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Osteochilichthys elegans, a new cyprinid fish from Kerala, India

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Osteochilichthys elegans, a new teleost fish, is described from Bhavani River at Palakkad district in Kerala, India. It is related to *Osteochilichthys nashii*, *O. longidorsalis*, *O. brevidorsalis* and *O. thomassi.* All these species have a deep and compressed body; 39- 43 lateral line scales and 10-11 branched rays in dorsal fin. The new species can be diagnosed from its congeners by the following combination of characters: body with upper lateral dusky green, lower lateral light yellow, ventral, anal fin and the distal border of dorsal fin reddish, 13-14 pre dorsal scales, 43- 44 lateral line scales, no mid lateral color band and lacking any color band on dorsal and anal fin. The new species is a very rare cyprinid fish residing in the mountain streams of Palakkad district in Kerala. It can also be used as an ornamental fish. The new fish is taxonomically analyzed and compared with its congeners. This study revealed that *Gobio augraoides* Jerdon (1849) and *Osteochilichthys nashii* Day (1868) are the one and the same species. As the name *augraoides* was designated earlier than *nashii*, the former name gets priority; therefore, *Osteochilichthys nashii* is now rechristened as *Osteochilichthys augraoides.*

Keywords: Palakkad hill ranges, Taxonomy, Description, New Species, *Osteochilus*

INTRODUCTION

Heckel (1843) described the cyprinid genus *Scaphiodon as* a heterogeneous assemblage of diverse fish forms. Some of these fish have been occurring at the Sind hills and Panjab; others in the Western Ghats. The north Indian and south Indian species can easily be distinguished, with the former having 2 pairs of barbels, 9-16 branched dorsal fin rays and the last unbranched ray osseous and posteriorly serrated, 7 branched rays on the anal fin and the possession of a furrow between occiput and origin of the dorsal fin (Berg, 1933); south Indian forms are characterised by having 11 (rarely 10) branched rays on the dorsal fin, 5 (rarely 6) branched rays on the anal fin, last unbranched ray on the dorsal fin is smooth and devoid of barbels.

The north Indian species *Scaphiodon watsoni* has been renamed as *Cyprinion watsoni* and *Scaphiodon irregularis* is now treated as a synonym of *C. watsoni.* South Indian species of *Scaphiodon* were studied well by Hora (1942). After the detailed examination of specimens described from the Western Ghats, he created the taxon *Osteochilichthys* as a subgenus of the genus *Osteochilus* Gunther (1868) and inserted *Scaphiodon nashii* and *S. thomassi* in *Osteochilichthys as* they are characterised by weak, non - osseous last simple dorsal fin rays. The other Western Ghats species namely *S. brevidorsalis* was inserted in another genus *Kantaka*; the latter is characterised by bearing a strong osseous dorsal spine. Currently, all the above four species are inserted in the genus *Osteochilichthys. Osteochilus malabaricus* Day (1873) is not considered as a distinct species; it is now treated as a synonym of *O. nashii.*

During 2019- 2020 this author visited and explored many difficult- to- reach areas of Palakkad district in Kerala for fish collection and taxonomic analysis. This led to the procurement of many rare teleost fish, especially several little-known cyprinids. Six specimens of *Osteochilichthys* were obtained from a freshwater stream during the survey. Careful analysis revealed that they differ from their congeners in many distinct ways. So they are described here as a new species, *Osteochilichthys elegans.*

Fig. 1. O*steochilichthys elegans*, V/F/NERC/ZSI/5420, Holotype, 133.2 mm SL, Mannarkkad, 10.98°N 76.47°E

Fig. 2 A fresh specimen of *Osteochilichthys elegans*, ZSI/ANRC/M/27755, Paratype, 126.6 mm SL, Mannarkkad, 10.98°N 76.47°E

Fig. 3. A preserved specimen of *Osteochilichthys elegans*, ZSI/ANRC/M/27755, Paratype, 117.1 mm SL, Mannarkkad, 10.98°N 76.47°E

MATERIALS AND METHODS

Specimens of new fish were procured in December 2020 from a mountain stream in Palakkad district, Kerala, using cast nets. Related species of the new fish were collected from a water stream at the base of the Nilgiri Hills and also from different water bodies in northern Kerala and Karnataka regions. Specimens of the new fish and its relative specimens were fixed in 10% formalin. After preservation, they were taken out and taxonomically analysed; methods were those of Jayaram (2002) while measurements followed standard practices. Head length and measurements of body parts are given as proportions of standard length (SL); subunits of the head are presented as proportions of head length (HL). Distance between two fins or between fin and vent is taken from the origin of the fin. Holotype and Paratype of the new fish and specimens of the comparative materials were deposited in various museums of Govt. of India.

Abbreviations Used: DST-SERB- Science and Engineering Research Board of India, Department of Science and Technology, Government of India; ZSI- Zoological Survey of India museum in Kolkata; ZSI/ANRC- Zoological Survey of India, Andamans and Nicobar Regional Centre, Port Blair; ZSI/ NERC- Zoological Survey of India, North-eastern Regional Centre, Shillong; DOZ/GCC- Department of Zoology, Government College Chavara, Kerala**.** D-dorsal fin rays; P- Pectoral fin rays; V- ventral fin rays; A- anal fin rays; LLS-Lateral line scales; LL/V-Scales between lateral line and ventral fin; LL- Lateral line; SL- standard length; HL- head length; HW-head width; BDD-body depth at dorsal fin origin; LBD-length of base of dorsal fin; LBA-length of base of anal fin; LCP-length of caudal peduncle; ED-eye diameter; STL-snout length.

RESULTS

***Osteochilichthys elegans,* sp. nov**

(Fig. 1-6; Table 1 & 2)

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Holotype: V/F/NERC/ZSI/5420, 133.2 mm SL, a water stream at Mannarkkad, Palakkad district in Kerala, India, coll. Mathews Plamoottil, 20.12.2020. Paratypes: ZSI/ANRC/M/27755, 5, 117.1- 126.6 mm SL, other details same as Holotype.

Diagnosis: *Osteochilichthys elegans* differs from all its congeners in having 43- 44 lateral line scales, 13-14 pre - dorsal scales, dusky green upper lateral, light yellow lower lateral, blackish proximal part and the dorsal fin reddish at the distal border; ventral and anal fins are reddish. The new species further differs from its congeners in lacking any mid lateral color band, spots or bands on the anal fin.

Fig. 4. Snout of *Osteochilichthys elegans*, showing its spiny tubercles.

