

New Eosauropterygian found in Eastern Yunnan, China

June 1 2011



Skeleton of *Diandongosaurus acutidentatus* gen. et sp. nov. (holotype, IVPP V 17761) Credit: Shang Qing-Hua

The marine Triassic deposits in southwestern China have yielded numerous vertebrate fossils (ichthyosaurians, sauropterygians, thalattosaurians, and fishes). A new eosauropterygian, *Diandongosaurus acutidentatus* gen. et sp. nov., a complete skeleton with the skull articulated, was found from the Upper Member of Guanling Formation (middle Anisian, Middle Triassic) of Luoping County, Yunnan Province, southwestern China, as reported in the journal of *Vertebrata Palasiatic* 2011(2) by Drs. SHANG Qing-Hua, LI Chun, Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences, and WU Xiao-Chun, Canadian Museum of Nature Ottawa.

In this new eosauropterygian, the frontals and the parietals are fused, the posterolateral process of the frontal extends posteriorly over the anterior margin of the supratemporal fenestra, the postorbital is excluded from

the infratemporal fenestra by the jugal-squamosal contact, the quadratojugal is present, the clavicle has an anterolateral projection, and the three sacral and anterior caudal ribs are distally pinched off but not constricted. Unlike in most of other primitive eosauropterygians, the prefrontal and the postfrontal meet each other along the dorsal margin of the orbit, the descending ramus of the squamosal reaches the articular condyle of the quadrate, caudal ribs 3 to 8 are elongate and longer than sacral ribs, and the ungual phalanges of the pes are extremely dorsoventrally expanded.

Diandongosaurus acutidentatus is also a morphological mixture, displaying a combination of nothosaurian and pachypleurosaur features. This new species shared many similarities with the pachypleurosaurs, such as the preorbital region of the skull longer than the postorbital region, the supratemporal fenestra distinctly smaller than the orbit, the distinct trough/fossa on the dorsal surface of the retroarticular process. On the other hand, *Diandongosaurus acutidentatus* is comparable to the Nothosauroida in some other characters, such as the anterior premaxillary and dentary teeth strongly procumbent, the presence of one or two maxillary caniniform teeth, the fused frontals and parietals, the parietal skull table weakly constricted, and the absence of the zygapophyseal pachyostosis. However, *Diandongosaurus acutidentatus* is also distinguishable from the pachypleurosaurs and the nothosaurs in some other features as recognized by the present analysis.

“Although this new eosauropterygian is known from a single skeleton, the excellent nature of its preservation provides a solid basis for its taxonomic identification and phylogenetic relationships”, said Dr. SHANG Qing-Hua, lead author, “Our phylogenetic analysis suggests that *Diandongosaurus* is neither a pachypleurosaur nor a nothosauroid; it might be the sister group of the clade consisting of *Wumengosaurus*, the nothosauroids and those taxa traditionally considered as pachypleurosaurs.”

Provided by Institute of Vertebrae Paleontology and Paleoanthropology

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