

Study Effect of Herbal Methionine (Methiomax) on Growth Performance in Local Fish Species (Rohu) in Fresh Water Ponds

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Abstract: Fish farming is one of the most growing food sectors throughout world and especially in India the last decade there is enormous improvement in farming technologies. Fish protein has many beneficial effects which makes it quite popular among people who are diet conscious. With increasing demand there is also demand for cheaper sources which can help fish grow faster as well with better & lower FCR. In Poultry industry Herbal methionine is very commonly used and has shown that it can very effectively replace the synthetic methionine in the diet of broiler as well layer. There is very limited study available with herbal methionine inclusion in Fish diet. So to judge this a study was planned at Mangala Fish Farm Saharanpur where two ponds having local Carp fish (Rohu) was subject to trial with herbal methionine. For this Methiomax product from Alphafacts Health Solution BVBA a Belgium Company is used. At the end of trial it was observed that in the pond where diet was supplemented with herbal methionine there is better performance as well better FCR.

Keywords: Herbal Methionine, Methiomax, Alphafacts Health solution

1. Introduction

Fish farming is one of the most valuable industries in recent years. Fish are often referred as living jewels due to their color, shape and behavior. They are the cheapest source of best quality protein available to human beings. The freshwater Carps are the most common species found in India and reared all the states. With huge population and liking for fish as food in states like west Bengal Carps are very popular among peoples all over the India and its farming is increasing day by day.

Increasing cost of fish food ingredients (grains, fishmeal, oil cakes, etc.) has made scientists all over the world to look for cheaper and available substitutes. Fishmeal though highly nutritive and palatable is a relatively expensive feed ingredient as compared to other low cost protein rich ingredients such as soybean meal, silk worm pupae, earthworm, etc. Moreover information on the dietary requirements and feeding fish is limited which makes use of different non conventional raw materials in fish feed quite difficult.

Nutrition has an important influence on growth and reproductive potential of fish, and various feeds with sources of synthetic methionine have been used for fish rearing throughout the world. Furthermore there are various studies done with Herbal methionine in Poultry species which proves that synthetic methionine can be very effectively replaced with herbal Methionine without any effect on performance. So going forward to check the efficacy of Herbal Methionine in fish this study was planned at Mangala Fish farm, Saharanpur (U.P.) in Local carp Species Rohu.

2. Material & Method

Two, 0.11-ha earthen ponds at Mangala Fish farm, Saharnpur, India, were used for the trial. Both ponds have been dried prior to use and the bottom of the ponds is removed prior to filling. Each pond was filled with fresh water as fresh water fish require a good quality of fresh water. Rohu carp fingerlings of average size 16 g were produced on farm itself by Mangala Fish farm, which is a hatchery and fingerling producer themselves. Rohu carp were stocked at a density of 1,430 fish each pond. Fish in both ponds were obtained from the same production group and were of uniform age at stocking. A production target of 500 g for rohu was fixed at both the ponds. Pelleted feed formulated to contain 36% crude protein and 7% crude fat for fish under the weight of 50 g average sizes. A second feed formulated to contain 32% crude protein and 6% crude fat was fed to fish over the 50 g average size. These feeds were formulated and contained various locally available ingredients such as soybean, wheat, corn gluten and rice bran. For the trial at farm no. 2 whole of methionine in diet replaced with Herbal Methionine (Methiomax).

Feed consumption was determined up to 30-60 minutes, or until the feed bag floats at the farm. Feed levels were modified on a weekly basis & feed was provided once in a day. Exchange of water take place as it is very necessary to maintain proper water quality. Time and cost of water exchange was also recorded. Using cow manure an initial amount of 300 kg was added to the ponds for fertilization. After this about 150kg added on a monthly basis in the pond. The amount of feed/manure provided to the fish by weight was recorded on the date of application. Also initial amount of 40 kg of hydrated form lime was added to each pond. In accordance to local practice whenever fish were in distress, 5-10kg lime added to help relieve the conditions.

