

# LIVING IN CLOSE QUARTERS: EPIBIONTS ON *DENDROPHYLLIA RAMEA* DEEP-WATER CORALS (CYPRUS AND MENORCA CHANNEL)

C. Jimenez <sup>1\*</sup>, K. Achilleos <sup>2</sup>, R. Abu Alhaija <sup>1</sup>, J. M. Gili <sup>3</sup> and C. Orejas <sup>4</sup>

<sup>1</sup> Energy, Environment and Water Research Center of The Cyprus Institute, Nicosia; Cyprus - c.jimenez@cyi.ac.cy

<sup>2</sup> Enalia Physis Environmental Research Centre, Nicosia; Cyprus

<sup>3</sup> Instituto de Ciencias del Mar, Barcelona; Spain

<sup>4</sup> Instituto Español de Oceanografía, Centro Oceanográfico de Baleares, Palma de Mallorca; Spain

## Abstract

In sharp contrast to shallow and/or tropical coral habitats, the role of deep-water corals (DWC) as habitat providers is not well known and even less understood. For this purpose, epibionts on the deep-water coral *Dendrophyllia ramea* were studied from samples collected in Cyprus and compared to those from Menorca Channel. A total of 63 species were found; bryozoans (ca. 60%) and serpulid polychaetes (ca. 10%) dominated the assemblage of species. Cyprus (48 species in total) and Menorca (22) corals shared few epizoaic species (7). Several of these species were previously thought absent from the Levantine basin. These results are important contributions to the knowledge on the deep-water epibiotic biodiversity of the Levantine Basin and the Mediterranean Sea in general.

*Keywords: Biodiversity, Deep sea corals, Bryozoa, Deep sea ecology, Levantine Basin*

**INTRODUCTION** Coral communities are habitats known to host rich assemblages of associated organisms sometimes in complex relations with the host. The structural complexity offered by deep-water coral (DWC) habitats allows for the development of diverse associated communities that usually result in considerably higher biodiversity than the surrounding environment [1]. Inherent difficulties to study DWC communities limit the expansion of our knowledge on their associations and composition. In consequence, every coral sample brought up from the deep is a priceless source of information. The epifauna associated to the DWC coral *Dendrophyllia ramea* is described here for the first time for specimens from Cyprus and compared to *D. ramea* from the Western Mediterranean.

**METHODS** Colonies (n=8) and branches of colonies (n=5) of *D. ramea* were collected by longline fishermen and ROV surveys in Cyprus (150 to 200m depth). Samples (dry or frozen), including other material (e.g. monofilament lines) attached to the corals, were inspected using a stereomicroscope and selected epibionts were prepared for scanning electron microscope (SEM). Relative position, abundance (% cover) and diversity of major taxa on *D. ramea* colonies from Cyprus was compared to those of one conspecific colony from Menorca Channel (ca. 240m).

**RESULTS** Sixty-three taxa in total were found; the majority (ca. 57%, n=36) were bryozoans followed by serpulid polychaetes (ca. 11%). Other groups (pooled together 32%), such as corals, sponges, brachiopods, foraminifera, and calcareous algae were less represented. More than 60% (n=41) of the species were found only in Cyprus; few (11%, n=7) co-occur in both areas. Sponges were entirely absent from the samples from Cyprus. In contrast, the scleractinian coral *Stenocyathus vermiformis* was found only on *D. ramea* from Cyprus (three colonies). In general, upright branches with live polyps and exposed sides had significantly fewer epibionts (<5% cover) compared with dead portions of the same colony. Epibionts' cover was higher (>40%) on those sides as well as in the basal sections (Fig. 1A) and the monofilament fishing lines (Fig. 1B).

**DISCUSSION AND CONCLUSIONS** All species in the examined material are known as habitual epibionts of a variety of coral species. This is the first contribution for the deep-water biodiversity of epibionts in the Levantine Basin. Many of the species (ca. 45%) were not reported for Cyprus, nor for any other DWC in the Levantine area, even though their depth range of distribution range extends to shallow habitats (<50m). Although all epibionts found are indicative of some environmental conditions, bryozoans and sponges strongly respond to environmental factors such as oligotrophy and sedimentation. These results suggest that generalizations regarding DWC habitats and their associated communities in the Mediterranean are not to be taken lightly. The deep-water habitats of the Levantine Sea are under heavy pressure by human activities that may alter the benthic landscape, posing a challenge to produce immediate information on poorly known ecosystems and on even less understood relationships between species and their ability to adapt to these changes.

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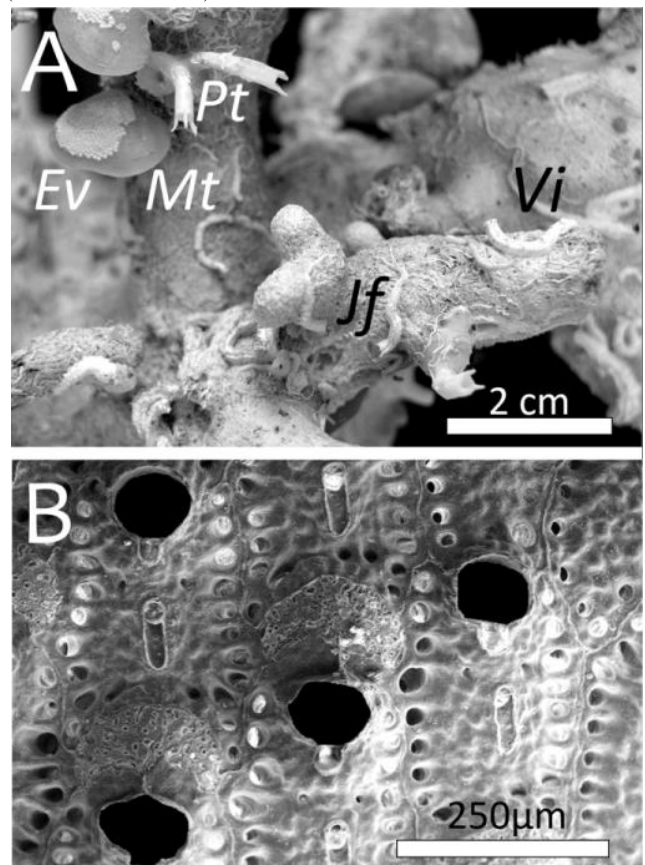


Fig. 1. (A) Epizoa: *Escharina vulgaris* (Ev), *Megerlia truncata* (Mt), *Placostegus tridentatus* (Pt), *Vermiliopsis infundibulum* (Vi), *Janita fimbriata* (Jf). (B) Bryozoan *Smittoidea marmorea* with ovicells and avicularia.

## References

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