

MolaPlus Fish Microbes

A probiotic for Aquatic Farming



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MolaPlus Fish Microbes is a probiotic for aquatic farming. It is a microbia supplement with living microorganisms that enhance performance of all types of fish.

It is a solution of carefully blended strains of lactic acid bacteria and saccaromyces ssp. that occur naturally, and are none pathogenic. They are, through careful selection, a strain of viable cells which are capable of multiplying in the fish pond environment while still being able to survive and metabolize in the gut environment.

In fish farming, MolaPlus Fish Microbes are used:

To Promote the Quality of Water in the Fish Pond

MolaPlus Fish Microbes increase the quality of water in the fish pond. In intensive fish farming like ponds, nitrogenous compounds contaminations such as ammonia, nitrite and nitrate are a serious concern. In high concentrations, these compounds may be extremely harmful and cause mass mortality. MolaPlus Fish Microbes is a solution to these organic **loads**, to high levels of phosphorous and nitrogen compounds.

These strains of microbes speed up decomposition of organic matters and reduce the levels of phosphates and nitrogen



compounds in fish farms. As a result, a more conducive healthy environment is created for aquatic life to thrive. They (Read: MolaPlus Fish Microbes) modify the bacteria composition of the water and sediments.

To Prevent Disease

MolaPlus Fish Microbes are known to stimulate the immune system of fish, increasing the fish's production of antibodies, activating their macrophages, encouraging their T-cell proliferation and encouraging production of interferon. These optimizes the immune system of the fish thus increasing their resistance to disease. They produce inhibitory substances that prevent pathogenic organisms from establishing disease in the fish.

MolaPlus Fish Microbes enhance the immune response. They modulate the immune system of fish particularly at early stages of life before they fully develop their immune system. What's more, the microbes produce organic acids that lower the environment's PH of the gastrointestinal tract preventing the growth of various pathogens.

Naturally, microorganisms present in the aquatic environment are potentially pathogenic. They are opportunists as they take advantage of



fish stress situations such as density and poor nutrition to cause infections making them to perform poorly; in extreme cases they die. Strains in MolaPlus Fish Microbes combined inhibit growth of pathogenic microorganisms by producing antimicrobial compounds, they compete with pathogens for adhesion and nutrients and model immune system of all fishes.

They modify the microbial community associated with fish and their farming environment ensuring better use of artificial food and its nutritional value by improving the fish's response to disease and improving the quality of the farming environment. Fishlings and fishes fed on MolaPlus Fish Microbes increase resistance against infection - thanks to the lactic acid bacteria in the formulation.

Enhance Survival of Fish of all Ages

MolaPlus Fish Microbes promote the colonization of the intestine of fish of all ages and increase their survival. The ponds where these probiotics are inoculated in the water record higher survival rate with stimulated respiratory burst. Apart from improving the health of the fish, they improve the balance of the **microbiota** in the fish's intestine.

Note: These strains of microbes are resistant to the **acidic** stomach environment, bile and pancreatic **enzymes**. They survive and thrive in water and have capacity to multiply and colonize the aquatic environment where fish thrive. While there, they produce antimicrobial substances against pathogenic bacteria.

A Source of Nutrients and Enzymatic Contribution to Digestion of Fish

MolaPlus Fish Microbes have a beneficial effect in the digestion process of fish. They provide beneficial fatty acids and vitamins to the fish. What's more, the yeast in MolaPlus Fish Microbes is known to contain large quantities of protein and polysaccharides in their walls which act positively in the immune system and in the absorption of nutrients. They produce nutritious metabolites in digestion tract that boost fish performance.

As Growth Promoters

MolaPlus Fish Microbes enhance the growth of fish. Apart from that being contributed by the lactic acid bacteria in MolaPlus Fish Microbes, the yeast in the same (*Saccharomyces cerevisiae*), is not only known to increase food efficiency in farmed fishes and promote their weight gain, it enhances digestibility of feeds with increased storage density - a factor considered stressful factor in growing fish.



A Solution to Use of Antibiotics in Fish Farming

Disease is a major threat to a vibrant aquatic farming all over the world. This has led to an overuse of antibiotics to prevent and manage disease in fish farming.

Increased use of antibiotics has led to the high proportion of antibiotic-resistant bacteria which provide threat to fish and man through consumption of the infested fish. This solution of probiotics (Read: MolaPlus Fish Microbes) after a solution to overuse of antimicrobial agents as a preventive measure in fish farming.

MolaPlus Fish Microbes in aquacultures has shown to have beneficial impact on fish health and by extension economic performance of fish farming. By reducing the risk of diseases in aquatic farms, the necessity of medication is reduced. This ends up reducing the risk of residues left in the environment. The microbes' ability to colonize offers a preventive measure against overdependency on antibiotic therapy which is costly and health threatening.

How to Use

It is recommended that you inoculate an approximate of 2.5ml of MolaPlus Fish Microbes in your fish ponds twice a week. Where chemicals are seldom used, an administration of the same once a week is sufficient.

Alternatively, you could ferment 1/3 of the fish feed overnight with MolaPlus Fish Microbes at the rate of 50ml MolaPlus Fish Microbes to 3 litres of water to 5Kg of fish feed enclosed in a well sealed plastic container or bucket.



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