

Ostracod palaeobiogeography, palaeoecology and extinction pattern around the P/T Boundary

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Micropalaeontological results from pelagic Upper Permian and lowermost Triassic deposits of Iran suggests that the Late Permian stratigraphical range and taxonomical diversity of ostracods was primarily controlled by sea level changes. In the Lower Dzhulfian the faunas display a relative high diversity and are dominated by Palaeocopida and Platycopina. They are also characterized by a very high percentage of presumed filter-feeding taxa (70-85%). Their palaeoenvironment was the shallow subtidal zone of an open marine shelf. A high percentage of filter-feeding taxa is usually suggested to be due to oxygen deficiency since these groups have a more effective respiration system and are thus more tolerant to low oxygen concentration than deposit-feeders. However, oxygen deficiency is not supported by the lithofacies and the palaeoecology of associated macrobenthic assemblages. The ostracod species diversity (8-11 species) is also not consistent with environmental stress. In the Middle and Upper Dzhulfian the ostracods show a diversity decrease and predominance of Bairdiacea (Podocopina) due to sea level rise and decrease in water turbulence. The Dorashamian faunas reflect a further environmental deepening by the first occurrence of Cladocopina (*Discoidella*) and low- to medium diversity assemblages.

In the uppermost Dorashamian Boundary Bed a complete faunal turnover and a mass occurrence of Kloedellocopina (*Indivisia*) is recorded. It is related to the End-Permian global mass extinction event and regional environmental perturbations such as shallowing and rapid temperature variations. Indications for shelf anoxia were not found. The ostracod associations at the P/T Boundary are strongly dominated by a few representatives of the Bairdiacea (*Praezabythyocypris*) and a genus of unknown systematic position (*Liuzhinia*). The high percentage of Bairdiacea is indicative of a well-oxygenated milieu around the P/T-Boundary in Iran. These data are contrary to the view that the formation of thrombolites and similar carbonate crusts at the P/T Boundary was related to dysoxic or anoxic conditions.

The composition of the post-extinction ostracod assemblages is comparable to other tethyan post-extinction faunas from South China and Turkey (Taurus). The mass occurrences of *Praezabythyocypris* sp.1 and its wide biogeographical range suggests that it was a disaster taxon which colonized large tethyan shelf regions in a comparatively short time. This would be consistent with palaeogeographical models which imply that South China, the Taurus and the Sandandaj-Sirjan region of Iran were not isolated terranes but parts of a single micro-continent during Late Permian and Early Triassic times.

Present data of the global Upper Permian and Lower Triassic ostracod stratigraphical range show that the post-extinction taxonomical diversity of deposit-feeding taxa (e.g. Cytheracea, Bairdiacea) was at least as high as the diversity of filter-feeding taxa (e.g. Kirkbyacea, Cavinellacea, Kloedenellacea). The global and regional extinction patterns presented above suggests that the survival of marine microbenthic organisms was not primarily controlled by oxygen concentration. More precise interregional stratigraphical correlations are essential for a more detailed reconstruction of Late Permian ostracod extinction processes and related biotic and abiotic events.