

Role of free neuromasts in larval feeding of willow shiner *Gnathopogon elongatus caerulescens* Teleostei, Cyprinidae

Abstract

It has been reported that the larvae of willow shiner *Gnathopogon elongatus caerulescens* have many free neuromasts on their body surface. This study examined the ability of the willow shiner larvae to feed on zooplankton by mechanoreception by the free neuromasts. Feeding experiments using untreated larvae and larvae treated with streptomycin, which impairs free neuromast function, were conducted under light and completely dark conditions. The larvae were put into Petri dishes, then nauplii of *Artemia salina* were introduced. The average number of *Artemia* eaten by the larvae was expressed as the average ingestion rate of *Artemia*/10 min. The ingestion rate of *Artemia* for untreated larvae was 12.3 under light conditions and 10.6 *Artemia*/10 min. even in complete darkness. The ingestion rate in the larvae treated with streptomycin was 11 under light conditions and only 0.8 *Artemia*/10 min under dark conditions. The low rate in the treated larvae under dark conditions must be due to impairment by the streptomycin. Therefore, the high ingestion rate for the untreated larvae under dark conditions would be surely dependent on mechanoreception. The results indicate that larval willow shiner is able to feed on zooplankton under limited light conditions.