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Volume degli abstract

1 = New coralline algae from an extreme habitat in the Conero Riviera (Middle Adriatic Sea)

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Apart from a few pioneering studies, it was only in the twentieth century that new scuba diving technologies allowed the study of the communities of marine caves. The topography and morphology of caves can affect both lighting and hydrodynamics, and hence the presence of marine organisms. Data on the phytobenthos community of such extreme habitats are rather scarce, particularly for Italian waters. Because of the peculiarity of the hosted biocenoses, the submerged or partially submerged sea caves are among the Priority Habitats listed both in the Annex 1 of the Habitats Directive 92/43/EEC and in Barcelona Convention.

Coralline red algae (Corallinophycidae, Rhodophyta) are a major calcifying component of marine ecosystems worldwide, occurring from tropical to polar regions, from the lower intertidal to the deepest euphotic zone. In the upper intertidal, the presence of most species is hampered by their low resistance to abrupt excursions in temperature and salinity and to drying during the low tides. Nevertheless, more tolerant species occur in large tide pools in the North Atlantic Ocean, such as *Phymatolithon squamulosum* living under the shadow of other canopy-forming macroalgae, thanks to the porosity of the rocks on which they thrive. Along the Sicilian and Calabrian upper intertidal zone, to the best of our knowledge *Phymatolithon lenormandii* is the only coralline that has been observed in the “trottoirs” of *Lithophyllum byssoides* and at the entrance of some marine caves.

We report for the first time the presence of two encrusting coralline species on the vertical walls of a semi-submerged marine cave in the Middle Adriatic Sea (Conero Riviera – Italy). The coralline identity was investigated through molecular analyses (*psbA*, LSU rDNA and *cox2,3* sequences) and morpho-anatomical observations.

Comparing our *psbA* sequences with the GenBank database, the coralline algae reveal higher regions of similarity with the sequence of *Phymatolithon lamii* from Ireland (98.7%) and a *Lithophyllum* sp. from the Tuscan archipelago (98.1%).

The cave, approx. 6 m long and 2 m high above the sea level, faces East and it is formed by limestone. The bottom is approx. 3 m deep at the entrance, decreasing toward the end of the cave. Starting from 2 m from the entrance, the walls of the cave are covered by thin pink crusts formed by coralline algae. The coralline algal concretion occurred up to 170 cm above the sea level. The tide range along the Conero promontory is about 40–45 cm, implying that these corallines remain emerged for most of the time. The orientation of the cave, which limits the exposure time to direct sunlight, the aerosol generated by the waves and the porosity of the fine carbonate rock likely produce a microhabitat constantly characterized by high moisture, which protects the emerged coralline crusts from desiccation.

<https://drive.google.com/file/d/15nk9tp6aVEfk9GoxlVdYahSolApU7fOX/view?usp=sharing>