NOTES ON FISHES IN THE INDIAN MUSEUM.

XLI. New Records of Freshwater Fish from Travancore.

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In their recent account of ' The Freshwater Fish of Travancore ', Hora and Law[1] gave a list of 76 species so far recorded from Travancore and discussed their geographical distribution. It was surmised that further research will bring to light the presence of more species of fresh water fishes from this very interesting zoogeographical area, which forms the extreme south of Peninsular India. More recently, Sundara Raj[2] has described a species of *Barbus*, *B.* (*Puntius*) *ophicephalus*, and a subspecies of the South Indian *Barbus* (*Puntius*) *micropogon* (subsp. *periyarensis* Raj) from the Kallar, a tributary of the Pambiyar River, and the Periyar Lake respectively. Mr. S. Jones, made a small collection of fish from the Kallar stream, 30 miles northeast of Trivandrum, on the 8th June 1941 and obtained specimens of the following species :—

1. *Barilius gatensis* Cuvier and Valenciennes .. 2 specimens.
2. *Danio aequipinnatus* (McClelland) .. .. 3 specimens.
3. *Barbus* (*Puntius*) *filamentosus* (Cuvier and Valenciennes) 2 specimens.
4. *Barbus* (*Tor*) *malabaricus* Jerdon .. .. .. 3 specimens.
5. *Garra, jerdoni* (Day) .. .. 2 specimens.
6. *Garra mullya* (Sykes) .. .. 2 specimens.
7. *Sicyopterus griseus* (Day) .. .. 5 specimens.

The last species is recorded here from Travancore for the first time ; it was described by Day[3] in 1878 from South Canara where he " had procured two examples in fresh water, the largest being 3 inches" One of Day's specimens is probably in the s'Rijks Museum van Natuurlijke Historie, Leiden, for Koumans[4] mentions to have examined an example from Canara. The whereabouts of the second specimen are not known. *Sicyopterus griseus* marks the western limits of the genus. We avail ourselves of this opportunity to redescribe this rare species from fresh material.

Mr. K. Bhaskaran Nair sent 5 specimens of a small freshwater Globefish, which he had collected in April from the Pamba River in Central Travancore. He noted that " It is called ' Attunta ' (ball of the river) in Malayalam and children play with it by blowing into its mouth and inflating it. The general yellow colour of the body has faded now, but when fresh it gives the fish a beautiful appearance."

These specimens belong to the monotypic subgenus *Monotretus* Bibron[5] ; the only other species included in it being *Tetraodon*

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[1] Hora, S. L. and Law, N. C., *Rec. Ind. Mus.* XLIII, pp. 233-256 (1941).
[2] Raj, B. Sundara, *Rec. Ind. Mus.* XLIII, pp. 375-386 (1941).
[3] Day, F., *Journ. Linn. Soc. London* (Zoology) XIII, p. 140 (1878).
[4] Koumans, F. P., *Mem. Ind. Mus.* XIII, p. 296 (1941).
[5] Jordan, in his *Genera of Fishes* (pp. 198, 263, 1919) notes that *Monotretus* Bibron (*Rev. Mag. Zool. Paris* VII, p. 281, 1855) is a synonym of *Leiodon* Swainson (*Nat. Hist. Classification Fish*, etc. II, p. 194, 1839). A reference to Swainson's work shows that *Leiodon* is insufficiently characterized. We have, therefore, retained the name *Monotretus* for this group of ' Puffers'.

(*Monotretus*) *cutcutia* (Hamilton), which, according to Day,[1] is known from " Fresh waters of Orissa, Bengal and Assam"; it is also common in Burma[2]. This new species is also described below. The discontinuous distribution of *Monotretus* is of zoogeographical significance.

