PART – II

Prisrolepsis marginata
Jerdon 1849
CHAPTER 1

INTRODUCTION TO PRISTOLEPIS MARGINATA JERDON, 1849

Pristolepis marginata Jerdon, 1849 is a freshwater teleost belonging to the family Nandidae which comprises a group of freshwater fishes commonly called ‘mud perches’. The species under this family enjoy a worldwide discontinuous distribution in South America, West Africa and Southern part of Asia.

Family Characters

The members of this family are relatively small and robust in appearance. Body is more or less oblong and compressed. Head is large, mouth is terminal and often deeply clefted. It has a single dorsal fin, whose spinous part is much longer than the soft portion which carries 12 to 17 strong spines. The anal fin also possesses 2 to 3 spines. The pectorals are rounded and the ventrals are placed below them which have got a
strong spine. Caudal fin is rounded and is made of 12 to 14 soft branched rays. Head and body are covered by ctenoid scales. Lateral line is interrupted. There are six branchiostegals and there is no pseudobranchia. The opercle has one or two spines. Teeth are present on jaws and paletines in villiform bands. On vomer and parasphenoid the teeth are villiform or conical or obtusely rounded as also on mesopterygoid (Sherly, 1993). No sexual dimorphism, distinguishable only by the onset of breeding season.

The family possesses 7 genera namely,

1. *Afronandus*

2. *Badis*

3. *Monocirrhus*

4. *Nandus*

5. *Polycentrus*

6. *Polycentropsis*

7. *Pristolepis*

**Distribution of species**

The genus *Afronandus* has been reported from Ivory Coast, *Badis* from Indian sub-continent and *Monocirrhus* and *Polycentrus* are reported from South America. Of the seven genera only three viz., *Badis, Nandus* and *Pristolepis* are reported from India. Members of the genus *Pristolepis* are reported from India, Burma, Thailand, Indo-China and Sidney Islands of the Malay Archipelago (Sherly, 1993).
The genus *Badis* is represented by *Badis badis* (Hamilton) and *B. dario* (Hamilton), the gnus *Nandus* by *Nandus nandus* and *N. nebulose* and the genus *Pristolepis* by *Pristolepis marginata* (Jerdon), *P. malabaricus* (Gunther) and *P. fasciata* (Bleeker).

**Genus Pristolepis**

**Important Characters**

Branchiostegals are six in number. Pseudobranchia is absent. Eyes are laterally placed. Mouth is moderately protrusible. Opercle with two flat (generally bifid) spines. Preopercle and preorbitals are mostly serrated. Teeth are villiform on the jaws and palate, villiform or globular on vomer, and obstusely globular on the base of the tongue, on the roof of the buccal cavity (presphenoid) and sometimes on the vomer. Anal fin with 3 or 4 spines. Scales are ctenoid, large and extended on to the interbranchial membrane. Lateral line is interrupted. Pyloric appendages are two in number (Talwar and Jhingran, 1991).
**Pristolepis marginata** (Jerdon, 1849)

**Systematic position:**

The latest systematic position of *P. marginata* Jerdon based on Talwar and Jhingran (1991) following the classification of Nelson (1994) is as follows.

- **Super Order**: Acanthopterygii
- **Order**: Perciformes
- **Sub - Order**: Percoidei
- **Family**: Nandidae
- **Sub family**: Nandinae
- **Genus**: *Pristolepis*
- **Species**: *Pristolepis marginata*

Description of the species as per Talwar and Jhingran (1991)
Common names

Malabar Catopra : English
Chutichi : Malayalam

Distinguishing Characters

D XIV – XVI II- 14; A III (rarely IV) 8; P 14 – 15 V 15

Body oblong and compressed. Mouth moderate; teeth villiform on jaws, outer row of teeth somewhat enlarged and in some specimens only, two or four enlarged in lower jaw; teeth villiform on vomer. Dorsal spines rather stout; second anal spines strongest but as long as third spine. Lateral line interrupted (divided) opposite fourth dorsal fin ray on 21st scale, with 25 to 27 scales.

Colour

In life, brownish – green with purplish reflections; often vertically banded. Fins with lighter edges; caudal fin with whitish outer edge.

Natural Habitat

Pristolepis marginata, prefers different types of pool habitats in rivers with very low velocity of water flow. Pools typically occur in lower gradient sections of rivers, especially in the Westrn Ghats region and it may be deep or shallow. Another important criteria preferred by P. marginata is the presence of pebbly or sandy bottom without mud. It likes moderate tropical temperature conditions. It also preferred a crystal clear water column with neutral pH. Plate 1.1 Fig. 1 & 2, denotes the surface view of model habitats of P. marginata.
Geographical Distribution

India: Western Ghats of Kerala. Inhabits clear and pool habitats.

*P. marginata* is found to be a species at high risk as it enjoyed an extremely limited distribution in its natural habitats, especially because of the illegal fishing methods and habitat loss. Minckley and Deacon (1991) reported that one of the proven techniques of saving endangered species from extinction is to increase population size with the help of sound breeding techniques under controlled conditions. Even though, well established techniques are available for captive production of food fishes of big sized and high fecund fishes, no information was available on reproductive biology and captive production of *P. marginata*. Many species of this kind were highly reluctant to be mature and reproduce in captive conditions. It is often difficult to simulate in captivity, the environmental conditions, cues and triggers that are necessary for successful reproduction. Successful development of a captive breeding technique requires a sound understanding of general biology and reproductive characteristics of the species. Secondly, small size of the fish species and low fecundity of some of species render development of artificial breeding techniques difficult (Poncin and Philippart, 2002). In high fecund species where large number of eggs are produced by the spawning female, high mortality of early life history stages such as the fertilized eggs, larvae, post larvae, fry and fingerlings in captivity is another problem. Thirdly, the high cost of keeping aquatic organisms in hatchery systems might encourage the use of small broodstock populations and this might lead to inbreeding related problems and negative consequences in the released stocks.
Reintroduction of captive bred seeds back to natural waters is found to be one of the techniques in reinstating the collapsed populations. But in situations where natural reproduction is inadequate, artificial stocking might become superfluous as observed in the case of *Tilapia* in Cuban reservoirs (Fonticiella *et al.*, 1995). Similar effects has also been observed in stocking of hatchery reared seeds along with naturally bred stocks in Salmon fisheries in North America and Europe (Campton, 1995). Despite several limitations, captive breeding of aquatic organisms and ranching of the seeds back to its natural habitats is considered as the most useful tool in conservation management programmes. Captive studies have shown that *P. marginta* can be considered as an ideal ornamental fish, hence it is essential to breed it under captivity for the sustainability of the trade (Mercy *et al* 2010).
Plate 1.1 Natural habitat of *Pristolepis marginata*

Fig. 1