

ENGLISH SUMMARY

The meagre is a carnivorous fish that is being produced in the Mediterranean Sea thanks to the high growth rates and meat quality. There is almost no nutritional information related to this species in comparison to sea bass and sea bream production. The objective of this Doctoral thesis was to determinate the nutritive requirement of meagre and study the inclusion of soybean meal as an alternative protein vegetable meal to replace fish meal.

Two groups of fish of 53 and 200 g body weight were used and they were fed with one commercial meal to determinate the protein and energy requirement. In this trial it was applied a factorial model to obtain the maintenance requirements for protein that was 0,0617 g DP 100 g fish⁻¹ day⁻¹ and for energy 2.74 kJ DE 100 g fish⁻¹ day⁻¹. The protein requirements for the maximum growth was determinate in 0,64 g DP 100 g fish⁻¹ day⁻¹ and the energy requirements for the maximum growth was 38.5 kJ DE 100 g fish⁻¹ day⁻¹. Fish of 52 g of body weight were used to study the effect of digestible protein level (35%, 43%, 49% y 53%). Fish fed with experimental diets of de 43%, 49% y 53% of digestible protein obtained the highest growth (Thermal Growth Coefficient = 2,47, 2,57 y 2.69 x 10⁻³, respectively). The optimum digestible protein levels for juvenile meagre were 8 g DP 100 g fish⁻¹ day⁻¹. There were used fish of 147 g in sea cage to determinate the Protein/Energy relation. In this trial fish were fed with experimental diets of 47/20, 51/28 y 55/17. It was obtained the highest growth and conversion rates for 47/20 diet.

To determinate the soybean meal inclusion in meagre two phases were done. In the first phase, 800 fish of 165g were used during 107 days. They were fed with four isoproteic (50% Crude protein) and isolipidic (17% Crude lipid) with inclusion levels of 0, 15, 30 and 45% of soybean meal. The 15 and 30% diets obtained the best results. And according to the quadratic regression el optimum inclusion level of soybean meal were 27.6%. The relation between the essential amino acids rate in the diet and the corporal essential amino acids rate in fish presented the efficiency in arginine, lysine and treonine, and mainly methionine. In the second phase it was used the same methodology, but 300 fish of 346 g body weight were fed during 26 days. The results showed that meagre obtained the highest growth rate (Thermal Growth Coefficient = 4,00 x10⁻³) and we recommended the inclusion of soybean meal between 30 and 45%.

According to the results obtained in the different trials, we propose a diet for *Argyrosomus regius* of 47% crude protein and 17% crude lipid and a 30% of soybean meal inclusion, supplemented with methionine and lysine in order to obtain a high growth and diminish the use of fish meal and make more profitable the aquaculture production of this specie in the Mediterranean Sea.