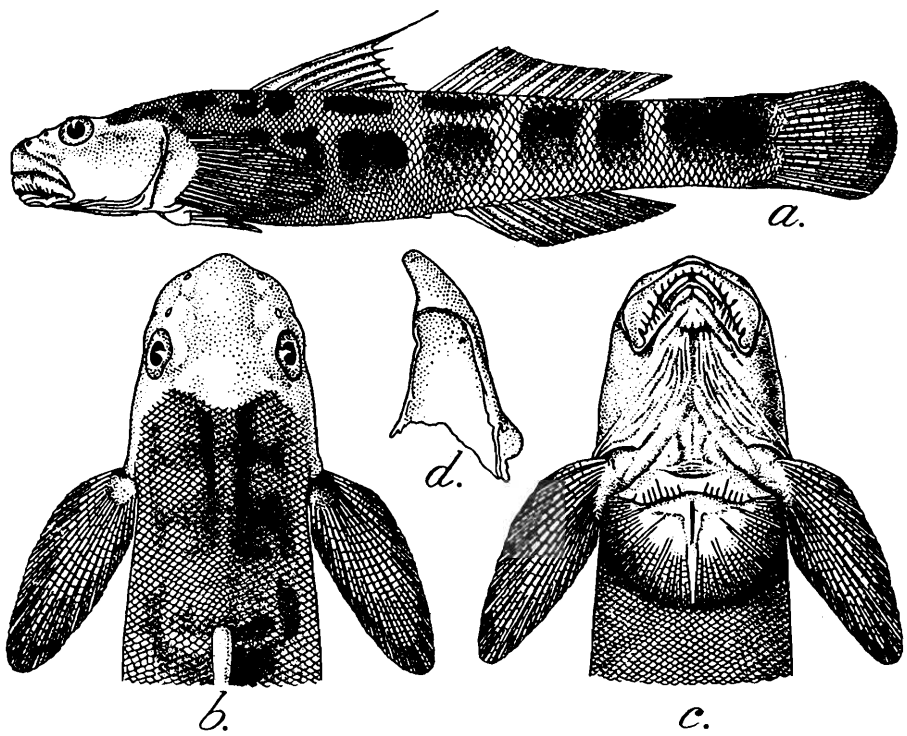
It is worthy of remark that with the exception of *Sicyopterus griseus*, which is known from South Canara and Travancore, the other three species or subspecies are endemic in the State.

Sicyopterus griseus (Day).

1878. *Sicydium griseum*, Day, *Journ. Linn. Soc. London* (Zool.) XIII, p. 140.
1878. *Sicydium griseum*, Day, *Fish. India* (Addenda and Corrigenda), p. 747.
1889. *Sicydium griseum*, Day, *Faun. Brit. Ind.* Fish. II, p. 273.
1941. *Sicyopterus griseus*, Koumans, *Mem. Ind. Mus.* XIII, p. 296.

D. 6|1/9-10; A. 1/9-10; P. 16-17; V 6; C. 13+; L. l. 76-82; L. tr. 25-27.

Sicyopterus griseus is a stoutly built species in which the head and the anterior part of the body are slightly depressed or subcylindrical while the tail portion is compressed. The height of the body is contained from 4·82 to 5·48 times in the standard length and from 5·68 to 6·60 times in the length with the caudal fin. The head is depressed and



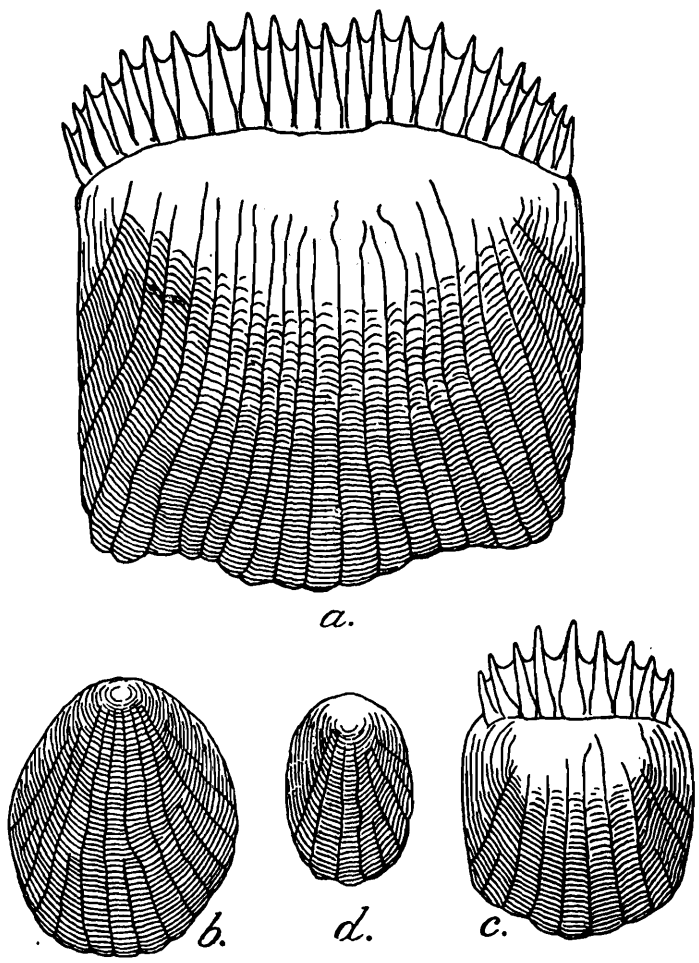
TEXT-FIG. 1.—*Sicyopterus griseus* (Day).

