

A new species of acanthomorph fish from the Upper Cretaceous Muhi Quarry, Hidalgo, Central Mexico

Katia GONZÁLEZ-RODRÍGUEZ & Christopher FIELITZ

Abstract

A new species of acanthomorph fish, *Muhichthys cordobai* gen. et. sp. nov., from the Muhi quarry (Albian-Cenomanian), Hidalgo State, Mexico, is described. This is the first confirmed record of a fossil acanthomorph fish in Mexico. Four specimens were examined, including one adult specimen and three poorly preserved juveniles. It has a small, deep, compressed body with a high supraorbital crest originating behind the orbit; no developed mucus cavities; head without strong ornamentation; toothless palatine; one supramaxilla; pelvic fin without spine; dorsal fin covering almost the entire length of the body, predorsal formula /0/0/0/1+1+1/1/; and ventral ridge scales present. Due to the combination of plesiomorphic and derived characters that it shares with the Cretaceous polymixiids, trachichthyoids, and holocentrids, it is not possible to establish its phylogenetic position among acanthomorph taxa, therefore the fish is interpreted as an acanthomorph incertae sedis.

Introduction

Acanthomorph fishes are a diverse group whose oldest record is from the Late Cretaceous (Cenomanian). Nearly the entire diversity of this taxon is already present at this stage (PATTERSON 1993). The best known Cenomanian fish fauna consists of three genera of polymixiids, seven genera of trachichthyoids, three genera of holocentroids, a possible zeid, a possible caproid, a probable tetraodontiform and representatives of the extinct families Aipichthyidae, Omosomopsidae, Pharmacichthyidae and Pycnosteroididae. Many of these acanthomorph taxa are present in well-studied Upper Cretaceous teleostean localities from the eastern Tethys Ocean such as Lebanon, Morocco, Israel, Italy, Westphalia, and the English Chalk. In North America, acanthomorph records are scarce. Trachichthyoids, polymixiids and holocentrids have been recovered from the Mooreville Formation of Alabama, the Niobrara Chalk of Kansas, the Taylor Marl and Roxton Limestone of Texas (BARDACK 1976, BARDACK & TELLER-MARSHALL 1982, STEWART 1996), the Panoche Formation of California, and the Hornerstown Formation of New Jersey (STEWART 1996). Sphenocephalids were recovered from Alberta, Canada (WILSON & MURRAY 1996) and from the Mowry Formation in Utah (STEWART 1996). A new acanthomorph genus, *Acanthichthys major*, was recovered from the Greenhorn Formation of northeastern Nebraska (ARRATIA & CHORN 1998).

APPLEGATE et al. (2000) reported the presence of beryciforms in the Albian Tlayúa beds of Mexico, but this material needs to be studied in detail to determine its taxonomic relationships. STINNESBECK et al. (2005) tentatively identified an acanthomorph from a new locality in Coahuila, northeastern Mexico, but this record also needs to be corroborated. The presence of four acanthomorph specimens, belonging to a new genus and species in the Muhi Quarry of Albian-Cenomanian age, is the first confirmed record of the group in Mexico. The specimens include one well-preserved adult and three incomplete juveniles described herein. The new genus and species have a combination of plesiomorphic acanthomorph characters present in the Cretaceous polymixiids, trachichthyoids, and holocentrids. In a previous interpretation (GONZÁLEZ-RODRÍGUEZ & FIELITZ 2005), we narrowed the affinity of the new taxon to the families Trachichthyidae and Holocentridae, but the taxon also shares characters with the Polymixiidae, which makes it difficult to include in any of these acanthomorph families.

The whole contribution can be purchased as PDF file.

Availability

Generally all our publications are available as PDF files; full publications as a general rule after the printed version is out of print. If you have questions concerning particular contributions please contact us by e-mail:

pdf@pfeil-verlag.de.

The PDF files are protected by copyright.

The PDF file may be printed for personal use.

The reproduction and dissemination of the content or part of it is permitted.

It is not allowed to transfer the digital personal certificate or the password to other persons.

Prices

Books: Prices are to be found in the catalog.

Articles in journals and single contributions or chapters in books:

10 EURO basic price per order (including the first 10 pages),
and

0.50 EURO per page, beginning with the 11th page.

Page numbers are found in the contents of the publications.

Orders

Use our order form for PDF files or send your order informal per e-mail (pdf@pfeil-verlag.de). The only accepted payment is by credit card. While using the order form for PDF files, your data will be transmitted by secure link (ssl). You also may send the informations informally by e-mail, fax, phone or mail.

Handling

As soon as possible, depending on our business hours and your order, you will receive your PDF file together with the certificate and password by e-mail.

Larger PDF files can be downloaded from our webpage, if necessary.

Your invoice will be sent out by e-mail after we charged your credit card.

To open the encrypted PDF files you have to install your personal certificate after your first order. All PDF files with the same certificate can be opened from that time on.

Dieser Beitrag kann als PDF-Datei erworben werden.

Verfügbarkeit von PDF-Dateien

Prinzipiell sind von allen unseren Publikationen PDF-Dateien erhältlich. Komplette Publikationen in der Regel erst nachdem die gedruckte Version vergriffen ist. Anfragen bezüglich bestimmter Beiträge richten Sie bitte per E-Mail an pdf@pfeil-verlag.de.

Die PDF-Dateien sind urheberrechtlich geschützt.

Ein Ausdruck der PDF-Dateien ist nur für den persönlichen Gebrauch erlaubt.

Die Vervielfältigung von Ausdrucken, erneutes Digitalisieren sowie die Weitergabe von Texten und Abbildungen sind nicht gestattet.

Das persönliche Zertifikat und das Passwort dürfen nicht an Dritte weitergegeben werden.

Preise

Bücher: Die Preise sind dem Katalog zu entnehmen. Zeitschriftenbeiträge und einzelne Kapitel aus Sammelbänden bzw. Büchern:

10 EURO Grundbetrag pro Bestellung (einschließlich der ersten 10 Seiten),
und

0,50 EURO pro Seite ab der 11. Seite.

Den Umfang der Beiträge entnehmen Sie bitte den Inhaltsverzeichnissen.

Bestellungen

Bestellungen sind mit dem PDF-Bestellformular oder formlos per E-Mail (pdf@pfeil-verlag.de) an uns zu richten. Die Bezahlung ist ausschließlich per Kreditkarte möglich. Bei Verwendung unseres Bestellformulars werden die Kreditkartendaten über eine gesicherte Verbindung (ssl) übermittelt. Sie können die Daten aber auch formlos per E-Mail, Fax, Post oder telefonisch übermitteln.

Abwicklung

So bald wie möglich, aber abhängig von unseren Bürozeiten und der gewünschten Bestellung, schicken wir Ihnen die PDF-Datei(en) zusammen mit Ihrem persönlichen Zertifikat und dem zugehörigem Passwort per E-Mail. Größere Dateien bieten wir Ihnen gegebenenfalls zum Herunterladen an.

Der fällige Betrag wird von Ihrer Kreditkarte abgebucht und Sie erhalten die Rechnung ebenfalls per E-Mail.

Um die verschlüsselten PDF-Dateien öffnen zu können, muss bei der ersten Bestellung das passwortgeschützte persönliches Zertifikat installiert werden, welches anschließend auf dem Rechner verbleibt. Alle mit diesem Zertifikat verschlüsselten Dateien können anschließend auf diesem Rechner geöffnet werden.