

Parasitic isopods (*Anilocra frontalis* H. Milne Edwards, 1830 and *Ceratothoa capri* (Trilles, 1964)) from the Antalya Bay (Turkey) with new host records

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Abstract

In this study, parasitic isopods *Anilocra frontalis* and *Ceratothoa capri* were collected from some fishes by trawling in Antalya Bay, in February, 2015. These isopods were observed on the elasmobranch for the first time. Three of these hosts (*Raja miraletus*, *Sphyaena sphyraena*, *Spicara maena*) are new hosts for *A. frontalis* and *C. capri*.

Keywords: Parasitic isopod, *Ceratothoa capri*, *Anilocra frontalis*, *Sphyaena sphyraena*, *Raja miraletus*, *Spicara maena*.

Antalya Körfezi'nden Parazitik Isopodlar (*Anilocra frontalis* H. Milne Edwards, 1830 ve *Ceratothoa capri* (Trilles, 1964)) ve Yeni Konakçı Kayıtları

Özet

Bu çalışmada, Antalya Körfezi'nde 2015 Şubat ayında trol avcılığı ile bazı balıklardan parazitik isopodlar (*Anilocra frontalis* ve *Ceratothoa capri*) toplandı. Bu isopodlar yassı solungaçlılar (Elasmobranch) üzerinde ilk defa gözlemlendi. Bu üç konakçı (*Raja miraletus*, *Sphyaena sphyraena*, *Spicara maena*) *A. frontalis* ve *C. capri* için yeni konakçılardır.

Anahtar Kelimeler: Parazitik isopod, *Ceratothoa capri*, *Anilocra frontalis*, *Sphyaena sphyraena*, *Raja miraletus*, *Spicara maena*.

1. Introduction

Cymothoids parasites (Crustacea, Isopoda) are ectoparasites of marine and freshwater teleost fishes. This parasites are blood suckers and they can be found on external surface, in the buccal cavity and gill chamber [1] Except for a few studies on marine isopods, very little known about on this group in the Mediterranean Sea coasts of Turkey [2,3,4]. *Ceratothoa capri* (Trilles, 1964) is distributed in the Aegean Sea and Levantine Sea coasts of Turkey and *Anilocra frontalis* H. Milne-Edwards, 1840 is reported from the Black Sea and Levantine coast of Turkey [5]. In this study, for the first time, parasitic isopods; *C. capri* and *A. frontalis* were observed on the some fish [*Raja miraletus*

Linnaeus, 1758, *Sphyaena sphyraena* (Linnaeus, 1758), *Spicara maena* (Linnaeus, 1758)] inhabiting Antalya Bay (Turkey).

2. Material and Methods

Fish material were caught by bottom trawling (R/V "Akdeniz Su") at a depth of ranging from 10 to 300 m in Antalya Bay, Turkey, in February 2015 (Figure 1). The total lengths of fish were measured to the nearest 1 mm and the weight of each specimen was determined to the nearest gram. Infected fish were photographed and the parasites were removed from the hosts. Detected parasitic isopods were, fixed immediately in 10% formalin and subsequently transferred to 70 %

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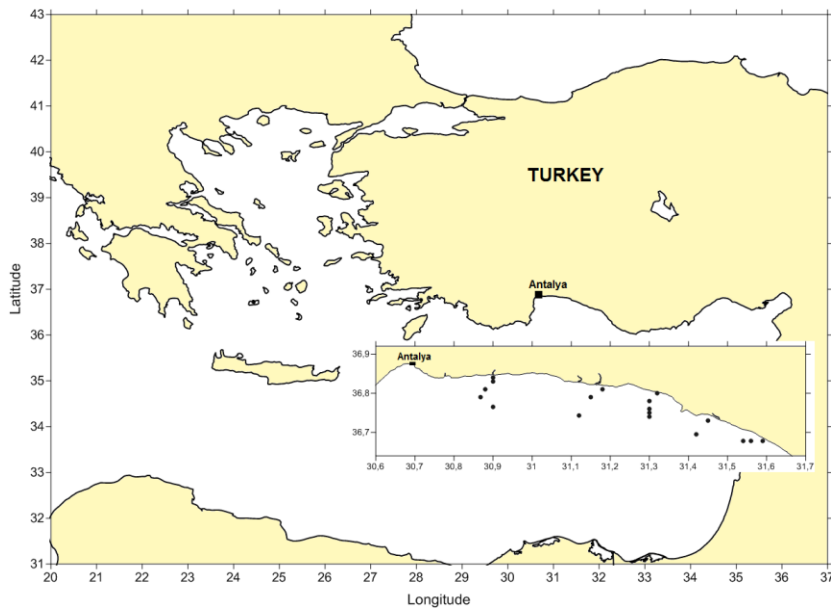


Figure 1. Sampling area, Antalya Bay (Eastern Mediterranean)

ethanol for preservation. All samples were transferred to the ecophysiology laboratory, Faculty of Fisheries of Firat University.

