



Broodstock Husbandry and Accelerating Sex Inversion of Captive White Grouper *Epinephelus aeneus* (Geoffroy Saint-Hilaire, 1817) in Recirculating Aquaculture System: Preliminary Results

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Abstract

Reproduction-associated problems persist and basic aspects of Grouper species' biology such sex determination and differentiation in the protogynous hermafrodit white grouper, *Epinephelus aeneus* (Geoffroy Saint-Hilaire, 1817) are still unknown and need to be clarified. Thus, two experiments were conducted on the sex inversion in young female white grouper (mean body weight ranged from 216.8 to 423.6 g). In the first experiment, methyltestosterone (MT) at five doses (0 mg MT/kg, 5 mg MT/kg, 10 mg MT/kg, 15 MT /kg and 20 mg MT/kg/fish). Test doses were applied as formulated implant in reproduction season (June-September) of this fish species. The implants were inserted in stratum basale/hypodermis layer's (the facial part of the musculus dorsalis lateralis: MDL region) of the broodstocks under the anaesthesia condition according to fish surgery techniques. In the first experiment white grouper can successfully be induced to functional males with MT. After the MT implants; 4 functional females (F), 1 un-functional F in control group, 4 functional males (M), 1 semi-functional M in 5 mg MT/kg group, 1 functional female (M), 1 semi-functional M, and 3 functional M were detected in 10 mg MT/kg. However, the mortality was observed in high dosage of MT (15 MT /kg/fish and 20 mg MT/kg/fish). The objectives of this second experiment were to more specifically assess differences in histological and psychosocial outcomes of the artificial sex reversal implant method. In early reproduction season (March, April, May) the second study were conducted with the 346-661 g body weights female broodstocks. The only one dosage (10 mg MT/kg) were tested. The preliminary results of the gonadosomatic, hepatosomatic index values and gonad histology findings of the sex reversed gopers will be presented (Project No: TAGEM/ 13 / AR-GE / 32).

Keywords:

White grouper, *Epinephelus aeneus*, broodstock husbandry, sex reversal technique