

SELECTION OF A SIZE FRACTION FOR THE ANALYSIS OF THE EOCENE PLANKTONIC FORAMINIFERAL ASSEMBLAGE FROM THE DINARIC FORELAND BASIN DEPOSITS

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Planktonic foraminifera are commonly used to determine the ages of sedimentary deposits and to interpret paleoecological conditions under which they lived. Appropriate sampling and laboratory processing of samples are as important as the identification of species and genera. Therefore, the selection of right size fraction on which the analysis will be performed due to its effects on the composition of the foraminiferal assemblage [1] matters a lot. A sample of deep-water Eocene sediment from Podstine Bay (island of Hvar, Dinaric foreland basin) was treated to estimate the best size fraction for the analysis of the Eocene planktonic foraminiferal assemblage. The sample is a marl containing ~68% CaCO₃. An equal amount of the sample was dissolved in peroxide and in mixture of peroxide and sodium bicarbonate. After that, wet sieving was performed and fractions >63 µm and >125 µm in standardized sub-samples were selected for comparison. The observation criteria were the morphological characteristics of the tests, which are also criteria for determining planktonic foraminiferal species like test morphology, aperture (shape, position and secondary infillings) and wall structure, along with the preservation of the tests (whole; broken with more than half of the test is missing) [1]. The percentage of whole tests in the sub-sample treated with H₂O₂ and Na₂CO₃ is higher in the fraction >125 µm with 79%, while in the fraction >63 µm is 68%. The percentages of tests for which it was impossible to determine the type of the aperture are 92% in >125 µm and 90% in >63 µm. However, the sub-sample treated only with H₂O₂ showed the following results: the relative abundance of whole tests is 54% (>125 µm); 63% (>63 µm), the aperture is visible on 7% of tests (>125 µm); 13% of tests (>63 µm). The results showed an equal abundance of the whole, well-preserved tests in both fractions of the two sub-samples, showing that there is no significant difference between the fractions. Foraminiferal tests from the >63 µm fraction are more difficult to identify due to their smaller size (younger individuals). Considering the possibility for correct species identification, we can suggest that a fraction >125 µm is better for the analysis of Eocene planktonic foraminifera from carbonate-rich marls deposited during the Middle Eocene Climate Optimum in the Dinaric foreland basin.

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