Fig. 5. Dorsal fin of *O. elegans*

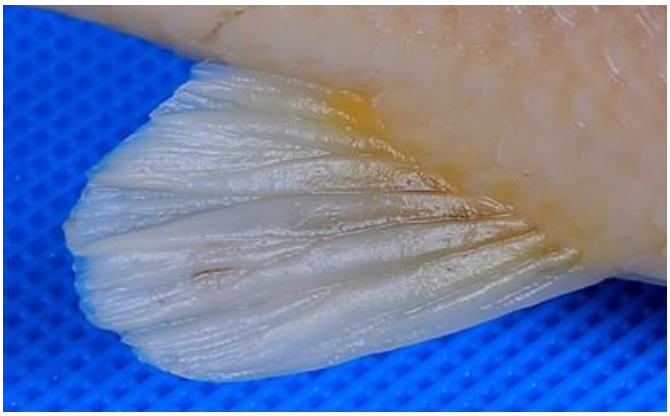

Fig. 6. Rounded anal fin of *O. elegans*

Table 1. Meristic counts of *Osteochilichthys elegans* (6 Nos) (V/F/NERC/ZSI/5420 & ZSI/ANRC/M/27755)

Sl. No.	Scale count	Holotype	Range
1	Lateral line scales	43+1	43-44+1
2	Pre-dorsal scales	14	13-14
3	Dorsal fin origin to lateral line	8.5	7.5-8.5
4	Ventral fin origin to lateral line	4.5	4.5
5	Anal fin origin to lateral line	5.5	5.5
6	Circumpeduncular scales	8	8-9
	Fin ray count		
7	Dorsal fin rays	iii.11	iii.10-11
8	Pectoral fin rays	i.13	i.13-14
9	Pelvic fin rays	i.8	i.8
10	Anal fin rays	iii.5	iii.5
11	Caudal fin rays	iii.17.iii	iii.17.iii

Description

Body moderately elongate, deep and laterally compressed. Dorsal profile rising gently from snout towards nape, convex along dorsum upto tip of dorsal fin tip and then concave to caudal fin base; ventral profile slightly convex up to pelvic-fin base, then nearly straight to anal-fin base and almost straight from posterior base of anal fin to caudal-fin base. Head short and compressed; mouth transverse and inferior; snout conical and prominent with hard prickly tubercles; prickly tubercles present on upper lip and below orbit; eyes, larger than mouth gape, situated above and behind angle of jaws; a pair of nares, in tubes, located closer to eyes than snout tip.

Dorsal fin, in front of ventral fin origin, closer to snout tip than caudal fin base; its outer margin nearly straight; triangular with soft rays; last branched dorsal ray flexible, non-osseous and inner side smooth. Dorsal fin shorter than head and caudal fin, longer than anal fin, its base shorter than head and longer than anal fin. Pectoral fin short, 19.5- 20.8 % of SL, posterior margin convex. Tip of pectoral fin never reaches to ventral fin, extending to 3 scales in front of the latter. Ventral fin posterior to dorsal fin origin; its tip never reaches anal fin origin, reach near vent; both ventral fins closely set and their laterals overlapping; anal fin, commencing below the last ray of dorsal fin, posterior edge rounded. Anal fin shorter than all other fins and its base shorter than dorsal fin base. Anal and dorsal fin coriaceous. Anal fin never outstretches to caudal fin base; caudal fin bilobed and tips rounded. Scales are small and closely packed. Lateral line occurs mid - laterally.

Color in Life: Laterals light yellow, dorsal blackish green, ventral red. Dorsal fin deep black with its thin outer edge light reddish. Pectoral fin and caudal fin dusky; ventral fin and anal fin whitish with its base light red.

Color in alcohol: Laterals light brown; dorsal blackish brown; ventral light brown. Dorsal fin black with its thin outer edge whitish. Pectoral fin and caudal fin dusky; ventral fin and anal fin whitish. A mid lateral diffused dusky shade developed, on a few specimens, on posterior region after preservation in formalin.

Type Locality: Mannarkkad in Palakkad district, Kerala, India.

Etymology: The specific epithet '*elegans*' is a Latin word meaning elegant referring to the graceful form and colour of the new species.

DISCUSSION

Osteochilichthys is a genus distributed only in the water bodies of south India. Hora (1942) included species residing in the Bhavani River at the base of Nilgiri Hills in another genus *Kantaka,* comprising only one species -*K. brevidorsalis.* According to Hora (1942), *Kantaka* can be set apart from *Osteochilichthys* in having osseous and strong last simple dorsal fin ray; they can further be differentiated in having poorly developed symphysis knob, crenulated upper lip and 3 rows of large pores across the snout, extending on to the pre-orbital bone.

Many systematic confusions and taxonomic ambiguities still exist in the *Osteochilichthys* pecies residing in the south Indian water bodies. Talwar and Jhingran (1991) kept away from Hora's (1942) titles and included all these in one genus:*Osteochilus* Guenther (1868); but Pethiyagoda and Kottelat (1994) followed Hora's (1942) nomenclature. Menon (1999) omitted all previous naming practices and included all the Indian *Scaphiodon* species in a single genus *Cyprinion* (Heckel, 1843) and omitted the division of south Indian species into *Osteochilichthys* and *Kantaka..*

Table 2.Morphometric characters of *Osteochilichthys elegans* (6 Nos)
(V/F/NERC/ZSI/5420 & ZSI/ANRC/M/27755)

Sl. No.	Measurement	HT	Range	Mean	S. D
1	Total length (TL) mm	160.5	144.5-160.5	151.3	5.94
2	Standard Length (SL) mm	133.2	117.1-133.2	123.6	5.36
3	Head Length (HL) mm	32.3	29.1-32.3	30.5	1.09
	% HL				
4	Head length	24.2	24.2-25.0	24.6	0.26
5	Head depth	17.4	17.4-20.4	18.5	0.94
6	Head width	14.0	13.1-14.1	13.6	0.34
7	Body depth at dorsal origin	26.5	26.5-28.6	27.3	0.72
8	Body depth at ventral origin	25.3	24.7-28.5	26.4	1.53
9	Body depth at anal origin	19.3	18.3-20.8	19.5	0.83
10	Body width at dorsal origin	11.2	8.73-11.5	10.1	1.19
11	Body width at ventral origin	15.0	12.4-15.0	13.6	0.93
12	Body width at anal origin	7.13	6.00-7.13	6.63	0.40
13	Pre-dorsal length	4.42	43.7-45.0	44.3	0.51
14	Post-dorsal length	58.1	56.4-59.4	57.9	1.01
15	Pre-pelvic length	48.1	48.1-50.4	49.3	0.68
16	Pre- anal length	71.3	71.1-72.4	72.2	0.71
17	Length of dorsal fin	20.7	20.7-22.6	21.3	0.64
18	Length of pectoral fin	19.5	19.5-20.8	20.1	0.46
19	Length of pelvic fin	20.2	19.8-21.0	20.1	0.39
20	Length of anal fin	17.7	17.7-20.5	19.2	0.88
21	Length of caudal fin	27.5	27.5-29.7	28.4	0.77
22	Length of base of dorsal fin	20.4	20.2-21.4	20.8	0.45
23	Length of base of anal fin	10.8	10.8-11.2	11.0	0.18
24	Length of caudal peduncle	20.0	18.8-20.0	19.4	0.42
25	Depth of caudal peduncle	11.3	11.1-12.0	11.5	0.34
26	Width of caudal peduncle	4.65	4.65-5.13	4.87	0.13
27	Distance between pectoral fin and pelvic fin	26.6	26.6-28.0	27.5	0.48
28	Distance between pelvic fin and anal fin	23.2	22.2-24.3	23.5	0.72
29	Distance between anal fin and caudal fin	24.4	23.0-25.6	24.5	0.79
30	Distance from ventral to vent	22.1	21.8-23.1	22.4	0.50
31	Distance from anal to vent	1.12	0.85-2.52	1.61	0.58
	Per cent of Head length				
32	Head depth	71.8	71.8-76.6	74.3	1.72
33	Head width	57.8	52.7-57.8	55.3	1.68
34	Eye diameter	32.5	27.0-32.6	30.7	2.16
35	Pre-orbital distance	65.0	61.0-65.2	63.4	1.69
36	Post-orbital distance	38.6	38.0-42.8	39.7	1.72
37	Pre-occipital distance	78.0	74.7-82.4	78.9	2.38
38	Post-occipital distance	106.1	100.6-109.6	105.5	2.78
39	Inter orbital width	38.3	36.4-39.1	38.1	0.88
40	Inter narial width	26.3	23.3-26.3	24.8	1.06
41	Snout length	35.2	32.6-38.1	35.6	1.92
42	Width of gape of mouth	22.6	21.6-25.0	23.1	1.14

As marked uncertainty still exists, an account of the existing *Osteochilichthys* species of south Indian water bodies is found to be necessary.

