



# Oxidative Stress Induction in Monosex Nile Tilapia (*Oreochromis niloticus*, Linnaeus, 1758): A Field Study on the Side Effects of Methyltestosterone

Alaa El-Din H. Sayed<sup>1\*</sup> and Nasser S. Abou Khalil<sup>2</sup>

## Abstract:

In this survey, fishes were obtained from four localities: Assiut as a control and Beheira, Alexandria and Kafr EL-Sheikh; three farms from each governate as farmed monosex produced using Methyltestosterone (MT). Serum MT, total antioxidant capacity (TAC), malondialdehyde (MDA), and total peroxides (TPX) were estimated, followed by calculation of oxidative stress index (OSI). MT concentration in the serum of fishes farmed at Assiut showed no detectable levels of hormonal residues, while the monosex farms showed high levels of MT concentration in the serum of the sampled fishes. In comparison with control fishes of Assiut farms, serum TAC levels of monosex fishes collected from farms of Beheira and Alexandria were significantly lower. Serum TPX content of the monosex fishes obtained from Alexandria farms were significantly higher than the wild fishes obtained from Assiut farms. Calculated from ratio of serum TPX content and TAC concentration, OSI illustrated a significant difference between control fishes collected from Assiut and monosex fishes collected from Beheira. Although few significant changes were found in the examined oxidative stress endpoints, the results of this work put our foot in the beginning of road to link hormonally sex reversal practice with oxidative stress induction, and provocative for other researchers to invade this field of research more deeply utilizing more specific relevant markers and cutting-edge techniques.

## Keywords:

Musculinizing inducer; Sex reversed tilapia; Malondialdehyde; Total antioxidant capacity; Total peroxide

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