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Effect of varying cow urine samples on growth of fish *Cirrhinus mrigala* fingerlings (Hamilton)

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Abstract
Cow urine has lots of medicinal properties. It has natural disinfectant and antiseptic quantities. Its application in Aquaculture has not been explored so far. Hence the present study has been aimed to assess the effect of different breeds of cow urine on the growth parameters of *Cirrhinus mrigala* fingerlings. Urine from different breeds of cow like Haryana, Gir, Jersey was collected. Different urine of different cow breeds at 0.1% concentration and then immersed in the cow urine for a 1 hour duration. The control and treated groups were sacrificed on the 30th day post cow urine treatment and the growth parameters were analysed, the results show significant effect of cow urine on the nutrient value of the Indian major carp *Cirrhinus mrigala.*

Keywords: Cow urine, Cirrhinus mrigala, Growth parameters, immersion.

1. Introduction
Aquaculture is a highly profitable venture in India. Also, it has availability of nutritive food for the growing population. The advent of aquaculture is mainly due to depletion or stands still of capture fishery since the seventies and availability of vast stretches of brackish water lands (1.2 million sq.km). The industry has grown enormously, reading to purchase of agricultural and fallow lands by entrepreneurs for setting of small and large – scale aqua farms in Tamilnadu and Andhra Pradesh, many aquaculture units have been managed in a sectorial fashion, focusing on the rearing site, yield and growth directed by market demand [1].

The expansion of aquaculture is limited not only by what is happening in the market or in other parts of the economy, but also by an increasing demand for environmentally produced goods and services. Sustain by intricate ecological connections. These are more easily disrupted as the scale of aquaculture grows relative to its supporting ecosystem [2].

Cow urine has natural disinfectant and antiseptic quantities. In traditional medicines cow urine was consumed as an effective and simple medicine. It contains 24 types of salts as well as iron, calcium, phosphors, carbonic acid, potash and lactose, the main constituent of cow urine that shows disinfectant activity is carbonic acid. Which phenol and a mixture cresol [7].

From the ancient period in India, cow's urine has been used as a medicinal. Cow urine is known to cause weight loss, and reverse certain cardiac and kidney problems, Indigestion, stomach ache edema etc. [5]. There are numerous uses of cow urine for various human ailments like, cancer, osteoarthritis, allergies, kidney failures, skin diseases, healing of wounds etc. Yet we consider all these things in a positive way, we find that the cows are comparatively much more useful than any other milk animal, as they not only provide the milk but also protect our health, through cowpathy and sustain the agriculture through dung manure and bullock power.

Need of hour is another revolution; through extensive research in cowpathy for its scientific and a wider popularity. Many institutes and NGOs are working on different products of cowpathy obtained very encouraging results. Visualizing the potential use of cow urine in several ailments including even cancer, the use of *Gomutra* (Cow urine) and its scientific therapeutical validation is required for its worldwide acceptance and popularity [4].

The present study was carried out to the Biochemical response of cow urine on *Cirrhinus mrigala*.

Protein, Lipids and carbohydrates play a major role as energy precursors for fishes exposed to stress conditions.

2. Materials and Methods

2.1 Acclimatization

Fingerlings of mrigal (*Cirrhinus mrigala*) were procured in healthy condition of S.M. Fish farm at swamimalai near Kumbakonam and transported to the laboratory in polythene bags filled with oxygen.

In the laboratory, the fishes were acclimatized in plastic tubs of 14L capacity for two weeks. Fishes were fed with a pelleted diet of 35% protein content. Excess of feed was removed and regular aeration and water filtration was provided to keep the experimental tubs clean and the experimental fishes healthy.

2.2 Experimental Setup

Four plastic tubs of 24(l) X 43(b) cm size was used for the present experiments, eight mrigal fingerlings size 1±0.2 gm were transferred to each plastic tubs were filled with 14 liters of chlorine free tap water and aerated well. Seven healthy fingerlings of mrigal are uniform size were selected and transferred to each glass tank.

After two weeks of acclimatization fish were divided in to four tanks treated with different urine of different cow breeds at 0.1% concentration and then immersed in the cow urine for a 1 hour duration. A control group was maintained separately without urine treatment. Cow urine was collected from healthy cows of different breeds like Haryana, Gir and Jercy free from any infection maintained under medical supervision at Goshala in Sri vital-rukmini Samasthan, Govindhapuram. Cow urine was collected in sterile bottles and was transported immediately to the laboratory.

