

A TELEOSTEAN FISH FROM THE LOWER TRIASSIC OF CHAMBA, HIMACHAL PRADESH

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ABSTRACT

The records of the Triassic fishes in the Phanerozoic basins of Himachal Pradesh are almost negligible. The lone record is that of *Hybodus* sp., *Saurichtys* sp. and *Gyrolepis* sp. from the Middle Triassic (Lower Anisian) of Tidong valley in Kinnaur district (Spiti-Kinnaur basin). The present record of *Saurichtys* Agassiz 1834, a teleostean fish from the Lower Triassic Gamgul Formation in Chamba district further increases the scope of the presence of fishes in Lower Triassic strata of Himachal Pradesh, in particular to Bhallesh-Chamba basin from where it is so far the only record of the presence of fishes in Phanerozoic sediments.

Saurichtys had a worldwide distribution during the Triassic period and is known in India from Kashmir, Himachal Pradesh, Kumaun Himalayas and Pranhita-Godavari valley.

INTRODUCTION

The paper records the occurrence of teleostean (bony) fish, *Saurichtys* Agassiz 1834 from the Lower Triassic beds of Gamgul area in Chamba district, Himachal Pradesh. The fish tooth was collected from a place about 1.7 km S 40 W of Patile in the calcareous arenite by two of the authors (S/Shri A.C. Pande and Md. Amjad Ali) while carrying out detailed geological investigations in Gamgul area (Fig. 1). This is the first record of a fossil fish from the Triassic of Chamba district.

(1975). The calcareous arenites which yielded fish tooth is about 50 cm thick and is topmost bed of the Triassic sequence exposed in the area. This bed is underlain by thinly bedded dull grey limestone which have yielded crinoids and ammonoids of Lower Triassic age. The geology of the beds exposed in the section is given in (Fig. 2).

SYSTEMATIC PALAEOONTOLOGY

Subclass Actinopterygii
 Infraclass Chondrostei
 Order Acipenceriformes
 Family Saurichthidae
 Genus *Saurichtys* AGASSIZ 1834

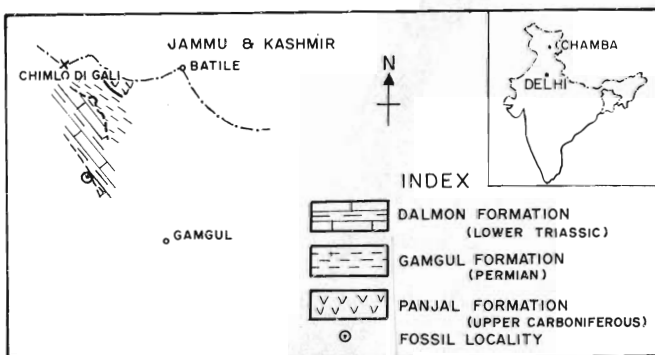


Fig. 1 Map showing fossil locality

GEOLOGY

The beds in the area form a synform and the traps and Permian-Triassic beds are exposed in the core of the syncline. These beds are repeated several times due to folding. Geology of the area has been described by Sharma, Chaturvedi and Sundaram (1971), Kapoor (1973) and Raina, Aalok and Sundaram

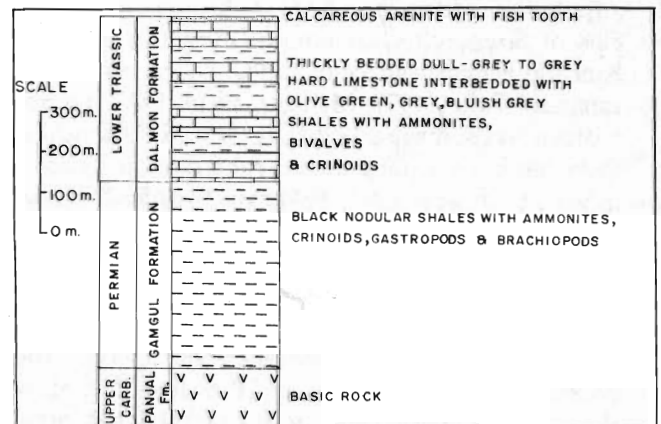


Fig. 2 Lithocolumn of Gamgul area (After Sharma *et al.*, 1971)

Table 1: Reported Occurrence of Genus *Saurichthys* in Indian Subcontinent

Sl. No.	Author(s)	Year	Material	Species	Locality	Horizon
1.	Waagen	(1885)		<i>Saurichthys</i> sp. ? <i>indicus</i>	Salt Range, Pakistan	Lower Triassic
2.	Sahni & Chhabra	(1976)	Teeth	<i>S. apicalis</i>	Niti Pass & Malla Johar Kumaun, U.P. Pastannah, Kashmir	Middle Triassic Lower Triassic
3.	Khorana & Tirkey	(1977)	Part of skull	<i>S. ocuminatus</i>	Sonamarg, Kashmir	Upper Triassic
4.	Beltan & Janvier	(1978)	Endocranium	<i>S. nepalensis</i>	NW Annapurna, Nepal	Lower Triassic
5.	Mehrotra, Sehgal & Jangpangi	(1981)	Teeth	<i>S. apicalis</i> <i>S. acuminatus</i>	Shalshal, Kumaun, U.P.	Early Triassic
6.	Chopra <i>et al.</i>	(1982)	Teeth	<i>Saurichthys</i> sp.	Kinnaur, HP.	Middle Triassic
7.	Mehrotra, Dass & Sehgal	(1983)	Teeth	<i>S. apicolis</i>	Kuti, Kumaun, U.P.	Lower Triassic
8.	Jain	(1984)	Part of rostrum	<i>Saurichthys</i> sp. cf. <i>S. madagascorensis</i>	Pranhita-Godavari valley Andhra Pradesh	late Lower Triassic or Early Middle Triassic
9.	Srivastava & Mehrotra	(1986)	Teeth	<i>S. apicalis</i>	Pastannah & Khreuh, Kashmir	Lower Triassic
10.	Present paper		Tooth	<i>Saurichthys</i> sp.	Chamba, H.P.	Middle Triassic