a. Lateral view: ×1⅐; *b*. Dorsal surface of head and anterior part of body: ×1⅝; *c*. Ventral surface of head and anterior part of body: ×1⅝; *d*. A median tooth from the upper jaw: ×25.

flattened both above and below; its width is greater than its height. The length of the head is contained from 4·18 to 4·83 times in the standard length and from 5·04 to 5·78 times in the total length. The width of the head is contained from 1·08 to 1·32 times and its height from 1·49 to 1·69 times in its length. The eyes are situated dorso-laterally almost

[1] Day, F., *Fish. India*, p. 703 (1878).
[2] Prashad, B. and Mukerji, D. D., *Rec. Ind. Mus.* XXXI, p. 223 (1929).

in the anterior half of the head ; the superior border of the orbit projects beyond the dorsal profile. The diameter of the eye is contained from 5·06 to 5·40 times in the length of the head and from 2·10 to 2·39 times in the interorbital width. The interorbital space is broad and slightly concave. The snout is obtuse and overhangs the mouth. The mouth is small, inferior, crescentic and horizontal ; it is bordered by thick lips which are continuous at the angles of the mouth but the labial groove is widely interrupted. The anterior lip is covered by the rostral fold which is broadly fimbriated. The jaws are subequal and the maxillary extends to below the anterior border of the eye. The teeth in the lower jaw are sharp, arranged in a series, and recurved ; a short space in the middle between the two canines is toothless while behind the canines the teeth are of irregular sizes, the larger ones being either near the canines or the posterior ends of the jaw. In the upper jaw there is a single moveable row of fine, hooked teeth which are embedded in the gum. The gill-openings are vertical and almost co-extensive with the bases of the pectoral fins.



Text-fig. 2.—Scales of *Sicyopterus griseus* (Day) : ×36.

a. A scale from the middle of the body behind the dorsal and anal fins ; *b*. A scale from in front of the first dorsal fin ; *c*. A scale from the middle of the body below the first dorsal fin ; *d*. A scale from the ventral surface behind the pelvic fins.

The spines of the first dorsal are filiform and project beyond the membrane ; the first and the second spines are considerably elongated and extend beyond the commencement of the second dorsal. The pectoral fin is pointed while the caudal fin is rounded. The second dorsal and the anal fins are similar, being low and of moderate length. The

pelvic fins form a strong muscular sucker. Mr. S. Jones noticed that the fish can adhere very firmly by means of these fins. The caudal fin is shorter than the head and is contained from 5·7 to 6·7 times in the total length. The caudal peduncle is contained from 1·32 to 1·77 times in its length.

The scales are small and somewhat irregularly arranged, those in the tail region are considerably larger and more strongly ctenoid. The scales on the ventral surface and on the dorsal surface in front of the dorsal fin are greatly reduced and are more or less cycloid ; they extend on the head almost as far as the eyes but are absent on the cheeks. The number of predorsal scales varies from 30 to 31.

According to Day, the colour is " Brownish, with eight or nine rings of a darker tint encircling the body, and wider than the ground colour. *Fins*—dark, most deeply so at their edges " Day seems to have overlooked the fact that in the case of the pectoral, anal and caudal fins the dark band near the edges of the fins is followed by a white fringe, which in the case of anal is not easily distinguishable when the fin is depressed. The dorsal and lateral surfaces as well as the dorsals, middle parts of the pectoral and caudal fins are grayish, while the ventral surface and the pelvic and anal fins along with the edges of the pectoral and caudal fins are much lighter. The body is usually encircled by a number of broad, darker bands which become indistinct when the specimens are taken out of spirit.

Distribution.—South Canara and Travancore.

General Observations.—*Sicyopterus griseus* inhabits torrential streams, and its general body form and structure of the lips, rostral fold and pelvic fins are well adapted for combating strong currents. Mr. S. Jones observed that in nature the fish sticks very fast to rocks and stones, and can even adhere to the vertical sides of an aquarium above the water level like fishes of the genera *Periophthalmus* and *Periophthalmodon.*

S. griseus is distinguished from the other Indian species of the genus by its smaller scales, entire upper lip and fringed rostral fold.

