THESIS ABSTRACT

COMPARISON OF [D-Ala^6-Pro^{9}NET]-LHRH AND [D-Leu^6-Pro^{9}NET]-LHRH EFFECTS ON BLOOD PLASMA GtH-II LEVELS IN CAPTIVE STRIPED BASS (*Morone saxatilis*)

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In some species of fish that are kept in captivity, maturation and spawning are suppressed. This inability to mature and spawn in captivity is due to the lack of release of gonadotropin (GtH-II) from the pituitary gland. An approach to solving this problem has been to treat the captive fish with analogs of the gonadotropin-releasing hormone (GnRH). Analogs are less prone to cleavage and inactivation by enzymes as compared to the native GnRH. [D-Ala^6-Pro^{9}NET]-LHRH is a mammalian GnRH analog that has been used experimentally in several species of fish to successfully induce GtH-II release and thus, maturation and spawning in captivity.

However, this analog does not have regulatory approval for use in commercial scale fish culture operations. We analyzed the possibility of using another mammalian analog, [D-Leu^{6}-Pro^{9}NET]-LHRH (leuprolide) in replacement of [D-Ala^{6}-Pro^{9}NET]-LHRH. Leuprolide has regulatory approval and it is currently used in fertility treatments in human beings. We have used specific RadioImmunoAssay (RIA) techniques to obtain the GtH-II concentrations in plasma of captive striped bass (*Morone saxatilis*) treated with both analogs and compared the curves produced in 24 hour and 14 day experiments. We obtained similar GtH-II surge curves when fish were treated with both analogs, indicating that the analogs may be used interchangeably. We also experimented with the detection of residues of GnRH analogs in fish eggs. From results obtained, we conclude that GnRH residues are not detectable in fish eggs as compared to GnRH levels in plasma of treated fish.