



Occurrence of *Homola barbata* (Fabricius, 1793) (Decapoda, Brachyura) in Finike Bay (Türkiye, Eastern Mediterranean Sea)

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Abstract

Bottom trawl samplings in Finike Bay revealed the existence of a brachyuran crab species, *Homola barbata* (Fabricius, 1793). *H. barbata* has been recorded only fourth time in Turkish waters, up to now. The existence of this rare species is recorded herein for the first time from the Finike Bay. It is the westernmost record of *H. barbata* on the Mediterranean coast of Türkiye. A distribution map of *H. barbata* in the eastern Mediterranean Sea is also presented, together with photographs of it.

Keywords:

Brachyura, decapoda, Homola barbata, Finike Bay, Türkiye, eastern Mediterranean Sea

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Introduction

Homole crab *Homola barbata* (Fabricius, 1793) is a marine species belonging to the Homolidae family. These crabs live in the Mediterranean Sea and on both sides of the Atlantic Ocean. The western Atlantic range of *Homola barbata* extends from the United States (Massachusetts and Virginia to South Florida) to the Gulf of Mexico and the West Indies and along the coasts of Central and South America to Rio Grande do Sul, Brazil. *Homola barbata* is found in the eastern Atlantic in Portugal and Western Africa, including the Canary and Madeira Islands (Holthuis & Gottlieb,

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1958; Palomares & Pauly, 2022). *H. barbata* inhabits depths from 10 to 682 m (Manning & Holthuis, 1981) on a variety of substrates such as mud, muddy sand, sandy and muddy detritus, coralline algae, calcareous algae, slightly sandy mud with funiculines, alcyonarians in mud, and reddish gravel with shell debris (Palomares & Pauly, 2022).

H. barbata is the only known species in the genus *Homola* in the Mediterranean Sea (cf. Guinot & Richer de Forges, 1995). *H. barbata* is one of the twelve species of the *Homola* genus occurring in the Atlantic, Pacific, and Mediterranean Seas (Ng & Richer de Forges, 2016), which are: *H. milkolk* Ng & Richer de Forges, 2016, *H. poupini* Richer de Forges & Ng, 2007, *H. ranunculus* Guinot & Richer de Forges, 1995, *H. minima* Guinot & Richer de Forges, 1995, *H. eldredgei* Guinot & Richer de Forges, 1995, *H. coriolisi* Guinot & Richer de Forges, 1995, *H. dickinsoni* Eldredge, 1980, *H. mieensis* Sakai, 1979, *H. ikedai* Sakai, 1979, *H. orientalis* Henderson, 1888, *H. vigil* A. Milne-Edwards, 1880, and *H. barbata* (Fabricius, 1793). In the eastern Mediterranean Sea, the species was reported from Greece, Cyprus, Lebanon, Israel, Egypt, Syria, and Türkiye (Figure 1; Table 1). Until now, *H. barbata* was already reported between 49.4 and 630 m from various localities in the eastern Mediterranean Sea.

In this study, the existence of this rare species is recorded herein for the first time from the Finike Bay. *H. barbata* has been recorded only fourth time in Turkish waters, up to now. It is the westernmost record of *H. barbata* on the Mediterranean coast of Türkiye.

Materials and Methods

One female *H. barbata* specimen was collected at a depth of 260-275 m with a bottom trawl survey carried out by the research vessel R/V Akdeniz Araştırma 1 at a site in Finike Bay (36°14'74"N, 30°15'23"E-36°14'53"N, 30°16'72"E) in July 2015 (Figure 1). An experimental trawl net with a cod-end mesh size of 20 mm was used in the trawling operations which were conducted according to the International Bottom Trawl Survey in the Mediterranean (MEDITS) protocol (Anonymous, 2016; 2017).

The specimen was preserved in 70% ethanol. CL (Carapace length) and CW (Carapace width) were measured with digital calipers to the nearest 0.01 mm. Manning & Holthuis (1981) and Falciai & Minervini (1996) were used for the species determination.