Osteochilichthys nashii (Day) (Fig. 10, Table 3 & 4)

Barbus nashii, Day, F. 1868. *Proc. Zool. Soc. Lond.* P. 584 (Type Locality: The Fraserpett River, Coorg, Karanataka).

Osteocheilus malabaricus, Day, F. 1873. *J. Linn. Soc.* 11: 527, 1873 (Vithiry, Wayanad)

Osteocheilus malabaricus, Day, F. 1878. *Fishes of India*. P. 552.

*Labeo nashii.*Beavan, R. 1877. *HBFW Fish India*. 66 (Base of Coorg Hills)

Scaphiodon nashii, Day, F. 1878. *Fishes of India*. P. 552.

Osteochilus nashii, Hora, S. L. 1942. *Rec. Indian Mus*., 44 (1): 4.

Osteochilus godavariensis. Rao. 1977. *Sci. Cult.* 43. 491. (Type Locality: TheGodavary River Basin,Chandpan Nagar District, Maharashtra).

Table 3. Meristic counts of *Osteochilichthys nashii* DOZ/GCC 70 (2 Nos)
(Plamoottil&Vineeth, 2020)

Sl. No.	**Scale counts**	**Range**
1	Lateral line scales	41- 42+1
2	Pre-dorsal scales	11-12
3	Dorsal fin origin to lateral line	8.5
4	Ventral fin origin to lateral line	5.5
5	Anal fin origin to lateral line	5.5
6	Circumpeduncular scales	8
Fin ray counts		
7	Dorsal fin rays	ii.11
8	Pectoral fin rays	i.14
9	Pelvic fin rays	i.8
10	Anal fin rays	ii.5
11	Caudal fin rays	iii.17.iii

Diagnosis: *Osteochilichthys nashii* differs from its congeners in having an elongated body (body depth at the dorsal fin origin 28.6- 29.9 % SL), papillae covered snout, thin lips, 41 lateral line scales, longer caudal peduncle (caudal peduncle length 20.2- 21.1 % SL), last undivided dorsal ray non - osseous, weak and body and fins with a peculiar colour pattern- reddish brown along the back, silvery over the abdomen; a black band passes from the eye to the centre of the base of the caudal fin; fins whitish; a dark band on anal fin and another similar band along the middle of the third dorsal fin.

Remarks: *O. nashii* is said to have a wide distribution in various water streams of northern Kerala and Karnataka regions. The Fraserpett River in Coorg (Day, 1868), base of the Coorg Hills (Beavan, 1877), Hill streams of south Canara and Wayanad (Day, 1878, 1889), Thunga River at Hariharpur, Kadur, Mysore (Bhimchar and Rao (1941), Shimoga (Chacko and Kuriyan, 1948) and Bhavani River (Rajan, 1955) are the various localities assigned to this species by various authors. Mukerji (1931) 'redescribed' *O. nashii* from a specimen from the Bhavani River at Nilgiri Hills; it may be erroneous. Currently, all those cyprinids with a black band on both dorsal and anal fins and a colour band on the mid lateral region are generally treated as *O. nashii*. The latter species occurring in Kerala and Karnataka water bodies shows some differences in many aspects; molecular level studies alone can solve the taxonomic ambiguity.

Type Locality: The Fraserpett River, Coorg, Karanataka.

Osteochilichthys longidorsalis Pethiyagoda and Kottelat

(Fig. 7; Table 5 & 6)

Osteochilichthys longidorsalis Pethiyagoda R. and Kottelat. M. 1994. *J. South Asian nat.* Hist. 1, (1); 99

Fig. 7. *Osteochilichthys longidorsalis*, ZSI/ANRC/M/27238.

Diagnosis: *Osteochilichthys longidorsalis* can be distinguished from its congeners in having 10 branched dorsal rays and an unusually elongated last simple dorsal fin ray. It further differs from its relative species in the absence of any coloured mid lateral stripe or colour band on the dorsal fin or anal fin.

Colour: Greenish grey body, black dorsal and lighter ventral regions; body without any distinct markings.

Type locality: Upstream of Chalakudy River.

***Osteochilichthys malabaricus* (Day, 1873)**

Osteochilus malabaricus, Day, F. 1873. *Journal of Linnaean Society of London,* Zoology, 11: 527 (Vithiry, Wayanad)

Osteochilus malabaricus, Day, F. 1877. *Fishes of India*, 552.

Osteochilus malabaricus, Menon, A.G.K. 1999. Checklist- Freshwater fishes of India, Rec. Zool. Surv. India. Occ. Paper No. 175.

Table 4. Morphometric characters of *Osteochilichthys nashi*
DOZ/GCC 70(2 Nos)
(Plamoottil&Vineeth, 2020)

	Measurement	Range	mean
1	Total length	168-176	172.0
2	Standard Length (mm)	137-143	140.0
3	Head Length(mm)	30	30.0
	Percent of Standard length		
4	Head length	20.9-21.8	21.3
5	Head depth	18.1-18.2	18.1
6	Head width	12.4-12.5	12.4
7	Body depth at dorsal origin	28.6-29.9	29.2
8	Body depth at ventral origin	28.4-28.6	28.5
9	Body depth at anal origin	20.4-20.9	20.6
10	Body width at dorsal origin	12.5-14.5	13.5
11	Body width at ventral origin	13.9-13.9	14.6
12	Body width at anal origin	9.48-10.4	9.94
12	Pre-dorsal length	41.2-43.0	42.1
13	Post-dorsal length	56.6-57.6	57.1
14	Pre-pelvic length	49.6-50.3	49.9
15	Pre- anal length	72.9-75.5	74.2
16	Length of dorsal fin	21.1-21.6	21.3
17	Length of pectoral fin	18.1-18.9	18.5
18	Length of pelvic fin	17.4-18.2	17.8
19	Length of anal fin	23.0-23.3	23.1
20	Length of caudal fin	27.9-29.1	28.5
21	Length of base of dorsal fin	19.5-20.4	19.9
22	Length of base of pectoral fin	3.49-4.37	3.93
23	Length of base of pelvic fin	4.19-4.37	4.28
24	Length of base of anal fin	10.4-10.9	10.6
25	Length of caudal peduncle	20.2-21.1	20.6
26	Depth of caudal peduncle	10.9-11.1	11.0
27	Width of caudal peduncle	4.19-4.37	4.28
28	Distance between pectoral fin and pelvic fin	30.0-30.6	30.3
29	Distance between pelvic fin and anal fin	24.8-27.9	23.6
30	Distance between anal fin and caudal fin	23.0-23.0	23.1
31	Distance from ventral to vent	23.3-25.8	24.5
32	Distance from anal to vent	1.45-2.09	1.72
	Percentage of Head Length		
33	Head depth	83.3-86.6	84.9
34	Head width	56.6-60.0	58.3
35	Eye diameter	36.6	36.6
36	Pre-orbital distance	63.3	63.3
37	Post-orbital distance	36.6-40.0	38.3
38	Pre-occipital distance	80.0-83.3	81.6
39	Post-occipital distance	120.0	120.0
40	Inter orbital width	40.0	40.0
41	Inter narial width	30.0	30.0
42	Snout length	33.3	33.3
43	Width of gape of mouth	20.0	20.0

Diagnosis: Lateral line scales 44; pectoral fin rays 19; Upper jaw longer than lower jaw; Mouth compressed, narrow, horseshoe-shaped and directed downwards. Lip on upper jaw moderately thick and continuous with that on the mandible, neither lip fringed, no tubercles. Dorsal fin without any osseous ray. Ventral fin extends to over the commencement of the anal. No axillary scales along the bases of the ventral fins. Five rows of scales between lateral line and the base of ventral fin.

