Uttar Pradesh Journal of Zoology

Volume 46, Issue 12, Page 244-248, 2025; Article no.UPJOZ.5056
ISSN: 0256-971X (P)

First Report of *Paracanthocobitis abutwebi* (Singer & Page, 2015) from Tizit River, Nagaland, India

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: https://doi.org/10.56557/upjoz/2025/v46i125060

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://prh.mbimph.com/review-history/5056

Short Communication

Received: 18/04/2025
Accepted: 23/06/2025
Published: 28/06/2025

ABSTRACT

Paracanthocobitis abutwebi Singer & Page, 2015 is reported first from the Tizit River, a tributary of the Brahmaputra River in Nagaland. *Paracanthocobitis abutwebi* is distinguished from all other *Paracanthocobitis* species in having combination of complete lateral line; absence of the axillary pelvic lobe; pattern of dark specks on the upper side between small dorsal saddles; 4-5 black bands on the caudal fin; commonly 12 dorsal-fin rays; 10-13 branched pectoral-fin rays; and alternating large and small dark patch along the lateral line; 8 pelvic fins rays and 6-7 anal-fins rays. Additional morphometric data of the species are discussed.

Keywords: Nemacheilidae; Paracanthocobitis; Tizit River; Burmaputra drainage; Nagaland.

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Cite as: *Limatemjen, and Shanglow Ln Konyak. 2025. "First Report of Paracanthocobitis Abutwebi (Singer & Page, 2015) from Tizit River, Nagaland, India". UTTAR PRADESH JOURNAL OF ZOOLOGY 46 (12):244-48. https://doi.org/10.56557/upjoz/2025/v46i125060.*

1. INTRODUCTION

"The genus *Paracanthocobitis* is geographically widespread and species rich group of Nemachilid fish in South East Asia" (Shangningam *et al*.,2019). Many new species in the Nemacheiliidae have been described recently, in China and Southeast Asia. (Chen *et al.,* 2020; Jiang *et al.,* 2021; Kottelat 2022). "The genus is distinguished from all other genera of the family Nemacheilidae by the combination of lower lip with a large papillated pad on either side of a medial interruption, upper lip with 2–5 rows of papillae and continuous with lower lip, conspicuous black spot with ocellus on upper half of caudal-fin base" (Kottelat 2012, Singer & Page 2015) "and distinguished from Acanthocobitis in having an emarginate or truncate (vs. pointed) caudal fin; patch (vs. no patch) of adipose tissue on anterior end of lateral line; 9-15 (vs. 17-19) branched dorsal-fin rays, and a rounded (vs. more triangular-shaped) head" (Singer, R.A. 2013).

The present study was conducted for a period of one year, from Febeuary 2023-January 2024. A total number of 8 specimens of *Paracanthocobitis abutwebi* (Singer & Page, 2015) were collected from the Tizit River and reported for the first time from the state of Nagaland, India**.**

2. MATERIALS AND METHODS

The specimen was collected using traditional methods and cast net from the Tizit River, Brahmaputra drainage in Nagaland. To verify the species in the absence of molecular diagnostic method, morphometric measurements were made on the left side of the specimens with vernier calliper to the closest 0.1 mm. Meristic counts and measurements were followed after the Kottelat (1990). The number of scales and fin rays were counted using a Carl Zeiss 508 stereo-zoom microscope. The measurements of specimens are expressed as a ratio of head length (HL) and standard length (SL). In the field the specimens were fixed in 5% formaldehyde as per Joshi and Sreekumar (2015), later preserved in 70% ethanol and deposited in the Freshwater and Fish Biology Research lab at the Department of Zoology, Kohima Science College, Jotsoma.

2.1 Study Site Description

Tizit River is located in Tizit a sub-division of Mon district of Nagaland with latitude 26.902278^0 and longitude 95.070209^0. The river is a fast-flowing and has rough River-bed with stone and gravel. It exhibits seasonal fluctuation in water volume and movement. It flows toward Arunachal Pradesh and confluence with Brahmaputra River at Assam.

