

## *Nota técnica*

# ADDITIONAL FISH RECORD FROM THE USCARI FORMATION, UPPER MIOCENE-LOWER PLIOCENE OF COSTA RICA: A CHIMAEROIDEI TOOTH PLATE (PISCES, CHONDRICHTHYES, HOLOCEPHALI)

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**Palabras clave:** Pisces, Holocephali, Chimaeridae, Chimaera, Formación Uscari, Costa Rica.

Here, I report on the first fossil record of the genus *Chimaera*, from the Upper Miocene-Lower Pliocene of Costa Rica, Central America and the Caribbean Region. The specimen was collected by the author. It comes from the locality of Alto Guayacán (585,650 W and 225,350 N, 3446II Bonilla quadrangle), located 11 km south of the Siquirres town in the province of Limón.

Holocephalians are cartilaginous fishes often characterized as bradyodont because of the slow growth of their teeth. Their connection to other chondrichthyan groups is based mostly on the structure of the jaws and teeth, the only evidence available (Stahl, 1999).

Hypermineralized tooth plates are one of the most important synapomorphies of Holocephali, and the presence of one pair of tooth plates in the lower jaw and two pairs in the upper jaw is a synapomorphy of Chimaeriformes (Didier, 1995).

Although the most distinctive feature of the holocephalian dentition are their tooth plates, which constitute the common organic remains fossilized, these plates are poorly known, and their fossil record has been sparse and difficult to recognize or determine.

The specimen documented here was initially described erroneously by the author, as a tooth pertained to the genus *Tetraodon* sp. 2 (see Laurito, 1999; page 100, plate 44 and figures 4a-b).

## Paleontology

The taxonomy used in this paper is based on Stahl (1999):

Class Chondrychthyes Huxley 1880  
 Subclass Subterbranchialia Zangerl 1979  
 Superorder Holocephali Bonaparte 1832-41  
 Order Chimaeriformes Obruchev 1953  
 Suborder Chimaeroidei Patterson 1965  
 Family Chimaeridae Bonaparte 1831  
 Genus *Chimaera* Linnaeus 1758

*Chimaera* sp. indet.

Late Cretaceous – Recent (Stahl & Chatterjee, 1999)

## Material

The specimen corresponds to a tooth plate, which is housed at the Geology Section of the Natural History Department of the Museo Nacional de Costa Rica, with the number CFM-2800 (figure 1a-b).

## Description and discussion

A small tooth with a roughly triangular contour that probably corresponds to a palatine tooth

plate because of its size, its tritoral surface is characterized by a hypermineralized pad supported by small and thin rods as transverse ridges.

This tooth plate is very similar in form and in size to the recent species *C. monstrosa* (9.72 mm length and 7.76 mm high). For this reason, at the moment, it has been assigned to the genus *Chimaera*, indeterminate species.

## Paleobiogeographical distribution and habitat

The genus *Chimaera* has been recorded from the Upper Cretaceous of Seymour Island, Eocene of Antarctica and England, Oligocene of Belgium, Miocene of Java and Germany and Pliocene of Italy (Stahl & Chatterjee, 1999; Stahl, 1999).

The habitat where the *Chimaera* specimen lived was established by the author based on the selachian and osteichthyan associated fossil fauna and the sedimentological evidence. This habitat corresponds to a marine environment near the outer continental shelf border, in sandy and silty bottoms at least 200 meters below sea level.

On the other hand, chimaeroid fishes are durophagous organisms adapted to prey upon soft- and hard-bodied prey, and the locality of Alto Guayacán is characterized by abundant selachian, osteichthyan and molluscan fossil fauna.

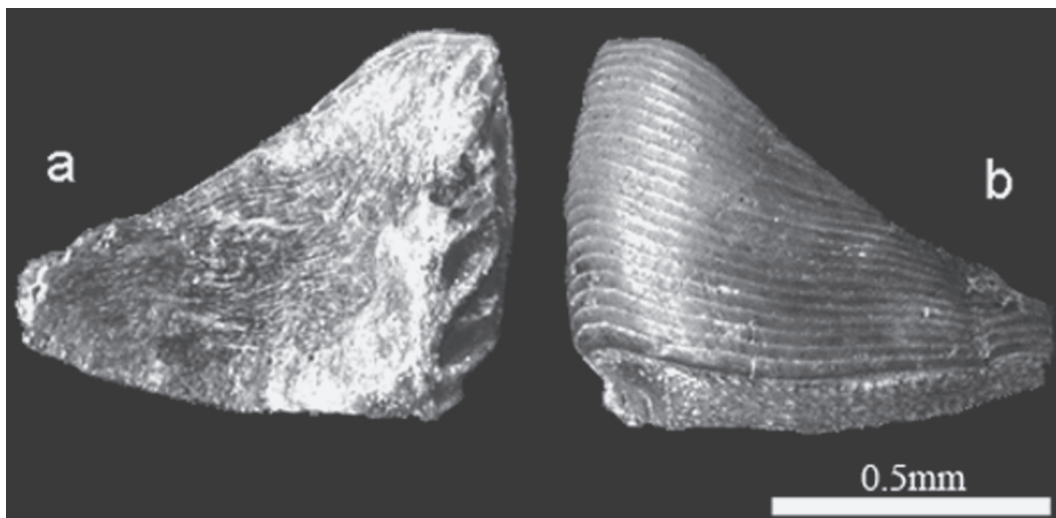


Fig. 1: Palatine tooth plate of *Chimaera* sp. Indet; a, oral and b, aboral view.

Finally, the age of the sediments where the tooth plate was found, was dated by Diana Pizarro (written com.) as Upper Miocene – Lower Pliocene, which corresponds to foraminiferal zones N17- N19.

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