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REPRODUCTIVE RESPONSE OF THE GUPPY FISH *POECILIA RETICULATA* FOR HOMEOPATHIC MEDICINE, NATRUM MURIATICUM

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ABSTRACT

The reproductive response on the fecundity of ornamental fish guppy (*Poecilia reticulata*) indicates that the 0.01% concentration of natrum muriaticum 30 c potency is more significant than other concentrations. It was suggested that 0.01% concentration enhance the fecundity and increase the production of guppy.

Key words: *Poecilia reticulata*, Induced breeding, Natrum muriaticum, 30c potency, Fecundity.

INTRODUCTION

Ornamental fish keeping and its propogation has been an interesting activity for many, which provide not only aesthetic pleasure but also financial openings. Currently the European Union is the largest market for ornamental fish however; the single largest importer country is United States (US).A precise figure on the trade value of the ornamental fish industry is lacking still the live trade components imported to different countries is approximately estimated to be $ 278 million US dollars according to FAO. Ornamental fish export totalled US dollar 1.24 million (559 lakhs) in 2010-2011[1]. To promote production of ornamental fishes modern methods are used by the scientists. Induced breeding is a technique by which ripe fish breed in confined water when stimulated by an agent [2]. The ultimate goal of every selective breeding programme is to improve the fish population. A number of new generation drugs are now available for induced breeding. Reports are there to show that Natrum muriaticum can be used to induce breeding in fish [3]. The present investigation was conducted to ascertain the reproductive response of the guppy fish *Poecilia reticulata* for homeopathic medicine natrum muriaticum.

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MATERIALS AND METHODS

The guppy (*Poecilia reticulata*), also known as the million fish is one of the most popular freshwater aquarium fish species in the world. It is a small member of the Poecilidae family (females 4-6 centimeters long, males 2.5-3.5 centimeters long) and like all other members of the family is live bearing. Live bearer will commonly produce 20-40 young although a few may drop as many as 150. Guppies exhibit sexual dimorphism [4].

Poecilia reticulata (guppy fish) were collected from Trichy Golden Aquarium. Healthy female fishes approximately ranging from 4 cm in length were sorted out. The weight of the female fishes used in the study fluctuated from 1.5 to 2 grams. Totally ten female guppy fishes were

chosen. The fishes were housed in ten troughs each containing one fish. They were maintained under normal conditions of temperature & light so that they may get acclimatized to the prevailing laboratory condition. These fishes were fed with artificial fish feed 'Kijaro basic'. The water was changed at 8 am & 4 pm and the feeding was carried out at the same time. The period of acclimatization was about 10 days prior to the commencement of the experiment.

Natrum Muriaticum 30 centesimal potency was brought from "Trichy Homeo Medicals". The above mentioned dilutions were preferred as they are the typical potency with peculiar potenizing effect. From natrum muriaticum 30 centesimal potency 0.01%, 0.02%, 0.03% and 0.04% dilution was prepared.0.1ml of natrum muriaticum 30c potency was diluted to 0.01% by adding 500ml of water. The same way other dilutions were prepared by adding 0.2ml, 0.3ml and 0.4ml of natrum muriaticum. The medium in which the fishes left were fed with pellet diet at the same time. The experiment was carried out for 4 days (0, 1st, 2nd, 3rd days). Among the ten fishes two was considered as control & the other eight were treated as experimental. The medium was changed every day at 8 am and fed simultaneously. Spawning time and number of fry produced was observed.

RESULTS

The present study describes the reproductive response of the guppy fish *Poecilia reticulata* for homeopathic medicine Natrum muriaticum 30 c at different dosage level. It was observed that fecundity varied with different doses of natrum muriaticum 30 c potency. Number of young ones released at 0.01% concentration was more compared to other concentrations. The data on the young ones released by the treated fishes are represented in table 1 and figure 1.

0.01% and 0.02% concentration in which the fishes were released guppy fry within 24 hrs and the young ones are very active. In other concentrations young ones are released on the 4th day of the treatment. Control fishes released young ones on 7th day of study. The highest and the lowest number of fry were 18-25 and 8-12 obtained at 0.01% and 0.04% concentration. There was a significant difference ($P<0.05$) in the mean number of young ones with different doses of N. muriaticum.

Table-1: **Number of young ones released by control and experimental group with 0.01, 0.02, 0.03 and 0.04% concentrations of Natrum muriaticum**

Groups	Concentration of Natrum Muriaticum	No. of Young ones released (Mean±SD)
Control	-	12±2.82
Experimental	0.01%	21.5±4.94
	0.02%	16±4.24
	0.03%	12±3.53
	0.04%	10±2.82

Figure-1. Number of young ones at different doses of N.muriaticum in *P.reticulata*

