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SOYBEAN BY-PRODUCT: AS AN ALTERNATIVE TO FISH MEAL AS PROTEIN SOURCE FOR AQUACULTURE INDUSTRY

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Abstract: Proteins in commercial quality animal feed are one of its most important components as well as one of the costliest. Currently, as a result of high costs and fluctuating production, some sources of protein are unable to satiate the increasing demand from the fish feed manufacturers. Fish nutrition has been accorded particular focus with less costly feedstuff in aqua feed given extra weightage. There has been increasing attention in recent years on finding methods to recycle the by-products of feed manufacturing. Due to its vital amino acid content as well as high protein composition, soybean by-product (SBP) which is a renewable resource is expected to be a viable raw material option for replacing fish meal or as a supplement. This review intends to cover the information regarding SBP associated with fermentation and probiotic used in aquaculture industry potentially as an alternative to replace FM.

Keywords: Soybean by-product (SBP), Plant protein sources, Fish meal (FM), Protein replacement

Introduction

There has been a tremendous growth in the aquaculture feed industry in the past few years. This growth has accompanied various in-depth research into the science and technology of fish species cultivation. The types and quantities of cultured and farmed species have been increasing steadily over the years. Worldwide, the aquaculture business has grown at a median rate of 8.9% per year since 1970 (FAO, 2016; Huang & Nitin, 2019). The consistent supply and the cost of acquiring feed are the main issues in aquaculture. Feed also contributes the most to the cost of sustainable fish farming for all species. The cost of feed is crucial because it is normally makes up 30–70% of the whole operational costs and influences profitability in aquaculture investments (Muzinic *et al*., 2006; Danial, 2018). This makes the research into