

Study of the effects of thermal regime and alternative hormonal treatments on the reproductive performance of European eel males (*Anguilla anguilla*) during induced sexual maturation

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ABSTRACT

Since 1960, the European eel (*Anguilla anguilla*) has suffered a dramatic reduction in natural stocks. Breeding in captivity is considered an alternative, but obtaining high quality sperm seems basic on this regard. The main objective of this study was to assess the effects of three thermal regimes (two of them variable: T10 and T15; and one of them constant: T20) and three hormonal treatments with different hormones (hCG, hCG_{rec} and PSMG) on the induction of maturation in European eel males.

In the case of the thermal regimes, our results demonstrated that the onset and progression of spermiation are strongly influenced, and perhaps closely regulated, by water temperature. T20 demonstrated the best results in all the sperm parameters (volume, density, motility, kinetic features, etc.) throughout most weeks of treatment, becoming a reliable and productive method for inducing spermiation in this species. In the case of hormonal treatments, the onset and progression of spermiation in European eel males were influenced by the hormone used. In this respect, hCG_{rec} produced the best results in all the sperm parameters including volume, density, motility, kinetic features, etc., throughout most weeks of treatment, thus becoming an effective alternative treatment to the standard hCG treatment used to induce spermiation in eel species. Moreover, hCG_{rec} gave rise to the best economical profitability, making it possible to obtain good quality sperm samples at a lower price than by using the other two hormonal treatments.

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