Colours: silvery grey above, lighter beneath; a dark band along the middle of the body, ending in a diffused black spot at the base of caudal fin; fins orange, except

the dorsal one, which has a black band commencing in the middle of the third fin, which narrows to its posterior end; anterior portion reddish, tipped with white.

Table 5. Meristic counts of *Osteochilichthys longidorsalis* ZSI/ANRC/M/27238 (3 Nos)

Sl. No	Scale count	Range
1	Lateral line scales	38+1
2	Pre-dorsal scales	11-12
3	Dorsal fin origin to lateral line	6.5-7.5
4	Ventral fin origin to lateral line	3.5
5	Anal fin origin to lateral line	4.5-5.5
6	Circumpeduncular scales	6-7
7	**Fin ray count**	
8	Dorsal fin rays	iii.10
9	Pectoral fin rays	i.13-14
10	Pelvic fin rays	i.8
11	Anal fin rays	iii.5
12	Caudal fin rays	iii.17.iii

Type Locality: Vithiry, Wayanad

Remarks: *Osteochilichthys malabricus* was described by Day (1873) with unique diagnostic characters; but he synonymised (Day, 1878) and omitted (Day, 1889) this name in his later volumes. Karnasuta (1993) considered it as 'a species improperly assigned to *Osteochilus'*. Day's (1873) statement 'neither lip fringed; no horny substance over lips or inside the lower jaw' seems that this species is not a true *Osteochilichthys* species. Karnasuta (1993) considered it as a poorly described species. As no type specimens are available for this species (*nomen dubium),* a neotype designation is needed. This author considers it as a distinct species; its greater lateral line scales (44) and specific colour pattern differentiate it from its congeners.

***Osteochilichthys thomassi* (Day)**

(Fig. 8; Table 7 & 8)

Scaphiodon thomassi Day, F. 1878. *Fishes of India*. P. 551. 134 (south Canara).

Scaphiodon thomassi Day, F. 1889. *Fauna. Brit. India. Fishes.* 1: 285.

Scaphiodon thomassi Mukerji, 1931 *J. Bombay nat. Hist. Soc.* 35 (1): 169 (The Bhavani River, Nilgiris).

Scaphiodon thomassi Hora, S. L. 1942. *Rec. Indian Mus*. 44 (3).1-10.

Fig 8. *Osteochilichthys thomassi,* collected from a water stream at Canara

Diagnosis: *Osteochilichthys thomassi* can be distinguished from its congeners in having non-continuous lips; fringed upper lip, large pores present on the snout, upper lip and a line of it continued upto the underneath of the eye; 39 lateral line scales, 6 branched rays on the anal fin; the latter extends to the caudal fin; last unbranched dorsal fin ray non - osseous, weak, articulated and with an indistinct silvery band along the sides.

Meristic counts: D- iii.11; A- iii.5; LLS-41- 43+1; LL/V-5.5.

Morphometric features: **% SL**: HL- 23.1- 24.9; HW-12.7- 12.9; BDD- 27.7- 29.1; LBD- 21.0- 22.2; LBA- 9.83-10.0. LCP- 19.9- 20.2: **% HL:** ED- 40.5- 41.5; STL-30.0-32.5.

Colour: Dull silvery along the back; indistinct silvery band along the sides, a dull white beneath; a dark band found along the dorsal fin.

Remarks: *Osteochilichthys thomassi* is a rare species; Hora (1942) confirmed the identity of this species based on the examination of its topotypic specimens from the Indian museum. But Menon (1999) treated it as a synonym of *O. nashii*. *O. thomassi* differs from *O. nashii* in meristic counts (branched anal fin rays 6 in *O. thomassi* vs. 5 in *O.nashii;* lateral line scales 39 vs. 41) and colour (a silvery band on the laterals and no colour band on the anal fin vs. a mid lateral black band and a black band on the anal fin). *S. thomassi* further differs from *S. nashii* in having a bigger body.

Osteochilichthys thomassi was reported from various parts of India. It has been reported from south Canara (Day, 1878, 1889), Bhavani River at Nilgiris (Mukerji, 1932), Travancore Hill ranges (Silas, 1951), Bhadra River (David, 1956; Shanawaz, *et al.,* 2010), Maharastra (Tonapi and Mulherkar, 1963), Krishna River (Jayaram, 1995), Periyar River (Thomas *et al.* 2002), Anamalai Hills (Devi *et al,* 2005), Pune in Maharashtra (Kharat*et al*., 2003) etc. But, unfortunately, specimens of '*O. thomassi'* of all the above authors had not been deposited in any recognised Govt. museums of India. Recently Jana *et al.,* (2020) reported the occurrence of *O. thomassi* from Medinipur in West Bengal. His account was based on the 3 small specimens of 3.8 - 4.2 cm but it was very brief, also he could not even mention the details of its meristic counts and morphometric characters; his specimens may, most probably, be young ones of a *Labeo* species.

This author strongly believes that *O. thomassi* is a species distributed only in Cauvery River systems in south India.

Type Locality: South Canara

Osteochilichthys brevidorsalis (Day)

(Fig. 9; Table 9 & 10)

Semiplotus brevidorsalis Day. *Proc. Zool. Soc. Lond.* P. 239, 1873 (Rivers below TheNeilgherrry Hills).

Scaphiodon brevidorsalis Day. F. 1878. *Fish, India.* P. 552. Pl. 133. Fig. 2. 1878. (Rivers below the Neilgherry Hills in the Madras Presidency).

Fig. 9. *Osteochilichthys brevidorsalis,* DOZ/GCC 71,*The Bhavani* River at the base of Nilgiri Hills.

Scaphiodon brevidorsalis. Day, 1889. *F. Fauna. Brit. Ind.. Fish*. 1: 286.

Osteochilus (Kantaka) brevidorsalis. Hora. S. L. 1942. *Rec. Indian Mus*. 44 (1): 10.

Diagnosis**:** Body laterally compressed and moderately deep; height at dorsal fin 30.0- 33.9 in % of SL; Snout swollen; mouth inferior, transverse; lower jaw not covered by the lip, three rows of large pores occur across the snout; knob at symphysis badly developed; last undivided dorsal ray osseous, very strong, entire, and longer than head by a distance equal to one diameter of the orbit. Lateral line with 40 scales; 13- 14 pre- dorsal scales, 4 ½ scales between the lateral line and the base of ventral fin, 7 ½ - 8 ½ scales between the lateral line and dorsal fin, 11 branched rays on the dorsal fin.

Colour: Body silvery, without any colour spots; fins grey.

Type Locality: Rivers below the Nigiri Hills.

Comparisons: *Osteochilichthys nashii* (Day), *O. longidorsalis* (Pethiyagoda and Kottelat), *O. thomassi* (Day) and *O. brevidorsalis* (Day) are the valid *Osteochilichthys* species in south India; the first two are the close congeners of *Osteochilichthys elegans*.

