

CORRELATION BETWEEN MICROVERTEBRATES BIODIVERSITY AND CONDITIONS OF DEPOSITION ALONG A SEDIMENTARY SERIES (BERRIASIAN, CHERVES-DE-COGNAC, FRANCE)

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At the end of the Jurassic, an important regression affect the west of Europe. On the Northern margin of the Aquitaine Basin (France), huge depressions of salted water are isolated, leading to gypsum deposits, known on at least 100 kilometers. In this context, the quarry of Cherves-de-Cognac (Berriasian, Early Cretaceous, France) yields a sedimentary series of 87 levels, registering the continental evolution of the basin. The exposed layers begin with intercalations of black marl and gypsum, then evolve in marly deposits, more carbonated at the top of the series. Sedimentological data give a general vision of the depositional model, a change from a salted lagoon to a fluvial then lacustrine environment.

Micro-vertebrates bring another kind of informations to understand depositional modalities. In the series of Cherves-de-Cognac, 63 non-gypseous layers have been sampled and all of them yield vertebrates micro-remains. They are represented by an important taxonomic richness since 24 vertebrates families have been identified, from all the major clades (chondrichthyans, osteichthyans, amphibians, turtles, lepidosaurians, crocodylians, dinosaurs, birds and mammals). Moreover, important quantity of dental remains are found, until 37,000 teeth per metric ton of sediment in the richest layer. These three conditions: representativity along

the sedimentary series, diversity and richness, allow to use micro-vertebrates to understand depositional modalities.

The present work is based on teeth remains, in order to use numerical data. Graphic representations are first used to reflect biodiversity distribution at the family level, then several statistics treatments and indices are applied, i.e. cluster analysis, evenness values, principal components analysis. These tools allow to propose a scenario for the depositional environment of Cherves-de-Cognac. On the bottom of the series, the hydrographic network become more and more important and bring increasingly quantities of biological remains in a basin under evaporitic conditions. Then, in the middle of the sedimentary series, these quantities strongly increase but the proportions between each family remain equivalent. This episode corresponds to a huge influx of sedimentary material in the basin. The paroxysm is recorded in a level yielding a terrestrial association, thought to be consequent to a flood event. Finally, we observe return to quieter conditions, and a progressive faunal replacement in main osteichthyans families. A lacustrine environment takes place at the top of the sedimentary series.

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