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New Record of a Dinoflagellate Species *Corythodinium tessellatum* (Stein) Loeblich Jr. & Loeblich III from Turkish Coastal Waters of the North-eastern Mediterranean Sea

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Abstract: The dinoflagellate genus *Corythodinium* (Stein) Loeblich Jr. & Loeblich III and one species belonging to this genus, *Corythodinium tessellatum* (Stein) Loeblich Jr. & Loeblich III, are reported for the first time from the coastal waters of Turkey (north-eastern Mediterranean). The morphological characteristics of this species are described and information about its ecological distribution is given.

Key Words: *Corythodinium tessellatum*, dinoflagellate, phytoplankton, north-eastern Mediterranean, Datça-Bozburun Peninsula.

Kuzeydoğu Akdeniz'in Türkiye Kıyısı Sularında Bir Dinoflagellat Türü Olan *Corythodinium tessellatum* (Stein) Loeblich Jr. & Loeblich III İçin Yeni Kayıt

Özet: Dinoflagellatlara ait *Corythodinium* (Stein) Loeblich Jr. & Loeblich III cinsi ve bu cinse ait *Corythodinium tessellatum* (Stein) Loeblich Jr. & Loeblich III türü Türkiye'nin kıyısı sularında (kuzeydoğu Akdeniz) ilk kez rapor edilmiştir. Bu türün morfolojik özellikleri tanımlanmış ve ekolojik dağılımı hakkında bilgiler verilmiştir.

Anahtar Sözcükler: *Corythodinium tessellatum*, dinoflagellat, fitoplankton, kuzeydoğu Akdeniz, Datça-Bozburun Yarımadası.

Introduction

Dinoflagellates are organisms including some of the most important primary producers in marine and fresh water biotopes (Schnepf & Elbrächter, 1992). The oligotrophic conditions in the Mediterranean Sea could favour the richness of dinoflagellates, typical organisms of oligotrophic waters (Gómez, 2003). Dinoflagellates are well represented in the oligotrophic waters of the Mediterranean Sea (Gómez & Abi Saab, 2003).

Corythodinium tessellatum (Stein) Loeblich Jr. & Loeblich III is a rare species of the dinoflagellate group. This species is distributed in warm temperate to tropical waters and most records are from the Atlantic Ocean. A total of about 25 species from this genus have been recorded from the world's oceans (Tomas, 1997) and 10 species from the Mediterranean Sea (Gómez, 2003). In

this study, the genus *Corythodinium* (Stein) Loeblich Jr. & Loeblich III and a member of this genus, *C. tessellatum*, are reported from the north-eastern Mediterranean coast of Turkey. This record will contribute to the microplankton checklist of Turkish seas prepared by Koray (2001).

Materials and Methods

The samples of phytoplankton were collected from the coastal waters of Datça-Bozburun Peninsula (north-eastern Mediterranean; lat. 36° 32'N-36° 49'N, long. 27° 20'E-28° 19'E). The study area and the location of the sampling point are shown in Figure 1. The phytoplankton samples were collected with Niskin bottles from different depths (0.5, 5, 10 and 20 m) and with a 55 µm mesh standard plankton net from surface water with horizontal

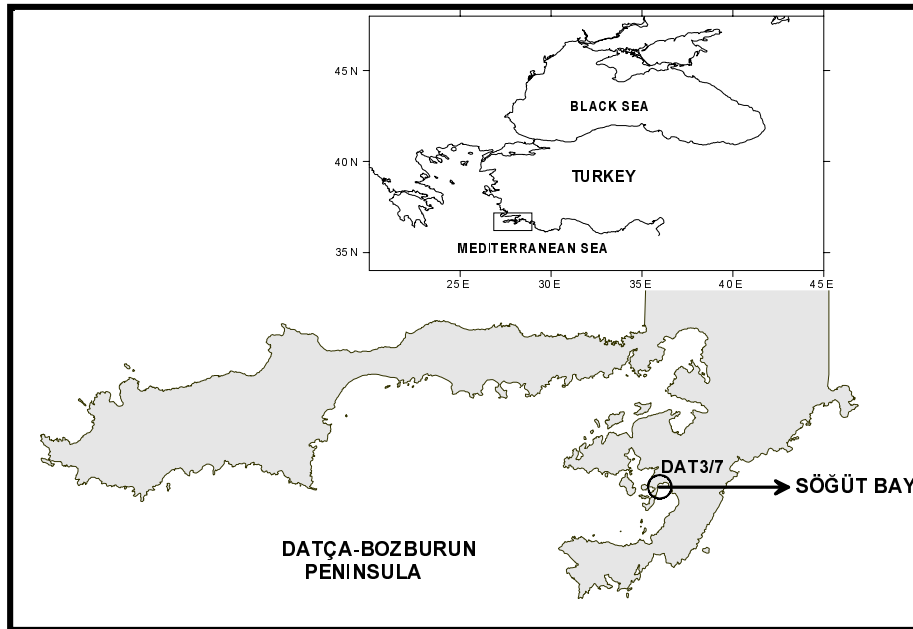


Figure 1. The location of the sampling area.

