Chromis viridis (Cuvier, 1830)

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IDENTIFICATION

Order	:	**Perciformes**
Family	:	**Pomacentridae**
Common/FAO Name (English)	:	**Blue green damselfish**

Local names: Not available

MORPHOLOGICAL DESCRIPTION

Body is small, ovate and laterally compressed. Base of the body is greenish, with green to blue iridescence, fading to whitish or silvery below. Caudal fin deeply forked and tips may extend into short filaments. Dorsal and anal fins may also extend into short filaments. Scales are relatively large and easily dislodged. Dorsal fin with 12 spines and 9-10 rays. Anal fin with 2 spines and 10-11 rays. Pectoral rays 17-18. Body depth 2.0-2.1 in standard length. Suborbital bones scaled, with lower margins smooth. Preopercular margin smooth. A faint dusky spot at upper base of pectoral fin. A blue line from front of snout to eyes.

Source of image : RC of CMFRI, Mandapam Camp

PROFILE

GEOGRAPHICAL DISTRIBUTION

The species is distributed in Indo-Pacific region from east coast of Africa to the Line Islands and Tuamotu Archipelago; north to Ryukyu Islands, south to the Great Barrier Reef and New Caledonia. It has also been reported from Indian waters.

HABITAT AND BIOLOGY

The species is marine, reef-associated and non-migratory and common in shallow lagoon reefs at depths of 1.5-12 m. Adults are found in large aggregations above thickets of branching *Acropora* corals in sheltered areas such as subtidal reef flats and lagoons, whereas juveniles are closely tied to individual coral heads. It exhibits dioecism. Males and females are of the same colour and size, yet differences are seen when the males change to a more yellow colour during spawning. Breeding happens on sand and rubble. The nests for laying eggs are prepared by males and each nest may be used by more than one female. Eggs are demersal and adhere to the substrate. It shows external fertilization. Males guard the nest and ventilate the fertilized eggs with their caudal fins. Eggs hatch out in 2 to 3 days. Males also feed on eggs which do not hatch.

BREEDING IN CAPTIVE CONDITIONS

Broodstock development, breeding and seed production was achieved by researchers of Mandapam R. C. of CMFRI. The broodstock development was carried out in 2 t FRP tanks fitted with biological filter. The fishes matured at 8-9 cm. During broodstock development the fish were fed boiled and finely chopped clam meat, squid meat, earth worm and adult *Artemia*. The excess feed and faecal matter was removed and about 25 % water was exchanged daily.

During experiments at CMFRI, Kochi the average frequency of spawning was 5 times per month. This species is a community egg layer where one male can mate with several females. The male drives each female to the suitable substrate to lay eggs and then the male fertilize it. This is done multiple times with each female till all eggs are spawned. The eggs were oval shaped and average length was 502 µm. Total number of eggs per spawning ranged from 1,300-1,500. The eggs are adhesive and in an aquarium, glass is generally the most suitable substrate. Once spawning is over the male guards the eggs against predators till the eggs hatch out in 3-4 days time.

LARVAL REARING

Larvae were altricial type with no mouth opening at the time of hatching. The average length of newly hatched larvae was 2.25 mm. The larvae were transferred to 5 t capacity round FRP tanks in which cultures of calanoid copepod, *Pseudodiaptomus serricaudatus* and the harpacticoid copepod, *Euterpina acutifrons* were maintained in green water produced by adding *Nannochloropsis* sp. culture. Mouth opening formed on the second day of hatching and the gape measured around 190 µm. Larvae started feeding on copepod nauplii from the third day of hatching. From the 32nd day of larval rearing, freshly hatched *Artemia* nauplii were supplemented. Metamorphosis started from 30th day and was completed by 49th day. The average survival rate was about 5 %.

FOOD AND FEEDING HABITS

It feeds on phytoplankton in the wild, but accepts all foods in captivity. It eats most meaty foods of suitable size as well as flakes or pelleted feeds. There are reports of it feeding on red algae. In captivity, broodstock were fed with boiled and finely chopped clam meat, squid meat, earth worm and adult *Artemia*.

GROWTH RATE

It is a relatively fast growing fish, attaining its maximum size of 10 cm within approximately 12-18 months.

DISEASES AND CONTROL MEASURES

The disease affecting *Chromis viridis* and their control measures are given below.

Disease/causative agent	Control measures
Bacterial diseases	
Fish tuberculosis	Kanamycin or Streptomycin (2 g/100 l for several days) followed by 25-40 % water change; Isoniazid or Rifampin (0.25-0.5 g/100 g food for 14 days)
Fin rot	Phenoxethol, Acriflavine, Tetracycline (3-4 g/100 l for 2-3 days) followed by water change
Pop-eye disease	Tetracycline

PRODUCTION, MARKET AND TRADE

PRODUCTION

Information not available

MARKET AND TRADE

Chromis viridis is an excellent marine aquarium fish and is in good demand in the international market. It is the highest imported fish in India from the Philippines, in terms of volume, with around 5,50,000 fish annually.

CHALLENGES TO MARICULTURE

Although spawning and hatching have been achieved in captivity, the major obstacle to successful mariculture of the species is poor survival of the larval stages. This is mainly due to small mouth gape of the first feeding larvae. Thus the effort has to be initiated to search a suitable feed and develop the technology for their production.

FUTURE PROSPECTS

The techniques for broodstock development, breeding and seed production is developed, which can be scaled up for commercial level production. Mass scale hatchery production can pave way for a sustainable marine ornamental fish trade in the near future, which will help in enhancing the economic status of the farmer as well as aquaculture production of the species.

SUGGESTED READING

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