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THE CHANGING BIOTIC COMPOSITION AND ITS CONTROL ON THE NATURE OF REEF TRACTS AND REEF SLOPES: A CASE FROM THE OLIGO-MIOCENE OF THE APULIA PLATFORM MARGIN (SOUTHERN ITALY)

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Reefs of Oligocene and Late Miocene age, both times of massive reef development in the Mediterranean region, are well developed along the eastern margin of the Apulia Platform (eastern coast of the Salento Peninsula, southern Italy). Their growth occurred in a physiographic and depositional setting which remained stable from Late Cretaceous until Late Miocene and we assume that, presumably, depth and hydrodynamic gradient along reef profile was nearly the same.

This quite unusual context provides the opportunity to focus basically on evolutionary changes that differentiate Oligocene and Late Miocene reef biota of the Apulia Platform and to illustrate how different reef communities produce different framework, growth fabrics and sediment types along reef tracts and reef slopes.

The two reef complexes, respectively represented by the lower Chattian Castro Limestone and the lower Messinian Novaglie Formation, are compared by data on reef-building components (primary and secondary reef builders) including diversity, size and growth morphologies, on growth fabrics and coral cover, associated sediments and fauna.

The Oligocene reef tract is largely dominated by a high diversity coral fauna associated with a moderate presence of coralline algae. Growth fabric is mainly represented by a dense domestone-mixstone (about 70% of coral cover). The slope is also dominated by corals but with those in growth position clearly subordinate with respect to coral debris.

In contrast, the Messinian reef tract displays a very low diversity coral fauna but an abundance of other reef-building components. *Porites* domestones and pillarstones (about 40-50% of coral cover) are associated with abundant coralline algae, strongly binding coral colonies or forming in places crustose frameworks, together with abundant encrusting foraminifera, bryozoans and micritic crusts. The nature of the reef slope is varied and shows, together with coral debris, also *Porites* sheetstones, crustose coralline frameworks, *Halimeda* bioherms and, in general, a larger amount of grain-producing biota.

The picture derived from this comparative study shows the Oligocene reef almost totally composed by a high diversity and abundant coral fauna („monotonous" reef-building biota) versus the Messinian reef, characterized by a very low coral diversity but abundant and varied secondary reef-builders (heterogeneous reef-building biota). These differences in biotic composition, mainly related to climatic changes, have important consequences on organism-environment feedback. For the Oligocene we can assume a high framebuilding capacity in the reef tract margin but low in the slope that is largely composed of gravity-dispalced debris. In contrast, for the Messinian, a relevant framebuilding capacity can be recognized also in the slope, strongly biologically stabilized and thus available for further coral settlement and encrustation.

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