CONODONT STRATIGRAPHY, DEPOSITIONAL ENVIRONMENTS AND STABLE ISOTOPE COMPOSITION OF THE TRIASSIC IN THE HELICON MOUNTAINS (BEOTIA, GREECE)

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Triassic limestone sequences represent dominant parts in the structure of the Helicon Mountain range; they exceed 800 m in thickness. All Triassic stages – except the Scythian – have been discerned by microfacies and biostratigraphic studies. The oldest deposits in the studied area were found to be Anisian algal biolithits. 38 conodont species were recognized in platy, pelagic limestones of Anisian to Ladinian age. The sedimentary record is continued by Ladinian algal reefs. Carnian limestones were accumulated in lagoonal environments; they are succeeded by dolomitic Lofer-type cyclothems. In the Late Triassic lagoonal limestones reoccurred.

A syndiagenetic interaction with meteoric waters resulted in a rather uniform carbon and oxygen isotopic composition of the carbonate rocks throughout the Triassic sections. Various carbonate cements revealed different isotopic patterns. As revealed by stable isotope analyses, the dolomitisation of the Norian sediments was initiated by mixing effects of marine and continental phreatic waters during early diagenesis, whereas the final dolomitic cementation occurred at increased temperatures during subsidence.

In general organic matter content of the investigated limestones is sparse, rarely exceeding 200 ppm $C_{org.}$ Low $\delta^{13}C_{org}$-values of Anisian to Ladinian limestones reflect a major influx of terrigenous organic debris which is also evidenced by fragments of higher plants, recorded in acid-insoluble residues. A shift towards heavier isotopic compositions of organic carbon during the Ladinian and Carnian was probably caused by a reduction of organic material provided by the continental drainage system. This is also indicated by the low amounts of insoluble components which are incorporated in the limestones. $\delta^{13}C_{org}$-values of -21‰ are genetically connected with cryptalgallaminites of Cyanobacteria. Their characteristic biomarkers were recognized by GC-MS. As saturated hydrocarbons have been recorded in all investigated samples, the Triassic sequence did not subside below the limits of hydrocarbon generation. This is confirmed by the degree of conodont colour alteration.