

## Integrated stratigraphy and isotopic ages at the Berriasian/Valanginian boundary at Puebla State, eastern Mexico

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The Berriasian–Valanginian time boundary is one of the least studied stratigraphic horizons in Mexico. From the biostratigraphical point of view it can be defined by the first occurrence of *Calpionellites darderi* (*Calpionellites* Zone) according with the proposal of BULOT (1996) and in agreement with the Valanginian Working group of the IUGS. This Zone is widely accepted and recognized by several authors who pointed to calpionellids as the main biostratigraphic markers of this boundary (REMANE, 1963, LE HÉGARAT & REMANE, 1968, ALLEMANN and REMANE, 1979, BLANC et al., 1994, BULOT, 1996, BLAU & GRÜN, 1997 and AGUADO et al., 2000).

In this work, the integration of calpionellid biostratigraphy, microfacies analysis, U-Pb geochronology, and strontium chemostratigraphy improves the definition of the Berriasian–Valanginian boundary in a section of Puebla State, and validates the age of calpionellid zones from eastern Mexico in this interval. An age of 139.85 Ma derived from <sup>87</sup>Sr/<sup>86</sup>Sr ratio within the base of *Calpionellites* Zone defines the Berriasian–Valanginian boundary. Additionally, the 134.0 ± 0.5 Ma U-Pb age returned by zircon grains from a tuff level exposed at the top of the succession confirms the Valanginian age of the whole analyzed section. Microfacies analysis reveals sea level variations that can be coincident with the KVa1–KVa4 eustatic cycles. These new data suggest that calpionellid biostratigraphy represents the most useful tool for the definition of the Berriasian–Valanginian time boundary in eastern Mexico and its correlation with the rest of the Tethyan domain.

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