

Development of yolk complex, liver and anterior intestine in pike-perch larvae,



Pike-perch *Stizostedion lucioperca* larvae fasted or given two diets (artificial feed, zooplankton) were studied by transmission electron microscopy and using specific cytological dyes. The objective of this work was to assess the changes in the yolk sac, liver and anterior intestine following the mouth opening stage (95 °C.d, day 5 - 5.8 mm) from endo- to exotrophy periods. The yolk sac included a syncytial envelope closely bound to the proteinaceous vitellus and the oil globule. Its development was similar to that observed in trout (*Oncorhynchus mykiss* and *Salmo fario trutta*) and sea-bream (*Sparus aurata*,) but without vitellus fragmentation into platelets. Vitellus resorption was never achieved in dying larvae. From the end of the endotrophic phase onwards, the amount of hepatic glycogen decreased. Carbohydrate disappeared at the beginning of the exotrophic phase then increased after 220 °C.d (day 10 - 6.0 mm), mainly in zooplankton-fed larvae. Lipids from enterocytes, sinusoids and general blood stream showed a similar development. They were abundant at 95 °C.d, progressively disappeared up to 260 °C.d (day 12 - 6.3 mm), and increased again from 350 °C.d (day 16 - 6.7 mm) onwards if larvae were fed zooplankton. Dietary lipids did not seem to immediately replace yolk lipids despite absorption in the gut. Various hypotheses are proposed to explain the physiological abnormalities of this critical larval stage. Although zooplankton appeared to have better nutritional qualities than the artificial feed, these two foods proved to be quite unsatisfactory as they induced liver cell changes typical of food deficiency, generally observed in starving larvae.

Auteurs du document : Laurence Mani-Ponset, Jean-Pierre Diaz, Olivier Schlumberger, Robert Connes

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