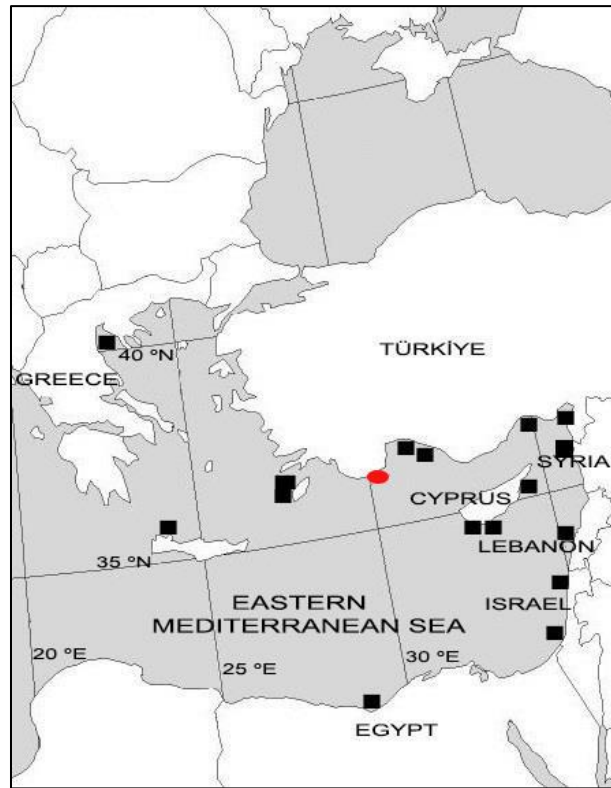


Figure 1. Previously established occurrence of *Homola barbata* (Fabricius, 1793) in the eastern Mediterranean Sea (filled rectangle) and the sampling area (red filled circle) recorded in this paper.

Results

Family: Homolidae De Haan, 1839

Genus: *Homola* Leach, 1815

Species: *Homola barbata* (Fabricius, 1793) (Figures 2-3)

Material examined: One ♀, Finike Bay (Mediterranean coast of Türkiye), 36°14'74"N 30°15'23"E to 36°14'53"N 30°16'72"E, 260-275 m, muddy bottom, bottom trawl, 23.07.2015.

Measurements (mm): CL, 31.4; CW, 22.1.

Remarks: The specimen agrees well with the description of Manning & Holthuis (1981) and that of Falciai & Minervini (1996). We only noticed that the CL of the present specimen (31.4 mm) is larger than those in Manning & Holthuis' (1981) samples (16 to 28 mm) and smaller than those in Falciai & Minervini's (1986) sample (41 mm).

Worldwide Distribution: Mediterranean Sea and on both sides of the Atlantic Ocean. (Holthuis & Gottlieb, 1958; Bertini et al. 2004; Palomares & Pauly, 2022).



Figure 2. *Homola barbata* (Fabricius, 1793), ♀, from Finike Bay (dorsal view).

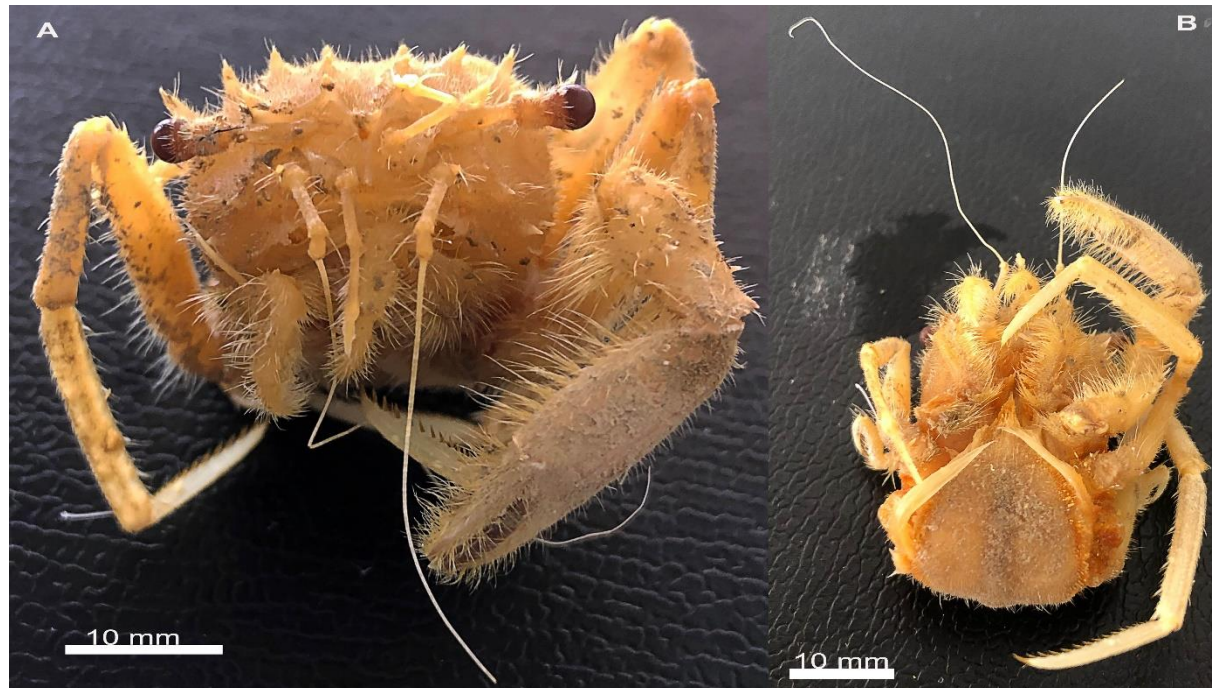


Figure 3. *Homola barbata* (Fabricius, 1793), ♀, from Finike Bay (A: Anterior view; B: Ventral view).

