

***Puntius euspilurus*, a new fish species (cypriniformes: cyprinidae) from Kerala, India**

Mathews Plamoottil

HOD & Asst. Professor in Zoology, Govt. College, Chavara, Kollam, Kerala, India

Received Date: 8 July 2016

Accepted Date: 13 October 2016

Published Date: 26 November 2016

Abstract: *Puntius euspilurus*, a new fish species of the family cyprinidae, is described from Wayanad of Kerala, India. It is distinguished from its congeners by the following combination of characters: body elongated, rounded and slender, barbels feeble and never reach orbit or nostrils; last simple dorsal fin ray feebly osseous and flexible, 23- 24 lateral line scales, 2½ scales between lateral line and ventral fin and elongated pectoral fin which reaches to ventral fin.

Keywords: Western Ghats, Taxonomy, Mananthavady River, *Puntius nigronotus*

urn:lsid:zoobank.org:pub:9E351F1C-8A9B-492A-89C5-1B7DF40A62B6

urn:lsid:zoobank.org:act:97C53980-A10D-400F-96C8-312FDF182DD9

1. INTRODUCTION

Species of genus *Puntius* are beautifully colored, food and aquarium fishes widely distributed in freshwater bodies of South and Southeast Asia. They may be the most common cyprinid fishes of India. Species of this genus are generalized and exhibit great variations even within the individuals of the same species. This causes great difficulty in identifying these species with common taxonomic characters. Hamilton [1], who created the genus, placed some of its species under *Cyprinus* and some others under *Puntius*. Jerdon [2] placed many of its species under *Systemus*. Day [3, 4, 5] considered the genus as a large group comprising small to large scaled fishes with many different characters. Jayaram [6], in his revision, classified *Puntius* into 10 groups with 14 complexes. But he had considered present species of *Systemus*, *Hypselobarbus*, *Dawkinsia*, *Haludaria* and *Pethia* as members of *Puntius*. Pethiyagoda et al. [7] and Pethiyagoda [8] could trace out five lineages present within the genus *Puntius*.

Species of *Puntius* can be broadly classified into those with non osseous or feebly osseous, weak and flexible last simple dorsal fin ray and those with osseous, rigid and strong last undivided dorsal fin ray. Four specimens of *Puntius* species with feebly osseous last simple dorsal fin ray were obtained from Wayanad of Kerala, India. On careful analysis it was understood that it bears many differences from its congeners. So it is described here as a new species, *Puntius euspilurus*.

2. MATERIALS AND METHODS

Methods used are those of Jayaram [9]; 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); **Abbreviations used:** FBRC/ZSI- Freshwater Biology Regional Centre, Zoological Survey of India, Hyderabad, Andhra Pradesh; BDD- Body depth at dorsal fin; D- Dorsal fin rays; P- Pectoral fin rays; V- Ventral fin rays; A- Anal fin rays; C- Caudal fin rays; PDS- Pre dorsal scales; LLS- Lateral line scales; LL/D- Scales between lateral line and dorsal fin; LL/V- Scales between lateral line and ventral fin; LL/Tr- Transverse scales; LL/A- Scales between lateral line and anal fin; PPLS- Pre pelvic scales; PRAS- Pre anal scales; LP- Length of pectoral fin; PCMP- Personal collections of Mathews Plamoottil



Fig. 1. A fresh specimen of *Puntius euspilurus*, Holotype, FBRC/ZSI/F/2314



Fig. 2 A preserved specimen of *Puntius euspilurus*, Paratype, FBRC/ZSI/F/2315



Fig. 3 Some specimens of *P. euspilurus*



Fig. 4 Head region of *P. euspilurus*

3. RESULTS AND DISCUSSION

Puntius euspilurus sp. nov., (Figures 1- 4; Table 1)

urn:lsid:zoobank.org:act:97C53980-A10D-400F-96C8-312FDF182DD9

Holotype: FBRC/ZSI/F/2314, 65.0 mm SL, India: Kerala, Mananthavady River, Wayanad, coll. Mathews Plamoottil, 10 January 2013.

Paratypes: FBRC/ZSI/F/2315, 3 examples, 60.0- 66.0 mm SL, India: Kerala, Mananthavady River, Wayanad, coll. Mathews Plamoottil, 10 January 2013.