towing. The samples were preserved in 4% formaldehyde (final concentration). A light microscope was used for the identification of the species and photos were taken by Nikon Diaphot 300 phase-contrast inverted microscope with a video camera. For identification and taxonomy, Delgado & Fortuna (1991), Dodge (1985), and Tomas (1997) were used.

Results and Discussion

The species *Corythodinium tessellatum* was very rare in specimens in the surface samples. This species were found in the spring (May 2003) in water and net sampling (temperature 24.7 °C, salinity 39.2 psu). The taxonomy of this genus and species are given as follows (Fensome et al., 1998; Gómez, 2003):

Division: Dinoflagellata (Bütschli, 1885) Fensome et al., 1993

Subdivision: Dinokaryota Fensome et al., 1993

Class: Dinophyceae Pascher 1914

Subclass: Peridiniphyceidae Fensome et al., 1993

Order: Peridiniales Haeckel 1894

Family: Oxytoxaceae Lindemann 1928

Genus: *Corythodinium* (Stein) Loeblich Jr. & Loeblich III 1966

The members of this genus are armoured and small to large biconical to elongate cells with sculptured theca. The cingulum is anterior to median and prominently excavated and with narrow lists. The epitheca is shorter than the hypotheca, and the anterior cingular list is almost the same diameter as the posterior cingular list (Tomas, 1997).

Corythodinium tessellatum (Stein) Loeblich Jr. & Loeblich III. Studies in Tropical Oceanography, 1966.

In this species, the cells are medium sized, the cingulum is premedian, the hypotheca exceeds the epitheca and ends in a thick antapical spine. The broad hypotheca is characteristic with longitudinal striae connecting evenly spaced, offsets horizontal striae (Tomas, 1997). A row of large pores is situated on the anterior side of the ridge, with smaller pores on the posterior (Dodge & Saunders, 1985). This species is distributed in warm temperate to tropical waters and most records are from the Atlantic Ocean (Tomas, 1997). Belonging to this genus 10 species are reported from all regions of the Mediterranean Sea (Gómez, 2003). The cell size is given in the literature as length 50 µm and

width 30 μm (Dodge 1985; Dodge & Saunders 1985). In this study the total length of the cells is 59-60 μm and width is 29-30 μm (Figure 2).

When the biogeographical distribution of the species is considered, the occurrence of it in the Turkish coastal waters of the north-eastern Mediterranean Sea is normal. However, in previous studies (Kıdeyş et al., 1989; Eker & Kıdeyş, 2000; Polat et al., 2000; Polat & Işık, 2002) this species may have been neglected, because of its rare occurrence. On the other hand, studies in this area (Datça-Bozburun Peninsula) are especially scarce. In addition, with the increasing marine traffic in the region, especially ballast waters, may have caused the transportation of this species from one site to another.

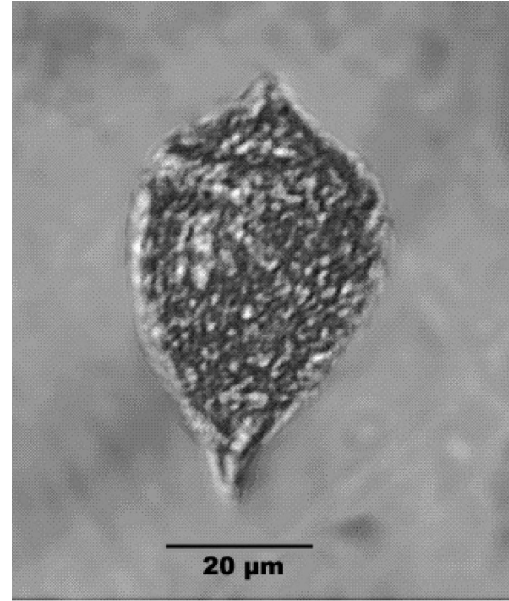


Figure 2. Light microscopy photograph of *Corythodinium tessellatum*.

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