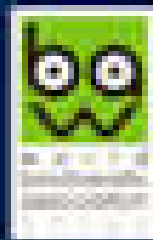


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First assessment of the epifauna associated with macroalgae of the vermetid reef along the coasts of Favignana Island (South Tyrrhenian Sea)

Maria Giulia Giangrasso^{1*}, Paolo Balistreri² & Anna Maria Mannino¹

¹Dipartimento di Scienze e Tecnologie Biologiche Chimiche e Farmaceutiche, Università di Palermo, Via Archirafi 38, 90123 Palermo, Italy

²Vicolo Giotto 6, 91023 Favignana, Italy

*Corresponding author, email: mary_giuly@live.it

ABSTRACT

With this study we provide a first baseline assessment of the epifauna associated with the macroalgae of the vermetid reefs present along the coasts of the Island of Favignana (Egadi Islands Marine Protected Area, Italy). A total of 14 taxa were identified. Epifaunal assemblages differed according to structure and composition of algal communities. The amphipod group presented the highest number of individuals. The tubicolous species *Ampithoe ramondi* Audouin, 1826 (Ampithoidae) was the most abundant species.

KEY WORDS

Fauna biodiversity; Favignana Island; macroalgae; southern Tyrrhenian Sea; vermetid reef.

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INTRODUCTION

Vermetid reefs are bioconstructions built up by the gastropod mollusc *Dendropoma cristatum* (Biondi, 1859) (Vermetidae) in association with some coralline algae such as *Neogoniolithon bras-sica-florida* (Harvey) Setchell et Mason. In Sicily, large and more or less continuous vermetid reefs are present along the entire coast facing north/northwest between Zafferano Cape and the coast of Trapani with the Marine Protected Area (MPA) “Egadi Islands” (Chemello, 2009). These bioconstructions play a fundamental structural role, as they protect coasts from erosion, regulate sediment transport and accumulation, serve as carbon sinks, make the habitat more complex and heterogeneous and provide numerous habitats for animal and vegetal species thus increasing intertidal biodiversity (Chemello, 2009). Macroalgae may have an important role in structuring associated epifaunal assem-

blages (Jones & Thornber, 2010). The aim of this study was to analyse the epifauna associated with the macroalgae inhabiting the out margin of the vermetid reefs along the coasts of Favignana Island (Egadi Islands Marine Protected Area). A recent analysis of the vermetid reefs along the coasts of Favignana Island displayed at least three local patterns (Balistreri et al., 2015). Since the outer margin of the diverse typologies was inhabited by different macroalgal communities, we hypothesized that epifaunal assemblages differed in relation to the structure and composition of macroalgal community. We report here the first results of this study.

MATERIAL AND METHODS

The study was carried out in summer 2016 in ten areas chosen along the coasts of Favignana Is-

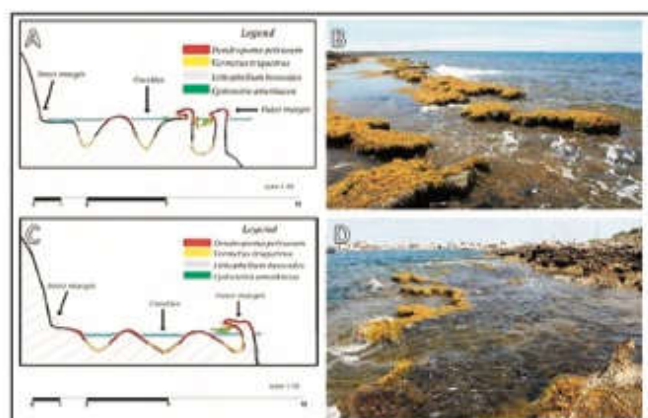


Figure 1. The analysed vermetid reefs. A. Scheme of the pattern 1. B. Faraglione. C. Scheme of the pattern 3. D. Arre Turino

land (Egadi Islands MPA), located approximately five kilometers from the western coast of Sicily (South Tyrrhenian Sea, Italy). In this paper we considered 4 representative areas, 2 characterized by a vermetid reef belonging to the pattern 1 (Faraglione and Pozzo) and 2 by a vermetid reef belonging to the pattern 3 (Arre Turino and Cala Rotonda) (Fig. 1) (see Balistreri et al., 2015), where the outer margin was characterized respectively by mediolittoral (*Laurencia*) and infralittoral (*Cystoseira*, *Dictyopteris*) algal species. For each site, three random replicates were taken by scraping off the substratum within a 20×20 cm frame from the outer margin of the reef. The samples were washed through 0.5 mm sieves and the algae were then searched thoroughly for any remaining animals under a stereomicroscope. After a sorting process the isolated animals were counted. All animals and algae were identified to the lowest taxonomic level feasible.

RESULTS AND CONCLUSIONS

A total of 14 taxa were identified, belonging to crustacean decapods (1), echinoderms (1), molluscs (8), polychaetes (2) and amphipods (2), the last one presenting the highest number of individuals. At Faraglione and Arre Turino the highest number of amphipods was found (Table 1).

Biodiversity was higher at Cala Rotonda and Arre Turino, whereas abundances were higher at Faraglione and Arre Turino (Table 1). Differences in abundances seem to be linked to the coverage, shape and structural complexity of algae (Cacabelos et al., 2010). Indeed, Faraglione and Arre Turino were characterized by 100% algal coverage and by the dominance of algae with a high structural complexity (*Laurencia* and *Cystoseira*, respectively). At Cala Rotonda, the dominance of a sheet-like alga (*Dictyopteris*) would explain the lower number of individuals. At Pozzo, characterized by 30% algal coverage (*Laurencia* was the dominant species), the lowest diversity was found.

The amphipod diversity was very low in all sites, only two herbivorous species were found: *Elasmopus pocillimanus* (Spence Bate, 1862), a free-living species, and *Ampithoe ramondi* Audouin, 1826, a tubicolous species. *Ampithoe ramondi* was the only species found at Arre Turino and the most abundant species at Faraglione. This species prefers areas with high hydrodynamism such as the vermetid reef and preferentially consumes algae with a higher structural complexity (Jacobucci & Leite, 2014).

The present findings suggest that the total abundance and species richness of epifauna are mainly related to the structure and composition of algal

Area	Algal coverage	Dominant alga	amphipods	decapods	echinoderms	molluscs	polychaetes
Arre Turino	100%	<i>Cystoseira</i> (100%)	27	2		4	10
Cala Rotonda	100%	<i>Dictyopteris</i> (90%)	13		9	4	2
Faraglione	100%	<i>Laurencia</i> (90%)	30	1		10	
Pozzo	30%	<i>Laurencia</i> (25%)	2			8	

Table 1. Data of macroalgae and the total number of individuals of epifaunal taxa recorded in the studied vermetid reefs.

communities and to the structural complexity of algae. It is presumable that structurally complex algae may create more physical refuges for epifauna than algae with a lower level of complexity.

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