Osteochilichthys elegans differs from its congeners in its meristic and morphometric characters (Table 11 & 12)). The new species differs from *O. nashii* Day (1868) in having 43- 44 (vs. 41- 42) lateral line scales, 4.5 (vs. 5.5) scales between lateral line and ventral fin, 13- 14 (vs. 11- 12) pre- dorsal scales, greater (43.7- 45.0 % SL vs. 41.2- 43.0) pre- dorsal distance and shorter (17.7- 20.5 % SL vs. 23.0- 23.3) anal fin.

Osteochilichthys elegans differs from *O. longidorsalis* Pethiyagoda and Kottelat (1994) in having 43- 44 (vs.38- 40) lateral line scales, 13- 14 (vs. 11- 12) pre- dorsal scales, shorter (20.7- 22.6 % SL vs. 29.7- 36.5) dorsal fin, 4.5 (vs. 3.5) scales between the lateral line and ventral fin and lesser (43.7- 45.0 % SL vs. 45.4- 47.5) pre-dorsal distance.

Osteochilichthys elegans differs from *O. thomassi* Day (1878) in having 43- 44 (vs. 39) lateral line scales, 5 (vs. 6) branched rays on the anal fin and 14- 15 (vs. 16) rays onthe pectoral fin. *O. thomassi* is peculiar in having a dark band on the dorsal fin and a silvery band on the lateral (vs. no black band on the dorsal fin and no mid lateral colour band in *O. elegans*). The new species differs from *O. malabaricus* (Day) in having 14- 15 (vs. 19) pectoral fin rays, snout with thorny tubercles (vs. tubercles absent) and ventral fin never reaches (vs. reaching) to the anal fin.

Osteochilichthys (Kantaka) brevidorsalis is not a close congener of *O. elegans;* the former is unique in having a strong and osseous (vs. flexible and non-osseous) last undivided dorsal fin ray. *Osteochilichthys elegans* further differs from *O. brevidorsalis* in having 43- 44+1 (vs. 38- 40) lateral scales, slender (26.5- 28.6 % SL vs. 30.0- 33.9) body and shorter (20.7- 22.6 % SL vs. 29.5- 32.7) dorsal fin.

***Osteochilus godavariensis* Rao (1977)**

'*Osteochilus' godavariensis* was discovered from the Godavari River basin in Maharashtra. It was described in much detail and can be considered as a distinct species. Talwar and Jhingran (1991) included it along with *Osteochilichthys.* Menon (1999) doubted its identity and treated it as a synonym of *O. nashii;* but in colour and meristic counts it differs considerably from *nashii. Osteochilus godavariensis* differs from *O. nashii* in having 14- 15 (vs. 11) branched dorsal fin rays, 6 (vs. 5) branched anal fin rays, 39 (vs. 41) lateral line scales, 2 pairs of barbels (vs. absent) and in having (vs. lacking) 2 black spots below the insertion of dorsal fin and a dark blotch (vs. lacking) on the caudal fin base. Greater branched dorsal fin rays (14-15 vs. 11 in other true *Osteochilichthys* species) and presence (vs. absence) of barbels in g*odavariensis* are unwonted characters not observed in any other *Osteochilichthys* species. *Osteochilichthys godavariensis* may most probably be a *Labeo* species. *Osteochilichthys elegans* differs from *Osteochilichthys godavariensis* in having a lower (body depth 4.3 vs. 3.0- 3.5 in SL) body, more (43- 44 vs. 39) lateral line scales, fewer (5 vs. 6) branched dorsal fin rays, lesser (10- 11 vs. 14- 15) branched dorsal fin rays and in the absence (vs. presence) of barbels.

***Gobio augraoides* Jerdon (1849)**

Gobio augraoides was described by Jerdon (1849) as a new species, from south India. Even though he described it succinctly, he wrote about it as a 'very distinct' species. Jerdon (1849) compared it with '*Gobio augra* Buchanan' (currently *Labeo angra* Hamilton (1822)) and '*G. bicolor'* of McClelland (1839); currently, *Gobio bicolor* is a junior synonym of *Labeo dyocheilus* (McClelland, 1839). Hamilton (1822)'s description of *angra* was of a general nature; but Day (1878, 1889) and Jayaram & Das (2000) gave us a detailed description of *Labeo angra.*

Fig. 10. *Osteochilichthys augraoides* (formerly *O. nashii)* collected from Mysore.

Table 6. Morphometric characters of *Osteochilichthys longidorsalis* ZSI/ANRC/M/27238 (3 Nos)

	Measurement	**Range**
1	Total length	137.0-204.3
2	Standard Length (mm)	105.9-156.2
3	Head Length(mm)	26.0-36.0
Percent of Standard Length		
4	Head length	21.7-24.5
5	Head depth	17.6-18.8
6	Head width	13.3-14.9
7	Body depth at dorsal origin	28.1-28.5
8	Body depth at ventral origin	27.4-28.5
9	Body depth at anal origin	20.0-21.2
10	Body width at dorsal origin	12.0-12.9
11	Body width at ventral origin	13.6-15.3
12	Body width at anal origin	6.1-7.4
13	Pre-dorsal length	45.4-47.5
14	Post-dorsal length	55.1-59.0
15	Pre-pelvic length	48.5-52.4
16	Pre- anal length	74.2-77.7
17	Length of dorsal fin	29.7-30.3
18	Length of pectoral fin	23.6-25.0
19	Length of pelvic fin	24.3-24.7
20	Length of anal fin	22.6-25.4
21	Length of caudal fin	32.7-33.3
22	Length of base of dorsal fin	17.2-18.4
23	Length of base of pectoral fin	4.5-5.5
24	Length of base of pelvic fin	5.2-5.7
25	Length of base of anal fin	8.6-9.2
26	Length of caudal peduncle	16.2-17.6
27	Depth of caudal peduncle	11.4-13.2
28	Width of caudal peduncle	5.16-6.2
29	Distance between pectoral fin and pelvic fin	28.2-29.4
30	Distance between pelvic fin and anal fin	26.4-28.0
31	Distance between anal fin and caudal fin	21.6-22.0
32	Distance from ventral to vent	24.7-25.2
33	Distance from anal to vent	1.72-2.83
Percent of Head Length		
34	Head depth	76.9-81.4
35	Head width	60.3-64.7
36	Eye diameter	35.5-38.4
37	Pre-orbital distance	67.3-70.3
38	Post-orbital distance	32.5-35.3
39	Pre-occipital distance	90.8-94.1
40	Post-occipital distance	103.0-125.8
41	Inter orbital width	40.3-45.2
42	Inter narial width	26.5-30.2
43	Snout length	34.2-39.1
44	Width of gape of mouth	31.9-38.8

Table 7. Meristic counts of *Osteochilicthys thomassi*
DOZ/GCC 71(2 Nos)

Sl. No	Scale counts	Range
1	Lateral line scales	41-43+1
2	Pre-dorsal scales	14
3	Scales between dorsal fin origin to lateral line	7.5
4	Scales between ventral fin origin to lateral line	5.5
5	Scales between anal fin origin to lateral line	5.5
6	Circumpeduncular scales	7-8
	Fin ray counts	
7	Dorsal fin rays	iii.11
8	Pectoral fin rays	i.13
9	Pelvic fin rays	i.8-9
10	Anal fin rays	iii.5
11	Caudal fin rays	iii.17.iii

