

Original Research Article

DOI: 10.26479/2018.0404.59

SPAWNING RESPONSE OF CHOSEN ORNAMENTAL LIVEBEARER FISHES FOR HOMEOPATHY PREPARATION, NATRUM MURIATICUM

SudhaVeeragoudhaman, Varatharajan Gokula

PG and Research Department of Zoology,
National College, Tiruchirappalli, Tamilnadu, India.

ABSTRACT: Experiments were conducted on females of ornamental livebearer fishes like *Poecilia reticulata* (guppy) and *Poecilia sphenops* (white molly) by using homeopathy preparation of natrum muriaticum of 30 centesimal potency to observe the efficacy of natrum muriaticum during induced spawning. The results were satisfactory and enhancing as natrum muriaticum induced spawning in viviparous and the spawning took place within 19.5 ± 3 hours in white molly with 39 ± 5 young ones, while the control animal lay 17 ± 2 young ones in 72 ± 6 hours and 36 ± 9 hours in guppy with 15 ± 2 young ones in treated animal while the control animal lay 8 ± 1 young ones in 79 ± 9 hrs. The present study suggests that natrum muriaticum might be considered as best natural product for induced breeding of ornamental viviparous fishes viz white molly and guppy.

KEYWORDS: *Poecilia reticulata*, *Poecilia sphenops*, Natrum muriaticum, Induced spawning, Fecundity.

Corresponding Author: SudhaVeeragoudhaman*.

PG and Research Department of Zoology,

National College, Tiruchirappalli, Tamilnadu, India. Email Address: sudhagoutham@gmail.com

1. INTRODUCTION

Reproduction is an essential component of life and there are a diverse number of reproductive strategies in fishes throughout the world [5]. Reproductive development and spawning in fishes were controlled by various environmental factors such as temperature, nutrition, water quality etc. [16]. In aquaculture, embracing fancy fish culture, many species are grown which are far from their original agro-climatic condition. During recent years, intensive aquaculture practices have been emerged, due to this farmer's requirement for fish seed is increasing every year. Inadequacy of quality fish seed supply has been a major constraint in the development and progress of aquaculture.

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Peer review under responsibility of Life Science Informatics Publications

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Market demand for fancy fishes usually not synchronized with its breeding season [17]. All these necessities the development of newer technology to breed them by induction employing different means to obtain the desired population at desired time. So far in the regulation of reproduction and induced breeding many products are utilized [3]. Presently three types of hormones are used for induced breeding purpose, Fish pituitary gonadotropins, HCG (Human Chorionic Gonadotropin and GnRha (Gonadotropin releasing hormone analogue) with or without a dopamine antagonist [14]. Ovaprim is drug used as a substitute for pituitary extract in induced breeding. It is made up of two components, namely synthetic gonadotropin-releasing hormone and a drug called domperidone [7]. It becomes the favorite among fish breeders around the world. Similarly two types of hormones namely ovatide and ovapel are now in testing condition. But all these hormones are synthetic and highly priced one. The preparation technologies of these hormones are also very hard [9]. Ovaprim gained popularity among the fish farmers who involved in fish seed trade. Single injection was reported to be sufficient to induce ovulation in majority of fish species. Trials with ovaprim on Indian major carps administered with single dose on either sex showed excellent results i.e. induced complete spawning [18]. Ovatide is a newly launched ovulating agent (Hemma Pharma, Mumbai). It is a synthetic preparation containing salmon GnRH analogue and dopamine antagonist. It has been successfully tested in *Catla catla*, *Cyprinus carpio*, *Ompok pabo*, and in *Channa striatus* [13]. The present study examines the ability of homeopathic preparation natrummuriaticum 30 c potency as the experimental solution for induced breeding purpose.

