The first record of *Cladocora caespitosa* (Linnaeus, 1767) (Anthozoa, Scleractinia) from the Marmara Sea

Hasan Barış ÖZALP*, Mustafa ALPARSLAN
Çanakkale Onsekiz Mart University, Faculty of Fisheries, Department of Marine Biology, 17100 Çanakkale - TURKEY

Received: 27.07.2009

**Abstract:** The Scleractinian *Cladocora caespitosa* is reported for the first time from the Marmara Sea, Turkey. Five colonies of the elliptical *Cladocora caespitosa* were discovered at 7 m by scuba divers around *Posidonia oceanica* beds colonising a substrate of sand and rock. The colonies' characteristics were recorded with underwater apparatus with a close-up device and with a video system. The present paper provides the new updated area of the species on the Turkish coast.

**Key words:** Scleractinian, Faviidae, *Cladocora caespitosa*, Marmara Sea, first record

---

**Introduction**

Coral reefs are one of the richest ecosystems in the world (Okamoto et al., 1998). Corals are key species in marine life and are used as bioindicators to assess the impact of climate change on marine communities (Okamoto et al., 1998; Wilkinson et al., 2000). The Scleractinian *Cladocora caespitosa* is the only colonial and zooxanthellate coral in the Mediterranean (Zibrowius, 1980; Peirano et al., 1999; Veron and Stafford-Smith, 2000). The species is one of the major carbonate producers among the Mediterranean organisms (Peirano et al., 2001;
Montagna et al., 2007). It lives on rocky and sandy bottoms and is rarely found below 30 m of depth (Kružić et al., 2008).

Studies on hard corals and investigations on Anthozoan species along the Turkish coasts have been very limited, except for some reference books and the related articles on benthic ecosystems. Here we report a new record of *Cladocora caespitosa* for the Marmara Sea (Veron, 2000). Colonies of the coral are described and the geographical distribution of the species in the Mediterranean Sea is discussed.

**Materials and methods**

To verify the abundance of the coral, an area of about 6 km² on the western side of the Çanakkale Strait (Figure 1) along the coast of Dardanos Campus was investigated with the manta tow technique. Five colonies of the thin tube coral *Cladocora caespitosa* were found in 2009 at 7 m depth in the Çanakkale Strait (Dardanelles), the Marmara Sea (GPS position: 40°04’23”N, 26°21’19”E). The coral colonizes some rocks in one *Posidonia oceanica* bed implanted on a sand bottom. No bleaching events were found.

The major axis D1, the minor axis D2, and the height H of the colonies were measured with a plastic ruler in situ (Figure 2 and Table). In addition to these parameters, the calix diameter (Cd) of one corallite (Figure 3) located in the middle of each colony was measured with a calliper at 1/20 of mm accuracy level. After the measurements, all colonies were macro-photographed and recorded with Nimar Underwater Video System. Two corallites were sampled from the centre of 2 colonies (colonies 1 and 2) for further research.
2) with pointed-tip pincers to date them in the future with the sclerochronological technique (Peirano et al., 1999). The corallites were washed to remove the sediment and immersed in a peroxide solution for 1 day to clear the organic matter, and then were dried at 80 °C for 48 h in the laboratory (Figure 4).

The lengths of 2 corallites showed in Figure 4 are:

- **L1** (Length of the first corallite): 3 cm
- **L2** (Length of the second corallite): 3.38 cm.

### Results and discussion

The scleractinian *Cladocora caespitosa* previously reported from areas in the north-western Aegean Sea at Gökçeada Island (Öztürk, 2004) (Zibrowius, 1979, for the Greek coast), in Edremit Bay (Çınar, 2003...
The first record of *Cladocora caespitosa* (Linnaeus, 1767) (Anthozoa, Scleractinia) from the Marmara Sea (Oğuz and Zibrowius, 1979, for the Greek coast) has been observed for the first time in the Marmara Sea in the Strait of Çanakkale (Figures 5 and 6). The study provides a more expanded geographical distribution of the species.

The Marmara Sea differs in salinity and temperature values from the Mediterranean (Oğuz and Tuğrul, 1998). As is well known, mean salinity value and annually determined temperature record as the main differences in the Çanakkale Strait.
(Marmara Sea) are lower than in the Mediterranean (Büyükateş and İnanmaz, 2007). Thus it can be stated that the Mediterranean endemic coral Cladocora caespitosa can live in the strait’s different physicochemical conditions.

It is known from fossil records that Cladocora caespitosa was more abundant and reef-forming in warmer phases of the Quaternary (Peirano, 2007). Today, however, the coral is less abundant since it suffered mortality events during the heat waves of the last 2 decades (Metalpa et al., 2005). At the present time, studies on population dynamics of Cladocora caespitosa are still inadequate. Moreover, the question as to what will happen to Cladocora caespitosa in a warming Mediterranean Sea in the future still waits to be answered (Bianchi, 2007). Since mean salinity and temperature values in the Marmara Sea are lower than the parameters in the Mediterranean Sea, it shows that the species has started to spread in a different zone in terms of physico-chemical data. The new record of the species in the Marmara Sea is important in that it will provide the opportunity to add new information on the biology of C. caespitosa in one area dissimilar from the Mediterranean Sea both in salinity and seasonal temperature values.

Acknowledgements

The authors are deeply indebted to Dr. Andrea PEIRANO from the ENEA Marine Environment Research Center of La Spezia (Italy) for his suggestions. They are also very thankful to Mehmet GÜNAYDIN, authority of Çanakkale Underwater Sport Club, for obtaining scuba and some other technical underwater equipment.

References


