

IMPACT OF SHATAVARI AND ASHWAGANDHA ON AVERAGE BODY WEIGHT OF FRESHWATER FISH *CHANNA PUNCTATUS*

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Abstract

The aim of this work was to study the effect of ayurvedic medicinal herbs . The experimental diet was formulated to contain different levels of Ashwagandha and Shatavari powder (20, 30,40g/kg diet) and (20, 30, 40gm/kg diet) prepared in the pellet form and fed to the experimental fishes to observed the growth and weight of the freshwater fish *Channa punctatus* .The result of the treated medicinal plants Ashwagandha and Shatavari showed increase trend of the body weight of the freshwater fish *Channa punctatus*.

Key words: Shatavari, Ashwaganda, *Channa punctatus*.

INTRODUCTION

Now a day's India is the threshold of blue revolution and it has made a notable progress and improvement in the field of inland fisheries. Fishes not only play an important role in the demand of food for human but they are widely used for various biological activities. In recent times one of the main challenges faced by fish nutritionals is to spare expensive dietary protein for inexpensive non-protein in energy sources such as carbohydrates and lipids .These energy source must be incorporated in diets equal to the level of protein, which maximizes the fish growth. Recently only the incorporation of non-protein sources in fish diet has been realized and currently carbohydrate and lipids are being used. The pivotal role of nutrition in aquaculture demonstrated in several studies Falaye,1983,Adiukwu,1999, Fasakin *et.al.*, (2003); Ibiyo and Olowosegun, (2004).

Omnivorous and herbivorous fishes have been reported to utilize higher dietary carbohydrate than carnivores Kaushik *et.al.*,(1989) since they poorly utilize carbohydrate at both digestive and metabolic leaves. Lovell (1989). Increase of lipid levels may reduce fish growth and produce fatty fish. Even non-protein source are used in fish diets. Feeds represents the largest single cost item in carnivore fish production .Fish meal is considered as the major source of dietary protein and lipid supplement in the diets of carnivore fishes.

Herbs are more compatible with body because of their normal nature and having medicine homologues components together and lack of unwanted side effects, therefore they are most suitable. Borimnejad, (2008).

For this sustainable and successful freshwater fish culture on scientific basis principally depends upon the use of adequate, economically valuable and environmentally artificial food as well as uses of ayurvedic plants to improve the yield of fish culture.

Asparagus racemosus is an herb belonging to the family *Asparagaceae* commonly called shatavari the roots of these plants finds use in various medicinal preparations .It contains saponins that are present in the root nervine tonic Sharma *et. al.* ,(2000), Jameela *et.al.*,(2011).

The commonly used herbal extracts are from *Ocimum sanctum* (Tulsi), *Withania somnifera* (Ashwagandha), *Tinospora cordifolia* (Guduchi) and *Embllica officinalis* (Amlaki) for the treatment of immunosuppressive conditions for humans and animals Devasagayan (1997), The feeding of ImmuPlus at 1g/kg to *Macrobrachium rosenbergii* for three weeks significantly raised the immunity level Kumari Jaya ,(2004). ImmuPlus (AquaImmu), A polyherbal formulation (Indian Herbs) contains the extracts of selected natural Indian medicinal plants *A.racemosus*, *O.sanctum* (Tulsi), *W.somnifera* (Ashwagandha), *T.cordifera* (Guduchi) and *E. officinalis* (Amlaki) as major constituents in their optimum concentrations, Jadhav and Bhutani (2006);Jaya Kumari *et.al.*, (2007), Kumari *et.al.*,(2012).

Plant alkaloids are the primary active ingredients of Ayurvedic drugs. Many Ayurvedic medicines are being identified for their usefulness in drugs therapy being determined. Certain percentage of plants is used in traditional medicines and is used for traditional medical treatment. The new drugs from medicinal plants are as valuable medicinal properties of different plants are due to presence of several constituents that is saponins, tannins, alkaloids, alkanyl phenols, glycols-alkloids, flavonoids, sesquiterpenes lactones, terpenoids and phorbol esters (Singh *et. al.*, 2003, Tiwari and Singh 2004). It is estimated that there are 2,50,000 species of higher plants on earth of which more than 80,000 are medicinal plants Kumar and Joshi(1987). The extracts of leaves ,fruits ,roots of various plants are traditionally used as medicine .

MATERIAL AND METHODS

The experimental diet was formulated to contain different levels of Ashwagandha and Shatavari powder (20, 30,40g/kg diet) and (20, 30, 40gm/kg diet) control diet was free from the Ashwagandha and Shatavari. The artificial commercially available food were purchased from local market and dried in freeze and then mixed with Ashwagandha & Shatavari separately. These powder form transformed into pellet form dried in oven and then transferred to plastic bags and stored in freeze until immediately prior to feeding.

The diet was fed to fishes for 1 to 49 days. At the start of the experiment, fish weighed in gram and measured length in centimeter was recorded. Fish were fed on the same diet once a day in the 10 o'clock. After six hours of feeding, fish fecal matter were collected by net and filtered on Whatman paper in 1 for ½ hours to removal of water after drying stored in a freezer for analysis.

