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Biostratigraphy and Sr-isotope chemostratigraphy of rudist-bearing carbonate platforms in the central-eastern Mediterranean and Middle East during the latest Cretaceous (Campanian-Maastrichtian)

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The evolution of the rudist-dominated shallow-water limestones of the Upper Cretaceous (Maastrichtian) is rather imprecisely constrained due to the generally low resolution of biostratigraphy of typical carbonate-platform biota such as benthic foraminifers and calcareous algae. Consequently, a precise history of the demise of the characteristic rudist associations in the central-eastern Mediterranean and Middle East has not yet been established. We use Sr-isotope stratigraphy to derive numerical ages for species-rich rudist associations at several localities of the Apulian platform (SE Italy), the Arabian Peninsula (Oman), and SE Turkey. These data are used to constrain the stratigraphical ranges of characteristic rudist species, and to calibrate the ranges of benthic foraminifera and calcareous algae with chronostratigraphy.

The preferred sample material for Sr-isotope analysis is low-Mg calcite, e.g. from the outer shell layer of rudists. The chemical composition (Sr, Mn, Fe, and Mg concentrations), and stable isotopes ($^{18}O/^{16}O$ and $^{13}C/^{12}C$) are analyzed to assess the preservation of the original seawater Sr-isotope ratio of the sampled material.

Our results show that the characteristic rudist associations of the Apulian carbonate platform (Salento, SE Italy) range into the latest Maastrichtian ($<$ 66.8 Ma). The same age has been obtained for similar deposits exposed on the Ionian Islands (Greece). Large-sized recumbent rudists of the *Pseudosabinia* - *Sabinia* group are abundant in these deposits.

In Oman, (Qalhat, Sur region), the demise of rudists is obvious in a continuous Cretaceous/Palaeogene sequence of platform carbonates. The Sr-isotope values of rudist shells indicate the latest Maastrichtian, and benthic foraminifera and calcareous algae delimit the position of the K/P boundary. Ongoing studies are aiming at the assessment of environmental change during the critical boundary interval.