

A novel strategy to increase European seabass (*D. labrax*) resistance to tenacibaculosis: dietary supplementation with swine blood hydrolysates

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Bioactive peptides are small amino acid chains with valuable properties (beyond their nutritional value), present in by-products' hydrolysates. They can be included in aquafeeds, contributing to circular economy and waste reduction. We hypothesised that including blood hydrolysates (BH) in sustainable plant-based aquafeeds promoted fish robustness and addressed the *T. maritimum* infections that occur in aquaculture farms.

Three BH were obtained by autohydrolysis (AH) or enzymatically. The latter were further submitted to micro- (MF) or nanofiltration (NF). Five isolipidic and isoproteic diets for European seabass were developed: one fishmeal-based (positive control, PC); one commercial-based, with 50% of fishmeal replacement by plant proteins (negative control, NC); and three where 3% of each BH was added to the NC. Diets were assigned to triplicates of 71 juveniles (initial weight 12.3 ± 1.4 g) and fed to apparent satiation in a recirculating saltwater system. Growth, nutrient utilisation and carcass composition were evaluated after 12 weeks. Ten fish per tank were then infected with *Tenacibaculum maritimum* (3.5×10^5 cfu/mL), in a bath, and mortality was assessed for 8 days. The remaining fish from the growth trial were transferred to a Guelph system, for macronutrient and mineral apparent digestibility coefficients (ADC) evaluation, using diets supplemented with Y_2O_3 as an inert marker.

Protein ADC was generally high. NF had similar ADCs to NC. MF and AH had lower lipid ADCs compared to PC and NC. Mineral ADC of the PC, NC and NF were alike, but the AH and MF led to lower calcium, copper, potassium and iron digestibility.

PC yielded the highest final weight, followed by NC and NF. Specific growth rate and feed conversion ratio (FCR) of NF were similar to controls. MF induced the lowest final weight and highest FCR. No differences regarding final body composition occurred, but lipid and energy retention were lowest in MF.

Regarding the infectious challenge, NF had the lowest mortality rate, significantly different from the NC and MF groups. Results show that the NF reduced fish mortality after exposure to tenacibaculosis, without affecting fish growth, having high potential for inclusion in aquafeeds for European seabass.

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