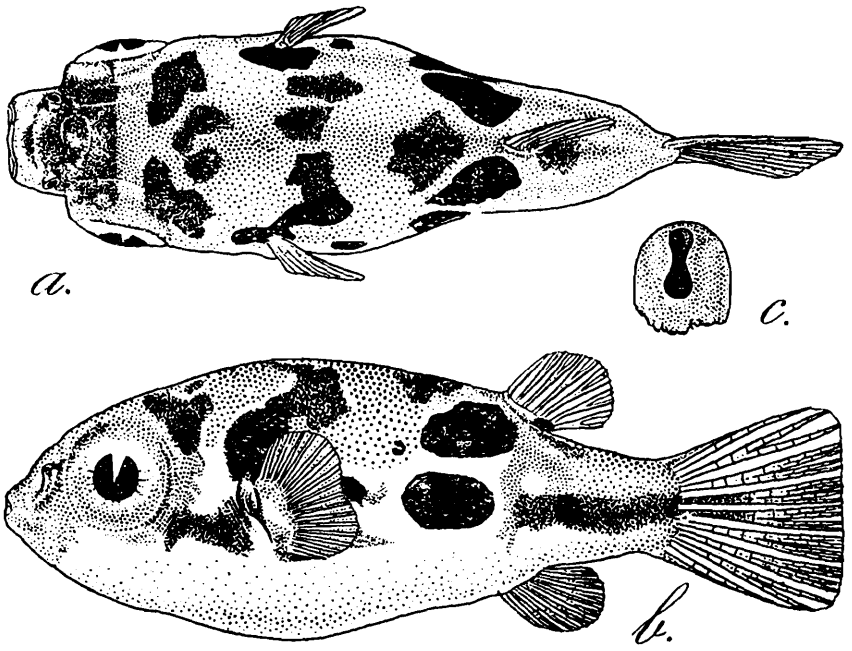
Measurements in millimetres, scale counts and number of fin rays.

Total length	84·0	86·4	87·8	88·0	97·8
Length of caudal	12·6	14·6	15·4	14·5	15·3
Depth of body	14·8	13·5	15·0	13·4	15·2
Length of head	16·7	16·2	17·3	15·2	17·2
Width of head	13·9	12·3	14·0	13·0	15·9
Height of head	11·2	10·9	10·9	10·2	10·2
Diameter of eye	3·2	3·0	3·3	3·0	3·3
Interorbital distance	7·2	6·3	7·0	6·8	7·9
Length of caudal peduncle	12·0	12·4	12·9	13·2	15·9
Least height of caudal peduncle	8·0	8·2	9·8	8·2	9·0
Longest ray of first dorsal	21·0	19·4	24·0	21·4	26·2
Length of pectoral	14·4	13·8	16·3	15·0	15·6
Length of ventral	9·2	10·0	10·6	10·5	10·1
Length of anal	8·0	7·8	10·2	9·8	9·6
Number of rays in dorsals	6|1/10	6|1/10	6|1/9	6|1/10	6|1/10
Number of rays in pectoral	17	17	17	16	17
Number of rays in ventral	6	6	6	6	6
Number of rays in anal	1/10	1/10	1/9	1/9	1/10
Number of rays in caudal	13	13	13	13	13
Number of scales along lateral line	78	81	82	76	78
Number of scales in a transverse series	27	25	25	26	25
Number of predorsal scales	31	30	30	30	30

Tetraodon (Monotretus) travancoricus, sp. nov.

D. 7-8 ; A. 8 ; P. 16-17 ; V 0.; C. 9.

Monotretus travancoricus is a small species less than an inch in total length. When inflated, it is about one-third as high as long and its width is considerably less than its height. Both the dorsal and the ventral profiles are greatly arched, but the dorsal is more so with the result that the mouth is situated in the lower half of the fish and not in the centre. The length of the head is more or less equal to the depth



Text-fig. 3.—*Tetraodon* (*Monotretus*) *travancoricus*, sp. nov.

