empro
EMANATION OF PROTEINS

Use of Empro proteins in seabream

Introduction

Empro produces different protein meals by hydrolysation of purified chicken feathers via a patented production process. EM'PAQ is a premium hydrolysed feather meal aimed at attaining optimum digestibility in fish. The aim of this trial is to partially replace the fishmeal in the seabream diet with several inclusion levels of the EM'PAQ and select the optimal replacement/inclusion level.

Feeding trial set up

Seabream fingerlings (*Sparus aurata*) were obtained from a commercial hatchery in Spain and transferred to an experimental RAS. The system comprises 18 cylindro-conical tanks of 330L under identical conditions. 4 diets have been tested in triplicate. A group of 30 individuals with an initial body weight of +/- 43,3 g were stocked per tank. A total of 90 fish per diet was used. Fish were fed manually, 3x/d to apparent satiation, following feeding tables for the species. Temperature was kept at 21°C +/-1°C throughout the trial and the photoperiod used was 12L/12D. The trial ran for 13 weeks and survival, growth and FCR were measured bi-weekly.

All feeds contained 46% protein/18% lipids. These were formulated as practical diets including fishmeal and other raw materials as protein sources following least cost programming. The control diet included 23,8% Danish fishmeal LT, the treatments contained different inclusion levels of the Empro EM'PAQ meal – 3, 6, and 9%. Formulations were made isocaloric and isonitrogenous by adapting fish oil, wheat flour and inert filler.

Composition of the experimental diets

	Control	3% EM'PAQ	6% EM'PAQ	9% EM'PAQ
LT fishmeal 999	23,8	20,3	16,9	13,5
Wheat gluten	8	8	8	8
SPC	10	10	10	10
Wheat flour	16,7	16,7	16,7	16,6
Fish oil	10	10,1	10,1	10,2
FM 725	0	3	6	9
Other*	31,5	31,9	32,3	32,7

** includes haemoglobin meal, corn gluten, rapeseed oil, rapeseed meal, lysine, methionine and vit/min premix.*

Results

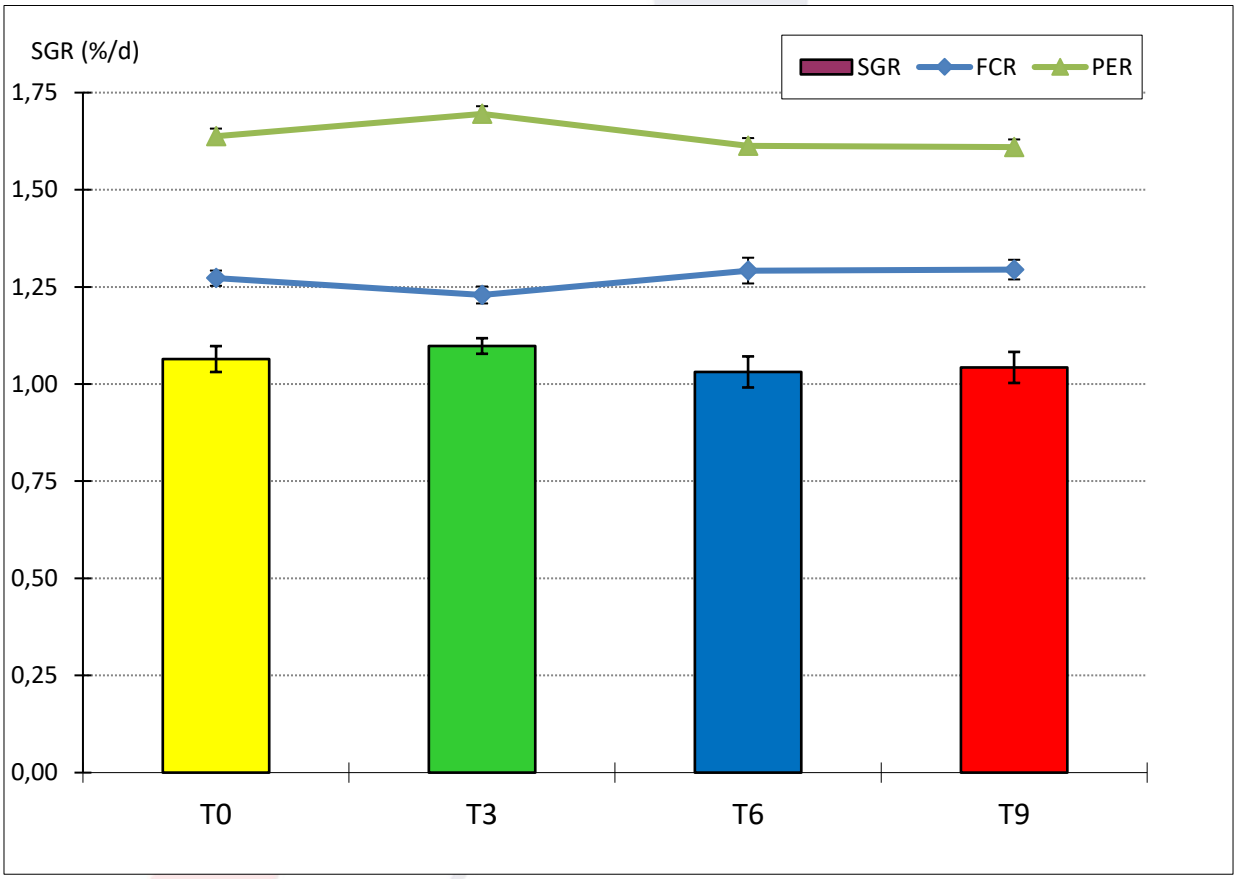

Fig. 1: Specific Growth Rate (SGR), Protein Efficiency Ratio (PER) and Feed Conversion Ratio (FCR) for the different treatments

The survival in all treatments ranged between 95,56 and 96,67% so was not influenced by diet composition. The final weights at the end of the trial ranged between 110,54 g and 117,45 g and were not statistically different. The diet with the 3% inclusion gave the best results in terms of growth and FCR but is not statistically different from the control diet. No statistical differences were observed in growth, protein efficiency ratio and FCR between the diets with 6 and 9% EM'PAQ, compared to the control.

Conclusion

The inclusion of 3, 6 or 9% of EM'PAQ results in similar performance of seabream in terms of survival, growth and FCR. This means that replacement up to 43,3% of the LT fishmeal 999 with EM'PAQ does not affect growth parameters nor survival. In practical seabream diets, the replacement of a large part of the LT fishmeal by EM'PAQ will lead to a significant cost reduction and thus to a more cost efficient and sustainable production.