



## Potential of oil seed meal as protein source for substitution of fish meal in the formulated diets

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### Abstract

Given the current rapid development of fish farming in the world intense future competition for limited global supplies of fish meal is expected. As a strategy to reduce risk of profitability and economical sustainability, the identification, development and use of alternatives to fish meal in aquafeeds remain a high priority. Among plant protein sources, oilseeds have been proved to be interesting fish meal substitutes. Most oil seed meal (OSM) (canola (CM), cottonseed (CSM), peanut (PM), soybean (SBM), sunflower (SFM) and sesame seed meal (SSM)) products are a cost-effective source of digestible protein and digestible energy, bio-available essential amino acids, and minerals for most aquaculture species. Result showed a significant decrease of growth rate in omnivorous fishes fed diets containing OSM to substitute for fish meal from 25% up to 75% of the total protein content. According to the authors, this reduction was related to reduced voluntary feed intake (VFI) caused by the relatively poor palatability of OSM and to the high level of phytic acid in these meals. The reduction of VFI in fish with more carnivorous feeding habits is a common feature when fish meal is substituted by plant protein sources. Also, lower performance caused by high levels of OSM protein inclusions in aqua-diets have been attributed to amino acid deficiencies, especially methionine and lysine, and nutrient digestibility reduction. Findings suggest that OSM can be a suitable protein source for carnivorous fish and replace at least half of the fishmeal protein (without amino acid supplementation) without growth reduction.

**Keywords:** fish meal replacement, oilseed meal, voluntary feed intake, amino acid