

An Economically Viable Approach for Induced Breeding of *Macrones Cavasius* by Ovatide and Ovaprim

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Abstract:

Macrones cavasius was induced breeding in Chinese carp hatchery with two different inducing agents viz. ovatide and ovaprim. Total ten trail doses of ovatide and ovaprim used for induced breeding in *Macrones cavasius*. The fertilization was found better rate by using ovaprim as compared to ovatide. A comparison was carried out for fecundity, fertilization and hatching rate during the induced spawning of *Macrones cavasius* administered single dose of ovatide and ovaprim to female brooder. Ovaprim performed much better than ovatide.

Key Words: Induced Breeding, Ovatide, Ovaprim, *Macrones cavasius*.

Introduction:

Aquaculture in the state of Punjab is a fast developing income generating activity providing a quality and low cost protein diet to the people (Agrawal, 1999). At present, nearly 9890 ha is under fish farming as compared to 343 ha in 1980-81 and fish production increased in sub sequent years from 2800 to 86000 tones, including both capture fisheries and aquaculture. For the last ten years aquaculture production has contributed an annual average growth of 6000 tones for annum. The carp culture improves the socio – economic status of fish farmers by adopting new scientific technology for breeding (Nandeasha and Rao 1989).

The technique of induced breeding was first evolved in Argentina after producing pituitary extract by Houssay 1930. In the year of 1934 Brazilians were succeeded in induced breeding by pituitary extract. This technique was also followed in America (Merlin & Hubs) and Russia (Gerebilisky). In India first attempt if induced breeding was made by Khan in 1937 on *Cirrhinus mrigala*. Later in 1955 Dr. Hiralal Choudhri applied this technique in major carps. Rama swamy and Sundaraj first induced to breed *Clarius batrachus*. The first successful induced breeding on major carps was done by Dr.Hiralal Choudhri in 1957 on *Cirrhina-mrigala*, *Cirrhina-reba* and *Labeo rohita*.

Many cultural form fishes like Indian major carps do not breed in captivity the reason may be environmental and consequently hormonal. Certain environmental parameters like photoperiods rain, temperature, current of water, influence the hormonal activity from pituitary and gonads. Disturbances arise in environment may cause the insufficient release of hormones in captive conditions and thus, the fish does not breed in captivity. Ovaprim is introduced in the market as a substitute for pituitary gland. It is synthetic manufactured by syndel laboratories Canada. All the fish breeders readily

showed acceptance for this drug (Nandesha et al.,1990). Ovaprim contains analogue of salmon GnRH, and dopamine inhibitor required for culturable species. Ovatide is a synthetic compound launched by Hemmopharma, Bombay. It is also combination of GnRH analogue with dopamine antagonist pimozide.

Materials and Methods:

The experiment was conducted on mature females and males brooders in carp fish hatchery and selected on the basis of their external secondary sexual characters (Jhingran and pullin, 1985).

The injection is given intramuscularly near the tail of the body avoiding the lateral line and below to the dorsal fin, the injection is given intraperitoneal (in the body cavity) at the base of pectoral fin and pelvic fin.

Dose of ovaprim is given to 10 females i.e. 0.4 ml/kg of body weight and 0.2 ml/kg of body weight dose to 5 males. Dose of ovatide 0.3 ml/kg of body weight was given to 10 females and 0.2 ml/kg of body weight dose to 5 males. Only signal dose of ovaprim and ovatide was given to both the sexes.

Table No.1 Dose of ovaprim for experimental fish

Sr. No.	Experimental fish	Female (ml/kg body weight)	Male (ml/kg body weight)
1	<i>Macrones cavasius</i>	0.3	0.2

Table No.2 Dose of ovatide for experimental fish

Sr. No.	Experimental fish	Female (ml/kg body weight)	Male (ml/kg body weight)
1	<i>Macrones cavasius</i>	0.4	0.2

Result & Discussion :

Result of the trails are summarized as fecundity, fertilization and hatching rates.

Table No.3 Comparison of ovaprim, ovatide for different parameters in female *Macrones cavasius*

Parameter	Ovaprim	Ovatide
No. of female treated	10	10
Total weight of female	4.5 kg	4.4 kg
Total No. of eggs	3,58,620	3,25,260
Total No. of fertilized eggs	2,36,400	2,21,960
Hatching rate	1,70,600	1,47,300

Fecundity:

During the experiment it was observed that fecundity (egg production) rate was better under the ovaprim treatment as compared to the ovatide. Ovaprim performs 358620 eggs (0.35 lakh eggs /kg) while ovatide as 325260 egg (0.32 lakh eggs /kg) on average basis. Fecundity remains high for ovaprim treated fish as compared to ovatide.

Fertilization rate:

In the present study fertilization rate of ovaprim and ovatide is calculated so ovaprim has better results over ovatide for fertilization rate of eggs.

Hatching rate:

In the present study the ovaprim is remains better performance over ovatide for hatching rate. In this study a single dose of ovaprim and ovatide induced spawning within 9 Hrs the fertility by ovatide was found less than those of the ovaprim injected peter (1986) has described as self potentiating action of the releasing hormone to some drugs given in two doses. Ovaprim is effective in induced spawning because it contains salmon GnRH; native peptide found in most teleosts also contains a dopamine inhibitor (brain Neurotransmitter). Our result indicates that ovaprim might be considered best substitute over ovatide during induced breeding.

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