The fish were all fed with formulated feed prepared in the laboratory. Feed every day between 2 pm to 4 pm. The unfed and fecal matter was collected and dried in a hot air oven at 60 ^{o}C and weighed.

2.3 Growth Parameters

The experiments were continued for 30 days. Live weight of the experimental fishes were also recorded on 10th, 20th and 30th days. Based on this data the growth parameters like Growth, Growth rate, % of an increase in body weight, survival were calculated.

3. Result and Discussion

3.1 Growth Parameters

Table 1: Growth characteristics of mrigal fingerlings during the 10 days of the experimental period.

Parameters	C	T1	T2	T3
Initial weight w1 (g)	0.587± 0.027	0.593±0.034	0.590± 0.035	0.587±0.039
Final weight w2 (g)	0.600±0.025	0.610±0.037	0.608±0.035	0.600±0.040
Growth w2-w1 (g)	0.013	0.017	0.018	0.013
Growth rate (g/day)	0.0022	0.0028	0.0030	0.0022
Percentage of increase in body weight (%)	2.21	2.86	3.05	2.21
Survival (%)	100	100	100	100

Table 2: Growth characteristics of mrigal fingerlings during the 20 days of the experimental period.

Parameters	C	T1	T2	T3
Initial weight w1 (g)	0.587± 0.027	0.593±0.034	0.590± 0.035	0.587±0.039
Final weight w2 (g)	0.667±0.009	0.623±0.018	0.653 ± 0.017	0.637± 0.018
Growth w2-w1 (g)	0.036	0.060	0.077	0.050
Growth rate (g/day)	0.0060	0.0098	0.0126	0.0083
Percentage of increase in body weight (%)	6.00	9.83	12.66	8.33
Survival (%)	99	100	100	100

Table 3: Growth characteristics of mrigal fingerlings during the 30 days of the experimental period.

Parameters	C	T1	T2	T3
Initial weight w1 (g)	0.587± 0.027	0.593±0.034	0.590± 0.035	0.587±0.039
Final weight w2 (g)	0.659 ±0.011	0.698± 0.008	0.732 ± 0.037	0.674 ±0.009
Growth w2-w1 (g)	0.072	0.105	0.142	0.087
Growth rate (g/day)	0.0113	0.0156	0.0207	0.0133
Percentage of increase in body weight (%)	11.32	15.67	20.72	13.38
Survival (%)	99	100	100	100

Anova: Single Factor

Summary						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Control	8	5.67	0.70875	0.000155		
Treatment 1	8	6.2	0.775	8.57E-05		
Treatment 2	8	6.62	0.8275	0.001621		
Treatment 3	8	5.9	0.7375	0.000107		
Anova						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	0.063159	3	0.021053	42.75521	0.05	2.946685
Within Groups	0.013788	28	0.000492			
Total	0.076947	31				

3.2 Growth in *Cirrhinus mrigala*

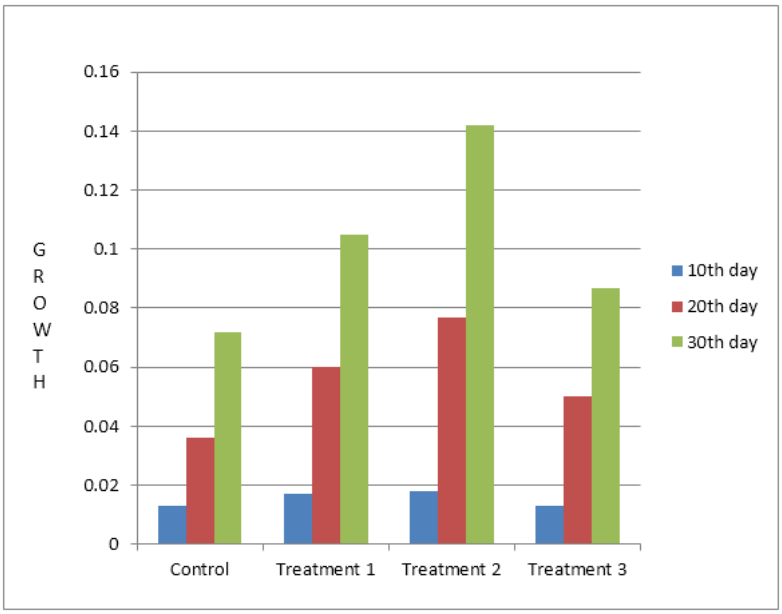

Fig 1: Growth in *Cirrhinus mrigala*

4. Discussion

Nutrients in the water are in discernable for the growth and production of fauna and flora inhabiting in the aquatic habitat. The continuous are of nutrients in water leads to depletion of nutrients in water. Hence nutrients are added to aquatic ecosystem. This will support the plankton population and other fish feed organism.