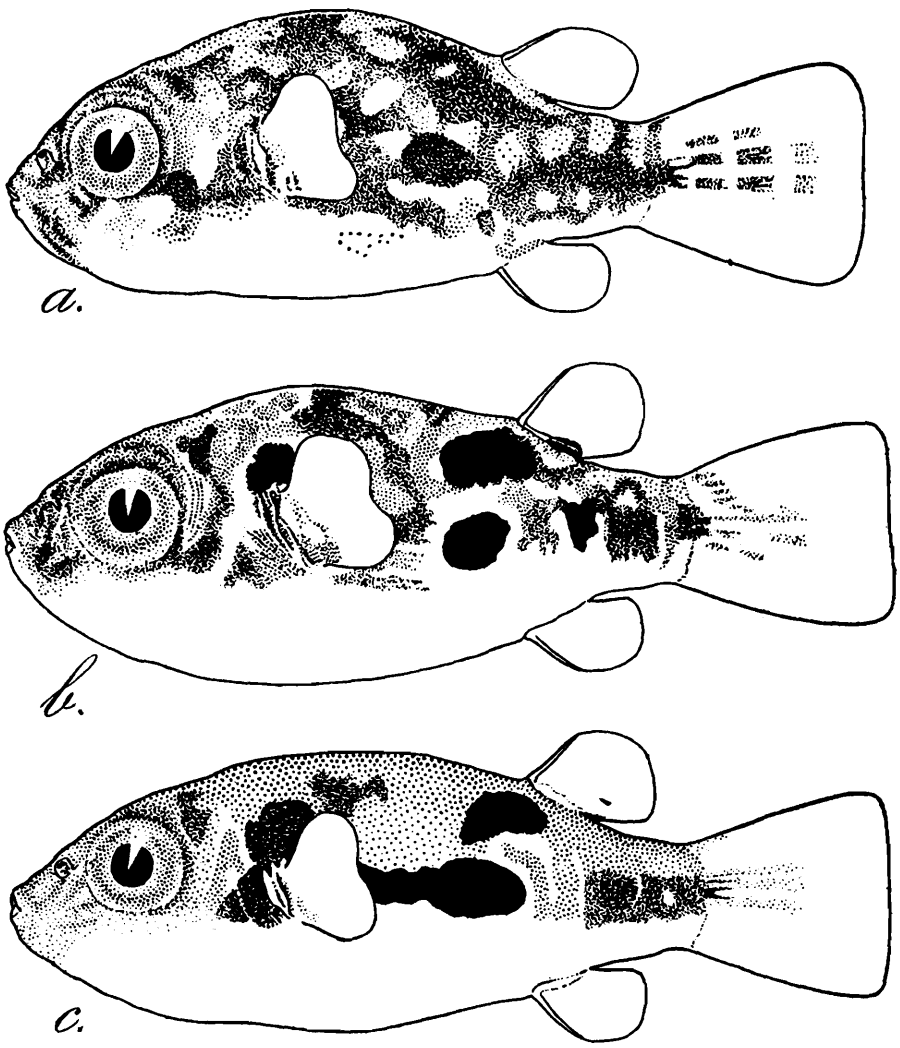
a. Lateral view of type-specimen : ×5 ; *b*. Dorsal view of same. ×5 ; *c*. Form of nasal opening of same : ×16.

of the body and is contained from 3·06 to 3·26 times in the total length and from 2·39 to 2·50 times in the standard length. The height of the head is somewhat greater than its width and is contained from 1·08 to 1·17 times in its length ; the width of the head is contained from 1·25 to 1·33 times in the length of the head. The eyes are large and lateral in position, and are situated almost in the middle of the head ; they are covered by adipose eyelids ; the diameter of the eye is contained from 2·36 to 2·69 times in the length of the head and from 0·93 to 1·04 times in the interorbital width. The interorbital space is flattened. The nostrils are represented by simple, solitary tubes, one on each side close to the anterior border of the eye. The lips of the tube are slightly curved inwards in the middle as short flaps. The mouth is small and surrounded by fleshy lips which form a tubular orifice ; the jaws are provided with median sutures. The gill-openings are small and restricted opposite to the bases of the pectoral fins.

The body is devoid of spinous outgrowths but there is a fine reticulation all over the surface. The depth of the body is contained from 2·93 to 3·33 times in the total length and from 2·21 to 2·58 times in the standard length. The caudal peduncle is well formed ; its least height is contained from 1·12 to 1·35 times in its length.

The dorsal and the anal fins are similar and situated opposite to each other in the posterior third of the body length. The distance between the gill-opening and the commencement of the dorsal fin is almost equal to the length of the head. The pectoral fin is short, slightly emarginate and fan-shaped. The caudal fin is well-formed and truncate ; its length is contained from 4·08 to 4·59 times in the total length.

