

## Ostracod assemblages and environmental changes in the Southiberian Palaeomargin during the early Toarcian: the incidence of the Jenkyns Event

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Important changes in the composition of ostracod assemblages have been recorded in lower Toarcian deposits of many Tethys basins. A faunal turnover, related to global environmental change (Jenkyns Event), occurred during the Serpentinum (Levisoni) Zone and was accompanied by the extinction of Suborder Metacopina represented by the Family Healdiidae. The analysis of ostracod assemblages from the well-studied La Cerradura section (Betic Cordillera, SE Spain) can improve the understanding of processes that triggered this turnover.

The upper Pliensbachian and lowermost Toarcian (Polymorphum Zone) of La Cerradura section are constituted by a marl-limestone rhythmite, that is overlain by a dark marls interval that represent the Serpentinum Zone. The lower part (~ 3.5 m) of this dark marl is characterized by the record of a negative carbon isotopic excursion (CIE) both for bulk rock and organic matter, as well as a minor increase on redox sensitive elements (RSE) and total organic carbon (TOC = 0.8%).

The ostracod assemblage of the upper Pliensbachian (Emaciatum Zone) is dominated by Family Healdiidae (*Ogmoconcha* and *Ogmoconchella*) and secondarily Bairdiidae and Pontocypridae. The Polymorphum Zone (lower Toarcian) is characterized by a diverse assemblage with dominance of Healdiidae, Bairdiidae and Pontocypridae. However, the beginning of the negative CIE coincides with a sharp decrease of percentage of Healdiidae and the rapid extinction. The diversity in the base of the Serpentinum Zone, debut of the negative CIE, coincides with the increase of Baridiidae and Cytherellidae. The size of some genera such as *Liassina* and *Bairdiacypris* decrease from the base of the Serpentinum Zone. After the negative CIE, diversity and abundance of ostracods recovered.

As sediments are not significantly enriched in RSE and TOC, oxygen-deficient conditions in pore and bottom were not the driver of the ostracod biotic crisis. Other processes related to the Jenkyns Event may be the cause, such as rising seawater temperatures and acidification. For this section, an increase in atmospheric CO<sub>2</sub> from about 500 to 1000 ppmv of CO<sub>2</sub> has been reconstructed during the Jenkyns Event. Rising CO<sub>2</sub> levels were paralleled by increasing sea surface temperature from 22 to 32 °C (~0.1 °C/kyr). At the same time, CaCO<sub>3</sub> contents fall from 80% to 32% and absolute abundance of calcareous nannoplankton drop. Decrease of deep-dweller *Mitrolithus jansae* indicates shoaling of the oxygen minimum zone or carbonate compensation depth. Probably Suborder Metacopina was more vulnerable to these changes.

**Key words:** Ostracods, Jenkyns Event, opportunist, Lower Jurassic