

Late Cretaceous-Paleocene percomorphs (Teleostei) from India – Early radiation of Perciformes

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Abstract

A new taxon of Percoidei, *Indiaichthys bamanborensis* n. gen. et sp. and a Percomorpha indet. from the intertrappean beds at Bamanbor, India (Late Cretaceous to early Paleocene age) are described and their systematic positions are discussed. The Indian material is represented by articulated specimens that are some of the most complete Late Cretaceous – Paleocene perciforms recovered until now. Due to its generalized morphological pattern, with some resemblances to certain centropomids (e.g., development of the ascendent and articular processes of the premaxilla, two epurals, and two uroneurals) and its unique combination of features (e.g., partial fusion of distal radials in the most anterior dorsal pterygiophores, dentigerous arm of premaxilla very deep posteriorly, co-occurrence of two epurals and two uroneurals), *Indiaichthys* cannot be assigned to any of the fossil or extant percoid families and it is left in a family indeterminate. In contrast to *Indiaichthys*, Percomorpha indet. is known by one incomplete but nevertheless rather informative specimen. According to the available information, it shares with some centropomids the peculiar morphology of the posterior region of the lower jaw. However, due to its incompleteness it cannot be assigned to any percomorph group.

Articulated Late Cretaceous-Paleocene perciforms are represented by few specimens that have been recovered in different continents. For instance, the extinct genera *Eoserranus* and *Indiaichthys* n. gen. (India), *Nardoichthys* (Italy), and *Saldenioichthys* (Argentina) and the extant genus *Percichthys* (Bolivia). Due to their combination of characters *Nardoichthys* and *Saldenioichthys* are interpreted as Perciformes incertae sedis, and *Eoserranus* and *Indiaichthys* as Percoidei incertae sedis. The oldest articulated perciform, *Nardoichthys*, was recovered in sediments of about 71 Ma in age; in contrast, the oldest perciform otoliths are about 85 Ma old and were recovered in Austria. Because there are only a few Late Cretaceous records of otoliths and skeletal remnants of extinct perciforms, it is apparently that many of the extant families arose during the Eocene-Miocene. However, the fossil record is still poor in comparison to the enormous diversification of perciforms today. Even considering the incompleteness of the fossil record, the available information indicates that perciforms underwent a tremendous radiation during the last five millions years.

Introduction

The order Perciformes is the most diversified of all fish orders and contains 18 suborders, 148 families and over 9,000 extant species and a few extinct taxa (NELSON 1994). Despite the enormous species diversity shown by the Recent forms, very little is known of the evolutionary history of the group. Perciformes are moderately well known from Tertiary sediments, especially beginning in the Eocene, and are represented by articulated and fragmentary well-preserved specimens from certain localities in Europe (see for instance OBRHELOVÀ 1971, SORBINI 1970, BLOT 1980, MICKLICH 1985, 1988a, b, 1989, 1990, BELLWOOD & SORBINI 1996, BANNIKOV & TYLER 2002, TYLER & BANNIKOV 2002), Asia (e.g., YABUMOTO & UYENO 1994, 2000), Africa (e.g., VAN COUVERING 1982, GREENWOOD 1972, 1983, OTERO & GAYET 1999a, b, MURRAY 2000, 2002), North America (e.g., GRANDE 1984, FIERSTINE 1999, 2001), and South America (e.g., SCHAEFFER 1947, CASCIOтта & ARRATIA 1993; for other localities see ARRATIA &

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