

GnRHa treatments of Atlantic Salmon broodstock suppresses effects of endocrine disruptors, benefitting offspring quality

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The use of synthetic hormones to regulate sexual maturity in captive fish is a common practice. With aquaculture practices, fish production is desired throughout the year, necessitating the maintenance of quality standards, mainly regarding the characteristics of the fish produced. Embryonic development may be affected by toxins in the environment and by a variety of pathologies. The aim of this study was to determine the effects of treatment with gonadotropin-releasing hormone analog (GnRHa) on captive male and female Atlantic Salmon (*Salmo salar*) broodstock, observing the effects on the hormonal milieu and impacts on breeding outcomes. Sexually mature fish were fertilized with and without imposing a GnRHa treatment to evaluate the development of offspring up to the fry stage. The concentrations of 17 β -estradiol (E2) and testosterone (T) were determined using commercially available ELISA kits. The results indicate the administration of GnRHa had marked effects on reductions of morphological deformities in the offspring and promoted development during the larval stage by inducing sexual maturity in both treated parents. The E2/T ratio results indicate the presence of endocrine disruptors. It is concluded that the use of GnRHa at a dose of 10 ug/kg in captive male and female Atlantic salmon broodstock has an inhibitory effect on the impacts of endocrine disruptors, does not affect fertilization rate, and has positive effects on development of offspring by reducing the number of morphological deformities during the larval stage of development. © 2020 Elsevier B.V.

Endocrine disruptor

GnRHa

Malformations

Salmo salar