

JAW BIOMECHANICS OF ORNITHOSUCHIDAE (ARCHOSAURIA: PSEUDOSUCHIA) AND ITS IMPLICATION ON THEIR FEEDING HABITS*

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Ornithosuchids are a group of pseudosuchian archosaurs known from the Late Triassic of Argentina and Scotland, represented by three species: *Riojasuchus tenuisiceps*, *Venaticosuchus rusconii*, and *Ornithosuchus woodwardi*. Previous authors proposed carnivorous or scavenger habits for ornithosuchids based on their general morphology, but only recently the mechanical capabilities of *Riojasuchus* have been tested by the author with a finite elements analysis. New cranial remains of *Venaticosuchus* found at the Instituto Lillo in 2015 allowed this reconstruction of its adductor musculature and the subsequent comparative study of the jaw biomechanics of ornithosuchids. A traditional biomechanical approach was here used to study their feeding habits considering the jaw as a lever system and the reconstructed muscles as input forces. The prevailing element of the adductor musculature differed among ornithosuchids, dominating the intramandibular muscle in *Venaticosuchus*, as seen in aetosaurs, and the pseudotemporal muscle in *Riojasuchus* and *Ornithosuchus* resembling *Alligator*. The total adductor moment arm resulted higher in ornithosuchids than in aetosaurs and crocodiles, with bite ratios 30–75% higher than *Alligator*. The bite of ornithosuchids was somewhat slower than *Alligator* because the input forces are more distant from the craniomandibular articulation. Active predatory habits of ornithosuchids could be consistent with the strong, fast bite inferred but the structural weakness of their laterally compressed snout defies that hypothesis. Lateral forces applied by living prey attempting to escape might be too harmful for ornithosuchids and they probably required a different strategy to overthrow their prey before biting or resort to scavenging to prevent damaging themselves.

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DICRAEOSAURID SAUROPOD REMAINS FROM THE MULICHINCO FORMATION (VALANGINIAN, LOWER CRETACEOUS), NEUQUÉN BASIN, ARGENTINA*

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Field works on terrestrial sediments of the Mulichinco Formation at Pilmatué locality, 9 km north from Las Lajas, Neuquén, permitted the collection of dinosaur remains from different taxa, of which the dicraeosaurid sauropods seem to be the most abundantly represented form. The materials correspond to postcranial elements, representing different sections of the vertebral column. A mid-cervical vertebra (MLL-4) bears a significantly reduced neural spine and, although broken at their bases, seems to have had a pair of dorsally projected hemi-spines. The specimen MLL-2 corresponds to a posterior cervical vertebra (communicated in previous meetings) and it shows the typical well-developed dicraeosaurid hemi-spines and a completely absent neural spine. The specimen MLL-5 is a posterior dorsal vertebra with extremely long, slightly twisted and robust hemi-spines. Up to now, the caudal section is represented by isolated distal vertebrae with amphicoelic centra (MLL-10). Dicraeosauridae includes the Jurassic *Dicraeosaurus*, *Suuwassea*, *Brachytrachelopan* and possibly *Dyslocosaurus*, and the Cretaceous *Amargasaurus*, *Amargatitanis* and indeterminate remains from the partially synchronic Bajada Colorada Formation. Unlike *Dicraeosaurus* and *Brachytrachelopan*, the development of the presacral hemi-spines of the new material resembles the condition of *Amargasaurus*. Also, like *Suuwassea*, the lateral sides of the centrum of MLL-2 bear large pleurocoels, unlike from the condition of absence of pleurocoel in *Amargasaurus* and *Brachytrachelopan*. The new material yields additional evidence of a possible local radiation of South American Cretaceous dicraeosaurids. Although available material prevents specific taxonomic identification, additional more diagnostic specimens currently under lab-preparation will allow supporting the recognition of a likely new form.

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