

# A Review - Effect of Fish feed Can Bring Changes in Growth and Development of Fishes (Aquaculture Production)

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## Research Article

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## ABSTRACT

Fishes are the aquatic organisms, found in aquatic environment from deepest oceans to high mountain streams. As the population increased the demand of the fish consumption also increased. So, to increase the production of the fishes the fish feed are developed for providing the balanced nutrition and maintain the health condition, reduce the mortality.

Fish feed used contains the nutritional value helps in production simultaneously should look after the effect of different products bringing the changes in development of the organs which may or may not good for the fishes. This Mini review is to bring out the brief concept about the effect of fish feed on fishes and changes that occurs with the feed so that it can be standardized to improve the aquaculture industry to fill the gap of Consumption and production.

## INTRODUCTION

The increase in the population, the need of availability of the food has shown a drastic difference. To fill the gap and to provide the increase the production of the food, one simpler way can be aquaculture production. As this production can break the unavailability of food line and also acts as a healthy food. The production can be of different means and its impact can be good or bad to the consumer and also on the fishes.

### Effect of fish feed on fishes

These fish feed includes the Vegetable protein, Cereal grains, Vitamins, Mineral, Fish meal and Oil. To improve the fish growth and performance the fish feed are made of different products and used on the different fishes to maintain the quality of the fish and its health conditions. This had approximately helped to fill the gaps of the population and the production. The fish feed are used as pellets or other form and either float or sink in the water for the easy recirculation system. The developed fish feed has effect on different organs of fishes.

It was observed that the salmon fed with the B-vitamin plants based products improved health and the growth [1-3]. Aquaculture development can be increased by feeding the yeast derived from the lignocellulosic biomass as a protein source and also helps in economic development overland and skrede 2016 [4,5]. Fish diet has influence on microbiome structure of the salmon intestine which also has influence the aquaculture system [6-10]. High protein like fababeen meal can help in utilizing the feed efficiently in the atlantic salmon [11-13]. It was also observed that feeding with eicosapentaenoic (EPA) and docosahexaenoic acids does not affect their position distribution of triacylglycerol of salmon [14-16].

The effect of the soybean meal in the juvenile did not induce the inflammation of salmo salar L [17-20]. Fish meal and fish oil along with the algae products found no significant development of the fish, but an increase in the omega 3 fatty acids was observed in the salmon [21-23]. Fish (totoaba macdonaldi) fed with the soy protein concentrate and taurine with appropriate nutrition level had modulatory role in hematology and blood chemistry contributing overall health and growth performance [24-27]. Plant products are used as substitutes for the fish meal and fish oil in

fish feed. It was observed that the plant based diet on rainbow trout helped in reproductive performance, if the feed is optimized [28-31]. The different oils like linseed, soybean and fish oil have shown different effects in Senegalese sole immune genes [32-34]. The decrease in marine feed raw material for the fishes has led to the increase in substitution of the fish meal with the plant oils. The morphogenetic changes occurred like shortening of the mid intestine of all groups occurred when compared to the fish oil fed fish (salmo salar). But the major effect on health of the salmon was not observed [35-38]. The effect of dietary cholesterol in aquafeed can manifest growth and performance of the salmonid fish [39-43]. Rainbow trout fed with six different diets found changes in the protein oxidation when replaced with vegetable oil rather than fish oil whereas no other significant changes were observed [44-49]. The vegetable diets composed of bean, sunflower and groundnut oil cakes stimulated the production of the sex steroids and can help in reproduction success in the African catfish but has no effect on sexual maturation [50-51]. The fish fed with cotton seed meal when compared with soybean meal on grass carp found that have increase in hemoglobin value. The fish fed with cotton seed meal when compared with soybean meal on grass carp found that the increase in hemoglobin value [52-54]. However it was also observed that the replacement of the yellow maize with the sweet potato peel has brought the maximum growth in African catfish [55-59]. In case of the rainbow trout, the feed containing fish meal protein replaced with the potato protein concentrate was found to be decrease in dry matter, protein, fat and increased ash content in fish body. Which lead to the increase in mortality rate [60-63]. The diet containing the probiotic biogen increased the production of the Nile tilapia *Oreochromis niloticus* was observed [64-70]. Due to increasing demand and to reduce the cost of production the fish oil is replaced with the canola oil in fish feeds [70-80]. The food wastes produced in the society can also be used as the fish feed when recycled found to be effective for the growth and development of the fishes [80-85]. Thus the fish feed based on the component and concentration if used can improve the growth of the aquaculture production after thorough research and should be safer for the human consumption of those fishes.

## CONCLUSIONS

This review tries to bring the overview on aquaculture feed research, redirecting the reader to more in depth review of papers and researcher for their efforts to bring the development in aquaculture.

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