

## Fishes of the Cyprinoid Genus *Psilorhynchus* McClelland from Manipur, India, with Description of a New Species

Waikhom Vishwanath and Wahengbam Manojkumar

Department of Life Sciences, Manipur University, Canchipur-795003, Manipur, India

(Received September 9, 1994; in revised form June 22, 1995; accepted August 21, 1995)

**Abstract** Fishes of the genus *Psilorhynchus* McClelland inhabit lowland to high gradient streams of the Gangetic, Brahmaputra and Chindwin drainages of south Asia. The fishes are small, subcylindrical, with a flattened ventral surface and have small scales and 4–10 undivided pectoral fin rays. Three species of the genus occur in Manipur, of which *P. microphthalmus* sp. nov. is newly described. It differs from the Ganga-Brahmaputra form, *P. homaloptera*, in its narrower body, shorter head, smaller eyes and fewer lateral line and predorsal scales. A key to the identification of Manipur *Psilorhynchus* is provided.

The freshwater fishes of the genus *Psilorhynchus* McClelland (Family Psilorhynchidae) are characterised by their small size, small body scales, arched dorsal and flattened ventral surfaces, and a relatively high number of pectoral fin rays. The distribution of the genus is restricted to lowland and high gradient streams of the Ganga-Brahmaputra drainage of India and streams of the India-Myanmar boarder (Rainboth, 1983). Studies on the fish fauna of water systems in the adjoining areas of Myanmar, China and India are of great importance, since the freshwater fishes of the Indian subcontinent are believed to have originated in this region (Menon, 1973). Recent collections from different hill streams of Manipur, India, included three *Psilorhynchus* species: *P. homaloptera* Hora and Mukherji, *P. balitora* (Hamilton) and a third, undescribed species from the Chakpi stream, a tributary of the Manipur River. A description of the new species and diagnostic information on the other Manipur *Psilorhynchus* species are included here. The type specimens of the new species are deposited in the Manipur University Museum of Fishes (MUMF) and National Science Museum, Tokyo (NMST).

Measurements and counts followed Rainboth (1983).

*Psilorhynchus microphthalmus* sp. nov.  
(Fig. 1a, b, c, d)

**Holotype.** MUMF-101, 48.7 mm standard length (SL), Chakpi stream (tributary of Manipur River) at Mombi

(24°15'N, 93°55'E), 85 km. south of Imphal, Manipur, W. Manojkumar, September 16, 1992.

**Paratypes** (all collected with holotype). MUMF-102/7, 7, 54.1–58.6 mm SL; MUMF-234/1, 1, 60.4 mm SL; NSMT-P 46803, 1, 58.6 mm SL.

**Diagnosis.** A *Psilorhynchus* species with eye diameter 22–24% of head length; 39–40 scales along lateral line; 3 scales above lateral line to dorsal fin insertion; 7 branched rays on dorsal fin; 3 unbranched rays on pectoral fin; 12–13 scales on mid dorsal streak in front of dorsal fin insertion; narrow head (width 67.6–74.6% of head length); 4 black ocellus like marks on occiput and several dark spots on lateral line and mid dorsal line from dorsal fin origin to caudal peduncle.

**Description.** D. ii, 7; P. iii, 14; V. ii, 7; A. ii, 6; C. 10+8; L.l. 39–40; L. tr. 3/1/2. Body subcylindrical, depressed. Ventral surface flattened from snout to region of vent, slightly curved behind pelvic fin base. Dorsal profile in front of dorsal fin origin slightly arched from tip of snout. Body deepest at dorsal fin origin, subsequently gently sloping to caudal fin origin. Head depressed, subtriangular. Eyes small, dorso-lateral in position, not visible from below. Snout acute to obtusely pointed with smooth margins, length equal to half head length. Interorbital surface flat. Nostrils large, dorsally positioned. Gill cleft small, extending from lateral line to pectoral fin base.

Dorsal fin origin 12–13 scales behind occiput, one scale row before ventral fin origin. Pelvic fin shorter, origin 8–9 scales behind pectoral fin origin. Both fins