OBSERVATION AND RESULTS

Average Body Weight:

In the present study (Table1&Fig.1.1) showed that the average body weight at the start of the experiment food + Ashwagandha were found to be 22.54±0.154; 39.75±0.378; 48.75±0.54; 64.43±0.605; 73.44 ±0.27; 87.38 ±0.293; 126.27 ±0.591, from 7th days to 42nd days It showed increased body weight trend .The diet mixed with medicinal plant Shatavari were found to be 25.83 ±0.44; 39.88 ±0.387; 55.72 ±0.584; 69.76 ±1.707; 79.15 ±0.533; 88.89 ±0.171; and 121.54 ±0.973 were found to be increased trend days wise as compared to control values .The result showed that the medicinal plants Ashwagandha and Shatavari showed increase trend of the body weight of the freshwater fish *Channa punctatus* .

Table 1 :Average body weight (g) ±SE of *Channa punctatus* fed Ashwagandha and Shatavari during the experimental period.

Days	Control(Average weight28-48mg) SE=0.138	Ashwagandha (weight-mg) SE=0.069	Shatavari (Weight-mg) SE=0.19
0	19.55 ±0.312 SE=0.138	22.54 ±0.156 SE=0.069	25.83 ±0.44 SE=0.19
7	28.95 ±0.01 SE=0.21	38.89 ±0.406 SE=0.181	39.89 ±0.38 SE=0.158
14	39.76 ±0.40 SE=0.182	46.24 ±0.4 SE=0.178	55.72 ±0.58 SE=0.261
21	32.28 ±0.58 SE=0.259	63.36 ±0.371 SE=0.164	69.76 ±1.70 SE=0.763
28	47.05 ±0.4 SE=0.178	72.21 ±0.68 SE=0.307	79.15 ±0.53 SE=0.238
35	48.34 ±5.36 SE=0.239	86.25 ±0.724 SE=0.324	88.89 ±0.17 SE=0.076
42	48.31 ±5.26 SE=0.231	121.87 ±0.98 SE=0.44	124.54 ±0.973 SE=0.44

This is additive medicinal preparation effective for improving the body weight. Ashwagandha is a general body tonic to increase energy, health and longevity because of presence of adaptogens. While Shatavari contain steroidal saponins it showed adaptogenic properties used as growth promoter herbal.

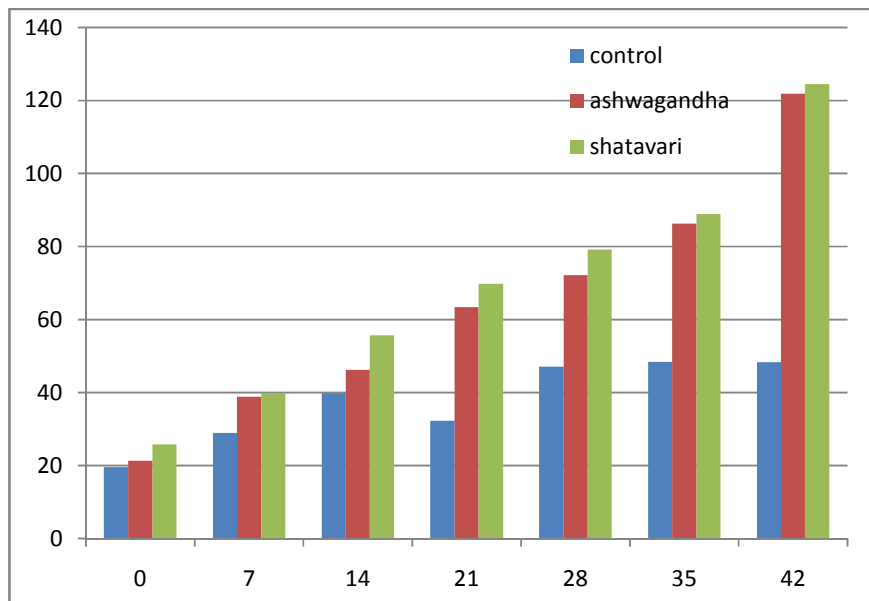


Fig.1.1: Average body weight (g) \pm SE of *Channa punctatus* fed on Ashwagandha and Shatavari during the experimental period.

DISCUSSION

The achieved results fed with Ashwagandha and Shatavari to freshwater fish *Channa punctatus* showed major improvement in body weight significantly as compared to control groups. The increase weight showed more increase in Shatavari than Ashwagandha fed during 7th to 42nd Days.

Similar findings Kobeisy and Hussain (1995), studied *Oreochromis niloticus* found that dietary food gave to the fishes and showed significantly increase in body weight of fish. Among three carps Catla catla, Showed maximum average body weight (1256 g), followed by *Labeo rohita* (1215.0 g) and *Cyprinus carpio* (1119.01 g) in supplemented diet. Highest growth performance of Catla catla was due to the higher growth potential. Hasan and Macintosh (1991), Vijaykumar and Devraj (1994) and Omer (1986), who observed the increase in body weight with the increase in feeding level. Ghosh (1984), Akram *et.al.*, (1994), and Janjua (1996), they reported that increase in feeding rates body weight increase the growth of the fish. Maximum growth rate was obtained in *Cirrhinus mrigala* Javed *et.al.*, (1993). Also by Singh and Gaur (2005), stated that weight gain maximum when various dietary protein levels and carcass composition given to rohu, *Labeo rohita* fingerlings.

In the present investigation concluded that the average body weight Fresh water Fish *Channa punctatus* showed day's wise increased trend as compared to control values.

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