2. MATERIALS AND METHODS

Livebearers are fish that retain the eggs inside the body and give birth to live, free swimming young ones. Live bearers will commonly produce only 20-40 young although a few may drop as many as 150. The most common live bearing species are the guppy, molly, platy and sword tail. Mollies are livebearers, producing between 10-140 live young per spawning [25]. Guppies (lebistes), which bear their young alive, the usual brood number is less than two dozen. Gravid spot, a dark area near the anus will appear during gestation period of females. Just before birth, eyes of fry may be seen through the translucent skin in this area [23]. Natrummuriaticum is commonly known as table salt or sodium chloride. Salt is the second most common substance in nature. It is an important component in regulating the balance of body fluids and tissues. It will increase the production of red blood cells and albumin, a protein [19]. Induced breeding studies were done by using natrum muriaticum 1000 centesimal potency in blackmolly and goldfish [24]. Sexually mature healthy female guppy (*Poecilia reticulata*) and white molly (*Poecilia sphenops*) were procured from Golden Aqua pet shop in the polythene bags and transferred to big plastic tubs. They were acclimated to the laboratory condition for 10 days. During the period of acclimation, fishes were fed with Day Today's complete nutritional food. The water was changed daily. The uneaten feed and faecal pellet was removed daily. Uniform sized fishes with identical maturity condition were chosen for the

experiments. Totally 24 fishes were taken. Among this twelve were used as experimental, twelve fishes as control. Experimental fishes were introduced into the medium. Spawning was observed in the form of number of young ones in livebearers. The homeopathic preparation, Natrum muriaticum of 30c potency was brought from a local homeopathy medial shop. It is kept in a normal room temperature and light. The preparation was diluted by 0.1ml in 400ml of ground water. The medium was prepared in plastic troughs of 2 litre capacity. The homeopathic preparation medium was prepared in twelve plastic troughs considered as experimental ones and twelve troughs containing only ground water as control. The fishes were introduced into medium one in each. The experiment was carried out for three days i.e., the medium was changed morning at 8 am and evening at 4 pm. Evening only ground water was used. At the same time feeding was done.

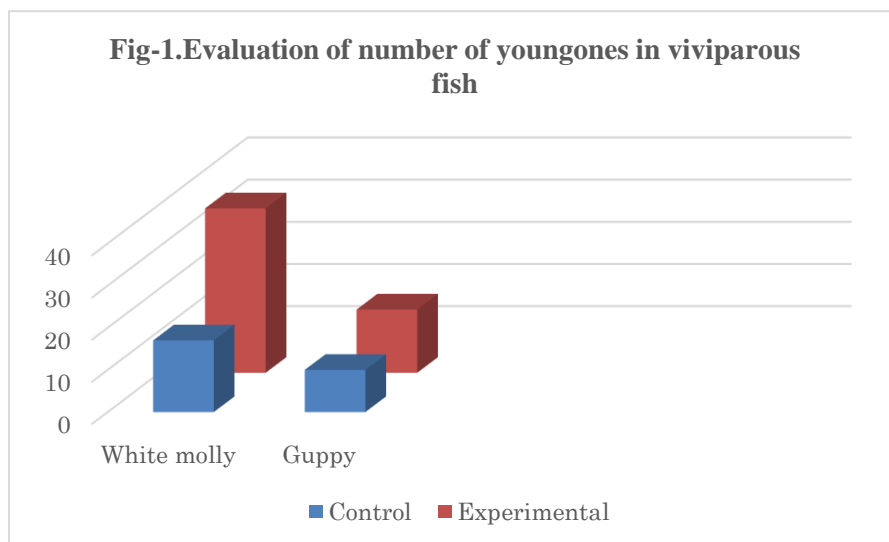
3. RESULTS AND DISCUSSION

In order to ascertain the effect of natrum muriaticum for the induction of breeding an experiment was conducted in guppy and white molly. Each value represented the mean value of six samples for each species. The effect of Natrum muriaticum on induced breeding of white molly and guppy are presented in the table 1 and figure 1.