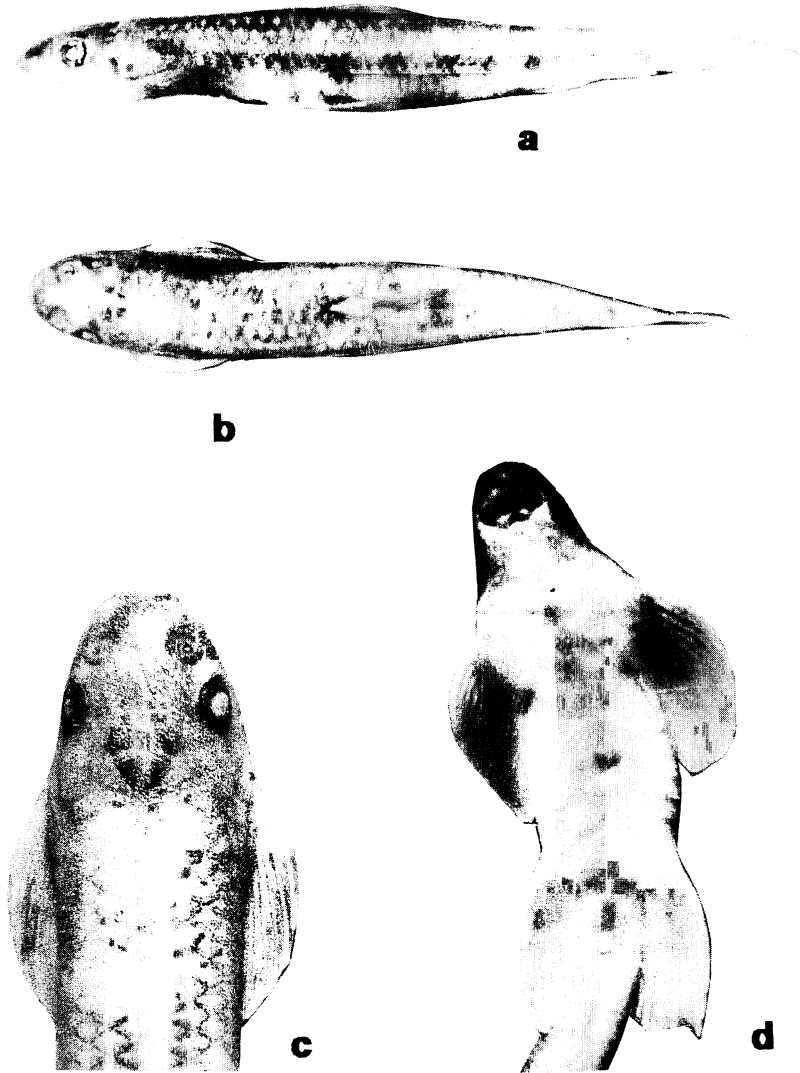


Fig. 1. *Psilorhynchus microphthalmus* sp. nov. a) Lateral view; b) dorsal view; c) dorsal view of head showing dark spots; d) ventral view.

provided with muscular lobes at base. Chest lacking scales, scales from sides of body extending onto ventral margins. Vent 9–11 scales anterior to anal fin origin. Caudal fin slightly ovate, origin 20–21 scales behind last ray of dorsal fin. Circumpeduncular scales 10–11.

*Colour*.—Dark, slaty-gray dorsally and pale yellowish ventrally. Four black, ocellus-like markings on occiput, 10–12 spots along lateral line (faint), 6–7 dark spots along dorsal line from region of dorsal fin origin. One dark oblique band on the pectoral and dorsal fin.

Proportional measurements (as percentages) of holotype and paratypes (in parentheses): body depth 16.2 (15.7–17.5), head length 20.5 (19.8–20.4), pre-dorsal length 47.4 (45.5–47.4), caudal fin length 23.6 (22.3–23.4), dorsal fin height 19.1 (19.3–21.9), anal fin height 14.8 (14.3–15.4), all in standard length. Snout length 45.0 (48.3–51.0), interorbital space 43.1 (38.3–45.0), eye diameter 22.6 (21.2–22.5), caudal peduncle length 63.3 (65.8–71.4), caudal peduncle depth 40.0 (37.7–43.7) head width 68.0 (67.6–74.6), mouth width 33.0 (34.6–38.2), all in head length. Caudal peduncle height 63.7 (55.9–

66.7) of length. Vent to anal fin origin 67.6 (65.3–71.7) distance between pelvic fin base and anal fin origin.

**Distribution.** Chakpi stream, a tributary of the Manipur River, Manipur, India.

**Etymology.** The species name refers to its small eye diameter compared with other known species of the genus.

**Remarks.** The present species is close to *P. homaloptera*. However, it differs in having a more pointed, non spatulate snout, longer head and caudal fin, shallower, narrower head, and smaller eye diameter. It also has fewer branched anal fin rays and fewer scales on the lateral line and mid dorsal streak ante-

rior to the dorsal fin origin. *P. microphthalmus* sp. nov. is also distinct from the upper Burma form, *P. homaloptera* var *rowleyi* (Hora, 1941), in having a longer, narrower head, smaller eye diameter and longer caudal peduncle. A comparison of the meristic characters and proportional measurements is given in Table 1.

*Psilorhynchus balitora* (Hamilton)

*Cyprinus balitora* Hamilton, 1822: 348 (type locality-rivers of north Bengal).

