

M.S.89. GOPAL PRASAD MAHOBIA—Studies on Indian cichlids—1988—Dr. K.C. George

The endemic Indian cichlids are represented by two species *Etiloplus suratensis* (the pearl spot or grey chromide) and *Etiloplus maculatus* (the orange chromide). They occur along the coastal tracts of peninsular India and some of the land locked fresh water lakes of the country. *Etiloplus suratensis*, the larger of the two is a delicious table fish and an important species for culture in brackish and fresh waters. Considerable attention has been given in recent years to research and development programmes relating to the culture of this fish. *Etiloplus maculatus* due to its smaller size is of lesser economic importance as a cultivable fish. It is however caught in the wild and also reared as an aquarium fish.

In view of wide spread degradation of natural aquatic environments, often with decline or extinction of fish stocks, it has become important to evaluate the genetic diversity of fish resources. During the last decade considerable progress has been made towards understanding the genetic make-up variability of the wild as well as farmed fish stocks for the management and improvement of their genetic resources. However, our knowledge of these aspects in the Indian cichlids is scarce.

The study aims to clarify the taxonomical status of the species through study of morphometric and meristic variations and protein patterns variation of fishes from different geographical areas of peninsular India.

Attempts have also been made to understand the genetic make-up of populations of both species in Cochin back-waters through isoenzyme study and to see the variability in bio-chemical constituents of fish tissues during the life cycle.

Studies on chromosomes and induced breeding have also been made.

The material for study was collected from Cochin backwaters, estuarine areas of Mangalore, Karwar, Goa, Pondicherry, Muthukadu, Pulikat lake and fresh water lake of Hyderabad, during December 1981 to December 1985.

A review of the literature on bionomics, life history, the present state of fishery and the status of taxonomy of Indian cichlids have been presented.

Variations in morphometric and meristic characters of populations of different localities have been described. Morphometric study revealed that the populations of *Etiloplus suratensis* in Cochin & Hyderabad and Kavar & Pondicherry are homogenous, since they showed no significant variation in respect of morphometric and meristic characters considered among them. Populations of Mangalore & Muthukadu, Mangalore & Pulikat lake, Muthukadu & Pulikat lake and Karwar & Goa showed homogeneity in respect of only morphometric character; whereas populations of Muthukadu & Hyderabad showed homogeneity in respect of meristic characters only.

Populations of *Etiloplus maculatus* showed homogeneity in respect of the morphometric characters considered in Cochin, Muthukadu, Pulikat lake and Hyderabad, whereas in respect of meristic characters the populations were observed to be heterogenous.

The bio-chemical parameters such as moisture, protein, carbohydrate, lipid and ash were estimated in the blood, muscle, liver and gonad at each maturity stage. A close relationship was observed between the fluctuations in bio-chemical composition of these tissues with the stage of maturation of gonads. As the maturation of the gonads advanced there was a distinct drain of the body resources to the gonads.

Proteins and isoenzymes were studied electrophoretically in both species. Protein pattern showed variation among tissues, between sexes, maturity stages and in different size groups. Muscle protein patterns varied in different localities also. Expression of isoenzymes lactate dehydrogenase & esterase in *Etroplus suratensis* and for esterase & acid phosphatase in *Etroplus maculatus*.

Various dosages of hormones and steroids were tried to induce spawning in *Etroplus suratensis* in the laboratory conditions.

The present studies carried out on the morphological bio-chemical and chemotaxonomical aspects on the two species of Indian cichlids *Etroplus suratensis* & *Etolus maculatus* form original contributions and considerably add to the present knowledge on cichlids. The results of this investigation it is hoped would help in the management and improvement of the aquaculture schemes of Indian cichlids and related species.