SAUROPODOMORPH EGGSHELLS AS POTENTIAL PALAEOENVIRONMENTAL INDICATORS DURING THE LATE CRETACEOUS

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The environmental and climatic conditions of the Iberian Peninsula during the latest Cretaceous are a key factor in evaluating vertebrate diversity and distribution. To characterize these regional conditions, this work focuses on the geochemistry of sauropodomorph dinosaur eggshells, which are among the most abundant fossil remains in Upper Cretaceous sedimentary deposits throughout the Iberian Peninsula, as a potential new palaeoenvironmental proxy. We selected four areas containing the richest assemblages of these eggs: Catalonia and Huesca within the Pyrenean region, and Guadalajara and Cuenca within the Iberian Range. These areas were chosen because their deposits are stratigraphically comparable, consisting mainly of mudstones and siltstones with extensive paleosol development. This allows the identification of different humid and arid intervals based solely on pedofacies. Furthermore, eggshells of *Megaloolithus siruguei* and *Fusioolithus baghensis* are consistently associated with these facies, enabling comparisons between eggshell preservation, geochemical signatures, and the surrounding sediments. Consequently, two independent proxies can be used to address the same palaeoclimatic questions. Compared to the sediments and nodules, the eggshells display relatively low carbon isotope values and intermediate oxygen isotope values. In contrast, pedogenic nodules and sedimentary carbonates show very limited variation in oxygen isotope values and are characterized by lower oxygen isotopic compositions but higher carbon isotope values than eggshells. These results suggest the presence of a vital effect on the isotopic signal recorded in the eggshells relative to that of the geological and sedimentary materials. However, this biological effect does not appear to mask the overall isotopic pattern. Instead, environmental conditions exert a stronger influence on the isotopic signal than taxonomy. Specimens of *Megaloolithus siruguei* and *Fusioolithus baghensis* from the Iberian Range and Catalonia show isotopic values that cluster according to region rather than ootaxa. Although this study remains preliminary, the results strongly suggest that significant palaeoenvironmental relationships can be established using these materials.

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