				*						*					*
Bracon pauris Beyarslan,1996	*														*
Bracon pineti Thomson,1892	*						*	*	*	*					*
Bracon popovi Telenga,1936	*	*	*	*		*	*	*		*			*		
Bracon praetermissus Marshall,1885	*		*	*		*	*			*					*
Bracon tschitscherini Kokujev,1904				*				*			*	*	*	*	*
Bracon variator Nees,1811	*	*	*	*	*	*	*	*		*		*	*	*	*
SUBGENUS: *HABROBRACON*															
Bracon nigricans (Szépligeti,1901)		*		*			*	*	*	*	*		*		*
Bracon stabilis (Wesmael, 1838)				*			*	*		*					*
SUBGENUS: *LUCOBRACON*															
Bracon brevitemporis Tobias,1959	*	*		*		*				*					
**Bracon concavus* Tobias,1957						*							*		
Bracon erraticus (Wesmael,1838)	*	*		*		*			*	*		*	*	*	*
Bracon flagellaris Thomson,1892				*			*								*
Bracon fortipes (Wesmael,1838)		*		*			*	*		*					*
Bracon grandiceps Thomson,1892	*		*	*	*	*									*
Bracon hungaricus (Szépligeti,1896)				*			*		*	*					*
Bracon larvicida (Wesmael,1838)	*		*		*	*		*		*					*
Bracon meyeri Telenga,1936				*						*					
**Bracon mirus* Szépligeti,1901				*						*					*
SUBGENUS: *ORTHOBRACON*															
Bracon epitriptus Marshall,1885	*	*		*			*	*	*	*					*
Bracon exhilarator Nees,1834	*					*				*					*
Bracon picticornis (Wesmael,1838)		*	*			*	*	*	*	*					*
Bracon shestakoviellus Tobias,1957					*					*					
SUBGENUS: *PIGERIA*															
Bracon piger (Wesmael,1838)	*	*	*	*	*	*	*	*		*			*		*
SUBGENUS: *ROSTROBRACON*															
Bracon urinator (Fabricius,1798)	*		*	*			*		*	*		*	*	*	*
GENUS: *CERATOBRACON*															
Ceratobracon stshegolevi (Telenga,1933)	*	*		*			*		*					*	*
GENUS: *GLYPTOMORPHA*															
SUBGENUS: *GLYPTOMORPHA*															
Glyptomorpha pectoralis (Brullé,1832)				*			*		*	*		*	*	*	*

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