3.1. Diagnosis

Puntius euspilurus can be differentiated from all its congeners in having a slender body (BDD 23.8-26.3 % SL), last undivided dorsal fin ray feebly osseous and flexible, elongated pectoral fin which reaches to ventral fin, 23- 24 lateral line scales and 2½ scales between lateral line and ventral fin

Table1. Morphometric characters of *P. euspilurus*

Sl. No	Characters	Holotype	Range	Mean	SD
1	Total length (mm)	80.1	76.0- 83.7	79.9	3.8
2	Standard Length (mm)	65.0	60.0- 66.0	63.6	3.2
	% SL				
3	Head length	31.1	29.0- 31.1	30.1	1.0
4	Head depth	21.5	21.5- 22.5	21.9	0.5
5	Head width	17.0	15.8- 17.4	16.7	0.8
6	Body depth at dorsal fin	23.8	23.8- 26.3	25.2	1.3
7	Body depth at anal fin	18.5	18.5- 21.2	19.9	1.3
8	Body width at dorsal fin	16.1	16.1- 17.4	16.7	0.6
9	Body width at anal fin	12.3	11.7- 13.6	12.5	0.9
10	Pre occipital distance	21.5	21.2- 23.3	22	1.1
11	Distance from occiput to dorsal front	24.6	24.6- 28.3	26.7	1.9
12	Pre-dorsal length	47.3	47.3- 50.8	48.7	1.8
13	Post-dorsal length	49.2	49.2- 54.2	52.4	2.7
14	Pre-pectoral length	29.2	27.3- 30.0	28.8	1.3
15	Pre-pelvic length	52.3	48.5- 52.3	50.5	1.9
16	Pre-anal length	72.3	71.7- 72.7	72.2	0.5
17	Height of dorsal fin	24.6	24.2- 26.7	25.1	1.3
18	Length of pectoral fin	24.6	21.7- 24.6	23	1.4
19	Length of pelvic fin	18.5	18.0- 20.4	18.9	1.2
20	Length of anal fin	24.6	16.3- 24.6	20.6	4.1
21	Length of caudal fin	25.4	25.4- 26.8	26.3	0.7
22	Length of base of dorsal fin	16.1	16.1- 18.2	17	1.0
23	Length of base of anal fin	10.7	9.2- 10.7	9.9	0.7
26	Length of base of caudal fin	15.4	15.1- 15.8	15.4	0.3
27	Length of caudal peduncle	18.5	18.2- 20.0	18.9	0.9
28	Depth of caudal peduncle	14.6	13.0- 14.6	14	0.9
29	Width of caudal peduncle	7.7	6.7- 7.7	7.3	0.5
30	Distance from pectoral to pelvic fin	22.3	16.7- 22.3	19.0	2.8
31	Distance from pelvic to anal fin	21.5	19.7- 24.2	21.8	2.2
32	Distance from anal to caudal fin	27.7	27.7- 30.3	29.3	1.4
33	Distance from anal to vent	0	0	0	0
34	Distance from ventral to vent	25.0	21.7- 25.0	23.1	1.6
	% of HL				
35	Head depth	69.3	69.3- 77.6	72.9	4.2
36	Head width	54.4	54.4- 57.5	55.5	1.7
37	Eye diameter	29.7	27.5- 31.6	29.6	2.0
38	Inter orbital width	34.6	31.6- 34.6	33.0	1.5
39	Inter narial width	29.7	25.0- 29.7	27.4	2.3
40	Snout length	32.2	32.2- 39.1	35.4	3.4
41	Width of gape of mouth	25.7	25.7- 27.5	26.6	1.2
42	Length of maxillary barbels	9.9	9.9- 11.5	10.8	0.8

