

Liver Tissue Responses in Orange Spotted Grouper, *Epinephelus coioides*, Caused by a Short-Term Combination Treatment with benzo[a]pyrene and *Vibrio alginolyticus*

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Abstract

In the current study, we investigated the effects of Benzo[a]pyrene (BaP) (a five ring aromatic hydrocarbon) in conjunction with *Vibrio alginolyticus* infection on the common spotted grouper, *Epinephelus coioides*. The goal of our study was to elucidate the interactions between stressors in the host organism. In this regard, 140 healthy immature orange spotted grouper (mean weight 180±7.9 gr BW and mean length 20.8±0.2 cm) have been divided in to 7 groups including: 1- Control, 2-Groups injected with coconut oil, 3- Group treated with *V. alginolyticus*, 4,5- Fish treated with 20 and 200 mg/kg BaP, 6,7- Fish injected with *V. alginolyticus* with 20 and 200 mg/kg BaP, respectively. All groups were kept for 14 days under constant laboratory conditions after bacteria injection. Sampling was carried out on days 1, 2, 4, 7, 14 of the experiment. Tissue samples from liver were taken for histological studies and fixed in formalin buffer solution. After routine histological process, 5 micrometer sections were prepared and stained by hematoxylin and eosin. The results showed the pathological alterations including hepatocyte vacuolation and melanomacrophage centers in bacteria treated group, bleeding, hepatocyte vacuolation, diss space dilation, hepatocyte hypertrophy and degeneration in BaP treated groups. Hepatocyte vacuolation, melanomacrophage centers, diss space dilation and tissue necrosis were observed in compound groups.

Keywords: *Benzo[a]pyrene*, *Vibrio alginolyticus*, *Histopathology*, *Liver*, *Epinephelus coioides*.
