

A REVIEW ON PROBIOTICS RICH FEED SUPPLEMENT IN AQUACULTURE FOR FISH HEALTH IMPROVEMENT

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ABSTRACT

In intensive fish culture systems for the achievement of high yield fish production the utilization of vaccines and chemical feed for growth and good health of fishes but here more than a few drawback come due to excess use of prophylactic administration of antibiotics, As an substitute to antibiotics, dietary inclusion of feed additives has received rising concentration in this decades. so that there is utilization of Probiotics, and medicinal plants are best feed supplements for growth and to check diseases of fish and shellfish. The current is to be spotlight upon to show possible use of probiotics for disease management for this the evaluation of the probiotics research from available research literature.

Keywords: Probiotics; Aquaculture, Eco-Friendly.

I. INTRODUCTION

Fish disease is a common problem encountered even in these modern days, which is said to be the period of scientific development and awareness of hygiene The FAO (Food and Agriculture Organization) and the WHO (World Health Organization), put forward the concept of probiotics which is as live microorganisms which are used orally having some health benefits to the host Biological control has been described as the exploitation of natural enemies to trim down the harm caused by harmful organisms to acceptance limits (1). Strictly speaking, a probiotics should not to be classified as a biological agent, since a probiotics microorganism doesn't necessarily attack the pathogen.

Elie Metchnikoff's work in the beginning of this century is regarded as the first research conducted on probiotics (2). He described them as "microbes ingested with the aim of promoting good health." This definition was modified to "organisms and substances which contribute to intestinal microbial balance" (3) and latter by Fuller (4). To "a live microbial feed supplement which beneficially affects the host animal by improving its intestinal microbial balance".

Gibson and Roberfroid. (5). Introduced the concept of 'probiotics'. It is defined as non-digestible food ingredients that beneficially effect the host by selectively stimulating the growth and the activity of one or a limited number of bacteria in the colon, and thus improves host health. Probiotics are now also being used in aquaculture and therefore, the definition may have to be modified. In aquatic animals, not only the digestive tract is important but also the surrounding water. (6) defined probiotics from aquaculture point of view as culture (single or mixed) of selected strains of bacteria that are used in culture and production systems (tanks, ponds and others) to modify or manipulate the microbial communities in water and sediment to reduce or eliminate selected pathogenic species of microorganisms and generally improve growth and survival of the targeted species. (7). defined probiotics as "microbial cells that are administered in such a way as to enter the gastrointestinal tract and to be kept alive, with the aim of improving health".

Gram *et al.* (8).broadened the definition by removing the restriction to the improvement of the intestine: "a live microbial supplement which beneficially affects the host animals by improving its microbial balance". Neither should probiotics be classified as growth promoters, since their action is not confined to improved growth but is associated with a general improvement in health.

II. DISEASE RESISTANCE

Vaccines are manufactured and marketed now a days but they are not true to be used as a universal disease control measure in aquaculture. young fish are completely immune competent so they not respond to vaccination. Vaccination by injection, is only effectual route of utilization, is impractical when supplied to small fish or large number of fish. This situation is avoided by an alternative in the production system through the use

of beneficial bacteria to fight against pathogenic bacteria i.e., through the use of probiotics which is an acceptable practice in aquaculture. The wide text related to probiotics shows usefulness on target animal gut protections that play major role in diseases prevention as well digestive tract inflammation treatment (9). With it, probiotics microorganisms, such as lactic acid bacteria, *Brevibacillus brevis*, *Vagococcus fluvialis*, and *Vibrio harveyi* useful for improvement in immunity (10, 11, 12, 13), probiotics micro organism adhere along with intestinal tract (mucosal epithelium) and fight against various pathogenic bacteria (14). probiotics amplify feed digestibility by rise in digestive enzymes viz. alginate lyases, amylases, and proteases (15). Probiotics also create siderophores, organic and fatty acids, biotin and vitamin B12, H₂O₂ hydrogen peroxide, antibiotics, bacteriocins and lysozyme (16), due to which fish health improvement is prominently achieved. Most of the research work clearly indicated that probiotics are the reason for health reimbursement in aquatic animals, like Japanese flounder.

III. USE AGAINST VARIOUS DISEASES

In large and small scale of culture system, probiotics is using as option for antibiotics and various drugs (17). Action potential of probiotics were checked and antibacterial effects remained to be determined, most researchers shows probiotics produced antibiotic compounds decrease in pH formation of organic acids which can slow down growth of pathogenic bacteria (18). After that antibacterial activity of *Bacillus licheniformis* and *B. pumilus*; which resist low pH and high bile concentrations. (19).

IV. CONCLUSION

The review upon probiotics research shows the sure impact on disease resistance of fish and shellfish. Probiotics consider eco-friendly feed supplement so that increasing consideration being alternative of antibiotic in fish culture system. The results of preceding researches revealed that the results of probiotics are species specific. The most promising study by Atira et al. (20) evaluate reticence parasitic *Saprolegnia parasitica* A3 affected upon *Pangasius hypophthalmus* here he was used probiotics strain *Lactobacillus plantarum* FNCC 226. therefore suggested as an environment-friendly means of parasite control in catfish aquaculture.

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