Table 8. Morphometric features of *Osteochilicthys thomassi*
DOZ/GCC 71(2 Nos)

	Measurement	Range	Mean
1	Total length	101.0-103.0	102.0
2	Standard Length (mm)	80.3-86.4	83.3
3	Head Length(mm)	20.0	20.0
	Percent of Standard length		
4	Head length	23.1-24.9	24.0
5	Head depth	17.7-17.9	17.8
6	Head width	12.7-12.9	12.8
7	Body depth at dorsal origin	27.7-29.1	28.4
8	Body depth at ventral origin	26.1-27.4	26.7
9	Body depth at anal origin	19.0-19.7	19.3
10	Body width at dorsal origin	8.84-10.9	9.87
11	Body width at ventral origin	10.8-11.5	11.1
12	Body width at anal origin	6.2-6.9	6.6
13	Pre-dorsal length	46.0-46.8	46.4
14	Post-dorsal length	56.0-59.8	57.9
15	Pre-pelvic length	51.0-51.7	51.3
16	Pre- anal length	73.6-76.0	74.8
17	Length of dorsal fin	25.5-26.2	25.8
18	Length of pectoral fin	19.6-20.7	20.1
19	Length of pelvic fin	19.6-21.0	20.3
20	Length of anal fin	21.0-21.6	21.3
21	Length of caudal fin	30.2-31.3	30.7
22	Length of base of dorsal fin	21.0-22.2	21.6
23	Length of base of pectoral fin	3.5-3.8	3.7
24	Length of base of pelvic fin	4.60-4.62	4.6
25	Length of base of anal fin	9.83-10.0	9.9
26	Length of caudal peduncle	19.9-20.2	20.0
27	Depth of caudal peduncle	12.3-12.5	12.4
28	Width of caudal peduncle	4.7-4.9	4.8
29	Distance between pectoral fin and pelvic fin	28.0-29.5	28.7
30	Distance between pelvic fin and anal fin	23.1-27.3	25.2
31	Distance between anal fin and caudal fin	24.3-25.5	24.9
32	Distance from ventral to vent	21.9-25.0	23.4
33	Distance from anal to vent	1.15-2.3	1.7
	Percent of Standard Length		
34	Head depth	72.0-76.5	74.2
35	Head width	52.0-55.0	53.5
36	Eye diameter	40.5-41.5	41.0
37	Pre-orbital distance	69.5-70.0	69.7
38	Post-orbital distance	35.0	35.0
39	Pre-occipital distance	81.0-87.0	84.0

40	Post-occipital distance	105.0-120.0	112.5
41	Inter orbital width	34.0-37.5	35.7
42	Inter narial width	22.5-25.0	23.7
43	Snout length	30.0-32.5	31.2
44	Width of gape of mouth	20.0	20.0

Table 9. Meristic counts of *Osteochilichthys brevidorsalis* DOZ/GCC 72(6 Nos)

Sl. No.	Meristic Counts	Range
1	Lateral line scales	39-40+1
2	Pre-dorsal scales	13-14
3	Scales between Dorsal fin origin to lateral line	7.5-8.5
4	Scales between ventral fin origin to lateral line	4.5
5	Scales between anal fin origin to lateral line	6.5
6	Circumpeduncular scales	8-9
7	Dorsal fin rays	iv.11
8	Pectoral fin rays	i.14
9	Pelvic fin rays	i.8
10	Anal fin rays	iii.5
11	Caudal fin rays	iii.17.iii

Table 10. Morphometric features of *Osteochilichthys brevidorsalis* DOZ/GCC 72(6 Nos)

Sl. No.	Measurement	Range	mean
1	Total length	112.0-160.0	135.5
2	Standard Length (mm)	84.0-123.5	103.3
3	Head Length(mm)	21.6-30.0	25.4
Percent of Standard Length			
4	Head length	24.0-25.7	24.6
5	Head depth	21.5-22.9	22.1
6	Head width	12.8-16.3	14.8
7	Body depth at dorsal origin	30.0-33.9	32.5
8	Body depth at ventral origin	30.0-33.9	32.5
9	Body depth at anal origin	20.2-23.5	22.3
10	Body width at dorsal origin	8.09-10.4	9.04
11	Body width at ventral origin	11.5-13.3	12.6
12	Body width at anal origin	5.95-6.42	6.12
13	Pre-dorsal length	45.5-47.8	47.0
14	Post-dorsal length	57.8-60.4	58.7
15	Pre-pelvic length	46.9-49.4	48.5
16	Pre- anal length	72.3-73.0	72.5
17	Length of dorsal fin	30.7-32.7	31.9
18	Length of pectoral fin	22.6-23.2	23.0
19	Length of pelvic fin	22.6-24.4	23.7
20	Length of anal fin	21.2-23.0	22.0
21	Length of caudal fin	32.6-35.3	34.0
22	Length of base of dorsal fin	20.8-21.5	21.1
23	Length of base of pectoral fin	4.85-5.59	5.10
24	Length of base of pelvic fin	5.11-6.04	5.45
25	Length of base of anal fin	10.5-11.3	10.8
26	Length of caudal peduncle	19.8-20.9	20.3
27	Depth of caudal peduncle	12.3-14.1	13.1
28	Width of caudal peduncle	4.45-5.47	5.09
29	Distance between pectoral fin and pelvic fin	24.4-28.9	27.0
30	Distance between pelvic fin and anal fin	24.0-26.1	24.7
31	Distance between anal fin and caudal fin	24.0-26.4	25.4
32	Distance from ventral to vent	22.8-24.9	23.7
33	Distance from anal to vent	1.19-1.46	1.28
Percent of Head Length			
34	Head depth	88.6-91.0	89.6
35	Head width	59.2-68.0	63.7
36	Eye diameter	36.3-39.3	37.3
37	Pre-orbital distance	65.0-67.1	66.0
38	Post-orbital distance	35.6-38.3	37.0
39	Pre-occipital distance	81.6-84.2	83.0
40	Post-occipital distance	111.1-118.6	13.7
41	Inter orbital width	41.6-46.9	45.0
42	Inter narial width	27.7-30.0	28.9
43	Snout length	30.3-31.6	31.1
44	Width of gape of mouth	33.7-36.8	35.1

Table 11. Meristic differences between *Osteochilichthys elegans* and its close congeners

Sl. No.	Characters	*O. elegans*	*O. augraoides*	*O. longidorsalis*
1	Lateral line scales	43-44+1	41- 42+1	38+1
2	Pre-dorsal scales	13-14	11-12	11-12
3	Scales between D &LL	7.5-8.5	8.5	6.5-7.5
4	Scales between V & LL	4.5	5.5	3.5
5	Scales between A & LL	5.5	5.5	4.5-5.5
6	Circumpeduncular scales	8-9	8	6-7
7	Dorsal fin rays	iii.10-11	ii.11	iii.10

Table 12. Morphometric differences between *Osteochilichthys elegans* and its close congeners