The scientific and common names of fishes follow [6]. The collected isopods were examined and photographed under a stereo microscope. Identification of the isopods were performed according to Trilles [7,8].

3. Results

The collected parasites were identified as *C. capri* (Trilles, 1964), and *A. frontalis* H. Milne-Edwards, 1840 (Figure 2-3). Parasitic isopods, their hosts and details of the sampling sites are presented in Table 1 and Figure 1. The specimen of *C. capri* sample was found on the ventral surfaces of a male brown ray, *Raja miraletus* (Figure 4). The specimen of *A. frontalis* samples were found on the eye, dorsal and ventral surfaces of a female brown ray *R. miraletus* and also lateral surfaces of European barracuda *S. sphyraena* (and blotchet picarel *S. maena* (Figures 5-7).



Figure 2. General views of *Anilocra frontalis*, TL = 29.2 mm.

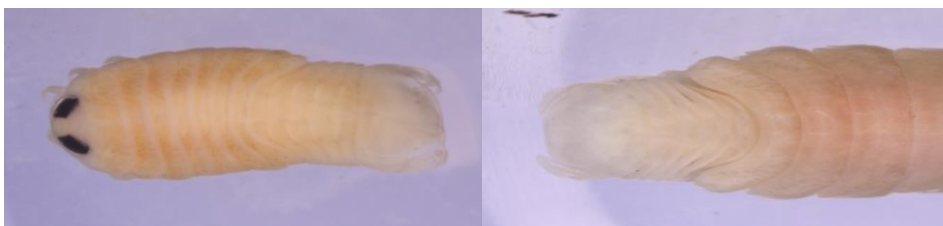


Figure 3. General views of *Ceratothoa capri*, TL = 9.4 mm.

Table 1. Cymothoids parasites collected from Antalya Bay, Turkey.

Species	N	Trawl coordinates (start-end)	Depth (m)	Hosts
<i>Anilocra frontalis</i>	1	36°40'0921''N-36°50'6029''N 30°51'8947''E-30°54'7929''E	10	<i>Sphyraena sphyraena</i>
<i>Anilocra frontalis</i>	1	36°48'2990''N-36°48'5039''N 30°54'5554''E-30°51'8226''E	75	<i>Spicara maena</i>
<i>Anilocra frontalis</i>	3	36°45'9802''N-36°45'2761''N 30°53'0217''E-30°53'8481''E	200	<i>Raja miraletus</i>
<i>Ceratothoa capri</i>	1	36°44'6591''N - 36°44'7062''N 31°06'1154''E - 31°07'7301''E	300	<i>Raja miraletus</i>



Figure 4. *Ceratothoa capri* on the a male brown ray, *R. miraletus*, 39.8 cm TL and 460 g.



Figure 5. The specimen of *A. frontalis* samples were found on the eye, dorsal and ventral surfaces of a female brown ray *R. miraletus*, 40 cm and 1100 g.



Figure 6. *Anilocra frontalis* attached to the left side of a European barracuda, *Sphyraena sphyraena* (Linnaeus, 1758), 25.5 cm TL and 40 g. Above : a skin wound.

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Figure 7. *Anilocra frontalis* attached to the left side of a blotchet picarel *Spicara maena*, 13 cm and 20 g.

4. Discussion

Normally, cymothoids are ectoparasites of marine and freshwater teleosts fishes [2,3,9,10]. But in this study, these parasites were observed on the elasmobranch for the first time. Three of these hosts are new reports for *A. frontalis* and *C. capri*. The numbers of hosts have increased to 5 for *C. capri* and to 8 for *A. frontalis* along the Turkish Coasts (Table 2). This type of parasitic infection can dramatically affect host behaviour and physiology [11,12]. The parasitic effects include growth retardation, emaciation and frequently death of the fish affected. Mortality losses are increased by weight losses resulting from the lowered conditions of the parasitised fish. The presence of a few adult cymothoids can cause damage to hosts; this is also the case when a large number of larvae [13]. It can lead to loss of economic value of wild fishes. Not only it is harmful to wild fish populations but also in cultured fish, especially larval culture.

Table 2. Hosts of *A. frontalis* and *C. capri* from Turkish seas

<i>C. capri</i>	<i>A. frontalis</i>
<i>Diplodus annularis</i>	<i>Oblada melanura</i>
<i>Boops boops</i>	<i>Lithognathus mormyrus</i>
<i>Sparus auratus</i>	<i>Symphodus tinca</i>
<i>Puntazzo puntazzo</i>	<i>Boops boops</i>
<i>Raja miraletus</i>	<i>Pagellus erythrinus</i>
	<i>Raja miraletus</i>
	<i>Sphyaena sphyraena</i>
	<i>Spicara maena</i>

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