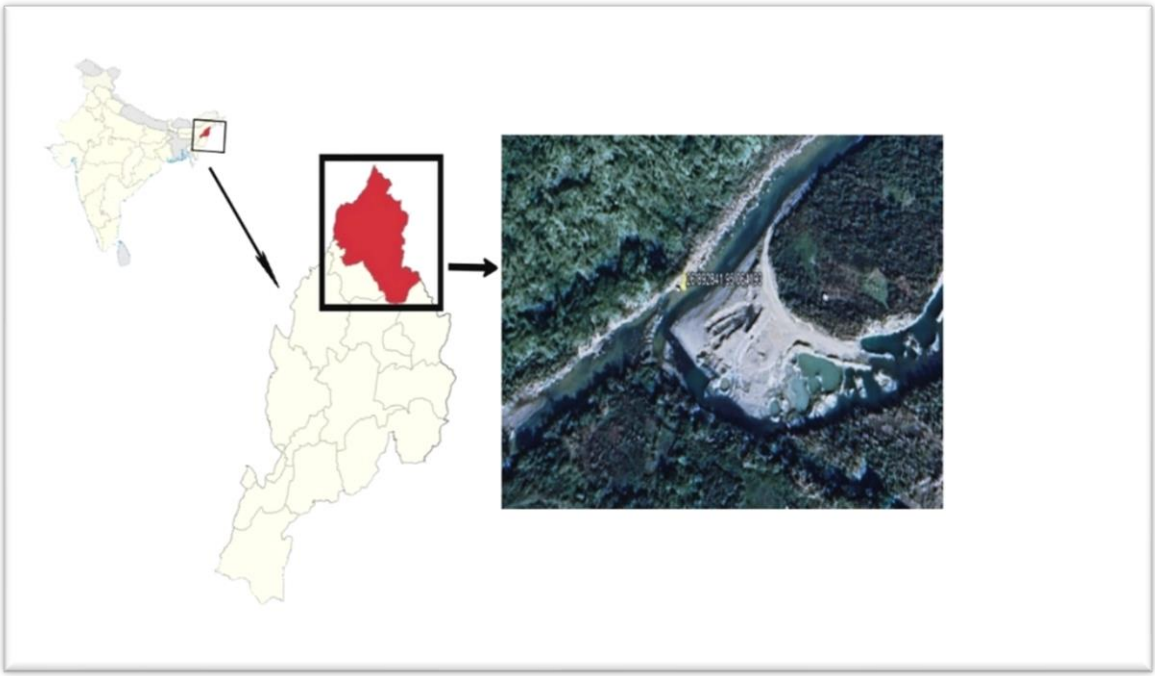

Fig. 1. Map showing the study area of *Paracanthocobitis abutwebi.*

3. DESCRIPTION

Morphometric data are in Table 1. Body depth slightly deeper at dorsal-fin origin; branched dorsal-fin rays 12-13 (usually 12); branched pectoral-fin rays 10-13; pelvic-fin rays 8; anal-fin rays 6-7 (usually 7); branched caudal-fin rays 9+9; transverse bands in caudal fin 4-5; suborbital flap in male; axillary pelvic lobe absent; lateral line complete with 86-104 pores. Maximum SL = 68.0 mm female.

Table 1. Morphometric data of *Paracanthocobities abutwebi* (Singer & Page, 2015)

