

## **Pikeperch (*Sander luciopera*) from recirculating aquaculture systems – quality assessment and comparison with frozen products from retail**

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Pikeperch (*Sander luciopera*) is considered to have a high potential for recirculating aquaculture systems (RAS). Constant high temperatures (22-24 °C) and a good water quality ensure satisfactory growth rates and enable a **production of 1 kg fish in approx. 15-18 months**. In Germany, pikeperch has a great consumer acceptance and is demanded the year round. The market value is high at 8.5 - 14 €/kg whole fish at farm gate. Its boneless flesh has an aromatic typical taste and is suitable for different forms of preparation. However, in supermarkets deep frozen skin-on fillets of wild pike-perch dominate, mostly available from Kazakhstan and the Russian Federation. Due to limited potential of the production in natural waters and ponds the expansion of pike-perch culture depends on the successful development in RAS. Within an EU financed project the influence of different formulated diets on the growth performance and the product quality of fish at market size was investigated. For comparison frozen fillets from retail were analysed.

The entire production cycle of the pikeperch was figured out in a commercial-scale aquaculture system. For grow-out two groups were fed different commercial diets usually used for sturgeon production over a period of four months, containing a high protein content of > 50% and a low fat content of < 15%. The fillets of fish at market size of 1.2 kg were analysed for proximate, fatty acid and free amino acids composition and selenium. A sensory panel assessed the sensory quality. Six products from retail were equally analysed and compared to aquaculture-products.

Irrespective of the diet, both groups of reared fish showed comparable growth performances and fish conditions. After four months fish achieved a mean weight of  $1121,2 \pm 237,95$  and  $1131,0 \pm 213,89$  g and a total length of  $51,4 \pm 3,47$  and  $51,4 \pm 3,08$  cm, respectively (n=25). The fillet composition of cultured fish was similar and comparable to wild pikeperch. The fat content of the muscle flesh slightly increased due to the feed applied. However, it remains lean with 1.6% compared to wild counterparts with less than 1%. High energy feed stuff did not increase intramuscular fat and led to excessive abdominal fat. In summary, amounts of docosahexanoic acid between 16.6% - 20.8% and eicosapentaenoic acid between 5.2% - 6.8% were estimated. The sensory quality was good. Musty/mouldy taste which is often appearing in fish from RAS was no problem and only found to a slight and acceptable extent. Frozen pike perch fillets from retail had a very different quality. Main deviations were an untypical smell and a sour to bitter aftertaste.

Both diets were suitable for pikeperch cultivation, no significant differences in growth performance or fish condition were determined. But based on the unpredictable uptake of adult pikeperch, it is necessary to avoid feeding losses with a very accurate feeding and control system. The fish quality of all groups was good. The tested formulated diets yielded similar production values. The partly bad sensory evaluation was the main difference of frozen fillets from imported pike perch.



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A photograph of a laboratory setting, showing a large number of petri dishes arranged on a table. The dishes contain various colored liquids or cultures, ranging from yellow to pink. In the background, there is a microscope and other laboratory equipment.

La Cité, Nantes Events Center  
12-15 October 2015