Sl. No.	Characters	*O. elegans*	*O. augraoides*	*O. longidorsalis*
	% SL			
1	Head length	24.2-25.0	20.9-21.8	--
2	Body depth at dorsal origin	26.5-28.6	28.6-29.9	--
3	Body width at dorsal origin	8.7-11.5	12.5-14.5	12.0-12.9
4	Body width at anal origin	6.0-7.1	9.5-10.4	--
5	Pre-dorsal length	43.7-45.0	41.2-43.0	45.4-47.5
6	Pre- anal length	71.1-72.4	72.9-75.5	74.2-77.7
7	Length of dorsal fin	20.7-22.6	--	29.7-30.3
8	Length of pectoral fin	19.5-20.8	18.1-18.9	23.6-25.0
9	Length of pelvic fin	19.8-21.0	17.4-18.2	24.3-24.7
10	Length of anal fin	17.7-20.5	23.0-23.3	22.6-25.4
11	Length of caudal fin	27.5-29.7	--	32.7-33.3
12	Length of base of dorsal fin	20.2-21.4	--	17.2-18.4
13	Length of base of anal fin	10.8-11.2	--	8.6-9.1
14	Length of caudal peduncle	18.8-20.0	20.2-21.1	16.2-17.6
15	Width of caudal peduncle	4.6-5.1	--	5.2- 6.2
16	Distance between P & V	26.6-28.0	30.0-30.6	28.2-29.4
17	Distance between V & A	22.2-24.3	24.8-27.9	26.4-28.0
18	Distance between anal fin and caudal fin	23.0-25.6	--	21.6-22.0
19	Distance from ventral to vent	21.8-23.1	23.3-25.8	24.7-25.2
	% HL			
20	Head depth	71.8-76.6	83.3-86.6	76.9-81.4
21	Head width	52.7-57.8	--	60.3-64.7
22	Eye diameter	27.0-32.6	36.6	35.5-38.4
23	Pre-orbital distance	61.0-65.2	--	67.3-70.3
24	Post-orbital distance	38.0-42.8	--	32.5-35.3
25	Pre-occipital distance	74.7-82.4	--	90.8-94.1
26	Post-occipital distance	100.6-109.6	120.0	--
27	Inter orbital width	36.4-39.1	--	40.3-45.2
28	Inter narial width	23.3-26.3	30.0	26.5-30.2

Hamilton (1822) wrote that *L. angra* is with a pair of barbels; but *Gobio augraoides* are without barbels. *Labeo angra* has 42 (vs. 44 in *G. augraoides*) lateral line scales; moreover, it is a north Indian species and not recorded from any south Indian stations. Hamilton (1822) and Day (1878, 1889) described it based on their collections from Assam, Bengal, Orissa and Burma. Plamoottil and Vineeth's (2020) description of *Gobio augraoides* was based on their fish collections from a water stream in Mysore, Karnataka. Based on the above facts it can be confirmed that *G. augraoides* is not *Labeo angra.* A mid lateral colour band, from operculum to the caudal fin base is the main similarity between augraoides and Plamoottil & Vineeth's species; but their specimen is not *Labeo angra* or any other *Labeo* species. Plamoottil and Vineeth's (2020) redescription of *Labeo augraoides* is now found to be invalid. *Gobio augraoides* is nothing but *Osteochilichthys* (Day, 1868) and the specimen used by Plamoottil and Vineeth (2020) for their redescription of *G. augraoides* is of *O. nashii.* The latter fish is characterised by a mid-lateral bluish black band extending from operculum to the caudal fin base and black bands also occurs on both dorsal and anal fins. Jerdon (1849) also noticed the mid - lateral black band in *G. augraoides;* but

he could not detect the black band on both dorsal and anal fins. In adult *O. nashii* specimens black band on dorsal fin has always been diffused on the proximal part of it and not perceivable as a distinct band; colour band on anal fin also acquires the same hue in some specimens. Day (1878) set down the self-same account: "Color of *O. nashii* varies with age; in younger specimens black band on dorsal and anal fins are distinct; in old specimens also these colour marks are diffuse or indistinct and mouth alters with age". Plamoottil and Vineeth (2020) had also found it difficult to discern the color bands on the fins of their fish collections while redescribing *G. augraoides.* During the recent collection of *O. nashii* from Mysore in Karnataka, for the description of *Osteochilichthys elegans*, this author could procure many specimens of it with clear bands on dorsal and anal fins and some with diffused marks. *G. augraoides* Jerdon is with 44 lateral line scales and 13 rays on dorsal fin. *O. nashii* has 41-42 lateral line scales and 1- 2 scales on the caudal base; Jerdon (1849) might had counted scales of the caudal base along with lateral line scales. *Osteochilichthys nashii* has also 13 dorsal rays, 2 unbranched and 11 branched rays.

Gobio augraoides Jerdon may not be *Osteochilichthys malabaricus* (Day, 1873); in the latter, unlike *nashii*, pectoral, ventral and anal fins are orange- hued. In *O. malabaricus,* black band on the dorsal fin commences in the middle of the third fin but narrows towards its posterior end; summit of the anterior portion reddish, tipped with white. Moreover *O. malabaricus* must be collected from its type locality to conform its identity.

As described above *Gobio augraoides* and *Osteochilichthys nashii* are the one and the same species. As *Gobio augraoides* was described earlier (1849 vs. 1868) than *Osteochilichthys nashii,* the former gets priority over *O. nashii*; so *Osteochilichthys nashii* is hereby renamed as *Osteochilichthys augraoides.*

Comparative materials examined:

Osteochilichthys augraoides. DOZ, GCC 70, 2,137 & 143 mm SL, a water stream at Mysore, Karnataka, India, coll. Mathews Plamoottil and Vineeth, K, 25/01/2020.

Osteochilichthys longidorsalis: ZSI/ANRC/M/27238, 3, 105.9-156.2 mm SL, Athirappally, Trichur, coll. Mathews Plamoottil&Vineeth. K, 10.04.2021.

Osteochilichthys brevidorsalis: DOZ, GCC 71, 6, 76.7-123.5 mm SL, The Bhavani River in Palakkad, coll. Mathews Plamoottil, 28/12/2020.

Osteochilichthys thomassi: DOZ, GCC 72**,** 6, 76.7-123.5 mm S, The Bhavani River in Palakkad, coll. Mathews Plamoottil, 28/12/2020.

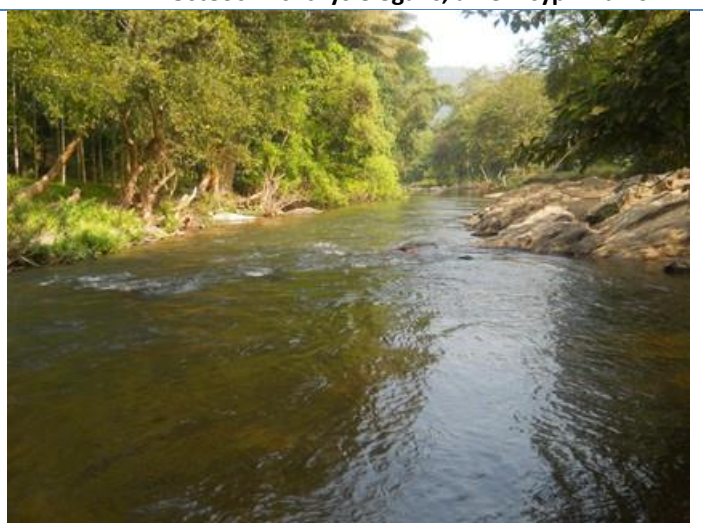

Fig. 11. The Bhavani River in Palakkad, the type locality of *Osteochilichthys elegans*

CONCLUSION

Species of *Osteochilichthys* are the least studied cyprinid fishes of south India. Only one species of this genus namely *O. longidorsalis* had been described after 1878 in which Francis Day discovered *O. thomassi. Osteochilichthys elegans* is the second new species of this genus described after 143 years. It differs from its congeners in having greater number of lateral line scales and pre-dorsal scales and in the peculiar colour of the body and fins. It is lacking any mid- lateral colour band and dark band on both dorsal and anal fins. It is a beautifully colored small fish which can be used for ornamental purposes. it is a very rare fish found only in the Palakkad mountain ranges now. It is expected that taxonomic studies may be conducted on this fish in future.

