

POSTER

## Benthic microfaunal assemblages in temperate coral-bearing deposits from the Pleistocene of Kos Island (Aegean Sea)

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### Introduction

The main goal of this study is to reconstruct the paleoenvironmental conditions during the deposition of a Pleistocene *Cladocora caespitosa* coral bank, located on Kos Island (Mastichari section) in the Aegean Sea. More concretely, we will document the benthic foraminiferal and ostracod faunal composition and analyze the prevailing paleoenvironmental conditions. Recent research has shown that foraminifera and ostracods provide an excellent source of paleoecological/ecological data (Murray, 1991; Mazzini et al., 1999; Elewa, 2004). This is partly due to their abundance, wide geographic distribution, and the variety of environments where they can be found. On the other hand, *Cladocora caespitosa* is an endemic scleractinian ahermatypic coral that is an important carbonate producer in the present-day Mediterranean (e.g., Zibrowius, 1980; Schiller, 1993; Peirano et al., 1998). The evaluation of benthic foraminiferal and ostracod assemblages from this coral bank will help to characterize the range of environmental controls in sedimentation.

### Material and Methodology

Foraminiferal and ostracod faunas were examined in one representative sample from the basal part of a section cropping out along Mastichari Bay, north Kos Island, located under the Kos ignimbrite, which is dated to 145,000±5000 BP and represents an important volcano-stratigraphic time-marker in the Eastern Mediterranean (Fig. 1).

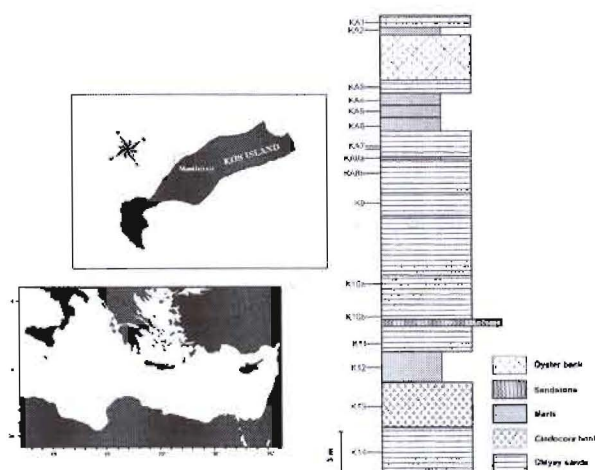


Fig. 1: Lithostratigraphical column of the studied section, showing the studied *Cladocora* bank.

The sample was wet-sieved through mesh sizes of 1 mm, 0.125 mm, and 63 µm. The residue was oven-dried at approximately 40°C. The standard sample was obtained by multiple “splitting” of the sample into equal parts, and about 300 specimens of foraminifera were extracted. As

ostracods, unlike foraminifera, are scarce in the samples, they were handpicked from 1 g of the dried residue (>0.63 mm).

## Results - Discussion

A total of 287 specimens belonging to 20 species of benthic foraminifera were identified in the studied sample. The benthic foraminiferal species encountered in the *Cladocora* bank are ecologically consistent, suggesting the absence of reworking or other significant taphonomic bias.

The benthic foraminiferal assemblage is mostly dominated by *Ammonia* spp. (*A. beccarii*, *A. tepida*), followed by *Haynesina depressula*, *Cibicides lobatulus* group, *Neoconorbina terquemi* in lesser abundance, and by *Elphidium poeyanum*, suggesting shallow environments, most likely extending no deeper than 50 m (Murray, 1991, 2006). This is the bathymetric realm of the coral *Cladocora caespitosa* in the present-day Mediterranean (Schiller, 1993; Peirano et al., 1998).

The predominance of *Ammonia* spp. in association with *Haynesina depressula* and non-carinate elphidiids (*E. granosum* and *E. translucens*) suggest very shallow transitional environments such as marginal lagoons or estuaries. These species are opportunists that are able to cope with fluctuating and stressful environmental conditions (Sen Gupta, 1999; Drinia et al., 2008).

Twelve species of ostracods were identified. The ostracod assemblage consists mainly of *Aurila* and *Xestoleberis* species with dominant taxa *Aurila convexa* (up to 56% of the total assemblage) and *Xestoleberis communis* (up to 27.5% of the total assemblage). These species are accompanied mainly by *Leptocythere* spp. and *Cytheretta* spp., as well as the species *Cytherella scutulum*, *Mutilus elegnatulus*, and *Buntonia giesbrechtii*.

This assemblage reflects a depositional marine environment of relatively high energy, shallow and vegetated, referable to the inner neritic zone (Dall'Antonia et al., 2005; Cabral et al., 2006).

Generally, the nature of the substrate has great influence on the distribution of ostracod species and assemblages. *A. convexa* is a common littoral-to-shallow sublittoral species, typically living among algae, algal debris, or on sand. *Xestoleberis* species present a high preference for algal rich substrates. *X. communis* is also a common littoral species considered mainly as a phytophilous one, but it has been described also from fine sandy-muddy substrates (Athersuch, 1979; Athersuch et al., 1989; Ruiz et al., 2000; Guernet et al., 2003; Cabral et al., 2006).

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