

IMPORTANCE OF PREBIOTICS IN AQUACULTURE

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ABSTRACT

The aquaculture industry is one of the fastest growing animal husbandry industries in the world with its annual growth rate. However, several disease outbreaks are posing a problem to the development of this sector. These problems constitute the largest single cause of economic losses in aquaculture. Therefore, new methods are needed to overcome disease problems. In the last decades, many fish farmers have attempted to use food additives and antibiotics to cope with fish disease problem. However, the use of antibiotics in fish farming is restricted in many countries due to occurrence of antibiotic residues in aquaculture products that threat human health. Antibiotics also cause immune-saving effect in aquatic pathogenic bacteria. Therefore, several new environment-friendly preventive and prophylactic methods are being developed nowadays to control such diseases and to maintain a healthier microbial environment in aquaculture systems. One of the methods used are probiotic supplementation to the aquatic animal in order to manipulate the gut flora and to control the microbial activity. The probiotics are described as live microorganisms which have beneficial effects on the health and physiology of host organisms. Prebiotics are also defined as non-digestible materials which provide host isolation by inhibiting the activity of harmful pathogenic microorganisms in the environment as well as supporting the development of beneficial probiotic bacteria by dint of mechanisms of various actions in the environment. The studies of prebiotics in fish have mainly researched the effect on growth, feed conversion, gut microbiota and resistance against pathogenic bacteria. Considering these components, the results have been obtained from previous scientific studies were investigated, advantages and disadvantages have been highlighted in this study.