

عنوان مقاله:

Influence of the photoperiod and light intensity on growth performance, Melatonin and Insulin-like growth factors gene expression on *Acipenser persicus* during the embryonic stage

محل انتشار:

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خلاصه مقاله:

The effects of different light regimes (۲۴L: ۰D, ۱۵۰ lux, ۱۲L: ۱۲D, ۳۰۰lux, ۰L: ۲۴D, ۰ lux, and control treatment) on growth, melatonin concentration, and Insulin-like growth factors gene expression of Persian sturgeon (*Acipenser persicus*) embryos were evaluated. Four groups of Persian sturgeon eggs (۴۵۰ g) were incubated in Youshchenkov incubators with three replications for each treatment. The experiment was conducted during an ۸- day period of incubation. Growth rate, plasma melatonin levels, and IGF-growth factors were investigated at ۱, ۴, and ۸ days post fertilization. Results showed that higher mean weights growth were observed in fertilized eggs exposed to a ۲۴L: ۰D photoperiod with ۱۵۰lux light intensity ($p<۰.۰۵$). The larval body length and hatching rate of fertilized eggs were significantly higher in embryos incubated at ۱۲L: ۱۲D with ۳۰۰lux. The melatonin hormone level between sampling days and treatments were significantly different and it would be concluded that it may be related to the species. During the first-day post fertilization, the IGF-I and IGF-IR gene expression were significantly higher than other days. However, IGF-I and IGF-IR gene expression at different treatments showed no significant difference at day ۴ and ۸ post fertilization. According to the results, the stimulating role of IGF-I and IGF-IR gene expression in growth at the one-day post fertilization under different light regimes can be concluded. These findings suggest that the ۱۲L:۱۲D photoperiod with ۳۰۰lux light intensity is the appropriate light regime for Persian sturgeon eggs incubation. The results of the present study would provide fundamental information for further use of light regimes during the early development of sturgeon larvae to optimize rearing protocols in sturgeon hatcheries.

کلمات کلیدی:

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