

Photoresponse ontogeny and its relation to development of pineal organ and eye in larval bagrid catfish *Mystus nemurus* (Valenciennes)

Abstract

The artificially reared bagrid catfish *Mystus nemurus* was observed for the histological development of the pineal organ and retina and photoresponse in a test tank at hatching to 14 d after hatching. The pineal organ was functional at hatching, and the lens-like tissue was partly ossified forming a pineal window at 6 d. The retina became morphologically functional when the outer segments of single cones were formed, and the eyes were innervated with the optic tectum at 18 h and rods were formed at 36 h. Long and thin single cones were not observed. The larvae exhibited undirected kinetic movement at hatching to 12 h and directed tactic swimming away from a torch after 18 h in response to a torch light. The photoresponse of the larvae was negative at hatching to 30 h and at 6 d to the end of the observation at 14 d, but neutral during a period at 36 h to 5 d. It was evident that the kinetic movement was mediated by light perception with the pineal organ, which was not capable of detecting directed signal information, and that the larvae were capable of directed tactic movement only when vision was involved. The vigorous negative phototaxis at 6-14 d was attributed to the improvement of photosensitivity of the retina and the pineal organ