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The effects of photoperiod and temperature manipulation on gonadal development and spawning time of female *Rutilus rutilus caspicus* (Roach)

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The Roach, *Rutilus rutilus caspicus*, is a potential for commercial aquaculture in Iran. One of the most significant constraints limiting commercial production of Roach is the lack of a reliable supply of eggs and larvae. A narrow window of annual spawning prevents year-round availability of juveniles for grow out. The present study reports the use of photoperiod and temperature manipulation to alter the time of spawning in female *R. rutilus caspicus* and increase availability of larvae which is so mean to sustainable aquaculture. Mature female Roach were maintained 70 days under a simulated natural light (NL) and 16L/8D, 11L/13D and 9L/15D photoperiod regimes. Water temperature was adjusted on 14, 20 and 24°C. Reproductive development was monitored by histological analysis of gonadal biopsies and plasma level of 17β-stradiol and 17α-hydroxy progesterone as main sexual steroids were investigated as well. The results showed that, follicle growth and spawning in females were advanced approximately two months by exposure to the long day regime. This research also suggested that in the process of oocyte maturation of Roach, photoperiod appeared to be more effective than temperature for even in the lowest experimental temperature (14°C), the fish exposed to the long photoperiod had earlier maturity and spawning in comparison to natural light regime. These findings suggest that photoperiod manipulation can be used to alter the reproduction cycle in Roach and control the supply of eggs for commercial aquaculture.

Biography

Maryam Akhoundian has completed her MSc from Tarbiat Modarres University of Tehran. After 9 years spent on research and teaching in universities, she completed her PhD from Khorramshahr University of Marine Science and Technology. She is an Assistant Professor in Marine Biology at Marine Science of University of Mazandaran, Iran.

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