The colour in spirit is grayish on the dorsal surface and sides and much lighter on the ventral surface. There are usually two black,



TEXT-FIG. 4.—Lateral views of the three paratypes of *Tetraodon* (*Monotretus*) *travancoricus*, sp. nov., showing variations in colour pattern : ×5.

oval patches on the upper lateral surface of the body in front of the dorsal fin ; these are situated in an area of much lighter colour. Behind this light area, there is a dark, broad band running to the caudal fin and continued for some distance on its central rays. There is usually a dark spot in the middle of its course and another at the base of the caudal fin. There is also a dark spot at the base of the last two dorsal rays. A prominent dark patch above the pectoral fin and a spot behind it are also characteristic features of the species. Along the dorsal surface, there is a narrow, light band between the eyes, two irregular patches behind the eyes which do not meet in the middle line and followed posteriorly by a V-shaped marking. Between the V-shaped marking and the dorsal fin there is another irregular band across the dorsal surface and

triangular patches in front of and behind the dorsal fin. The fins are without any markings.

From the specimens examined it seems that the colouration varies considerably and no two specimens are alike in this respect. In order to give an idea of the variation in colouration the lateral views of three other specimens are given (text-fig. 4).

Locality.—Pamba River, Central Travancore.

On an enquiry regarding the maximum size of the fish, Mr. K. Bhaskaran Nair wrote as follows :

" As regards the maximum size of the fish, I do not think that it grows any bigger than the specimens I have sent you. I have on innumerable occasions seen the catches of fishermen in the locality and have never come across bigger ones. Neither has anyone else there. As the fish is very well known to them because it is such a favourite of children, I am sure bigger specimens, if there were any, would not have been overlooked."

Type-specimen.—F. 13601/1, Zoological Survey of India (*Ind. Mus.*), Calcutta.

Relationships.—In the following table we give a list of points in which the new species differs from *M. cutcutia* (Hamilton).

	Monotretus cutcutia (Hamilton).	*Monotretus travancoricus*, sp. nov.
1.	D. 10-11 ; P. 21 ; A. 10 ; C. 7.	D. 7-8 ; P. 16-17 ; A. 8 ; C. 9.
2.	Caudal fin is contained 6 times in total length.	Caudal fin is contained 4 to 4·5 times in total length.
3.	Eyes slightly behind the middle of the length of the head.	Eyes in the middle of the length of the head.
4.	Interorbital space flat and broad.	Interorbital space flat but not very broad.
5.	All the fins are rounded.	The pectorals are slightly emarginate and the caudal is almost truncate.
6.	Greenish yellow above, becoming white on the abdomen. A light band passes from eye to eye. A large black ocellus, surrounded by a light edge, on the side anterior to the origin of the dorsal and anal fins. The whole of the back marked with dark greenish reticulations enclosing lighter spaces ; fins grayish : caudal tipped with carmine : a red spot on the throat.	Dark greenish yellow above and yellowish below. A light band between the eyes. There are varying numbers of dark patches surrounded by lighter areas on the dorsal and lateral sides and there are no reticulations. Fins without markings, except the middle rays of the caudal fin.
7.	Maximum size about 3½ inches.	Maximum size about an inch.

Measurements in millimetres and number of fin rays.

Total length ..	20·8	21·1	21·5	21·8	22·0
Caudal length	5·1	4·6	5·0	5·1	5·0
Depth of body	7·1	6·7	7·1	6·7	6·6
Length of head	6·7	6·9	6 6	6·8	7·0
Width of head	5·3	5·2	5·3	5·3	5·4
Height of head	5·9	6·0	6·1	5·8	6·0
Diameter of eye	2·6	2·6	2·8	2·6	2·6
Interorbital distance	2·5	2·4	2·8	2·7	2·2
Length of caudal peduncle	3·1	2·9	3·4	3·1	2·9
Least height of caudal peduncle	2·3	2·2	2·7	2·6	2·6
Distance between gill opening and commencement of dorsal fin.	6·8	6·6	6·7	6·8	7·1
Longest ray of dorsal fin	2·4	2·2	2·2	2·1	2·5
Length of pectoral fin	2·2	2·1	2·1	2·0	2·8
Length of anal fin	2·3	2·2	2·2	2·2	2·2
Number of rays in dorsal fin	8	8	7	8	8
Number of rays in pectoral fin	17	17	17	17	16
Number of rays in anal fin	8	8	8	8	8
Number of rays in caudal fin	9	9	9	9	9

MGIPC—M—III-8-3—22-9-41—370.