Discussion

In the eastern Mediterranean Sea, *H. barbata* was recorded from Greece (Lucas, 1853; Raulin, 1870; Kevrekidis & Galil, 2003; Kampouris et al., 2018), Cyprus (Hadjichristophorou, 1997; Kocataş et al., 2001), Syria (Ammar & Hmaesha, 2023), Lebanon (Shiber, 1981), Israel (Holthuis & Gottlieb, 1958), Egypt (Ramadan & Dovidar, 1972), and Türkiye (Karhan, 2015; Deval et al., 2017; Gönülal & Dalyan, 2017; Patania & Mutlu, 2021) (Figure 1; Table 1).

In the checklist of decapod crustaceans in Turkish seas given in the study of Kocataş & Katağan (2003), it was stated that *H. barbata* was reported from the Aegean and Mediterranean coasts of Türkiye in previous studies. However, there is no information about these records in the study. Later, in the updated checklist given by Ateş et al. (2010), this species was also shown among the species recorded from the Aegean and Mediterranean coasts of Türkiye, but again no information was given about the records in the study. In the last checklist of the Turkish seas, which includes Arthropoda species, it was stated that the species was previously reported from the Turkish Aegean and Mediterranean coasts, and its first record was given in the study of Kocataş & Katağan (2003) (Bakır et al., 2014). However, no record of *H. barbata* from Turkish seas has been found in the literature.

Up to now, *H. barbata* has already recorded between 49.4 and 630 m from the eastern Mediterranean Sea. The specimen herein reported was collected at a depth of 260-275 m in the region (Table 1).

Table 1. Data on *Homola barbata* (Fabricius, 1793) in the eastern Mediterranean Sea (N= number of individuals; CL (mm)= Carapace length).

Reference	Sampling Date	Occurrence depth (m)	Sampling gear	Habitat	N	CL (mm)
Lucas (1853), Raulin (1870); Crete Island, Greece (as <i>H. spinifrons</i>)	-	-	-	-	-	-
Holthuis & Gottlieb, (1958); Israel	05.05.1953	146	-	-	1	17.5
					2♀	15-35
Ramadan & Dovidar (1972); Egypt	06.1969	171-180	Trawl	silty, clayey	2♂	-
Shiber (1981); Lebanon	-	-	-	-	1	33
Hadjichristophorou et al. (1997); Cyprus	1972-1993	100	Dredge	-	-	-
Kocataş et al. (2001); Cyprus	05.1997-07.1998	62-145	Trawl	-	-	-
Kevredikis & Galil, 2003; Rhodos Island, Greece	27.5.1998	49.4-69.5	Trawl	-	-	-
	21.11.1999	68-95	Trawl	-	-	-
Karhan (2015); Türkiye	04.06.2009	68-78	Trawl	Mud;coralligen	2♀;2♂	17.3-26
	05.10.2012	70	Trawl	Muddy sand	1♀	17
	19.03.2009	126-140	Trawl	Mud	1♂	15.8
	17.06.2009	58-61	Trawl	Sandy mud	1♀	21.8
Deval et al. (2017); Türkiye	2010-2011	300	Trawl	-	2	-
Gönülal & Dalyan (2017); Türkiye	2014-2015	100-200; 200-300	Trawl	-	-	-
Kampouris et al. (2018); Greece	-	69.5-72	Tangle nets	hard bottom	-	-
Patania & Mutlu (2021); Türkiye	2014-2015	75	Trawl	less vegetation and a non-vegetated soft bottom	-	-
Ammar & Hmaesha (2023); Syria	23.02.2021	630	Trawl	-	-	-
Present study; Türkiye	23.07.2015	260-275	Trawl	mud	1♀	31.4

H. barbata has been reported only a fourth time from the Turkish waters up to date. The existence of this rare species is confirmed for the first time from the Finike Bay, and the fifth time

from Turkish waters in the present study. This constitutes the westernmost report of *H. barbata* in the Mediterranean coast of Türkiye.

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Conflict of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Author Contributions

CK; Identified the specimen, wrote the first draft, literature: CMA, AÜ; Methodology, collected the material, reviewed and edited the first draft. All authors approved the final draft.

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Ethical Approval Statements

Local Ethics Committee Approval was not obtained because experimental animals were not used in this study.

Data Availability Statement

The data used in the present study are available upon request from the corresponding author.

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