*Psilorhynchus balitora* Talwar and Jhingran, 1991: 438 (description, distribution and synonymy).

**Materials examined.** MUMF 111/15, 15, 49.1–52.4 mm SL, Chakpi stream, November 12, 1992; MUMF 230/7, 7,

**Table 1.** Comparison of morphological characters of *Psilorhynchus microphthalmus* sp. nov. and *P. homaloptera*

	<i>P. microphthalmus</i>		<i>P. homaloptera</i>			<i>P. homaloptera</i> var <i>rowleyi</i> (Hora, 1941)
	Holotype	Paratypes	ZSI/F 11934/1	MUMF 1001	Hora & Mukherji (1935)	
In % of standard length						
Body depth	16.2	16.6 (15.7–17.5)	8.3	16.9	17.5 (16.1–18.8)	15.7 (15.6–16.0)
Head length	20.5	20.2 (19.8–20.4)	18.6	18.3	18.6 (17.9–19.3)	19.1 (18.7–19.5)
Predorsal length	47.4	47.2 (45.5–47.4)	49.3	47.8	—	—
Caudal fin length	23.6	22.8 (22.3–23.4)	—	21.4	22.0 (21.9–22.3)	—
Dorsal fin height	19.1	20.6 (19.3–21.9)	22.3	19.5	18.6 (17.5–19.5)	—
Pectoral fin length	24.3	22.7 (22.0–23.7)	26.6	23.1	24.6 (23.3–25.8)	—
Pelvic fin length	19.7	19.1 (18.7–19.7)	18.3	17.6	—	—
Anal fin height	14.8	14.8 (14.3–15.4)	15.9	14.4	14.2 (14.0–14.4)	—
In % head length						
Ht. of head at occiput	53.2	56.5 (55.2–59.5)	—	—	—	61.5 (58.5–64.5)
Snout length	45.0	49.9 (48.3–51.0)	53.2	49.8	50.0 (50.0–50.0)	43.4 (41.7–45.5)
Interorbital space	43.1	41.9 (38.3–45.0)	51.8	42.0	44.4 (41.7–45.5)	40.5 (40.0–41.0)
Eye diameter	24.0	22.4 (21.2–22.5)	31.3	26.9	26.2 (25.0–27.3)	32.7 (26.7–33.3)
Caudal peduncle length	63.3	69.1 (65.8–71.4)	56.5	68.9	75.4 (66.7–81.9)	83.2 (76.7–87.7)
Caudal peduncle depth	40.0	40.9 (39.7–43.7)	45.0	40.7	46.6 (45.0–50.0)	38.5 (37.6–39.4)
Head width	68.0	70.5 (67.6–74.6)	—	76.3	91.3 (83.3–100.0)	81.0 (78.7–83.3)
Mouth width	33.0	36.7 (34.6–38.2)	—	39.2	—	—
In % of caudal peduncle length						
Caudal peduncle depth	63.7	59.8 (55.9–66.7)	—	59.5	62.2 (25.0–27.3)	46.5 (42.9–50.0)
Counts						
Dorsal fin rays	ii, 7	ii, 7	—	ii, 7	ii, 7	—
Pectoral fin rays	iii, 14	iii, 14	—	8, 8	7–8, 9	—
Pelvic fin rays	ii, 7	ii, 7	9	ii, 7	ii, 7	—
Anal fin rays	ii, 6	ii, 6	—	i, 5	ii, 5	—
Lateral line scales	40	39–40	43–44	43	42–44	—
Lateral transverse scales	3/1/2	3/1/2	4/1/2	3/1/3	6–7	—
Caudal fin rays	18	18	—	—	18	—
Predorsal scales	13	12–13	14	14	14–15	—
Circumpeduncular scales	10	10	—	9	—	—

42.8–51.5 mm SL, same locality, November 6, 1993.

**Diagnosis.** A robust *Psilorhynchus* species with depth 18.0–22.1% of standard length, 8 branched rays on dorsal fin, 30–34 scales along lateral line and 3/1/2 lateral transverse scale rows.

**Distribution.** India: North Bengal, Assam, upper reaches of the Jamuna River at Lucknow, Chakpi stream, Manipur; Bangladesh, Nepal and Myanmar.

**Remarks.** The fish is robust, its colour in life being golden yellow. The species is recorded for the first time from Manipur state and from south of latitude 25°N.

*Psilorhynchus homaloptera* Hora and Mukherji

*Psilorhynchus homaloptera* Hora and Mukherji, 1935: 391, pl. 7, fig. 1–6 (type locality Emilomi, Nagaland).

**Material examined.** MUMF 1001/1, 1, 78.0 mm SL, Jiri River (Barak-Brahmaputra system), M. G. Sharma, 1986.

**Diagnosis.** An elongate *Psilorhynchus* species with depth 16.9% of standard length, head width 91.3–100% of head length, 42–44 scales along lateral line and 4/1/2 lateral transverse scale rows.