Manuring has much effect on the aquatic organisms [9] reported that manuring promotes the growth of *L. rohita* in addition to the different effects it had on the environment. Similar results were recorded in the growth and production of prawn [8]. The results of the present study also reveals that the growth of the *L. rohita* reared in cow dung manured water showed better growth characteristics than the control. It reveals that the cow dung manuring has a direct relationship with growth and production of fishes. According (Sivakami S. *et al*) [10] fertilizer applied is not of immediate effect on production.

The result of the present study also reveal that the growth of the *C. mrigala* reared in cow urine added water showed better growth characteristics than the control. It reveals that the cow urine has a direct relationship with growth and production of fishes. After 30 days the cow urine is influences of various growth parameters like fish growth, growth rate, and percentage of increase in body weight. Least weight augmentation of 0.072 g was recorded in control. Highest weight increment of 0.142 g was recorded in treatment 2 (T2). Highest percentage of increase in body weight of 20.72% was recorded in T2. Which indicates that the influence of cow urine on growth of *C. mrigala* is significant.

Cow dung is found to be an effective source of organic fertilization, which positively influences the growth performance of major carps in respect of fish production [11]. The common carp attained the maximum fish growth in poultry manure as compared to duck and cattle manure treatment in monoculture system [4]. Fermented black gram seedmeal @ 30% inclusion in diet showed higher growth, feed conversion ratio and protein efficiency in Labeo rohita fingerlings [6].

The result of the present study also reveals that the cow urine enhance survival of *C. mrigala* among the different

treatments and the results, and the application of cow urine is more beneficial. To get more survival, To get more growth rate. To get more fish production and Environment safety. Hence the present study is recommended that the application of cow urine as better way of safe application in the field condition.

5. References

1. Berkes F. The common property resource problem and the creation of limited property rights. Human ecology 1985; 13:187-208.
2. Folke C, Kanutsky N. The Role of Ecosystem for a Sustainable Development of Aquaculture Ambio 1989; 18:234-43.
3. Garg SK, Bhatnagar A. Effect of varying dose of organic and inorganic fertilizers on plankton production and fish biomass in brackish water fish ponds. Aquaculture research 1996; 27:157-166.
4. Garg SK. Brakish water carp culture in potentially weaterlogged aeras using animal wastes as pond fertilizers. Aquacult Int 1996; 4(2):143-155.
5. Deviss KK, Chakrabarti T. Genotoxic effects of PAH containing sludge extracts in Chinese Hamster Ovary Cell cultures, Biomed Environ Sci 2003; 16:68-82.
6. Ramachandran S, Ray K. Nutritional evalution of fermented black gram (*Phaseolus mungo*) seed meal in compound diets for rohu, Labeo rohita (Hamilton) fingerlings. J Appl Ichthyol 2007; 23:74-79.
7. Mandavgane SA, Rambhal AK, Kmude N. Development of cow urine based disinfectant 2005; 1(2):45-49.
8. Sarkar SK. Effects of integrated use of organic manures and chemical fertilizers on fish and aquatic eco system. Fert News 1988; 33:15-19.
9. Sharma JK, Kapoor K, Mukhaiji KRD. Clinical adverse reactions following supplementation trial of sporlac in the treatment of recurrent aphthous ulceration. Uttar Pradesh state Dent J 1980; 11:7-12.
10. Sivakami S. Observation on the culture of the air-breathing fish Channa striata (Bloch) in farm ponds. Indian J Fish 1988; 18-25.
11. Sughra FI, Ahma D, Kanwal S, Ateaq V. Effect of different feeding levels of cowdung on growth perform ance of major carps. Int J Agri Biol 2003; 5(2):194-195.