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MORPHOLOGICAL STUDY OF *POECILIA RETICULATA* (PETERS, 1860)

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The present study aimed at to notice the morphology of *Poecilia reticulata* (Peters, 1860). Body size, colouration, presence of gonopodium in male and gravid spot in female fish were some of the morphological features studied during the investigation. These were promiscuous dimorphic features, thereby, facilitating their recognition and distinction for mating.

Poecilia reticulata (Peters, 1860) belonging to the family Poeciliidae is the most popular exotic fish and plays an important role in the development alongwith the spread of the aquarium. It has been established among the top ten popular aquarium fishes. They are perhaps the favourites of all aquarium fishes and are also valued for mosquito control.

A set of 30 healthy adult male and female *P. reticulata* individuals of the same age group in the ratio 2 : 1 respectively were put in a glass aquarium of 24 x 12 x 12 inches filled with potable water. The aquarium used was equipped with adequate illumination, meeting the requirement of plants, filter, a thermostat, an aerator pump and the accessories. Aquarium water was changed at regular intervals. A ready made Hitachi food alongwith some live food was given to them. Yellow and medicines were also added at some regular interval to control the bacterial and fungal growth in the aquarium water. Morphometrical observations on the experimental fish were made with the help of Vernier calipers. The observations on the morphological features of male and female *P. reticulata* revealed the following results :

Body form, shape and size : Body short, cylindrical, compressed. Head and body with scales, lateral line is complete, mouth slightly dorsal to anterior end of head. The males were noted normal, while the females were noted much more pot-bellied, with round and tight stomach, which in late pregnancy become cuboidal. Males were 3 cm (1.2 inches), while females 5-6 cm (2-2.4 inches). It acts as one of the important secondary sex-determining characteristic, which had always played a key role in facilitating mutual distinction and recognition.

Colouration : It serves as a mark of sexual distinction and recognition. This phenomenon is termed as dichromatism. Males were noted brighter and brilliantly coloured, while the females were noted drab coloured. This fish is also known as the *rainbow fish* or *peacock fish* because of numerous colour patterns on their body. Females do not share the male's rainbow colours. Depending upon the particular strain of *P. reticulata*, it may be red, blue, greeen, black or any combination of these and any other colours too. The bright colour of males may be used for advertising his health, virility and presence to females, while the drabness of the females observed might possibily offer them a considerable degree of protection and acts as an important factor for camouflage, especially when they are pregnant. They are supposed to be one of the most beautifully coloured of the live-bearing toothed carps. Its infinite variety of brilliant colour patterns probably accounts for its permanent popularity. *P. reticulata* were selected as an example of diversity of form in live-bearers.

Gonopodium : In order to fertilize the female, the anal fin of male *P. reticulata* developed into a functional structure to insert the packets of sperms into the female fish. This structure is known as *gonopodium*. It acts as the most significant external discriminatory feature between male and

female, separating live-bearers from all other types of fish. The female anal fin was noted girthy, large and normal shaped. Gonopodium is supported internally by bony structures and can be moved backward, forward and side-ways. The male of *P. reticulata* have a distinct fleshy *palp* around the tip of gonopodium facilitating it in its work and differentiating it among the species of the genus. In males, the length of anal fin rays is more or less equal to length of gonopodium. Anterior margin of anal fin is anterior to anterior margin of dorsal fin.

Dorsal fin, caudal fin and pelvic fin : Dorsal fins of males were noted vastly extended and more colourful than females. Spines in dorsal fins are lacking in both male and female fish. Caudal fin of males exhibits gross variations. It is elongated, brightly coloured and of several shapes. The caudal fin of female fish is short, fan-shaped and not so much coloured. The variation in shapes and colours of caudal fin are supposed to catch the attention of females towards the males for mating. Pelvic fin of male fish is noticed that it is designed in such a way that they aid in stabilizing and directing the swing of the gonopodium, while that of a female fish is normal.

Gravid spot : It acts as a valuable index in discriminating males and females of *P. reticulata.* In the pregnant males, at the posterior end of the gut near to the urinogenital vent, there appears a characteristic *black spot* or *gravid spot.* It may be considered equivalent to womb, but unlike mammals, the eggs contain an embryo well furnished with nutritive elements on which it feeds during development. The eyes of the developing fry were visible through the thin walls of the gravid spot. It was quite fascinating to watch the developing babies through this gravid spot, as it is an area where her scales are transparent.

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