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## Czech Journal of Animal Science

Effect of different dietary lipid levels on growth performance, slaughter yield, chemical composition, and histology of liver and intestine of pikeperch, *Sander lucioperca*

Kowalska A., Zakęś Z., Jankowska B., Demska-Zakęś K.:

Czech J. Anim. Sci., 56 (2011): 136-149

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In this study, 16-month-old pikeperch, *Sander lucioperca*, (initial body weight 280 g) were fed three diets with different lipid levels with the aim of determining the impact on the growth performance,

hepatic and intestinal histological structure, chemical composition, and slaughter yield of this species. The fish were fed isoproteinaceous feeds (450 g protein/kg feed) containing 60 g lipids/kg feed (group F6), 100 g lipids/kg feed (group F10) and 180 g lipids/kg feed (group F18). No significant differences were noted among the treatment groups in body weight gain and in the feeding coefficients of experimental feeds ( $P > 0.05$ ). In the group of fish administered the diet with the lowest lipid content (group F6), the share of skinned fillet in the whole body weight was the highest (48% vs. 43% in group F18) ( $P < 0.05$ ). No significant differences among groups were confirmed in the relative values of the viscera weight (4.8–5.8%) ( $P > 0.05$ ). The highest values of the size of hepatocytes and their nuclei, intestinal cells, supranuclear vacuoles of enterocytes, and the degree of vacuolization in hepatocytes were determined in group F18 ( $P < 0.05$ ), indicating histopathological changes. The highest body and viscera lipid contents were noted in individuals from group F18 ( $P < 0.05$ ). The high lipid content in the

viscera or fillet from this group was linked to the significantly lowest content of protein and ash. The levels of lipids, protein, and ash were similar ( $P > 0.05$ ) in the pikeperch fillets from the three feeding treatments. The levels of n-6 polyunsaturated fatty acids (n-6 PUFA) in the whole fish body, in the viscera and fillets ( $P < 0.05$ ) were the significantly highest in group F18. Significant differences in n-3 polyunsaturated fatty acids (n-3 PUFA) among the groups were confirmed in the whole fish body and viscera ( $P < 0.05$ ), while the values in the fillets were similar ( $P > 0.05$ ). The n-3/n-6 index for the fish fillets ranged from 2.4 (group F18) to 4.7 (group F6) ( $P < 0.05$ ). The levels of n-3 highly unsaturated fatty acids (n-3 HUFA), arachidonic acid (ARA) and docosahexaenoic acid (DHA) in the fillets of fish from the three dietary treatments were similar ( $P > 0.05$ ). The fillets of fish from group F6, however, had the lowest levels of linolenic and linoleic acid (ALA and LA) and the highest levels of eicosapentaenoic acid (EPA) ( $P < 0.05$ ).

**Keywords:**

percid fish; lipid; slaughter yield;  
histology; body composition

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