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Larger benthic foraminifera of the Paleogene Promina Beds (Croatia)

V. Cosovic (1), E. Mrinjek (1), and K. Drobne (2)

(1) Faculty of Science, Department of Geology, Zagreb, (vcosovic@geol.pmf.hr), (2) ZRC SAZU, Ivan Rakovec Institute of Paleontology, Novi trg 2, 1000 Ljubljana, Slovenia

In order to add more information about complex origin of Promina Beds (traditionally interpreted as Paleogene molasse of Dinarides), two sections (Lišani Ostrovački and Ostrovica, Central Dalmatia, Croatia) have been studied in detail. Sampled carbonate sequences contain predominantly coralline red algae, larger benthic foraminifera and corals. Based on sedimentary textures, nummulitid (Nummulites s.str and Asterigerina sp.) test shapes and the associated skeletal components, altogether three types of the Middle Eocene (Lutetian to Bartonian) facies were recognized. The Ostrovica section is composed of alternating couples of marly limestones and marls, several decimeters thick with great lateral continuity. Two facies which vertically alternate are recognized as Nummulites - Asterigerina facies, where patchily dispersed large, robust and party reworked larger benthic foraminifera constitute 20% and small bioclasts (fomaniniferal fragments and whole tests less than 3 mm in diameters) 10% of rock volume and, Coral - Red algal facies with coral fragments of solitary and colonial taxa up to 1 cm in size constitute 5 - 40%, red algae 15 - 60% and lager benthic foraminifera up to 5% of rock volume. The textural and compositional differences among the facies suggest rhythmic exchanges of conditions that characterize shallower part of the mesophotic zone with abundant nummulithoclasts with deeper mesophotic, lime mud-dominated settings where nummulitids with the flat tests, coralline red algae and scleractinian corals are common. The scleractinian corals (comprising up to 20% of rock volume) encrusted by foraminifera (Acervulina, Haddonia and nubeculariids) or coralline red algae and foraminiferal assemblage made of orthophragminid and nummulitid tests scattered in matrix, are distributed uniformly throughout the studied Lišani Ostrovački section. In the central part of section, wavy to smooth thin (< 1 mm) crusts (laminas) alternating with encrusted corals occur. The characteristics of associated fauna and spatial relationship between corals and laminations indicate that this facies originated in a mid–ramp (shelf) setting.