PALEOENVIRONMENTAL RECONSTRUCTION OF THE LACUSTRINE CODÓ FORMATION (LOWER CRETACEOUS, PARNAÍBA BASIN), NORTHEASTERN BRAZIL: A TAPHONOMIC APPROACH

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The Codó Formation is a fossiliferous lithostratigraphic unit of the Parnaíba Basin and occurs discontinuously over a wide area in the central-north of the Maranhão State, Northeastern Brazil. It records a diversified biota comprising plants, mollusks (bivalves and gastropods), crustaceans (decapods and isopods), fishes and ichnofossils of Aptian age. The Faveirinha Quarry and Perneta Ranch, Brejo municipality, east Maranhão State are important outcrops from the Codó Formation. The sedimentary succession is locally comprised by massive and laminated limestone, marls and concretions commonly having fossil fishes. This latter, along crustaceans are the most abundant components of the biota. In the Perneta Ranch outcrop, the top of the succession is characterized by coquina levels containing marine gastropods (e.g. *Paraglauconia*). This sequence has been interpreted as the superior part from the Codó Formation and correlated to the top from the Romualdo Member, Santana Formation, Araripe Basin. The gastropod shells do not exhibit abrasion or fracture marks and they are preserved in a peloidal grainstone matrix. Plant fragments are common below the coquina level, especially in the marl facies. At least some species of fishes are autochthonous (e.g. *Santanichthys diasii*) and few specimens show a twist of the trunk resembling a “S” shape. Isopods are relatively common, but insects are absent, at least in the Perneta Ranch outcrop. Bioturbation traces are equally absent in these deposits. We assume here some marine influence in the superior part of the Codó Formation, based in the marine gastropod fossils; the absence of abrasion and fractures in the shells, along the peloids suggest a lacustrine environment with calm and restricted waters. The plant fragments are consistent with endorheic drainage, which is reinforced by the presence of terrigenous content in the marls levels. *Santanichthys diasii* have been considered a marine species and definitely corroborates a marine influence for the Codó Formation. Its twist of the trunk can be interpreted as a dehydration under high salinity variation of the water column. It reveals stressful conditions in the environment. Additionally, the relative abundance of isopods and absence of insects could indicate ecological factors and not necessarily a taphonomic bias. These examples show the importance of the taphonomic approaches in paleoenvironmental reconstructions, although the most significant aspect to be surpassed is the poor preservation of the biota from the Codó Formation. The increasing of sampling in this unit might change this scenario. This study was supported by CNPq and FAPERJ.

Keywords: Parnaíba Basin, Codó Formation, Taphonomy

Agência Brasileira do ISBN
ISBN 978-85-99198-12-4