

Indigenous Fish Feed Resources in Nigeria

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ABSTRACT

Many unconventional sources are of very good nutrient profiles which when incorporated into feeds can meet parts of the protein and energy requirements of the fish. Most of these indigenous fish feed resources are non-competitive in terms of human consumption, their prices are relatively very low and sometimes are of no cost value. They are usually by-products or waste products from agricultural industries, domestic waste, and wild plants, thus their utilization as feed resources can help to reduce the cost of fish feeds and fish production in Nigeria.

Keywords: Unconventional feed sources; Fish feed; Nutrient requirement; Availability, Cost

INTRODUCTION

Nigeria is blessed with an abundance of food resources, carbohydrates and protein alike that are consumed by man and animals. Those consumed only by man are often called conventional feed sources, while those consumed by his animals are termed unconventional feed sources. A wide range of unconventional and wild plants have been studied and are known to contain high protein and carbohydrate content which could be used as dietary ingredients for feeding fish. These alternative wild, unutilised products were also observed to reduce to a large extent the cost of formulating fish feed. These unconventional feed sources are usually not commonly found in the market places. They are of plant or animal origin. Though products of some of these wild plants might not be available all year round, care and strategy should be put in place for collection during the harvest season and proper storage facilities should be provided.

The need to meet the optimum demand for fish production had in earlier times opened the way for researchers to gear into the search for local feedstuff consumed by man that could adequately compete with fish meal. Over time, this did not seem to solve the problem of fish feed ingredients because of the constant rise in the price of the feedstuff and increasing demand for these same food products by the human population. This recent measure may reduce the high cost of feed ingredients which is the major problem of fish farmers in Nigeria, especially fish meal that is generally considered the most expensive cost item in intensive fish farming [1]. Fish feed constitutes about 40-60% of the recurrent cost of most intensive fish farming ventures and sometimes

negates the economic viability of a farm if suitable feeds are not used. However, fish feed is one of the essential factors needed to promote and develop modern fish culture. More so, the use of a local, wild and untapped variety of plant parts (seeds, leaves and pods) incorporated into the feed ingredients for feeding fish may be worthwhile and economically viable [2].

DESCRIPTION

Materials used to prepare this paper were obtained from researches, publications, proceedings and journals.

Feed and food origins are rich in minerals namely; phosphorus, calcium, carbohydrates, proteins, oils, potassium, chlorides, iron, zinc magnesium, copper and amino acids: arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, valine and tryptophan. All these are necessary for the building and formation of tissues in the fish. In making formulation of fish diets care should be taken to make sure that the levels required by the fish of these growth factors are maintained [3].

Aqua-culturists are constantly and persistently in the search for growth promoters that yield better feed conversion and faster growth in farmed fish which results in the lesser expense on feeds, short culture period and higher fish production.

These feed items are locally available, though most often not of international standards. The feed sources could be from:

Plant sources-groundnut, soya beans, bambara nuts, maize, millet
Animal sources-fish, maggots, poultry offals

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Terrestrial- fruits and vegetables

Kitchen waste-yam peels, cassava peels, bread, biscuits rice, beans and meat or poultry parts

Aquatic sources-tadpoles, mudskippers, fish and shellfish.

Again, most importantly they are not in competition with human consumption and needs, however, their potential and utilization in fish feed are expected to meet the nutrient requirement (bearing in mind that the nutritional of fishes vary from specie to specie. Fishes like catfish are more in need of high protein diets compared to Tilapia and common carp). Their levels of inclusion in aquafeed vary and largely depend on their availability, nutrient level, processing technique, species of fish and cultural farming pattern prevalent in the locality [3-5].

DISCUSSION

It is important to note that these feed sources should be processed and formulated to meet the nutrient requirements of the fish species in management. These methods vary from region to region and for the type of feed source used. The essence of processing and formulation is to provide adequate nutrients, feed acceptability, palatability and durability and maximize cost at its lowest level. It is therefore evident that sourcing for these ingredients should be at its lowest cost. Fish farmers and feed producers are expected to take advantage of the seasons of availability of ingredients at very cheap prices since the quality and quantity of the ingredients invariably determines the quality of the abundance and cost of the ingredients [5-7].

Despite breakthroughs recorded in these areas most farmers in Africa still rely heavily on imported feed ingredients and fish feeds from European countries, which makes fish farming expensive as fish feed account for at least 60% of the total cost of production [7,8]. This high cost of feeding and culture of fish is to a large extent the reason for the slow and low measures to the slow pace at which aqua-culture is advancing in Africa and Nigeria in particular. This article is intended to review critically the potentials of locally manufactured fish feed in enhancing, improving and sustaining aquaculture development in Africa. Various successes and failure rates of methods of processing employed were discussed and suggestions were made on how aquaculture growth can reach its maximum potential in the production of fish through the utilization of locally available fishfeed ingredients.

Is a compilation of unconventional feed sources used in Nigeria in fish feed preparation, their crude protein value, test fish and the success rate. Success as represented on the table relates to the experiment yielding growth and appreciable weight gain at the cheapest cost of raw materials as when compared to imported fish feeds. Unsuccessful means the test material did not produce portable weight gain.

This review is a survey of principally research carried out in Nigeria. Prices of raw materials used are approximately the same in all regions/ states of the country though prices of raw materials are not fixed because prices change from year to year.

Fishery practices in Nigeria are gaining more and more grounds in the use of locally made feed among the rural populace. This does not rule out the need for increase in aquaculture production through better farm practices and management. Locally produced feed using locally available ingredients will reduce the cost of production and hence, cheaper fish to meet the protein needs of the populace [7-9]. Fish farmers and fish millers should look outwards to explore and utilize to the maximum, these non-conventional feed resources so as to make fish farming more economically viable, attractive and sustainable. These feed resources are available, cheap, do not compete with human consumption and can provide all the essential nutrients needed for fish growth and production. In the use of aquatic food such as microalgae and seaweed, though heavy metals were present, the levels of concentration were lower than the upper limits for the feed material. The aquatic feeds performed very well with regards to digestion, growth feed conversion and nutrient retention. Furthermore, the use of these aquatic feeds is dependent on the availability and market price which is directly related to the success rate of such a feed [10].

CONCLUSION

The future growth of the aquaculture industry depends upon the availability of suitable and economical feeds although, the cost of feeding is a major factor affecting the development of aquaculture. In Nigeria, the adequate application and utilization of any type of local fish feed which could range from single ingredients i.e the use of only one ingredient for example trash fish, maggots, grains, grasshoppers to simple or compound mixtures such as rice bran and coconut cakes to make complex formulated diets has beneficial effect in aquaculture production in Nigeria and beyond.

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