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{Carbon and oxygen isotope signals from marine ostracod calcite – results from present and past oceans}

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Systematic stable isotope studies on ostracod calcite are generally rare, in particular for marine taxa only the work of DIDIÉ & BAUCH (2002) provides first clues towards an improved understanding of ostracod stable isotope data in paleoceanography. Here we present analyses from recent near surface sediments from the Gulf of Taranto, the Levantine Basin (15 ka, both Mediterranean Sea) and the Paleocene of Tunisia (southern Tethyan margin). Data are compared to those from selected benthic foraminiferal taxa from which the living habitat and the isotopic disequilibria from ambient sea-water are well known. In addition, size fractions of monospecific samples have been studied in order to test whether a size/mass dependent change exists with respect to the isotopic composition of the carapace calcite.

Calcification of ostracod carapaces is a very rapid process, which often takes place within a few hours and the obtained signal provides only a snap-shot of the prevailing paleoceanographic conditions. Multiple mono-specific measurements show therefore a much higher variability than benthic foraminifera, but may give a more complete picture of the seasonal changes. Our study confirms the findings of DIDIÉ & BAUCH (2002) and others (for non-marine taxa) that ostracod calcite displays a positive species-specific deviation from the sea-water δ^{18}O composition between 0.5 and 1.5 per mil with an intra-specific variability of less than 0.5 per mil. In contrast δ^{13}C values cover a huge range with an off-set from sea-water of up to -5 per mil and show a high intra-specific variability of up to 2 per mil.

Size-fraction data show no systematic change, although a statistically significant positive covariance between δ^{18}O and δ^{13}C has been observed. This covariance consists of a slope similar to a kinetic controlled fractionation as has been described from asymbiotic planktic foraminifera (*Globigerina bulloides*) and corals (MCCONNAUGHEY, 1989; SPERO & LEA, 1996). This suggests that kinetic disequilibria control to a large extent isotope fractionation in ostracod calcite.

While the δ^{13}C values are probably also influenced by metabolic effects, previous studies suggest that the δ^{18}O of ostracod calcite correlates well with the δ^{18}O of the ambient water masses. However, this observation is not supported by our limited dataset from the Levantine Basin. The ostracod data do not trace the prominent shift in sea-water δ^{18}O from 15 ka compared to today as it is apparent in the benthic foraminiferal data. High-resolution time series data since the Last Glacial Maximum are desirable to further explore the use of δ^{18}O of marine ostracod calcite as a paleoenvironmental proxy.

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