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Accellerating Masculinization of White Grouper *Epinephelus aeneus* (Geoffroy Saint Hilaire 1817) Individuals with Aromatase Inhibitor and 17-Methyltestosterone Hormones

Ece Evliyaoğlu [1], Hatice Asuman Yılmaz [1], Ercüment Genç [3], M. Ayce Genc [2], Mevlüt Aktaş [2], Derya Güroy [4], Orhan Tufan Eroldoğan* [1]

[1]Faculty of Fisheries, Department of Aquaculture, Cukurova University, 01330, Balcali, Adana, Turkey

[2]Faculty of Marine Science and Technology, Department of Aquaculture, Iskenderun Technical University, 31200, Iskenderun Hatay, Turkey

[3]Faculty of Agriculture, Dept. of Aquaculture and Fisheries, Ankara University, 06110, Diskapi, Ankara, Turkey

4Armutlu Vocational College, Department of Aquaculture, University of Yalova, Yalova, 77500, Turkey

* mtufan@cu.edu.tr

Phone: +905337783004

Abstract

It is crucial to verify the reproduction biology and gain control over sexual reversal of groupers that was placed on the IUCN Redlist of threatened species. In this study, the study was aimed to induce masculinization of female protogynous hermaphrodite white grouper by hormone manipulation. The female white groupers (~350-700 gr) were implanted with one dose sex steroid, 17α-methyl testosterone (10 mg/kg BW, MT) and two doses (1-3 mg/kg BW, FD1-FD3) of aromatase inhibitor, Fadrozole once a month in the breeding season (April-July). Blanc pellets were implanted in those of the control group as placebo. Gonadosomatic index (GSI), serum sex steroid hormone (testosterone, 11-ketotestosterone and estradiol) levels and histologic analysis of gonad sections were taken as parameters of response of fishes to hormone manipulation. Calculated GSI was found to be higher in FD3 group compared to those in other groups. Maximum testosterone level and 11-KT levels were recorded in the FD3 and MT groups, respectively. Estradiol levels appeared lower in whole hormonal treated groups in comparison to initial and control groups. Evidence of primary oosits in the initial group, atretic oosits in the control group and testicular tissue in MT group was noted on the histologic section of gonads. Fish in the FD1 group was found to be in stage of sexual reversion characterized by degenerated oosits and spermatozoa within various stage. In FD3 group fishes, active spermatozoa ready to be oscillation was revealed. In this study Fadrozole was utilized for the first time as far as we know. Our study revealed efficiency of 3 mg/kg BW Fadrozole implantation in sex reversal of female groupers (Cukurova University, Scientific Research Project No: 2015-4650).

Keywords:

White grouper, *Epinephelus aeneus*, Sex inversion, Sex steroids, Fadrozole