**Distribution.** India: Assam, Nagaland and the Jiri River (Manipur).

**Remarks.** The species is close to *P. microphthalmus* sp. nov. in respect of its body proportions, especially in head shape. However, its counts are closer to *P. homaloptera*.

**Discussion**

Although Hora (1936) was of the view that *Psilorhynchus homaloptera* was not strictly localized in its distribution, subsequent reports have shown the species to be restricted to the Ganga-Brahmaputra drainage. For example, the type locality, Keleki stream (Emilomi), Nagaland (Hora and Mukherji, 1935), which now belongs to Manipur state, drains into the Barak-Brahmaputra of Assam. On the other hand, *P. homaloptera* var *rowleyi* (characterised by a greater eye diameter) from Kora (upper Chindwin drainage) is strictly an upper Burma form. The specific

status of this form cannot be discussed at present as no specimens were available for study. *P. microphthalmus* is distinct from both the Ganga-Brahmaputra and Burma forms in general facies, proportional measurements, counts and in the presence of colour spots on the occiput and body. The Chakpi is a high gradient stream which joins the Manipur River at Sherou. The Manipur River flows into Myanmar in the Chin Hills and then joins the middle part of the Chindwin. Thus, *P. microphthalmus* is a distinct species, which probably evolved in this environment. *P. balitora*, on the other hand, is an adaptive and widely distributed species.

**Key to the species of *Psilorhynchus* from Manipur, India**

1. Branched dorsal fin rays 7; lateral line longitudinal scales 39–44 ..... 2  
 Branched dorsal fin rays 8; lateral line longitudinal scales 30–34; lateral transverse scale rows 3/1/2; head small, conical ... *P. balitora*
2. Lateral line longitudinal scales 42–44; lateral transverse scale rows 4/1/2; head width 91.3–100.0% of head length, height of head at occiput 58.5–64.5% of head length .....  
 ..... *P. homaloptera*  
 Lateral line longitudinal scales 39–40; lateral transverse scale rows 3/1/2; head width 67.6–74.6% of head length; height of head at occiput 55.2–59.5% of head length .....  
 ..... *P. microphthalmus* sp. nov.

**Comparative Materials**

*Psilorhynchus homaloptera* Hora and Mukherji: ZSI (Zoological Survey of India)/F-11934/1, 1 specimen, 73.3 mm SL, no date given; *P. homaloptera*: MUMF 1001, 1 specimen, 78.0 mm SL, Jiri River, Manipur, M. G. Sharma, 1986.

**Acknowledgments**

The authors are grateful to Dr. A. G. K. Menon, ZSI, Madras and to Dr. K. C. Jayaram, Madras Science Foundation, Madras, for their encouragement during this study. They are also grateful to Dr. A. K. Ghosh, Director, ZSI, Calcutta for permission to examine the type of *Psilorhynchus homaloptera*

*Psilorhynchus* from Manipur

in the Indian Museum and to Dr. K. Matsuura, National Science Museum, Tokyo, for his help in registering a type of the new species to NSMT.

noid fish from the Gangatic lowlands. Proc. California Acad. Sci., 43: 67-76.

Literature Cited

- Hora, S. L. 1936. On a collection of fish of the Naga Hills. Rec. Indian Mus., 38: 317-331.  
Hora, S. L. 1941. Fishes collected by the Vernay-Hopwood upper Chindwin Expedition, 1935. Rec. Indian Mus., 42: 478-482.  
Hora, S. L. and D. D. Mukherji. 1935. Fish of the Naga Hills, Assam. Rec. Indian Mus., 37: 381-404.  
Menon, A. G. K. 1973. Origin of freshwater fish fauna of India. Curr. Sci., 42: 553-555.  
Rainboth, W. J. 1983. *Psilorhynchus gracilis*, a new cyprinoid

インド・マニプル州からのコイ亜目 *Psilorhynchus* の採集物および新種記載

Waikhom Vishwanath・Wahengbam Manojkumar

*Psilorhynchus* は南アジアのガンジス川, プラマプトラ川, チンドウィン川の低地帯からの急流域に生息し, 小型で円筒形に近い体, 平らな腹面, 小鱗, および4-10の胸鱗不分枝軟条を備えることで特徴づけられる。マニプル州からは新種 *P. microphthalmus* を含む3種を記録した。マニプル州産 *Psilorhynchus* 3種の分類について検索表を作成し, 比較検討したところ, 新種は, ガンジス・プラマプトラ川の *P. homaloptera* とは体幅・頭・鱗が小さく, 側線鱗数及び前背鱗数が少ないことで他種から識別できた。