

LIUYongjie LIYongxiang LI Hong NIUYuanzhe LIU Fan and Dong Yangkun, 2017. The new discovery of Oligocene cyprinidae fossil in Qaidam basin, Northwest China. *ActaGeologicaSinica* (English Edition), 91(supp. 1): 136-137.

The new discovery of Oligocene cyprinidae fossil in Qaidam basin, Northwest China

LIU Yongjie¹, LIYongxiang*¹, LI Hong*¹, NIU Yuanzhe¹, LIU Fan¹ and DONG Yangkun¹

Northwest University, Xi'an, Shaanxi 710069

1 Introduction

Some Cyprinidae fossils have been reported about 420 km east of the fossil site in the same period of WulanHusentu¹ layer, and have been used as an important fossil evidence for a deep understanding of the geological history and biological evolution history of the Qinghai-Tibet Plateau(Chen et al., 2007).[®]

The new Barbinaematerial(Fig.1) was collected from the upper Ganchaigou Formation, and its geological age ranges from the late Eocene to early Miocene, and the main age is Oligocene.

2 Systematic paleontology of materials

The fish fossil (in this study) is relatively complete, with a slim body extension, spindle shape. The exposed part is 211 mm in length, 194 mm in body length. Compared with other species of Barbinae documented in the similar morphology of the tail, the total length could be 227mm. There are 7-8 soft rays on the dorsal fin whose starting point is in the top of the ventral fins'. There are 8 soft rays can be seen on the pectoral fin,however,the actual number should be more than that. In the meantime,ventral fin and anal fins respectively has 8 and 5 dorsal fins. The fish is homocercal and it has 1 epural and 6 hypurals(Table 1).The results of the research suggest that the specimen of pharyngeal bone (nwuv1488.1-nwuv1488.2) is "L" - shaped and slightly elongated.The anterior limbs are slightly shorter than the posterior limbs and the main dentigerous is "spoon" shaped with the pharyngeal teeth attached(Chu,1935;Wu et al.,1980;Kovalchuk,2013), the tooth type of which is 2-3-5/5-3-2.On the anterior limb, the pharyngeal tooth A1 is of small length and tooth size and

A2 is short but strongest of all.A3, A4, and A5 are slender with the top expansion and sharp bend.There are also sharp bends on B line,which is a little shorter than A line,however,Cline,with a blunt tip bending on the top, isslightly shorter than B line.All tooth tips of A line and B line which are oppsited to C line point to the endpoint direction of the posterior limbs.(Superorder OstariophysiSagemehl, 1885;Order CypriniformesBleeker, 1859; Cyprinidae Bonaparte, 1840; Barbinae Berg, 1912; Barbinaegen. et sp. Indet)

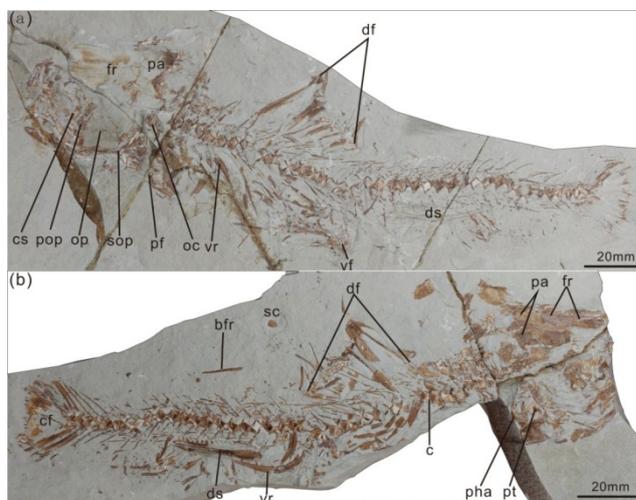


Fig.1.Part and counterpart of Fish fossils.

(a),Part of Fish fossils;(b),Counterpart of Fish fossils.af,anal fin;bfr,unbranched rays of dorsal fin;c,centrum;cf,caudal fin;cs,circumorbital series;df,dorsal fin;fr,frontal;op,opercular;pa,parietal;pf,pectoral fin;pha,pharyngeal;vf,ventral fin.

*Corresponding author. E-mail:mzlyx11@163.com;

lihong2008@nwu.edu.cn

Table 1 Specimen measurement

Specimen part	length (in mm)	Meristics	Ratio
Total length	227	Standard length/Body depth	4.13
Standard length	194	Standard length/Head length	5.54
Body depth	≈47	Standard length/Caudal peduncle length	5.39
Head length	40	Standard length/Caudal peduncle depth	12.13
Head depth	35	Caudal peduncle length/Caudal peduncle depth	2.25
Caudal peduncle length	36		
Caudal peduncle depth	16		
Distance between snout tip and dorsal fin origin	91		
Distance between dorsal fin origin and caudal fin base	103		

3 Discussion

The new discovery herein provide not only valuable material for studying the evolution of the Cyprinidae fish species, but also for recovering the Oligocene palaeoclimatepaleoenvironment in the northwestern margin of the Qaidam Basin(Chang et al., 2016; Yue,2000), and permits us for the understanding of Qinghai-Tibet Plateau uplifting history evidence.

Acknowledgements

Supported by the National Natural Science Foundation of China (Grant No. 41272115,41290253).In the process of fossil research and thesis writing, academician Zhang Miman put forward valuable advice, researcher Chen Gengjiao personally guide.Express my sincere thanks.

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