



Planktonic foraminiferal assemblages of the Middle to Late Eocene of southwestern Croatia as function of paleogeography and paleoecology

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Detailed micropaleontological research of the Middle to Late Eocene deep sea sediments from deep exploration wells in Venetian basin (northern Adriatic Sea) and from land outcrops within Trieste-Pazin basin (Istria, Croatia) revealed some differences of composition and faunal characteristics of planktonic foraminiferal assemblages. Open ocean Venetian basin and elongated Trieste-Pazin foreland basin were separated by narrow Istrian platform shelf. Planktonic foraminiferal associations from Venetian basin characterized by high diversity and equitability and low dominance imply open ocean environment. On the other hand in the Trieste-Pazin basin moderately high diversity and equitability accompanied with low dominance are indicative for shelf-slope fauna.

During Middle Eocene biozones P11-P13 abundances of main foraminiferal groups are quite similar. Muricate forms and subbotinids prevail in both basins. Turborotalids are more abundant than globigerinathekids, while hantkeninids are rare. In P14 biozone subbotinids and large globigerinids are most abundant constituents of planktonic assemblages in both areas. In the Venetian basin turborotalids remain more abundant than globigerinathekids, whereas in the Pazin basin globigerinathekids prevail over turborotalids. At the Middle/Late Eocene boundary large acarininids and morozovellids became extinct corresponding to global cooling and were replaced by subbotinids

and turborotalids. In P15 biozone subbotinids, turborotalids, and large globigerinids show higher proportions in the Venetian basin than in the Trieste-Pazin basin. Percentages of globigerinathekids decrease in the Trieste-Pazin basin, whereas in the Venetian basin remained the same.

All the data suggest Mediterranean bioprovince with subtropical to warm-temperate climate for the whole area. Distinctive differences between investigated planktonic assemblages imply influence of local ecological factors like trophic resources, water temperature, as well as paleogeographical position and water circulation. In Venetian basin typical mid-latitude foraminiferal association dominated by subbotinids and turborotalids indicate slightly lower water temperature, oligotrophic environment and open ocean circulation. On the other hand, the Trieste-Pazin basin assemblages suggest warmer and well ventilated surface water as a result of good communication with open ocean waters, that were favourable to radiation of symbionts bearing globigerinathekids and muricate forms.