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the Turonian of the Pelotas Basin. Jebel Tselfat is a remarkable Cenomanian marine fossiliferous locality in Morocco, including groups with transatlantic correlation, such as dercetids and enchodontids, both occurring in Pelotas and Sergipe-Alagoas basins. Also, in Jebel Tselfat, occurs the otophysans *Clupavus maroccanus* Arambourg, 1968, whose equivalent in NE Brazil is *C. brasiliensis* Silva Santos, 1985.In order to accomplish a biogeographical reconstruction of the Cretaceous using methods of Historical Biogeography, Gallo *et al.* (2007) analyzed the worldwide distribution patterns of Turonian marine biotas in Southern and Northern Brazil, Northwestern Africa, Europe, and North America, using a panbiogeographical approach. The generalized tracks showed two separate biotas associated with the proto-South Atlantic and the proto-North Atlantic oceans. Following the same point of view, Silva and Gallo (2007) accomplished a PAE to analyze the distribution of Enchodontoidei occurring strictly in the Cenomanian of Brazil, Africa, Asia, Europe, and North America. Two areas of endemism were delimited: Morocco + Southern Italy, representing the North African region of the Tethys Ocean; and Lebanon + Israel, the mid-Tethyan Ocean.

Arambourg, C. 1968. A propos du genre *Clupavus* Aramb. (Rectification de nomenclature). *Bulletin du Muséum national d'Histoire naturelle* (2) 39: 1236.

Figueiredo, F.J. 2009. A new marine clupeoid fish from Lower Cretaceous of Sergipe-Alagoas Basin. *Zootaxa* 2164: 21-32.

Figueiredo, F.J., and Gallo, V. 2006. A new decertid fish (Neoteleostei: Aulopiformes) from the Turonian of the Pelotas basin, Southern Brazil. *Palaeontology* 49: 445-456.

Gallo, V., Cavalcanti, M.J., and Silva, H.M.A. 2007. Track analysis of the marine palaeofauna from the Turonian (Late Cretaceous). *Journal of Biogeography* 34: 1167-1172.

Silva, H.M.A., and Gallo, V. 2007. Parsimony Analysis of Endemicity of enchodontoid fishes from the Cenomanian. *Carnets de Géologie, Letter*: 1-8.

Silva Santos, R. 1985. *Clupavus brasiliensis* n.sp. (Teleostei, Clupeiformes) do Cretáceo Inferior-Formação Marizal, Estado da Bahia. In: D.A. Campos, , C.S. Ferreira, I.M. Brito, , and C.F. Viana, (Orgs.). *Coletânea de Trabalhos Paleontológicos*. DNP Mineral, Brasília, p. 155-159.

Souza-Lima, W. 2006. Litoestratigrafia e evolução tectono-sedimentar da bacia de Sergipe-Alagoas. *Phoenix*, 89: 1-10.

Taverne, L. 1976. Les téléostéens fossiles du Crétacé moyen de Kipala (Kwango, Zaïre). *Annales du Musée Royal de l'Afrique Centrale* 79: 1-50.

Taverne, L. 1987. Osteólogie de *Cyranichthys ornatissimus* nov. gen. du Cénomanien du Zaïre et de *Rhynchodercetis yovanovitchi* du Cénomanien de l'Afrique du Nord. *Annales du Musée Royal de l'Afrique Centrale* 1985-86: 93-112.

GANOID SCALES OF "PHOLIDOPHORIFORMS" (ACTINOPTERYGII) FROM THE LA CANTERA FORMATION, LOWER CRETACEOUS, SAN LUIS, ARGENTINA

