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## RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

**Title:** Use of Gonadotropin Releasing Hormone Analogs on the Induced Reproduction of *Chame Dormitator latifrons*

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**Abstract:** Chame (Pacific Fat Sleeper) is considered a relevant upcoming fish species for aquaculture; particularly in Ecuador and some preliminary trials in Mexico. Nevertheless, the reported production for the last 15 to 20 years in culture has been dependant of wild-caught juveniles. Thus, we are conducting research focused on the achievement of controlled reproduction and larvae production as well as to get relevant information on the reproductive biology of the fish. At this moment we have successfully induced gamete release in both genders using the following procedures: An experiment was conducted with 16 females divided into the following groups: control group (0.5 ml/kg 0.9% saline solution), Desgly10-Ala<sup>6</sup> LHRHa injected at 40 µg/kg (priming dosage) and 80 µg/kg (resolving dose), 2 injections of Ovaprim® at 0.5 ml/kg or a single implant 75 µg (Ovaplant®). Spawning results showed 100% success within 24h and 48h for the Ovaplant group, and 25% for the LHRHa treatment but 0% for Ovaprim group within 48-72h. Only one natural spawn was observed. Obtained data establishes oocyte size as 300 µm and a relative fecundity of 80,000 to 100,000 cells per gram. All delivery treatments were effective to induce spermiation in volumes from 0.5 to 10 ml per male (LHRHa injected at 40 µg/kg, Ovaprim® at 0.5 ml/kg or a single implant 75 µg (Ovaplant®); however several males released sperm naturally up to 1ml throughout the reproductive season. Obtained data indicates that sperm activation time is close to 4 minutes, and overall concentration is within the range of 1 to 2X10<sup>9</sup> cells per milliliter. Increased sperm motility is achieved after predilution on a 1:10-1:40 ratio in Ringer's solution. As optimal salinity values, both for fertilization and egg incubation, our results indicate that there is no sperm activation above 5‰ of salinity; similar data were recorded for optimal

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incubation salinity as no hatching was observed above 5‰ salinity. These findings are relevant due to the differences with other spawning protocols previously used, given that other trials reported the need of repeated injections of Human chorionic gonadotropin (HcG) up to 10,000 UI per fish. Another difference with previous studies was the observance of only partial spawns. We conclude that these protocols allow to successfully obtaining viable gametes for chame larvae production.

This abstract was excerpted from the original paper, which was published in Better Science, Better Fish, Better Life: Proceedings of the Ninth International Symposium on Tilapia in Aquaculture (2011) [Edited By: Liu Liping and Kevin Fitzsimmons] pg:187-192

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