

Sense organs development in larvae of the Sultan fish *Leptobarbus hoevenii*

ABSTRACT

At hatching, the sense organs of the *Leptobarbus hoevenii* larvae were morphologically immature. However, these sense organs had developed and became functional (including first occurrence of the intra-oral taste buds) to facilitate the larval first exogenous feeding at 3 days post-hatching (dph), before the yolk sac was completely absorbed at 5 dph. During the larval metamorphosis period (5–30 dph), the larval notochord flexion and fin development had completed. The retinal rods appeared at 5 dph, and its number increased with larval growth. The lagena was formed and the inner ears were fully calcified at 15 dph, indicating that the inner ears were completely developed. The olfactory organ development was completed when the anterior and posterior pits were formed at 30 dph. Canal neuromast was first found in the 30 dph *L. hoevenii* head portion, but none was observed at its trunk. Further examination of the elder stage (> 30 dph) of *L. hoevenii* is necessary to confirm the timing of trunk canal neuromast development. These findings have provided new biological information related to the *L. hoevenii* migratory life history in the field, as well as insight to improve the *L. hoevenii* larval rearing protocols.