Description: The single tooth in the collection is of moderate size, slightly curved, 8.5 mm in height and laterally compressed. The tooth is slightly thicker at the base becoming pointed towards the apex. The surface of the crown is smooth. Few horizontal cracks are seen from base to the apex of the tooth. The tooth in the collection is larger than the teeth of *S. apicalis* and *S. acuminatus* described from the Triassic of Kashmir and Kumaun Himalayas.

Repository: Geological Survey of India, Northern Region, NRV-2/390.

Remarks: Many Triassic fishes including the species of *Saurichthys* are known from Kashmir and Kumaun Himalayas (Sahni and Chhabra 1976, Khorana and Tirkey 1977, Mehrotra *et al.* 1983 and Srivastava and Mehrotra 1986) but from, H.P. Himalaya there has been so far only one record of the Triassic fishes, by Chopra *et al.* (1982) from the Middle Triassic (Lower Anisian) of Tidong Valley in Kinnaur district. However, Chopra *et al.* have only mentioned the occurrence of fish scales and teeth of *Hybodus* sp., *Saurichthys* sp. and *Gyrolopsis* sp. without supporting it with the photographs or descriptions. The paucity of records of Triassic fishes from Himachal Pradesh may be attributed to the fact that extensive studies on Triassic fishes from H.P. have not been attempted.

Fig. 3. *Saurichthys* sp.

Apart from the Triassic of Kashmir, Kumaun and H.P. Himalayas, *Saurichthys* is also known from early Triassic of Nepal (Beltan and Janvier 1978) and Salt Range (Waagan 1885) indicating that the fish had quite widespread geographical distribution during the Triassic period in Himalaya. *Saurichthys* cf. *S. madagascarensis* has also been recorded from the late Lower Trias-early Middle Trias of Pranhita-Godavari valley in southern India (Jain 1984) (See Table 1). *Saurichthys* had a world-wide distribution during the Triassic period (Beltan and Tintori 1980) and is known from Lower Triassic of Canada, France, Greenland, Australia, Malagassy, South Africa, Spitsbergen, Nepal, Pakistan and India, Middle Triassic of Turkey, Australia, Spain and India and Upper Triassic of Austria, Germany and India (See Table 2).

Saurichthys was predaceous, long-bodied, long-beaked, sharp-toothed fish about 50 cm in length, comparable to a modern pike in proportion and probable habits. It had variously developed teeth covering all the visceral bones and their shapes

ranged from very small, spheroidal, tubercle-like to conical. Though mainly a marine fish, it has also been recorded from deltaic and freshwater deposits. According to Beltan and Tintori (1980, p. 58), "... the occurrence of this genus in Gondwana and in the Northern Hemisphere suggests that the Tethys Sea (where *Saurichthys* existed) and the Arctic Ocean were connected throughout western Europe in a NE direction by sea."

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Table 2. Global Occurrences of *Saurichthys* (Except in Indian Subcontinent)

Sl. No.	Country	Species	Author & Year	Age
NORTHERN HEMISPHERE				
1	Austria	<i>Saurichthys striolatus</i> <i>S. krambergeri</i> <i>S. calcaratus</i>	Griffin, 1959 Griffin, 1962 Griffin, 1977	Upper Triassic Upper Triassic Upper Triassic
2.	Canada	<i>Saurichthys</i> sp.	Schaeffer & Mangus, 1976	Lower Triassic
3.	France	<i>S. daubrei</i>	Lehman, 1974	Lower Triassic
4.	Germany	<i>S. apicalis</i>	Agassiz, 1834	Upper Triassic
5.	Greenland	<i>Saurichthys</i> sp.	Nielsen, 1936	Lower Triassic
6.	Italy	<i>S. curioni</i> <i>S. Stoppani</i>	Griffith, 1959 Bassani, 1886	Middle Triassic Middle Triassic
7	Spain	<i>Saurichthys</i> sp.	Lehman, 1964	Middle Triassic
8	Spitsbergen	<i>S. ornatus</i> <i>S. wimani</i> <i>S. elongatus</i> <i>S. hamiltoni</i>	Beltan 1972 Stensio, 1925, 1932	Middle Triassic Lower Triassic
9	Turkey	<i>Saurichthys</i> sp.	Beltan <i>et al.</i> 1979	Middle Triassic
SOUTHERN HEMISPHERE				
1.	Australia	<i>S. gigas</i> <i>S. gracilis</i> <i>S. parvidens</i>	Woodward, 1890 Woodward, 1890 Wade, 1935	Lower Triassic Lower Triassic Middle Triassic
2.	Malagasy	<i>S. madagascarensis</i> <i>S. stensioi</i> <i>S. piveteaui</i>	Piveteau, 1944 Lehman, 1952 Beltan, 1968	Lower Triassic Lower Triassic Lower Triassic
3.	South Africa	<i>Saurichthys</i> sp.	Griffith, 1978	Lower Triassic

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