

## Accepted Manuscript

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PII: S0044-8486(17)32117-8  
DOI: <https://doi.org/10.1016/j.aquaculture.2017.12.043>  
Reference: AQUA 632997  
To appear in: *aquaculture*  
Received date: 24 October 2017  
Revised date: 21 December 2017  
Accepted date: 26 December 2017

Please cite this article as: Marta Monteiro, Elisabete Matos, Rafael Ramos, Inês Campos, Luisa M.P. Valente , A blend of land animal fats can replace up to 75% fish oil without affecting growth and nutrient utilization of European seabass. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Aqua(2017), <https://doi.org/10.1016/j.aquaculture.2017.12.043>

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**A BLEND OF LAND ANIMAL FATS CAN REPLACE UP TO 75% FISH OIL  
WITHOUT AFFECTING GROWTH AND NUTRIENT UTILIZATION OF EUROPEAN  
SEABASS**

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**Abstract**

Animal fats of terrestrial origin are often by-products from agro-food industries that could be valuable sustainable sources of lipids for aquafeeds. Four diets were hence tested in European seabass (*Dicentrarchus labrax*) juveniles (initial body weight, 20 g): a control diet with fish oil (FO) and three diets where a blend of poultry and mammal fats (50:50) replaced 50, 75 and 100% of the supplemental fish oil (50PFMF, 75PFMF and 100PFMF). All diets were isoproteic (51% dry matter, DM) and isoenergetic (23 kJ g<sup>-1</sup> DM). After 114 days of feeding the experimental diets, the apparent digestibility coefficients (ADCs) of nutrients were determined and fish growth performance evaluated. Postprandial plasma metabolites and muscle fatty acid profile were determined. Liver was also sampled for histologic evaluation and determination of lipogenic enzymatic activity.

Protein and energy ADCs were not affected by the dietary treatments, but lipid ADC was lowest in the diet devoid of fish oil (100PFMF). Replacement of fish oil by a blend of land animal fats did not affect daily growth index, feed conversion ratio or nutrient utilization. Whole body composition remained unaffected by dietary treatments, but there was a significant increase in the hepatosomatic index of fish fed 100PFMF. Total replacement of fish oil by PFMF resulted in increased hepatic vacuolation, apparent steatosis and compromised glycogen deposition. Malic enzyme activity was lowest in fish fed 100PFMF. A significant reduction of muscle eicosapentaenoic (EPA) and docosahexaenoic acids (DHA) content was observed with decreasing levels of dietary fish oil. Results indicate that juvenile seabass can effectively use diets with high levels of land animal fats as alternative lipid source, up to 75% fish oil

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