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Article

An advanced anuran from the Late Cretaceous (Santonian) of Hungary

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With 4 figures

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Abstract: A new anuran genus and species is described based on isolated ilia and tibio-fibulae from the Iharkút locality (Late Cretaceous, Santonian), Hungary, in the Csehbánya Formation. The distinctive ilium exhibits at least two autapomorphies: (1) an iliac crest that is heavily built, extremely high, and sculptured laterally by longitudinal grooves and bony ridges that anastomose posteriorly and (2) an interiliac tubercle that is huge and medially bears an extensive sutural surface developed at the level of the preacetabular region. Details of the iliac crest and ilioischiadic junction argue for the Hungarian frog being a member of the Neobatrachia and, possibly, closely related to ranoids. Based on ilial features, the Hungarian frog is interpreted as an aquatic form that descended from a more terrestrial, jumping ancestor. Assuming its higher level affinities are correct, the new Hungarian frog documents a significant temporal extension for neobatrachians in Europe from the late Palaeocene back into the Santonian.

Key words: Amphibia, Anura, Cretaceous, Hungary, Palaeobiogeography, Santonian.

1. Introduction

Among modern amphibians (Caudata, Anura and Gymnophiona) the frogs (Anura) have reached the greatest taxonomic diversity and broadest geographic distribution, with more than 5200 species occurring on all continents except Antarctica. Monophyly of the Anura is supported by numerous morphological characters (e.g., Frost et al. 2006). The fossil record suggests that the batrachian (Anura + Caudata) branch may have split from other lissamphibians by the Middle Permian (Anderson et al. 2008). Although anurans have the longest fossil record of any lissamphibian group, the spatio-temporal and taxonomical distributions of that record are rather patchy. The earliest fossils date back to the Early Triassic and belong to the proanurans *Triadobatrachus massinoti* and *Czatkobatrachus polonicus* (e.g. Roček & Rage 2000). The first true anurans – *Prosalirus bitis* and *Vieraella herbsti* – are from the Early Jurassic and have been regarded as either incertae sedis anurans (e.g. Sanchiz 1998) or stem anurans (Gao & Wang 2001; Roelants & Bossuyt 2005). The first crown-group anuran, *Eodiscoglossus oxoniensis*, is from the Middle and Late Jurassic and is the oldest member of the archaeobatrachian lineage Discoglossidae (Evans et al. 1990). In contrast to the limited fossil evidence, molecular clock estimates place the emergence of crown-group anurans about 55 million years earlier, in the Triassic (Roelants & Bossuyt 2005). A Triassic origin for crown-group anurans roughly corresponds with the start of the breakup of Pangaea, an event that strongly influenced the biogeographical history of crown-group frogs.

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