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Introduction of Pit Instead of Barley Grain in Common Carp Feed

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Abstract: Woody materials processing by hydrothermal inexpensive fish feed more economic benefit will be along in aquaculture. In the current study, the first treatment (control) was barley grits merely 5 percent of body weight. In the second and third treatment 5 and 10 percent of body weight Pit (sugarcane industry byproduct) was used instead of the barley grits. Once every fifteen days fish sampling was done. At the end of experiment, fifty fish randomly caught from each pool. Growth and increased body length were evaluated. The fish live weight change statistically with increasing dietary Pit, has not significantly increased ($P<0.05$). This experiment did aquaculture continues to grow, identified the increasing Pit. Conversion ratios were 3.74, 8.55 and 9.12 for control, first and second treatment, respectively and the cost for each kilogram of fish meat was 0.99, 0.77 and 0.88 dollars, respectively. Based on consumption of high fiber feeds (up to 30 percent) of these fish are feeding, growth compared with the control group did not differ, but cost much less than diets containing peat.

Key words: Common carp · Pit · Sugarcane industry · Barley · Growth

INTRODUCTION

Compared with the protein in eggs, milk, meat, poultry and ruminants, protein in meat seafood is higher than critical value. Fish meat is digested easier than other meats. Rate of protein digestion and absorption of fish flesh is exceeding 90 percent. Currently, the average energy of less than 1 percent, 5 percent of total dietary protein and 14 percent of the world animal protein from fish is provided [1]. At present per capita consumption of fish in the world average of about 12 to 13 kg/year. Meanwhile, the industrialized countries consume on average 24 kg/ person/year [2]. Based on studies of fish per capita consumption in urban and rural households in Iran between 5 to 7.5 kg/year. However, Iran has a diverse and abundant resources, unfortunately problems and principled choice but planning on fishing and aquaculture industry and no fishing.. Each of these species have specific dietary habits, breeding, causing them to combine all levels of food in pools should be used. The ponds also provided with regular bloom fertilizer (to produce natural feeds) and feeds by hand [3]. Common carp is the first fish used for breeding and now the second position of aquatic breeding in the world [4]. The main objectives of this study are:

- Investigate the possibility of using Pit (rich sugar cane waste) in common carp fed.
- Promote the use of feed fish in the hydrothermal

Plant Sugarcane: Global acreage almost ten million hectares of byproduct is estimated. One of the byproducts produced during the sugar is obtained from sugarcane. Sugarcane byproduct is used as a Pit [5]. Pit digestibility is lower, but the amount of processing can be short term by increased water vapor. Pit processing technology in the recent years depends on the bagasse steam method in Iran. Since the use of water vapor caused fractures lignin strong links with other parts of the cell wall is improved in the analysis.

In the absence of Pit used for animal feed, leaving huge amounts of plant materials not only causing environmental pollution but also have high economic costs [9-11]. Employment is another benefit from the manufacture and use of animal feed in livestock feed.

MATERIALS AND METHODS

Common carp during a six-month period from mid May to late October is cultivated and grown in earth ponds. The experimental procedures were as follows:

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- To perform this experiment, three pools with quite the same situation in the south of Iran (Ahwaz) were selected. Karon River source water supply ponds by the water pump were transferred to the pool. Each pool with moderate area of 9123 ± 20 meters and depth of 1.75 ± 0.15 meter. The production function in the form of pool as a completely randomized design three types of diets for five months were tested. 700 ± 5 in each pool fish common carp weighing 4 ± 0.3 g (Table 2) were used (the other three species were used (2100 ± 5) pieces. Number of treatments was carried out, in the first treatment (control) barley grits merely 5 percent of body weight (according to the type of fish fed standard) was used. In the second treatment, live fish weight equivalent to five percent of the Pit (enriched sugarcane waste) was used. In the third treatment 10 percent of live weight fish Pit was used. Sampling was done biweekly from the ponds under study, the fish caught were returned to the pool again after weigh and disinfection. Fifty pieces of fish breeding in abandoned pools randomly was caught, growth and increased length was evaluated. Statistical analysis plan with the help of statistical program Minitab-13 and comparison with the Duncan procedure was performed.

RESULTS AND DISCUSSION

In the following table and chart growth factor in fish common carp as fifteen days (Table 3), with three different diets have been mentioned. Changes in live weight of fish from experiment statistically influenced the experimental diets is located. Increasing peat in the diet, fish weight was not significantly increased ($P<0.05$).