Table1: Evaluation of number of youngones in viviparous fish

Animal		Body Length(cm)	Body weight(g)	Latency period (Hours)	Number of Young ones	Correlation coefficient
Molly	Control	5.01±0.27	2.84±0.36	72±6	20±2	Positive 0.1269
	Experimental	5.2±0.31	3.08±0.32	19.5±3	39±5	
Guppy	Control	4.55±0.32	1.24±0.18	79±9	8±1	Positive 0.3381
	Experimental	4.8±0.36	1.62±0.19	36±9	15±2	

The natrummuriaticum treated animal lay 39±5 young ones in 19.5±3 hours, while the control animal lay 17±2 young ones in 72±6 hours in white molly, whereas in guppy the control animal lay 8±1 youngones in 79±9 hrs and the treated lay 15±2 young ones 36±9 hours. There was a positive correlation between control and experimental animals i.e both in whitemolly and guppy. Through this experimental it was evident that natrum muriaticum has inducing ability. Present findings demonstrate that homeopathic preparation natrum muriaticum is a highly effective stimulus for breeding of the above mentioned fishes. The experimental preparation natrummuriaticum is also a natural material preparation. There appears to be no experimental information regarding the role of natrum muriaticum in ovulation of teleosts [21]. This homeopathy preparation was used in major carps by [15] and [24] used 1000c potency for breeding purpose of goldfish and black molly and obtained a good result.



According to [20] *Ompok bimaculatus* is an endangered fish was induced to spawn by a single intramuscular injection of ovaprim (0.5ml/kg) and observed spawning of fishes after 5-6hours injection. Each female spawned an average of 4012 eggs. Successful spawning of *C.punctatus* at 0.3and 0.5ml/kg and 3000IU/kg body mass of HCG was noted by[8].He also observed in *H.fossilis* successful spawning at 0.3, 0.5 and 0.7ml/kg body mass for ovaprim and1000, 2000 and 3000 IU/kg body mass for HCG. The single dose administration (30 μ l/ fish) of pedaliium murex whole plant extract induced laying at about 42 hrs in black molly and 20 hrs in rosy barb was observed by [22]. Similarly single dose administration of (30 μ l/ fish) mucunapruriens seed extract induced spawning at 48hrs in the case of black molly and 24 hrs in rosy barb [22]. Using five doses of PG extract (1.00, 2.00, 3.00, 4.00 and 5.00 ml /kg) in Rajputi *Puntius gonionotus* (Bleeker) affected 100% egg release through induced spawning [1]. Induced breeding of Koi carp and Goldfish by the use of synthetic hormone Synchronate B [12]. He reported that induction at the rate of 0.1ml per gold fish of 25g and 0.25ml per koi carp of 250g yielded a potential fry stock of 1600 ± 604 and 30880 ± 7127 respectively. Spawning response of goldfish with ovaprim 0.5 μ l in female released 1000 ± 115.47 eggs after 10-12 hr of injection was observed by [10].The use of ovaprim resulted maximum fecundity in angel fish (*Pterophyllum scalare*) suggested by [6]. Maximum fecundity (665.66) was obtained at the optimum dose of ovaprim (0.35ml/kg of body weight). The highest percentage of fertilization in goldfish and koi carp through induced breeding of intraperitoneal injection by ovaprim at a dosage of 0.3ml/kg [2]. Administration of 10mg/kg of pituitary gland extracts demonstrated the hatching of fertilized eggs occurred between 28 and 32 hours in *Pangasius pangasius*[11].Spawning was observed six hours after the after injection of ovaprim at a dosage of 0.5,0.7,1.0 and 1.2ml/kg in comet goldfish (*Carassius auratus*)[4].From the available references along with my present investigation on the induced breeding in livebearer ornamental fishes, it was observed higher levels of fecundity were achieved from a comparatively lower dosage of natrum muriaticum. It enhanced the production of highly motile young ones in viviparous within short

period by using simple method of breeding.

4. CONCLUSION

Comparing the effectiveness with other hormones, this preparation is highly effective and less cost and is suitable for farmers. Natrum muriaticum is a natural product and easily available one. If this technique is employed to increase the production rate, it is possible to meet the domestic demand. Further studies on natrum muriaticum will improve our country's economic status, through which we can earn more foreign investment by this product.

ACKNOWLEDGEMENT

I wish to thank Dr.R.Sundhararaman, Principal, National College, Tiruchirappalli and Dr.V.Gokula, Head of PG and Research Department of Zoology for providing necessary facilities to carry out this research work.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

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