Influence of water hardness on growth and development of larvae pikeperch (Sander lucioperca) in controlled conditions

Vliv tvrdosti vody na růst, přežití a vývoj larev Candáta obecného (Sander lucioperca) v kontrolovaných podmínkách

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Water hardness has influence on fish larvae, the different species have different requirements on level of water hardness. Larvae usually need medium or hard levels hardness of water. The aim of this study was to compare influence of four different hardness of water on growth, survival of pikeperch (Sander lucioperca) larvae, during 2 -22 DPH (day post hatch). In present study was used pikeperch larvae from wild female reared in pound on Fish farm Pohořelice a.s. Spawn was realized in small pond on spawning nest with hormonal support by artificial commercial hormone Supergestran. Eggs on spawning nest were incubated in stew at water hardness 184.84 mg.l⁻¹ CaCO₃ and temperature 13.4±1°C until 2 days before hatching 3.5.2008. This day was nest transported in plastic tank without water to the Department of fishery and hydrobiology MZLU in Brno, this took approximately 1 h. There was nest stocked into 250 l circular plastic tank with hardness 209.81 mg.l⁻¹ CaCO₃ and temperature 13.2 ± 0.3 °C, water in this tank was filtered by outer filter (Ehaim professional 2226), in this tank was larvae hatched. Hatching of larvae begin 5.5.2008. Two days after hatching were larvae divided into 30 l green plastic tanks with four different initial water hardness (A – 289.03; B – 229.80; C – 159.86 and D – 87.42 mg.l⁻¹ CaCO₃) at temperature 15.9 \pm 0.8°C. Variant E – 229.80 mg.l⁻¹ CaCO₃ same as B had higher temperature conditions 21.8±0.8°C. Each of treatment had three replicates. For the variant A was used Brno tap water, for variant B and C tap water weaken by distilled water and for variant D was used water softened (AF 200 D, DETO Brno s.r.o.). In rearing tanks ware replaced 1/3 of volume twice a day by relevant water. Control group of larvae was keeping in the same circular tank as larvae ware hatched at temperature 17.5±1.6°C. The larvae were fed from 4 DPH - only with Artemia nauplii. The first fed intake ware observed 6 DPH in control group and 6 DPH in attempt. From 9 DPH was fed with Perla feed. At the end of the experiment, there was observed the highest survival in the control group. Average TL, SL and W of fish in the control group and variant E were significantly different than in groups A, B, C and D (p < 0.05). Between test groups wasn't observed significant difference in average TL, SL and W. The highest survival was observed in group E this was significantly higher than in group A (p < 0.05) with other groups there wasn't observed difference in survival.

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