ACTA PALAEONTOLOGICA POLONICA

The first Devonian holocephalian tooth from Poland

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Acta Palaeontologica Polonica 49 (3), 2004: 409-415

A recently found 'bradyodont' holocephalian tooth from bituminous shales of the Kowala Quarry, south-western Holy Cross Mountains, Poland, dated as the middle Famennian *Palmatolepis trachytera* conodont Zone, is described. In spite of its resemblance to the forms often attributed to *Helodus*, the tooth is referred to as *Psephodus* cf. *magnus* (Agassiz, 1838), and supposed to represent the anterior part of the dentition, based on a partly articulated specimen of *Psephodus* from the Carboniferous of Scotland. The analysis of early helodonts and psephodonts, and other Famennian chondrichthyan crushing teeth, shows numerous similarities in tooth-base structure, such as the reduction of lingual basal extension, loss of articulation devices, development of numerous nutritive foramina, and the tendency to fusion between the teeth in a tooth-family. Based on these shared characters, close phylogenetic relationships between the Protacrodontoidea, Hybodontoidea, and the Holocephali are postulated.

Key words: Chondrichthyes, Holocephali, Cochliodontiformes, teeth, phylogeny, Famennian.

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