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The fish fauna from La Cantera Formation (Late Aptian of San Luis, Argentina), is represented by an assembly of chondrosteans and neopterygian fishes. Both groups have been poorly studied and consequently are in need of detailed examination. The neopterygians were previously assigned to the pholidophoriforms based mainly on their small size and the presence of scales and bones covered with ganoine. However, these characters are highly homoplasic among actinopterygians. Additionally, the so-called order Pholidophoriformes Berg is not a monophyletic group (Arratia, 2000) and is currently under revision by G. Arratia; consequently, it is cited here as "Pholidophoriformes". As it has been demostrated, scales of fishes –either their arrangement and/or morphology– can provide valid taxonomic and phylogenetic information for different taxa. The main goal of the present work is to study the scales of the "pholidophoriforms" from the La Cantera Formation, as a potential tool to help clarifying their taxonomic assignement and possible relationships. For this purpose the macro- and micromorphology of the scales of one of the "pholidophoriform" groups (*e.g.*, MHIN-UNSL-GEO-V523 and fragmentary specimens) of the La Cantera Formation have been studied. The studied fishes have rhombic ganoid scales arranged in about eight rows along the flank. The scales decrease in size but the number of rows increases caudally. Additionally, a serie of modified scales or scutes or ridge scales is present along the dorsal margin of the body. Scales from the dorso-lateral flank region have smooth posterior margins and smooth surfaces with a few irregularly placed tubercle-like elements observed under scanning electronic microscope. Their histological structure was investigated under petrographic microscope, showing lepisosteid-type scales in wich multiple ganoin layers directly overlie the surface of the bony basal plate (Schultze 1966; 1996; Siré *et al.*, 2009). Furthermore, the scales present all the lepisosteid features (Schultze, 1966) as for instance, canaliculi of Williamson, osteocytes, Sharpey's fibers and simple channels. The lepisosteid-type scales are found in a wide variety of actinopterygians including among others "pholidophoriforms", aspidorhynchiforms (*Belonostomus* Agassiz), halecomorphs (*e.g.*, *Caturus* Agassiz, *Furo* Gistl), macrosemiiforms (*e.g.*, *Macrosemius* Agassiz, *Propterus* Agassiz), semionotiforms (*e.g., Lepidotes* Agassiz) studied by Schultze (1966) and other authors. The external morphology of the scales of La Cantera neopterygians is characterized by flat, smooth surfaces and posterior margins and a microstructure that is common to a broad variety of actinopterygians that seems to be unsuitable as taxonomic tools; however, the presence of a dorsal process in the scutes placed between the cranium and the dorsal fin suggest the presence of a semionotiform.

Arratia, G. 2000. New teleostean fishes from southern Germany and the systematic problems concerning the "pholidophoriforms". *Paläontologische Zeitschrift* 74(1/2): 113-143.

Schultze, H.-P. 1966. Morphologische und histologische Untersuchungen an den Schuppen mesozoicher Actinopterygier (Übergang von Ganoid-zu Rundschuppen). *Neues Jahrbuch fuer Geologie und Paläontologie, Abhandlungen* 126: 232-314.

Schultze H.-P. 1996. The scales of Mesozoic actinopterigians. In: G. Arratia, and G.Viohl, (Eds.), *Mesozoic Fishes - Systematics and Paleoecology*. Verlag Dr. F. Pfeil, Munich, p. 83-93.

Sire J.-Y., Donoghue P.C.J., and Vickaryous M.K. 2009. Origin and evolution of the integumentary skeleton in non-tetrapod vertebrates. *Journal of Anatomy* 214: 409-440.

UNEXPECTED APPEARANCE OF ADVANCED NEOTELEOSTS IN THE CRETACEOUS AND THE CONTROVERSY BETWEEN FOSSIL RECORD AND MOLECULAR CLOCK