Table is a view that in this experiment by increasing dietary Pit, fish have been able to continue their growth. Experiments conducted the use of Pit in the diet of carp to show positive. Although did not differnt growth compared with the control group, but cost much less than diets containing Pit will be. Coefficient of variation of growth species(Table 4) was clear that the maximum growth rate in common carp fish in the first treatment. (Fig. 1).

Growth factor in at least three treatments in the months August and September, respectively. Factors affecting the growth factor in addition to inheritance, include; nutrition, density, water quality and temperature, each has a different effect on a growth factor [2,6,12]. Industrial byproduct wastes such as in southern Iran sugarcane production there are always especially Pit.

Table 1: Pit bagasse hydrolysis by chemical analysis [8]

Dry Matter %	Total Digestion Nutriant %	Crude Protein %	Crude Fiber %	Non Detrgent Fiber %	Acid Detergent Fiber %	Calcium %
90	59.84	2	24.20	55	51.72	0.25
100	66.49	2.2	26.89	61.11	57.48	0.28

Table 2: Combined polyculture fish in different treatments

			Record carp fry released		Hand feeding (percentage of body weight)	
Treatment	Total number of released Fish (piece / hectar)	Number of abandoned common carp (piece / hectar)	Weight Average (g)	SD	Pit (sugarcane industry)	Barley
1 (control)	2800	700	3	± 0.4	0	5
2	2800	700	3	± 0.4	5	0
3	2800	700	3	± 0.4	10	0

Table 3: Comparing the Growth of fishes

mm/dd/yy	Control	First Treatment	Second Treatment	Average	SD
2007/1/5	2	2	2	2.00	0
2007/15/5	9	7	6	7.33	±1.53
2007/1/6	29	22.5	19	23.50	±5.07
2007/15/6	107	81	65.5	84.50	±20.97
2007/1/7	281	195	129.5	201.83	±75.98
2007/15/7	319	232	151	234.00	±84.02
2007/1/8	379	266	171.5	272.17	±103.89
2007/15/8	439	295.5	194.5	309.67	±122.68
2007/1/9	550	359	227	378.67	±162.40
2007/15/9	725	469	272	488.67	±227.14
2007/1/10	1010	645	368	647.33	±322.00
2007/15/10	1501.5	1001	502	1001.50	±499.75

Table 4: One-way ANOVA for third treatment

Source	DF	SS	MS	F	P
Factor	11	2957140	268831	6.86	0.05
Error	24	941179	39216		
Total	35	3898318			

Table 5: Comparing the FCR[1] and feed cost in all treatments

No. Pool	% and kind of feed	Feed intake (Kg)	Meat production (Kg)	Feed conversion rate (%)	Cost ration for meat production ($)
1 (control)	5% Barley	24. 8138	2176	3.74	0.99
2	5% Pit	8019.13	2107.5	8.55	0.77
3	10% Pit	19284.24	2114.5	9.12	0.82

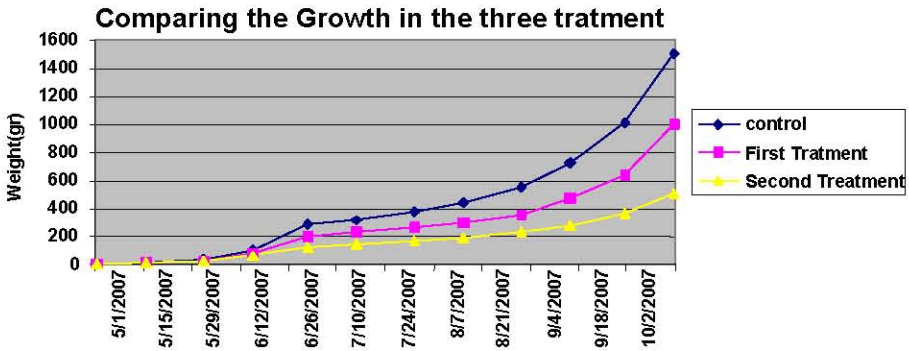

Fig. 1: Spatial graph comparing the growth in the three treatments

The results of this experiment with increased feed intake in the diet have increased peat. But the final cost of the two dietary treatments is much less (Table 5). According to the results of this study was determined the effect of peat is not ineffective as a food fish on the phytoplankton eater [13]. Grass carp obtained good results early convention that is marked on the chart but need to repeat the tests are complementary.

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