

First Record of *Amphorellopsis Tetragona* (Protozoa: Ciliophora: Tintinnina) from the Sea of Marmara

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Abstract

Amphorellopsis tetragona was reported for the first time from the Sea of Marmara and contributed to the regional check-list of the plankton species of Turkish seas. The specimen was collected on 17 October 2008 from surface neritic waters with a depth of 30 m in the research area. The primary hydrographic parameters, temperature 17 °C, salinity 27 ppt and dissolved oxygen 5 mg l⁻¹, were recorded at the sampling station.

Keywords: *Amphorellopsis tetragona*, First record, Sea of Marmara.

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Marmara Denizi'nden *Amphorellopsis tetragona* (Protozoa: Ciliophora: Tintinnina)'nın ilk kaydı

Özet

Amphorellopsis tetragona Marmara Denizi'nden ilk kez rapor edildi. Bu tür 17 Ekim 2008 tarihinde 30 m derinlikteki araştırma bölgesinden neritik yüzey suyundan alındı. Örneklem istasyonunda primer hidrografik parametrelerden sıcaklık 17 °C, tuzluluk 27 ppt ve çözülmüş oksijen 5 mg l⁻¹ olarak kaydedildi.

Anahtar kelimeler: *Amphorellopsis tetragona*, İlk kayıt, Marmara Denizi

Introduction

Tintinnids constitute one major component of marine planktonic ciliates and many species have an apparent cosmopolitan distribution in seas and oceans (Marshall 1969). They are an important trophic intermediate in the planktonic food web because of their high productivity and their ability to feed on small, highly productive phytoplankton (Middlebrook et al. 1987). In addition, tintinnids are the best known group of marine ciliates and 90% of tintinnids are found in the upper water column.

The Sea of Marmara is a basin located between the continents of Europe and Asia. The basin is occupied by two distinctly different

water masses throughout the year: the brackish waters (22-26 ppt) of the Black Sea origin, forming a relatively thin surface layer (10-15m thick) with a mean residence time of about 4-5 month, and the subhalocline waters of Mediterranean origin (38.5-38.6 psu) separated from the former by a sharp interface (pynocline) about 10-20 m thick (Ünlüata et al. 1990; Tuğrul and Polat 1995). In particular, its surface waters are influenced by the less saline Black Sea waters, but in autumn and winter, winds cause the water to become rough, the stratification is broken up, and the more saline water from the bottom comes up to the surface (Balkıs 2003). Such a phenomenon is

important for the transport of tintinnids to the upper strata (Balkıs 2004).

This paper reports the new record species *Amphorellopsis tetragona* (Jørgensen) Kofoid and Campbell, 1929 for the first time in the Sea of Marmara.

Material and Methods

This study was carried out in the surface neritic waters of the coast of Kaşık Island in the Sea of Marmara (Fig. 1).

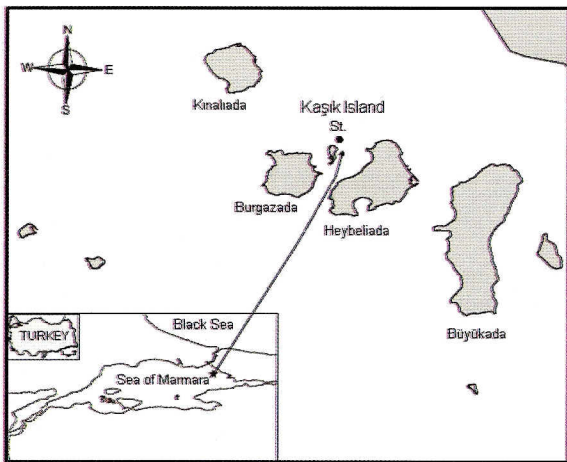


Figure 1. Research station in the Sea of Marmara.

Plankton samples were collected on 17 October 2008 from surface neritic waters with a depth of 30 m. A 3 l water sampler with thermometer was used to collect samples and physical-chemical parameters. These samples were preserved in a 4% neutral formaldehyde solution. Observations were made through the use of an inverted phase contrast microscope equipped with a microphoto system at a magnification of 400X.

Results and Discussion

Family: Tintinnidae Claus, 1876

Genus: *Amphorellopsis* Kofoid and Campbell, 1929

Amphorellopsis tetragona (Jørgensen) Kofoid and Campbell, 1929 (Fig. 2)

Amphorellopsis tetragona, Kofoid and Campbell, 1929: fig. 604; Abboud-Abi Saab, 2008: 150, fig. 13.7.

Amphorella tetragona, Jørgensen, 1924: 19, fig. 15.

Only one specimen was observed. It has bowl shape with flaring mouth. Its shape narrow to aboral end. Longitudinal fin marked. Total length approximately 140 μm , oral dimension 35 μm .

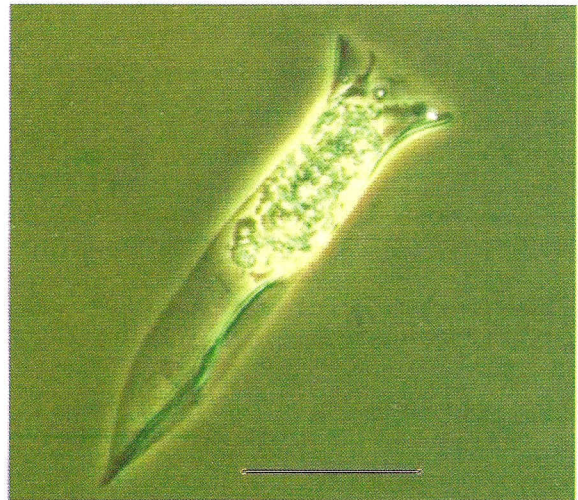


Figure 2. *Amphorellopsis tetragona* from the Sea of Marmara Scale bar: 50 μm .

For biogeographic studies, it is important to know where an organism lives. The genus *Amphorellopsis* shows a cosmopolitan distribution (Pierce and Turner 1993). This species was also reported from the western Pacific Ocean, the southwest lagoon of New Caledonia, El-Mex Bay, Egypt and Bay of Bengal (Gomez 2007; Dolan et al. 2006; Zakaria et al. 2007; Jyothibabu et al. 2008). Moreover, Abboud-Abi Saab (2008) found it in the surface waters of neritic and oceanic stations in central and North Lebanon.

This species was found at the surface water. A detailed study was carried out in the Sea of Marmara (Balkıs 2004), but *A. tetragona* was not previously recorded from this area. The occurrence of this species for the first time in

this study may be related to the lack of adequate studies in this region. This species may have been transported to the area by current systems and balance waters may have caused the transportation of marine organisms from one site to another. Zakaria et al. (2007) reported that the highest abundance of this species was recorded from the waters between 10 and 30 ppt. In previous study (Balkıs 2004), the tintinnid species were found in the range of 7.3-23.5 °C, 19.7-23.3 ppt and 7.13-11.95 mg l⁻¹. The hydrographical parameters at the sampling site in this study were 17 °C, 27 ppt and dissolved oxygen 5 mg l⁻¹. These values are characteristic for this area and the chemical oceanography of the Sea of Marmara is significantly influenced by the biochemistry of the Black Sea and the Aegean Sea (Ünlüata et al. 1990; Beşiktepe et al. 1995).

Consequently, *Amphorellopsis tetragona* has been reported for the first time from the Sea of Marmara and added to the regional check-list of the plankton species of Turkish seas with this study.

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