Morphometric characters	*P. abutwebi*			*P. abutwebi* after Singer & Page (2015)
	Range	Mean	SD	Range
Standard length (SL) (mm)	49.0-68.0			31.4-53.3
In % of Standard Length (SL)				
Predorsal length	40.9-53.3	26.6	3	40.2-47.4
Preanal length	72.9-88.9	46.2	3.5	69.1-80.7
Prepelvic length	48.0-69.4	33.4	4.5	45.5-50.9
Prepectoral length	21.3-32.0	14.6	2.4	Not evaluated
Pectoral fin length	17.8-21.3	11	0.7	17.1-24.4
Length of dorsal fin base	17.8-19.5	10.6	0.5	Not evaluated
Length of anal fin base	7.1-8.9	4.8	0.4	Not evaluated
Pelvic fin length	8.9-17.8	7.6	2.5	13.6-19.9
Caudal fin length	19.5-33.8	14.6	3.6	Not evaluated
Depth of caudal peduncle	10.6-16.0	7.2	1.3	9.8-13.2
Body depth at anus	14.2-17.8	9	0.7	12.6-18.0
Head length	21.3-30.2	13.8	2.1	17.5-22.1
Head width	12.4-17.8	8.4	1.5	Not evaluated
Snouth length	8.9-16.0	6.8	1.6	5.5-10.0
Head depth	12.4-16.0	8.4	0.8	Not evaluated
In % of Head Length (HL)				
Snouth length	36.2-65.2	6.8	1.6	Not evaluated
Interorbital distance	28.9-36.2	4.2	0.4	20.1-35.4
Eye diameter	21.7-36.2	4.2	0.8	24.7-40.9

Fig. 2. *Paracanthocobitis abutwebi*. (A) Lateral view (B) Dorsal view (C) Ventral view

3.1 Colouration

A prominent black patch with a white edge on upper half of caudal fin base. Alternate large and small patches along the lateral line; 10 – 13 small dorsal saddles not extending to lateral line and closer together towards the head. 10-16 dark patches along lateral line, spots not extending onto venter. Speckled pattern on upper side and extending to the lateral line.

3.2 Diagnosis

Paracanthocobitis abutwebi is distinguished from all other *Paracanthocobitis* species by an alternate large and small dark patch along the lateral line, a pattern of dark specks on the upper side between small dorsal saddles, 4-5 dark bands on the caudal fin, a complete lateral line and the absence of an axillary pelvic lobe.

3.3 Distribution

Paracanthocobitis abutwebi is known from the Karnaphuli, Meghna, and lower Brahmaputra and Ganges River drainages of Bangladesh (Singer & Page) and In India, the species was retrieved from Tizit River, Nagaland a tributary of the Brahmaputra drainage system (Fig.1).

Fig. 3. Ventral view of head of *Paracanthocobitis abutwebi*

4. DISCUSSION

Paracanthocobitis abutwebi is a species of ray-finned fish commonly known as the hill stream zipper loach. Species of *Paracanthocobitis* appear to be commonly found in areas with slow to moderate River flow, where the river bottom is primarily consist of pebbles and rocks. *Paracanthocobitis abutwebi* was first recorded in Karnaphuli, Meghna, and lower Brahmaputra and Ganges River drainages of Bangladesh by Singer & Page in (2015). However, the original description considered only few morphological parameters so in this study more additional morphological parameters were considered which will be of useful for other researchers in the same field.

From biodiversity perspective documenting of this species provide valuable insight into richness and complexity of aquatic ecosystem, and helps in developing targeted conservation strategies. this knowledge is crucial for evaluating ecosystems health and mitigating the impacts of anthropogenic activities on fish fauna.

The distribution of *Paracanthocobitis* includes Cambodia and Laos in the Mekong basin, as well as Pakistan in the Indus basin (Menon, 1987; Rainboth *et al*., 2012). This work attempts to report the presence of *Paracanthocobitis abutwebi* in the Tizit River, a tributary of the Brahmaputra River since, there is diminutive published information on that species are available.

5. CONCLUSION

The documentation of this fish species represents a critical step in understanding its occurrence, ecology, and potential contributions to aquatic biodiversity. Further research will be necessary to confirm its population dynamics, reproductive behavior, and any potential threats to its conservation. The findings serve as a foundation for future studies and contribute to the growing knowledge of aquatic biodiversity, emphasizing the importance of continued exploration and preservation of aquatic ecosystems, Present.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

ACKNOWLEDGEMENT

We express our gratitude to the Shangsa village Angh and Village Councils for allowing us to

undertake the present study in Tizit River. We also acknowledged the Ministry of Tribal Affairs, Govt. of India for funding the current study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Peer-review history:
The peer review history for this paper can be accessed here:
https://prh.mbimph.com/review-history/5056