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RESEARCH ARTICLE

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A trial study on on hormone induced spawning and biochemical changes in *Etroplus suratensis*

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ABSTRACT

A study on induced spawning was carried out by using synthetic hormones such as ovaprim, HCG+LHRH in the fish *Etroplus suratensis* grown in aquarium tanks of 5 tons capacity. Biochemical parameters such as triglyceride, total protein and cholesterol level in the blood, liver and gonads were estimated in hormone treatment and it was compared with the control. The length and width of the egg development stages such as oocyte, pre-vitellogenic and matured eggs were also analyzed in different hormone treatments and were compared with the control. The percentage of eggs in the ovary of control and hormonated ovary were also compared. In all these studied parameters, the combined hormone HCG+LHRH administered experimental fishes showed the highest increased level was recorded in the present study. It was suggested that the administration of the synthetic hormone HCG+LHRH to get success on induced spawning in *E. suratensis*.

Key words : Hormones, *E. suratensis*, Ovaprim, HCG+LHRH, spawning

INTRODUCTION

Etroplus suratensis belonging to the family chichilidae commonly found in the estuaries and inland waters of India and Srilanka (Talwar and Jingran, 1992; Rao, 1995; Blaber, 1997). It occurs in brackish as well as fresh water and has been observed to breed in these habitats (Rishi and Singh, 1982). It involves in commercial fisheries (Gopakumar, 1997), yet this fish is preferred as candidate species for aquarium. It breeds freely both in freshwater and brackish water environment and exhibits parental care, in which both male and female participate. Mode of reproduction is dioceses (Pethiyagoda, 1991; Arkipehuk, 1999). Among the fish species, it has low fecundity rate with about 500 eggs laid in single spawning (Jayaprakas *et al.*, 1990). The eggs are attached to submerged logs, rocks or sometimes roots and weeds. These guardian parents take care the eggs until hatching and within four days, the eggs will be hatched out. The fry shoal around their parents during the first weeks of growth in natural condition.

Almost all the fish species are spawned in the natural environment; only limited species are successfully spawned through induced breeding in laboratory condition. The success of induced spawning depends upon several factors, which was not clearly understood in most of the fishes (Stuart *et al.*, 1988). During the past three to four decades, induced breeding technique has been attempted in many of the fresh water and marine fishes. For this technique, many of the alternative hormones such as human chronic Gonadotropin (HCG) (Adebayo and Fagbenro, 2004); Inyang and Hettiarachchi, 1994), luteinizing hormone – releasing hormonoeo (De Leeuw *et al.*, 1985; Fermin, 1992) and ovaprim (Alok *et al.*, 1993; Haniffa *et al.*, 1996) were used. Treatments using the above hormones are effective in many of the fish species. But so far attempt in induced breeding of *E. suratensis* is scanty. Only very few works were carried out in the direction of larval propagation in *E. suratensis* (Eschmeyer, 1990). Few works were focused on the induced breeding by applying hormones since the attempts were not encouraging (Karnfield, 1984). The present study is an attempt to induce breeding in *E. suratensis* using synthetic hormonoes like HGG and LHRH and to document the earlier larval stages of the same species.

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