3.2. Description

General body shape and appearance is shown in Figures 1- 4. Meristic counts are as follows: D- iii, 8; P- i, 14; V- i, 8; A- iii, 5; C- 19; PDS- 7-8; LLS- 23- 24; LL/D- 4½; LL/V- 2½; LL/Tr- 4½/3½; LL/A- 3½; PPLS- 5; PRAS- 12. Morphometric data as in Table 1. Body laterally compressed; dorsal profile ascending gradually from snout tip to dorsal front and descending gradually from the latter to caudal base; ventral profile from tip of snout to anal fin front nearly straight; then becomes abruptly concave and goes straight to caudal base. Eyes situated considerably behind and above the angle of jaws, distinctly visible from dorsal side, slightly seen from below ventral side; its lower border never reach below to angle of jaws. Inter orbital region slightly convex; nostrils situated nearer to eyes than to snout tip; jaws equal; barbels one pair maxillaries only, shorter than orbit, feeble and never reach orbit or nostrils; mouth terminal, straight and protruding; width of gape of mouth shorter than inter narial distance. Dorsal fin originates a little in front of pectoral tip and ventral origin and slightly nearer to snout tip than caudal fin base; its upper margin fairly concave; first dorsal ray short and

hard; second ray smooth, weak, flexible and feebly ossified; last branched ray divided to root; pectoral tip fairly reaches to ventral fin origin; ventral fin originates just behind dorsal fin origin; its tip never reach anal origin and vent; one auxiliary scale present on either side of base of ventral, it is of half the length of ventral fin. outer margin of anal fin fairly concave, its tip never reach caudal base; no distance between anal fin origin and vent; no prominent ridge on the base of anal fin and dorsal fin; caudal lobes equal. Scales thin and soft; lateral line passes through lower half of body. 23- 24 lateral line scales; 1 scale on caudal base.

3.3. Color

Dorsal side greenish; ventral and lateral sides silvery; pectoral, ventral and anal fins hyaline; dorsal fin pale red; caudal fin greenish; a deep black blotch present on caudal base.

3.4. Distribution

Currently known to occur only at its type locality in Kerala, India.

3.5. Etymology

The specific epithet '*euspilurus*' is a Greek word, (*eu-* well; *spilos-* blot; *urus-* tail), referring to distinct black basal spot on caudal fin.

4. DISCUSSION

Puntius euspilurus can be distinguished from other species of the genus in having a slender body, feebly osseous, weak, flexible and smooth last simple dorsal fin ray and body without any spot except at caudal fin base. *Puntius mahecola* (formerly *Leuciscus mahecola*) (Valenciennes) (Fig. 5) had long been placed in the synonymy of *Dawkinsia filamentosa* (formerly *Leuciscus filamentosus*) (Valenciennes). Pethiyagoda & Kottelat [10] resurrected *P. mahecola* from the synonymy of *D. filamentosa*. *Puntius mahecola* is the close congener of *P. euspilurus*. In both, last undivided dorsal fin ray is feebly ossified and weak; 2 ½ scales present in between lateral line and ventral fin. The new species can be distinguished from *P. mahecola* in having a slender body (BDD 23.8- 26.3 % SL vs. 27.0 – 33.0), longer head (HL 29.0- 31.1 % SL vs. 24.8 – 29.2), more lateral line scales (23- 24 vs. 22) and in having an elongated pectoral fin (LP 21.7- 24.6 % SL 17.7- 18.6) which reaches (vs. never reach) to pelvic fin base. Moreover, caudal spot of *P. mahecola* is more elongated horizontally than that of the new species. As *Barbus melanostigma* Day is a subjective synonym of *Puntius mahecola*, no comparison with the new species is done.



Fig. 5 *Puntius mahecola* PCMP 40



Fig. 6 *Puntius amphibius* collected from Thiruvalla



Fig. 7 Mananthavady River, the type locality of *P. euspilurus*

Systomus hamiltonii was a name proposed by Jerdon [2] for the fishes he collected from Carnatic region of India. As he was not certain about the existence of this fish, he wrote it under the title *Puntius chola*. Day [3] enlisted it with a question mark, expressing his doubt of its existence. Later [4, 5] he avoided it from his list. Beaven [11] included this fish in appendix with a remark “slightly known or insufficiently described, that their position is doubtful...”. All later workers omitted it or considered it as a synonym [6, 12, 13 & 7]. *Systomus hamiltonii* may be a “*nomen oblitum*” as the name has not been used in primary zoological literature for over 150 years. *Systomus hamiltonii* is related to the new fish in possessing 24 lateral line scales. *Puntius euspilurus* can be distinguished from *Systomus hamiltonii* Jerdon in having shorter (LMB 1/3 in ED vs. 1/2) maxillary barbels, lesser (14 vs. 17) rays in pectoral fin, slender (BDD 3.5- 4.2 in SL and 4.8- 5.2 in TL vs. 2.5) body, hyaline (vs. yellowish) pectoral, ventral and anal fin, dorsal fin plain (vs. spotted) and in possessing a deep black (vs. diffused) spot on caudal peduncle. *Puntius euspilurus* can be distinguished from *Capoeta (Puntius) amphibia* Velanciennes [14] (Fig. 6) in having a deep black (vs. lacking) caudal spot and a slender body (BDD 23.8- 26.3 % SL vs. 30.1). *Puntius euspilurus* can be distinguished from all other *Puntius* species of south India in having a slender body, elongated pectoral fin which reaches to ventral fin, hyaline pectoral, pelvic and anal fin, feebly osseous last simple dorsal fin ray and in possessing 23- 24 lateral line scales.