Fish in both ponds were sampled once per month on about the same date each month. At the conclusion of the trials both ponds were completely harvested and all fish weighed. Results were used to determine fish survival, average fish weight, and gross fish production and feed conversion ratio (FCR). All expenses related to the pond and pond management was recorded by the farmer. Two live rohu carp were taken from each pond and were washed thoroughly with potable water and filleted. The external features of harvested fishes like eyes, gills, and appearance were recorded. The raw data was subjected for observation and analyzed by simple average mean method.

3. Results

Carp (Rohu) in both the pond were fed an average of 219 days. Rohu grew from an average of 16 g to 477 g in this period in pond no.2 while Rohu carp in the 1st pond grew from an average 12 g to 404 g in total of 263 days. Respective survival rates were 108% and 99% for Rohu carp in the 2nd and 1st pond were observed during the complete trial. When compared the average FCR for rohu carp in the

2nd pond was calculated at 1.45 while in pond 1st it was 1.47:1. No significant difference in taste was found between the fish produced in the two Ponds. Average economic return for both treatments was negative, but was significantly poorer for the 1st pond. Average return on investment (ROI) for the 1st pond was 4 %, while average ROI for the 2nd Pond was 19%.

4. Summery and Conclusions

Results of this feeding trial indicate that there is significant opportunity in aquaculture industry to boost productivity and improve economic efficiency by adopting new strategies especially using Herbal Methionine in the diet. During this trial drastic improvement to fish growth and economic return were observed more with Herbal Methionine.

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Table 1: Feed Formulation for the trial at all stages

Ingredient %	Local Carp (Rohu) Feeding Formulations Starter Phase (36 % CP & 7 % Fat)		Local Carp (Rohu) Feeding Formulations Grower Phase (32 % CP & 7 % Fat)	
	Inclusion Rate Group-1	Inclusion Rate Group-2	Inclusion Rate Group-1	Inclusion Rate Group-2
Soybean Meal 46.5%	45.00	45.00	53.23	53.23
Corn Gluten Meal 60%	11.00	11.00	6.3	6.3
Wheat,	19.50	19.50	25.4	25.4
Wheat Bran	16.00	16.00	0.0	0.0
Fish Oil	4	4	3.6	3.6
Fish Meal	8	8	0.0	0.0
Di-calcium Phosphate	2	2	2.5	2.5
Vitamin Premix	0.75	0.75	0.5	0.5
Mineral Premix	0.25	0.25	0.25	0.25
Lysine HCL	0.14	0.14	0.12	0.12
DL- Methionine	0.1	0	0.1	0.0
Methiomax	0	0.1	0	0.1
De-oiled Rice Bran	1.26	1.26	8	8
Total	100	100	100	100

Table 2: Final Results observed during Trial of Methiomax in Local Carp

Final Results of Trial with Methiomax In Local Carp (Rohu) on Final Body weight and FCR							
Pond No.	Treatment Stocking size (g) of rohu carp	Stocking rate (fish/pond)	No. days fed	Harvest weight (g)	Gross Production (kg/pond)	Survival (%)	FCR
1	16	1430	219	404	739	99	1.47
2	16	1430	219	477	766	108	1.45

Reference

- [1] Raju C.V., Shamasundar B. A. and Udupa K.S., 2003, The use of nisin as a preservative in fish sausage stored at ambient (28±2oC) and refrigerated (6±2oC) temperature. International Journal of Food Science and Technology, 38: 171-185.
- [2] Snedecor, G.W. and Cochran, W.G., 1962, Statistical methods. Oxford and IBH Publishing Co. Calcutta, pp: 980
- [3] Abid, M. and Ahmed M. S. (2009 b). Efficacy of feeding frequency on growth and survival of Labeo rohita (Ham.) fingerlings under intensive rearing. J. Animal & Plant Sci., 19(2): 2009, 111-113