

Skull structure and evolution in tyrannosaurid dinosaurs

Philip J. Currie, Jørn H. Hurum, and Karol Sabath
Acta Palaeontologica Polonica 48 (2), 2003: 227-234

Tyrannosauridae can be subdivided into two distinct subfamilies—the Albertosaurinae and the Tyrannosaurinae. Previously recognized subdivisions Aublysodontinae and Shanshanosaurinae are rejected because they are based on insufficient material and juvenile specimens. Our results are based upon a phylogenetic analysis using PAUP program (Swofford 1999) of 77 skull characters and seven genera (*Albertosaurus*, *Alioramus*, *Daspletosaurus*, *Gorgosaurus*, *Nanotyrannus*, *Tarbosaurus*, and *Tyrannosaurus*); with *Allosaurus* as outgroup. Of the 77 characters used, more than half were parsimony informative. A single most parsimonious tree was obtained with the Tree Length being 88. The analysis of cranial characters and comparison of postcranial features reveal that *Tarbosaurus bataar* is not the sister taxon of *Tyrannosaurus rex* (*contra* Holtz 2001). Their similarities are partially due to the fact that both are extremely large animals. Thus, *Tarbosaurus* should be considered a genus distinct from *Tyrannosaurus*.

Key words: Dinosauria, Theropoda, Coelurosauria, Tyrannosauridae, phylogeny, parsimonious analysis.

Philip J. Currie [Philip.Currie@gov.ab.ca], Royal Tyrrell Museum of Palaeontology, Box 7500, Drumheller, Alberta T0J 0Y0, Canada; Jørn H. Hurum [j.h.hurum@nhm.uio.no], Geologisk museum, Universitetet i Oslo, Postboks 1172 Blindern, N-0318 Oslo, Norway; Karol Sabath [sabath@twarda.pan.pl], Instytut Paleobiologii PAN, ul. Twarda 51/55, PL-00-818 Warszawa, Poland (currently: [ksab@pgi.waw.pl], Polish Geological Institute, ul. Rakowiecka 4, PL-00-975 Warszawa, Poland).

This is an open-access article distributed under the terms of the Creative Commons Attribution License (for details please see creativecommons.org), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

 [Full text \(133.8 kB\)](#)