5. MATERIALS EXAMINED

Puntius mahecola: PCMP 40, 4 ex, 63-74 mm SL, Thiruvalla, Coll. Mathews Plamoottil, 6. 3. 2011. *Systomus hamiltonii*: Account from Jerdon (1849) and Day (1865). *Puntius ampibius*: Description from Pethiyagod & Kottelat (2005).

6. CONCLUSION

Puntius euspilurus is an edible freshwater fish residing in the water bodies of Wayanad. It may be a unique fish showing similarity with *mahecola* barbs. Elongated body with feebly osseous last simple dorsal ray separates this fish from other fishes of the family. It prefers rapidly flowing shallow and clear waters. According to local fishermen it appears in great numbers in paddy fields during the onset of southwest monsoon. The new species is said to occur only in unpolluted areas. Protection of water bodies is inevitable for the survival of the new species.

ACKNOWLEDGMENTS

The author acknowledges Principal, Baby John Memorial Government College, Chavara, Kerala for providing the facilities. The author is greatly indebted to Dr. Richard Pyle, Assistant Zoologist in Ichthyology, Department of natural sciences, Bishop Museum, Hawaii. I am grateful to anonymous reviewers for comments that helped to improve the manuscript.

REFERENCES

- [1] Hamilton, F., 1822. An Account of Fishes found in the River Ganges and its branches. Edinburgh Hurst, Robinson & Co, London, 312-389.
- [2] Jerdon T.C., 1849. On the freshwater fishes of southern India. *Madras J. Literature Sci.*, 15 (2): 302- 346.
- [3] Day, F., 1865. The Fishes of Malabar. Bernard Quaritch, London, 208-211.
- [4] 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 Dawson & Sons, London, 556-574.
- [5] Day, F., 1889. Fauna of British India including Ceylon and Burma. Fishes. I, Taylor and Francis, London, 209-334
- [6] Jayaram, K.C., 1991. Revision of the genus *Puntius* Hamilton from Indian region. *Rec. Zool. Sur. India* . Occasional Paper No. 135: 178.
- [7] Pethiyagoda, R., Meegaskumbura, M. and Maduwage, K., 2012. A synopsis of the South Asian fishes referred to *Puntius* (Pisces: Cyprinidae). *Ichthyol. Explor. Freshwat.*, 23 (1): 69-95
- [8] Pethiyagoda, R., 2013. *Haludaria*, a replacement generic name for *Dravidia* (Teleostei: Cyprinidae). *Zootaxa*, 3646(2): 199.
- [9] Jayaram K.C., 2002. Fundamentals of Fish Taxonomy. Narendra Publishing House, Delhi, 53-65.

- [10] Pethiyagoda, R. & Kottela, M. 2005. The identity of the south Indian barb *Puntius mahecola* (Teleostei: Cyprinidae). *Zootaxa*, 12: 145- 152
- [11] Beavan, R. 1877. Hand book of the fresh water fishes of India, London. 147p.
- [12] Jayaram KC. Fresh water fishes of the Indian region. Narendra Publishing House, Delhi, 2010. 118 - 134.
- [13] Talwar PK. & Jhingran A. *Inland fishes of India and adjacent countries*. Oxford and IBH publishing Co. Pvt. Ltd, 1991, 250-286.
- [14] Valenciennes MA. *Histoire naturelle Poissons*, Paris, 1842, 17: xxiii+497 pp.