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Upper Jurassic litiolids in the Sierra de Chiapas (Mexico) and their relation to the Tethys

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Benthonic foraminifera from Upper Jurassic outcrops in the Sierra de Chiapas are herein presented. These microfaunistic associations reflect major geologic and eustatic events. At the beginning of the Jurassic, a great marine transgression flooded the continental margins; at the same time, the breaking of Pangea formed the Tethys Sea (Mc. Kenrow, 1978). These events caused the development of different communities to evolve along different phyletic lines. The Sierra de Chiapas Province in SE Mexico is intimately related to these events, representing the most occidental region of the Tethys domain.

During mid Jurassic times, most of the region experienced hot weather, continental and fluviodeltaic environments (Todos Santos Fm.), covered by vegetation, probably of “chetine” type. Although some Callovian rocks record first Tethyan invasions, it is until Oxfordian times when the first marine environments are registered by the sediments on an extensive carbonate shelf, the San Ricardo Formation (Oxfordian-Berriasian). Three large-scale events determine the succession of sedimentary environments and the evolution of the communities of organisms.

The first event corresponds to the formation of an inner shelf (Oxfordian-Kimmeridgian) as a consequence of a marine invasion with essentially subtidal calcium carbonate deposits, deep enough to facilitate the proliferation of dasycladacean algae and bivalves. The restricted environments mainly correspond to lagoons, with a dominant development of dasycladacean algae such as *Clypeina*, *Cylindroporella*, *Zergabriella*, *Actinoporella*, *Apinella*, *Heteroporella*, *Deloffrella*, *Salpingoporella*, *Radoiciciella* and Kimmeridgian *Likanella*. As foraminifera, litiolids (*Everticyclammina virguliana*, *Pseudocyclammina lituus*) and trocholinids (*Trocholina* sp.) are noted.

The second event (Tithonian) corresponds to a sea level rise producing a marine flooding, with the deposition of calcareous-terrigenous sediments. As a consequence, the facies changes, dasycladacean algae, trocholinids, and miliolids are suppressed, only some lituolids and lagenids survive.

The third event refers to a sea level drop (Tithonian-Berriasian), permitting the extension of shallower environments on the open platform. Here, a terrigenous, sandy sedimentation permitted the lituolids to constitute the dominant element in the communities. Environments of deposition for the terrigenous open sea platform range from coastal facies with scarce fragments of lituolids to shallow subtidal facies characterized by limonite and biomicrites with abundant larger lituolids. For this group, high specific and generic diversity is observed. The most common species are *Anchispirocyclus lusitanica*, *A. lusitanica minor*, *Pseudospirocyclus* sp., *P. maynci*, and *Timidonella* (?). Most of these are large-sized and distinctly dimorphic, indicating a double K-strategy of life similar to recent soritines. Dasycladacean algae such as *Draconisella genotii*, *Likanella* and *Radoiciciella* are also reported. Thus, fauna and flora from Chiapas are similar to the communities registered on the other side of the Atlantic from coeval similar facies in Portugal (Cap Espichel) and Morocco.