

Endocrine responses during acute and chronic Benzo- α -Pyren (BaP) exposure stress in Yellowfin Seabream, *Acanthopagrus latus*

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Abstract:

The present study carried out to assess the effects of Benzo- α -Pyren (BaP) as a serious member of Polycyclic Aromatic Hydrocarbons (PAH) on the plasma levels of cortisol and triiodothyronine (T_3) hormones in male Seabream, *Acanthopagrus latus* (Sparidea). To assess the acute effects of BaP on the endocrine system, a group of fish was injected with dissolved BaP in sunflower oil (50mg/kg BaP in 2 μ g/l oil according to the body weight). Other fishes were injected with 2 μ g/l body weight as controls. Blood samples from both groups collected 3 hours after injection. In another protocol, the chronic effects of BaP on the plasma levels of cortisol and T_3 were assessed. For this reason a group of fish was implanted with 50mg/kg BaP in 10 μ l/g coconut oil in respect to each fish body weight. As the previous protocol a control group was implanted with the same amount of oil without the BaP. Blood samples collected from both implanted groups (treatment and control) after 72 hours. According to the results, plasma levels of cortisol in yellowfin Seabream increased during both short time and long time exposure but T_3 levels in the plasma decreased during the chronic stress of BaP exposure. It seems the cortisol levels are elevating to provide more energy requirement under the acute and chronic stress conditions by direct effect on glyconeogenesis and fast blood sugar level to be consumed by cells. T_3 levels may be affected by inhibitory effect of Aryl hydrocarbon receptors (AhRs) which decreased it during long term exposure.

Keywords: Polycyclic Aromatic Hydrocarbon, Ecophysiology, Ecotoxicology, Cortisol, T_3 .