



A new aetosaur genus (Archosauria: Pseudosuchia) from the early Late Triassic of southern Brazil

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Abstract

We describe the new aetosaur *Aetobarbakinoides brasiliensis* **gen. et sp. nov.** from the early Late Triassic (late Carnian-early Norian) Brazilian Santa Maria Formation. The holotype is composed of a partial postcranium including several cervical and dorsal vertebrae and ribs, one anterior caudal vertebra, right scapula, right humerus, right tibia, partial right pes, and anterior and mid-dorsal paramedian osteoderms. *Aetobarbakinoides* is differentiated from other aetosaurs by the presence of cervical vertebrae with widely laterally extended prezygapophyses, mid-cervical vertebrae with anterior articular facet width more than 1.2 times wider than the posterior one, anterior caudal vertebrae with extremely anteroposteriorly short prezygapophyses, elongated humerus and tibia in relation to the axial skeleton, and paramedian osteoderms with a weakly raised anterior bar. A cladistic analysis recovered the new species as more derived than the South American genera *Aetosauroides* (late Carnian-early Norian) and *Neoaetosauroides* (late Norian-Rhaetian), and it is nested as the sister-taxon of an unnamed clade, composed of *Typhothoracisinae* and *Desmatosuchinae*, due to the absence of a ventral keel in the cervical vertebrae. *Aetobarbakinoides* presents a skeletal anatomy previously unknown among South American aetosaurs, with the combination of presacral vertebrae with hyposphene, anteroposteriorly short and unkeeled cervical vertebrae, gracile limbs, and paramedian osteoderms with a weakly raised anterior bar. *Aetobarbakinoides* is among the oldest known aetosaurs together with *Aetosauroides* from Argentina and Brazil and *Stagonolepis robertsoni* from Scotland, indicating a widely distributed early record for the group. In addition, the recognition of a suite of derived features in *Aetobarbakinoides*, which is one of the oldest known aetosaurs, is in agreement with an older origin for the group, as it is expected by the extensive ghost lineages at the base of the main pseudosuchian clades.

Key words: Archosauria, Aetosauria, Late Triassic, Santa Maria Formation, Brazil

Introduction

The aetosaurs are a group of heavily armoured quadrupedal archosaurs restricted to continental Late Triassic rocks. This group is nested within Pseudosuchia, the crocodile lineage of Archosauria, but its phylogenetic relationships with other high-level suchians are currently a matter of debate (e.g. Gower & Sennikov 1996; Nesbitt 2007; Brusatte *et al.* 2010; Nesbitt 2011). Aetosaurs achieved a cosmopolitan distribution during the Late Triassic, but most species are recorded in North American assemblages (Long & Murry 1995; Parker 2007). Nevertheless, a handful of species are also known from Europe and South America (Heckert & Lucas 2000). The South American aetosaur record is based on three valid taxa from the Late Triassic beds of Argentina, Brazil, and Chile. In Argentina, the aetosaur record is restricted to the Ischigualasto-Villa Unión Basin, with *Aetosauroides scagliai* in the late Carnian to early Norian Ischigualasto Formation (Casamiquela 1960, 1961, 1967; Desojo 2005; Desojo & Ezcurra 2011) and *Neoaetosauroides engaeus* from the late Norian-Rhaetian Los Colorados Formation (Bonaparte 1969, 1971; Desojo & Báez 2005, 2007). In Chile the only known aetosaur is *Chilenosuchus forttae* from the Late Triassic