DISCUSSION

The successful breeding of guppies in 0.01% concentration of Natrum muriaticum 30c confirms the suitability for breeding guppies. The dosage used influence the fry production. The result is consistent with the observation of Indian major carps, the percentage of fertilization ranged(88.11-97.94%) was found with ovaprim treatment of 0.2-0.3ml/kg and the percentage hatchling ranged (74.70-95.92) [5].Similar results were obtained in Barbus sharpeyi intramuscular injection of 0.5 mg/kg of ovaprim showed that 87.5% of spawning success [6]. The dose of 1.0mg pg/kg body weight can be used in induced breeding of bata fish (*L.bata*) for the development of hatchery propogation showed the best result in terms of hatching rate 85% and survival rate 84% [7]. Females riverine catfish (*Rita rita*) treated with the PG dose of 100g/kg body weight showed 71.66% fertilization and 48.33% hatching respectively [8]. In koi carp (*Cyprinus carpio*) intramuscular injection of doses of o.4ml/kg,0.7ml/kg and 1.0ml/kg of ovaprim, the fertilization rate of eggs were obtained at 42.31%, 54.55% and 61.82% [9].

N. muriaticum induces the young ones production in guppy at 0.01% concentration within 24 hrs. Similar findings states that ovaprim induced breeding in Cirrhina mrigala and spawning took place within 9 hrs with 91% overall fertilization [10]. Spawning was observed six hours after the injection at ambient temperature fertilization rate of eggs were found 50.34, 51.47 with the response of 0.4,0.7ml/kg of ovaprim [11]. Intramuscular injection of n.muriaticum induces a female goldfish to spawn within 24 hrs, while control animal took 5 days to spawn [2]. N.muriaticum 30c potency of dilution of 0.025% has accelerated the number of young ones production in the experimental group during the first cycle of spawning, the fecundity is 33.75±2.62 and 25± 1.82 respectively in experimental and control group [12].

Natrum muriaticum means chloride of sodium obtained from rocky shore minerals. N.muriaticum works by increasing red blood cell production as well as the production of protein [13]. In the present study n.muriaticum 0.01% concentration has advanced the fry production in guppy. Similar result reports that salt water of intermediate salinity (25%) is suitable for mollies, especially for healthy breeding. Maximum fry yield (460 fry) and better growth performance was obtained in brooders and juveniles respectively fed with mixed diet [14].

Conclusion: Results of this study have shown that reproductive response of *Poecilia reticulata* can be enhanced by 0.01% concentration of N.muriaticum of 30c potency. To increase the ornamental fish production homeopathic medicine like n.muriaticum can be used. Compare to other modern drugs this is very cheap and won't cause any side effects. The ornamental fish trade goal could be achieved through application of simple method by using natrum muriaticum.

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REFERENCES

1. Daile Dominic. A. Current trends in port-wise ornamental fish export from India, International Journal of Current Research in Life Sciences, 2013, Vol.2, No.9,pp 29-31.
2. Yadav, B.N, Fish Endocrinology, Hormones and Aquaculture, Daya Publishing House, Delhi, 1995, 137-139.
3. Vishakan R et.al., Fish Genetics & Aquaculture Biotehnology, Homeopathic induction of spawning in ornamental fish, Oxford & IBH Publishing Co.Pvt.Ltd, New Delhi, 2005,119-121.
4. Thara devi.C.S & Jayashree.K.V, Home Aquarium, Saras Publication, 2009, 84-90.
5. More P.R et al., Comparative study of synthetic hormones ovaprim and carp pituitary extract used in Induced breeding of Indian major carps, Libiyan Agriculture Research Center Journal International(5), 2010 : 288-295.

6. Froud Bosak kalkesh et al., Effect of ovaprim, Ovatide, HCG, LHRH-A2, LHRHA2+CPE and carp pituitary in Benni (*Barbus sharpeji*) artificial breeding, Global Veterinaria 5(4), 2010, 209-214.
7. Miah et al., Dose optimization with pituitary gland hormone for induced breeding of bata fish (*Labeo bata*) Bang.J.Anim.Sci.2008, 37(1); 70-77.
8. Mollah et al., Induced breeding of the riverine catfish *Rita rita*, J.Bangladesh Agril.Univ.6 (2):2008, 361-366.
9. Ghosh A.K et al., Induced breeding, embryonic and larval development of Koi carp (*Cyprinus carpio*) in Khulna, Bangladesh, Mesopot. J.Mar.Sci., 27(1), 2012,:1-14.
10. Pramod Rokade et al, A comparative account on the induced breeding of major carp *Cirrhina mrigala* by pituitary extract and ovaprim, Journal of environmental Biology,luknow,27(2), 2006 : 309-310.
11. Bazlur Rahaman et.al., Induced breeding ,Embryonic & larval development of comet gold fish(*Carassius auratus*)2011,7(2):32
12. Sudha.C, Study on induced breeding in ornamental fish, *Poecilia sphenops*, European Journal of Experimental Biology, 2(4), 2012: 1250-1255.
13. Peggy Sawyer, Midwifery Today, Issue 68, 2004, 38-39.
14. Kumaravel et.al., Dietary effect on fry and growth performance of sailfin molly, *Poecilia latipinna* in salt water ACTA ICHTHYOLOGIA ET PISCATORIA 31(10) ,2007,:29-35.

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