

# TAPHONOMIC AND PALEOENVIRONMENTAL ASPECTS OF THE LOWER CRETACEOUS RIO PIRANHAS FORMATION (TRIUNFO BASIN, NORTHEASTERN BRAZIL) BASED ON FACIOLOGICAL AND PALEONTOLOGICAL DATA

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Although dinosaurian ichnofaunas are common in the Northeast Interior Basins (NIB), osteological remains are poorly represented in these areas. Then, one of the main challenges in the vertebrate paleontology in the Early Cretaceous of this region is to find body-fossils, which can unveil the anatomy and taphonomic and paleoecological aspects of the dinosaurian fauna recorded until now only by footprints and trackways. The discovery of dinosaur remains in strata of the Lower Cretaceous Rio Piranhas Formation (Berriasian-Hauterivian), in the Triunfo Basin (Paraíba State) open new perspectives in the comprehension of taphonomic and paleoenvironmental aspects during the Early Cretaceous in the NIB. The Rio Piranhas Formation is composed of coarse grained immature sandstones, medium grained sandstones, breccias and polymitic conglomerates. It is common through-cross bedding with paleocurrents mainly from N/NW to S/SE. Skeletal elements assigned to Dinosauria (Sauropoda) were found at Areias Farm (Triunfo municipality), recovered from arkose sandstones with trough-cross bedding structure with N/NW to S/SE direction flow. These fossils are aligned in the SSE direction, in the context of gravel bars in the same direction of channeled flows. The material consists of a set of three articulated caudal vertebrae and two isolated chevrons, whose characters allow attribution to the sauropod *Aeolosaurini*. Despite being found in a fluvial setting, rounding is not observed in the specimens. This evidence, associated with the degree of articulation of the vertebrae, suggests that the skeletal elements experienced a short-distance hydraulic transport from the source area (place of death) to their burial place (parautochthonous assemblage). Rounded to sub-rounded puncture marks are observed in some specimens, resembling trace fossils produced by carnivores/scavengers. Considering the size of the punctures, it is likely that the producer is an individual of a large-sized species, such as a theropod dinosaur or a crocodylomorph. Signs of weathering, trampling or boring produced by insects were not observed in the specimens, indicating that the bones were relatively rapidly buried after the death of the individual. The association between the taphonomic signatures observed herein (absence of trample, desiccation and insect marks; articulation of the vertebrae; absence of abrasion) can be associated to a context of intense sedimentary supply into the basin, possibly in a condition of strong tectonic activity in the area. Besides, the absence of desiccation marks and boring, associated to the faciological data, are suggestive of an arid climate during the deposition of the Rio Piranhas Formation. This study was supported by CNPq and FAPERJ.

**PALAVRAS-CHAVE:** Dinosauria, Taphonomy, Triunfo Basin



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