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The occurrence of advanced percomorphs (Cottiformes, Agonidae) in the Albanian/Cenomanian of Mexico places the appearance of higher euteleosts –or neoteleosts– between the Late Jurassic and the end of the Early Cretaceous. This is evidence of an accelerated diversification of advanced teleosts in the Early Cretaceous. The first "true" teleosts (*e.g.*, *Leptolepis coryphaenoides* (Bronn, 1830)) with cycloid scales, two hypohyals, ossified autocentral vertebrae, etc. occur in the Early Jurassic. Even though there is a dense fossil record, no "true" teleost has been found in deposits earlier than the Lower Jurassic. The accepted basal teleosts, *Pholidophorus latiusculus* Agassiz, 1832 and *Ph. bechei* Agassiz, 1844 (occurring in the Late Triassic and Early Jurassic, respectively) have rhombic scales, surangular bone, no ossified vertebrae, etc., and look like other sister groups of "true" teleosts. Independently whether these *Pholidophorus* Agassiz, 1832, are basal teleosts or not, this contradicts molecular clock data that postulate that teleosts go back to the Paleozoic, and teleosts such as the ostariophysans go back to the Permian. In the Middle-early Late Jurassic, teleost taxa (Crossognathiformes, Ichthyodectiformes, and others) restricted only to the Jurassic and/or Cretaceous appear. Only during the Late Jurassic do modern teleosts or basal crown-group teleosts such as elopiforms, ostariophysans and protacanthopterygians enter the fossil record. Consequently, it should be expected that other basal crown-group teleosts such as osteoglossomorphs and clupeomorphs will be found in Upper Jurassic deposits based on their relationships to elopomorphs and ostariophysans. The stepwise occurrence of higher teleostean taxa indicates a discontinued kind of evolution with an accelerated speciation process from early teleosts in the Early Jurassic to fossil higher taxa in the Middle Jurassic, to basal crown-group teleosts in the Late Jurassic and to neoteleosts in the late Early Cretaceous. The two last appearances of high numbers of higher taxa are connected with the two modern highest radiations within teleosts (in cypriniforms among ostariophysans and perciforms among neoteleosts). In contrast to molecular analyses, the appearance of higher teleostean lineages from the most basal taxa to most advanced modern taxa is constrained to a time span of 100 million years.

ON THE OUTSTANDING FISH FAUNAS OF THE MUHI QUARRY (ALBIAN-CENOMANIAN) OF MEXICO

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The Muhi quarry of Hidalgo is a Late Cretaceous locality discovered twelve years ago in central Mexico. The outcrop belongs to the El Doctor Formation of Albian–Cenomanian age, representing an open sea shelf to deep shelf margin environment (Bravo-Cuevas *et al.*, 2009), fromo which numerous invertebrates and fishes have been collected. Because the outcro has been so recently discovered, the real diversity it contains remains uncertain, even though new specimens are collected every year. Invertebrates include an enormous number of planktonic crinoids and echinoderm spines, and scarce ammonites and crustaceans. Fishes are represented by a few sharks (*Squalicorax* sp. and *Ptychodus* sp.), rays, and a large diversity of actinopterygians [lepisosteiforms, aspidorhynchiforms, tselfatiiforms, crossognathiforms, (pachyrhizodontids), ichthyodectiforms, elopiforms, clupeiforms, basal euteleosts, aulopiforms (ichthyotringids, dercetids, halecids, enchodontids), acanthomorphs, cottiforms (agonids) and tetraodontiforms], most of them not described yet. According to the paleogeographical position of the quarry, the fauna lived at a latitude of about 24°N, which does not correspond to any of the Gondwanan continents; however, , the Muhi quarry fish fauna shows closer affinities with those of Africa (Morocco and Lebanon) than to northern faunas. After break-up of Gondwanan and the aperture of the Atlantic Ocean during the Early Jurassic, the Gulf of Mexico and the Proto-Caribbean marine seaway permitted the diversification of marine life along the extended platforms and epicontinental seas of Mexico. This can be observed in the more than 20 different fish taxa of the Muhi quarry, most of them new to science, suggesting a particular differentiation process of the fauna in this part of Mexico. During the Albian and Cenomanian the epicontinental seas reached their maximum flooding, almost covering all of the country, and only a few islands were exposed in the southern portion. Diverse paleoenvironmental conditions are observed in the Muhi deposit, which are also stated by the mixing of taxa coming from different environments. Moreover the fish assemblage is composed by adults and juvenile specimens of various taxa, which furthermore suggest that at least some species lived near the site of deposition that may correspond to a nursery. The main importance of this Cretaceous quarry lies in the fact that most of the taxa represent new species. Some groups such as ichthyotringids and agonids appear to have had a worldwide distribution**.** The presence of agonids also suggests an earlier occurrence of advanced teleost groups during the Early–Late Cretaceous (González-Rodríguez and Schultze, 2010).

Bravo-Cuevas, V. M., González-Rodríguez, K., Esquivel-Macías, C., and Fielitz, C. 2009. Advances on Stratigraphy and Paleontology of the Muhi Quarry from the Mid-Cretaceous (Albian-Cenomanian) of Hidalgo, Central México. *Boletín de la Sociedad Geológica Mexicana* 61: 155–165.