



Descriptors of a new morphotype of One Stripe Spiny Eel, *Macrogathus aral* (Bloch & Schneider, 1801), Family: Mastacembelidae

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ABSTRACT

The new ocelli variant of *Macrogathus aral* (Bloch & Schneider, 1801) under Mastacembelidae family was recorded from Gangetic Wetlands of North 24 Parganas, West Bengal, India. The new variant can be considered as a potential ornamental fish apart from high valued food fish, due its more number of ocelli in both dorsal and anal fin base of the body surface, which is comparable to other commercially important *M. aral*.

Keywords: Gangetic wetlands, Mastacembelidae, Ocelli variant, Ornamental fish

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General description

1. Scientific name of the finfish species *Macrogathus aral* (Bloch & Schneider, 1801)
2. Name of the variant Ocelli variant of *Macrogathus aral*
3. Local name Pankal in West Bengal
4. Background of the local name Due to the species preference to stay at the depth of bottom mud, so all species available under the Genus *Macrogathus* are commonly known as Pankal.
5. Closely related common species/variant *Macrogathus aral* (One stripe spiny eel)
6. Max. size reported 14.2 cm TL/ 12.5 g WT
7. Common habitat Rivers, freshwater ponds, freshwater wetlands, ditches, submerged rice-fields
8. Native distribution So far only described from Natidanga wetland, Bongaon, North 24 Parganas, West Bengal, India and Khalsi wetland, Nadia, West Bengal, India
9. River basin/ Major river Natidanga wetland connected with Ichhamati river is a trans-boundary river, which flows through India and Bangladesh and also forms the boundary between the two countries. The river flows through the Indian state of West Bengal and is one of the major rivers of the North 24 Parganas district. It is about 40.5 km in Indian stretch.

10. Reservoir/ Any other water body
11. Local region of high abundance (if any)

Khalsi wetland is a seasonally open wetland and provides livelihood to several fishers through culture based fisheries.

Yet to be explored

Natidanga wetland is a perennial freshwater wetland at Bongaon, North 24 Parganas district, West Bengal, India. The wetland is connected with Ichhamati River but only in rainy season, water can enter into the wetland and rest of the year bandh interrupts the water exchange.

Khalsi wetland is also a perennial wetland at Nadia district, West Bengal, India. It is a seasonally open wetland.

Both the wetlands have clay bottom having submerged and floating aquatic vegetation. Wetlands are surrounded with hamlets and vegetation like, mango, coconut, betel nut and other grassy vegetation.

The water depth of Natidanga wetland at the time of fish collection (May 2019) was about 2 m.

The water depth of Khalsi wetland at the time of fish collection (February 2020, November 2021) was about 2.3 m and 2.5 m respectively.

Parameter	Natidanga	Khalsi
Water temperature	31°C	26°C
pH	6.8	7.48
Alkalinity (ppm)	136	185
Dissolved oxygen (ppm)	5.9	7.0

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12. Collection site (Name/ Lat. - Long./ Altitude) Natidanga wetland, Gopalnagar, North 24 Parganas. 23.0817° N, 88.7659° E; Khalsi wetland, Nadia (22.9984° N, 88.6410° E)
13. Nearest railway station Natidanga wetland: Bongaon railway station
Khalsi wetland: Simurali railway station
14. Specific gear used Local bamboo traps like Ghunni, Bitti, Dori, etc. and cast net. Sometimes fishes are also collected by dewatering of shallow water pockets.



Fig. 1. Different gear and crafts such as: (a) cast net, (b) push net and (c) traps.

15. Known economic importance
- The new variant of *M. aral* is considered as a potential ornamental fish due its more number of ocelli in both exterior part of the body surface, which is comparable to other commercially important *M. aral*.
 - The species is also considered as a potential food fish by the village community nearby wetland and quite popular in urban community due to its medium texture, bonless flesh.
 - The species was successfully bred under captivity with hormone injection.
16. Local importance
- The fish has considerable food as well as ornamental value. The domestic market value of the fish varies from ₹ 25-35/ Pc. The export value of the fish varies between 2-3 \$/pair. As food fish, the species price varies from ₹ 450-600/kg.
17. Any specific use such as medicinal/ local dish and recipe/ special occasions/ tribal
- The fish showed best dietary potential for calcium and iron.
 - The pickled pankal fish (Pankal Machher Tok) are very delicious and relishable dish for Bengali and Assamese cuisine.
18. Traditional knowledge (Give details): Ref. In Local/ Community/ Tribal mythology
- Due to the presence of more number of ocelli, the morphotype have the potential to fetch more market value as an ornamental fish.

19. Restrictions/ protection/ conservation/ under any local regional/ community/ religious sentiments
- Yet to be explored

DIAGNOSTIC TAXONOMIC CHARACTER (DESCRIPTION)

Source/Reference: The new variant of *M. aral* was reported during the wild brooders collection of *M. aral* under the All India Network Project on Ornamental Fish Breeding and Culture by ICAR-Central Inland Fisheries Research Institute, Barrackpore, India. The variant was kept in ICAR-CIFRI, Barrackpore Biodiversity Laboratory (OFBC/CIFRI/2021/01).

Morphological characteristics

Parameter	Reported <i>M. aral</i>	New variant of <i>M. aral</i>
	Mean±SD	Mean±SD
Total length (TL) in mm	151.74±15.61	133.07±4.82
Standard length (SL) in mm	141.54±14.56	128.69±4.45
Head length (HL) in mm	30.72±2.93	28.88±1.12
% SL		
Head length	21.73±0.87	22.44±0.24
Body depth	10.53±0.56	10.12±0.50
Body width	7.77±0.36	7.60±0.46
Dorsal fin height	4.34±0.35	4.04±0.25
Anal fin height	3.95±0.33	3.78±0.47
Caudal fin length	6.93±0.62	6.53±0.52
Pre-Dorsal length	69.04±1.26	68.43±0.53
Pre-Anal length	65.21±2.38	66.02±2.21
Head depth	8.26±0.51	8.18±0.56
Head width	5.73±0.34	5.53±0.09
Pectoral fin length	27.64±1.21	26.52±0.69
% HL		
Snout length	48.77±3.45	48.14±0.88
Inter-orbital distance	8.39±1.21	7.48±0.80
Eye diameter	6.75±0.58	7.11±0.25



Ocelli view at different positions at base of caudal fin dorsal fin and anal fin.



Different numbers of ocelli on both side of dorsal fin.



Lateral view of *M. aral* showing ocelli on both sides.

Fig. 2. Different ocelli variant of *Macrognathus aral*.

Morphomeristic characteristics

Character	Reported <i>M. aral</i>	New variant of <i>M. aral</i>
Dorsal fin spine	17-21	16-20
Dorsal fin soft rays	45-53	45-52
Anal fin spine	3	3
Anal fin soft rays	42-53	44-50
Caudal fin rays	12-15	14-15
Pectoral fin spine	1	1
Pectoral fin rays	15-20	17-22
Rostral teeth	16-23	16-23
Number of ocelli	3-7	3-7 (Including both side ocelli)

Collected by:

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Colouration: Live specimen consist same olive green to bluish colour like all other *M. aral* specimens. But the fish possess ocelli in both the dorsal and anal fish base. Sometimes it is also observed that both side of the fish possess different number of ocelli. Ocelli at the base of caudal fish were also recorded. Deformed and discontinuous ocelli were also observed.

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