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New bioerosion traces in rhynchosaur bones from the Upper Triassic of Brazil and the oldest occurrence of the ichnogenera *Osteocallis* and *Amphifaoichnus*

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New bioerosion traces produced by insects in bones are reported from the *Hyperodapedon* Assemblage Zone of the Santa Maria Supersequence (Carnian, Brazil). The bones are assigned to a single rhynchosaur *Hyperodapedon mariensis* individual and among the traces, the ichnogenera *Osteocallis (Osteocallis mandibulus, Osteocallis infestans*, and *Osteocallis* isp.) and *Amphifaoichnus* (*Amphifaoichnus* isp.) are recognized, along with two morphotypes of indiscrete traces: clusters of grooves and borings. All the traces are assigned to the action of insects exploring the rhynchosaur carcass. *Osteocallis* and associated clusters of grooves are interpreted as feeding traces, but whether they represent necrophagic or osteophagic behavior is still uncertain. The lack of direct evidence for the ethological interpretation of *Amphifaoichnus* precludes its sole correlation with osteophagy, and other possibilities, such as the construction of temporary domiciles related to feeding or sediment moisture, are discussed. The traces analyzed here indicate that the insects explored a buried carcass, challenging the automatic association of *Osteocallis* and prolonged subaerial exposure of bones, placing insects as relevant taphonomic agents that affect the preservation of vertebrate carcasses. Additionally, the first appearance record of *Amphifaoichnus* is expanded back more than 140 Ma, indicating that complex behaviors employed by insects in bone exploration were already established in the early Late Triassic, shortly after the oldest records of invertebrate bioerosion in bones on continental settings.

Key words: Rhynchosauria, ichnotaxonomy, insect, osteophagy, paleoecology, taphonomy, vertebrate carcass, Triassic, Santa Maria Supersequence, Brazil.

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