

Microbes in Aquaculture: New Trends and Application in Freshwater Fish Culture

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Abstract : Microbial communities play the most important role in aquatic ecosystems. These microbes have a great role in fish growth and aquaculture production. Unfortunately, the farmers are unaware of these useful creatures. Nowadays, the trend of fish farming is developed to re-circulatory aquaculture system (RAS) to increase production and reduce the investment/management cost to increase the profit. However, sometimes, it has been observed that even the growth of fish is decreased in RAS without apparent changes in water quality. There is a great importance of microorganisms in aquaculture, where they occur naturally. However, they can be added artificially by applying different roles. Even these microbes play an important role in the degradation of organic matter and recycling nutrients, along with nutritional support to fish. Even some microorganisms may protect fish and larvae against diseases. But if not managed/utilized properly, they may cause to infect or kill the fish and their larvae. However, manipulating the microbes and monitoring them in aquaculture systems hold great potential to assess and improve the water quality as well as to control the development of microbial infections. While there is an utmost need for research to determine the microbiomes of healthy aquaculture systems, we also need to develop authentic methods for the successful manipulation of microbes as well as engineer these microbiomes. Hence, we should develop a plan to utilize and get full advantage from these microbial interactions for the successful management of aquaculture through advanced research and technology.

Keywords : aquaculture, ecology system, degradation, microbes, nutrient recycling, water quality

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