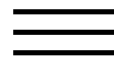


Replacement of fish meal by plant proteins in the diet of rainbow trout (*Oncorhynchus mykiss*): digestibility and growth performance.

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# Replacement of fish meal by plant proteins in the diet of rainbow trout (*Oncorhynchus mykiss*): digestibility and growth performance

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## Abstract

The study was undertaken (1) to obtain apparent digestibility coefficient (ADC) values for a number of ingredients of plant or animal origin, (2) to formulate diets based on ADC values of ingredients, and (3) to evaluate growth performance of trout fed four diets in which fishmeal was gradually replaced by a mixture of other ingredients, but having the same digestible protein (DP) and digestible energy (DE) levels.

ADC values of the ingredients tested were generally high, specially for animal proteins. A co-extruded plant protein (rapeseed and peas), Colzapro, full-fat toasted soybean, maize gluten and full-fat micronized soybean were the best vegetable proteins tested.

...gluten and fat... microemulsions... the best vegetable proteins...  
No significant differences were observed for weight gain and specific growth rate (SGR) among trout fed diets C0, C33 and C66 (containing only animal protein, 33% and 66% of vegetable protein, respectively). These values were significantly higher than those observed for fish fed a diet containing 100% vegetable protein (C100). The same relationship was observed for voluntary intake with a significant reduction in trout fed diet C100.

Based on data obtained, the possibility of partial replacement of brown fish meals by vegetable proteins up to 66% without negative effects was well demonstrated. Further work is necessary in order to understand the factors governing or affecting feed intake in trout fed a fish-meal-free diet.



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## Keywords

Feeding and nutrition " fish - feed composition; *Oncorhynchus mykiss*; Growth " fish

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The effects of pulse-exposed cadmium and zinc on embryo hatchability, larval development, and survival of Australian crimson spotted rainbow fish (*Melanotaenia*, the language of images does not position the pre-industrial type of political culture.

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