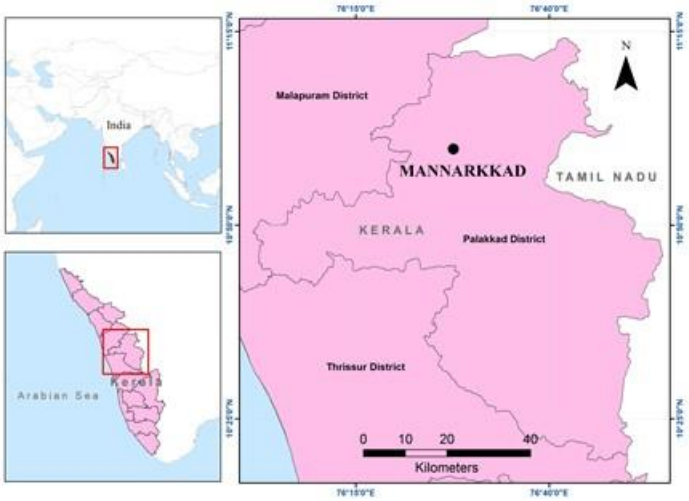

Fig. 12. Map showing the type locality of *Osteochilichthys elegans.*

CONFLICT OF INTEREST

The author declared that present study was performed in

absence of any conflict of interest.

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AUTHOR CONTRIBUTIONS

Mathews Plamoottil (MP) designed and performleed the experiments and also wrote the manuscript. MP read and approved the final version.

REFERENCES

Beaven R 1877. Handbook of the freshwater fishes of India. L Reeve & Co,.5, Henrietta, Covent Garden, London

Bhimachar B S & Rao A S 1941. The fishes of the Mysore state. I. Fishes of Kadur district. J. Univer. Mysore. 8 (1): 141- 153.

Berg LS. 1933. Rec. Indian Mus. XXXV pp 193- 196

Chacko P I, G K Kuriyan, 1948. Survey of the fisheries of Tungabhadra River. Proc. Indian Acad. Sci., 28(5): 165–76.

Devi KR, Indra TJ, Raghunathan MB &Ravichandran M.S. 2005. Fish fauna of the AnamalaiHill Ranges, Western Ghats, India. Zoos' print J. 20 (3): 1809-1811

David A. 1956. Studies on pollution of Bhadra river fisheries at Bhadravti (Mysore stae) with industrial effluents. Proc. Nat. Inst. Sci. India. 22: 132-160.

Day F. 1868. Observations on Indian fishes. Proc. Zool. Soc. London, 1868: 580-585.

Day F. 1873. On some new fishes of India. J. Linn. Soc. London, 11: 524-530.

Day F 1878 The fishes of India: being a natural history of the fishes known to inhabit the seas and fresh waters of India, Burma and Ceylon. William and Norgate, London, 30.

Day F 1889. Fauna of British India including Ceylon and Burma. Taylor and Francis, London

Günther A.1868. Catalogue of the fishes in the British Museum. Vol. 7. British Museum, London. xx + 512 pp

Heckel JJ. 1843. Ichthyologie. In: Reisen in Europa, Asien und Africa, mitbesondererRücksicht auf die naturwissenschaftlichenVerhältnisse der betreffendenLänderunternommen in den Jahren 1835 bis 1841, etc. (, ed.): 990-1099.

Hamilton F 1822. An account of fishes found in the River Ganges and its branches. Edinburgh Hurst, Robinson & Co, London. 312- 389.

Hora SL 1942. Notes on fishes in the Indian Museum XLII. On the systematic position of the Indian species of *Scaphiodon*Heckel. Rec. Indian Mus., 44: 1-14.

Jana A, Sit G & Chanda A.2020. Taxonomic consideration and distributional range extension of *Osteochilichthysthomassi*up to Subarnarekha basin of West Bengal, India. Eco. Env. & Cons.26 (1): (177-179).

Jayaram K C. 1995. The Krishna River system: a bioresources study. Occasional paper no. 160. Rec. Zool. Surv. India, 167 pp.

Jayaram K C, J JDhas. 2000. Revision of the genus Labeo Cuvier from the Indian Region with a discussion on its phylogeny and zoogeography (Pisces: Cypriniformes, Cyprinidae, Cyprininae). Rec. Zool. Surv. India.

Jayaram K C. 2002. Fundamentals of fish taxonomy. Narendra publishing House, Delhi, p. 53-65.

Jerdon T C. 1849. On the freshwater fishes of southern India. Madras J. Lit & Sci. **15**(2), 302-346.

Karnasuta J. 1993. Systematic revision of southeastern Asiatic cyprinid fish genus *Osteochilus*with description of two new species and a new sub species.Fish. Res. Bull. Kasetsart Univ. No. 19, pp 105.

Kharat S, Dahanukar N, Raut R &Mahabaleshwarkar M. 2003. Long- term changes in freshwater composition in Northern Western Ghats, Pune district. Curr. Sci. 84 (6): 816-820.

M'Clelland J. 1839. Indian Cyprinidae. Asiatic Researchers, Culcutta, Bishop College, Press. 1839; 217- 268.

Menon AGK. 1999. Check list of fresh water fishes of India. Rec. Zool. Surv. India Occ. PaperNo. 175, 366.

Mukerji D D. l932. On a small collection of fish from the Bhavani River (S. India),J. Bombay Nat. Hist. Soc. 35 (1-2): 162-171.

Pethiyagoda R, M Kottelat. 1994. Three new species of fishes of the genera Osteochilichthys (Cyprinidae), Travancoria (Balitoridae), and Horabagrus (Bagridae) from the Chalakudyriver, Kerala, India. J. South Asian Nat. Hist, 1(1) : 97-116

Plamoottil M, K Vineeth. 2020. Rediscovery of *Gobioaugraoides*Jerdon firstly after its description in 1849. J. Exp. Zool. India. 23 (2): 1039-1042.

Rajan S. 1955. Notes on a collection of fish from the headwaters of the Bhavani River, south India. J. Bombay. nat. Hist. Soc. 53: 44-48

Rao M.B. 1977. A new cyprinid fish of the genus *Osteochilichthys*(Hora) from India. *Sci. Cult.,* 43: 491-493.

Shanawaz A, Venkateshwarlu M, Somashekar D S & Santosh K. 2010. Fish diversity with relation to water quality of Bhadra river of Western Ghats, India, Environ. Monit. Assess.161: 83-91.

Silas EG. 1951. Fishes from the high range of Travancore),J. Bombay Nat. Hist. Soc. 50 (2) : 323-330.

Talwar P K, A Jhingran. 1991. Inland fishes of India and adjacent countries.Oxford and IBH Publishing Co., New Delhi, 250- 286.

Thomas RK, George MJ & Biju C R. 2002. Fresh water fishes of Southern Kerala with notes on the distribution of endemic and endangered species),J. Bombay Nat. Hist. Soc. 99 (1): 47-53.

Tonapi GT & L Mulherkar. 1963. Notes on the freshwater fauna of Poona, Part-I, Fishes. Proc. Indian Acad. Sci..58: 187-197.

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