

## **ABSTRACT**

### **EFFECTIVENESS OF BLACK CUMIN (*Nigella sativa*) INCREASSING NON-SPECIFIC IMMUNE SYSTEM OF HUMPBACK GROUPER (*Cromileptes altivelis*) AGAINST VIRAL NERVOUS NECROSIS (VNN)**

**By**

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Black cumin (*Nigella sativa*) has been known to be useful as an immunostimulant for humans and animals. This study aims to determine the effectiveness of black cumin as an immunostimulant in humpback grouper (*Cromileptes altivelis*) against VNN infection through observation of hematological parameters. Humpback grouper ( $\pm 9$  cm) grouped into four treatments based on the concentration of black cumin, that is 0%, 2.5%, 5%, and 7.5%  $\text{kg}^{-1}$  feed. The fish were kept in the tanks ( $45 \times 30 \times 35 \text{ cm}^3$ ) with continuous aeration and feed with commercial feed twice daily ad libitum. Some hematological parameters (total leukocytes, differential leukocyte, hematocrit percentage and phagocytic activity) was observed each blood sampling every week for 21 days. Challenge test performed on day 38<sup>th</sup> with infect VNN filtrate (0.1 ml / fish) are intraperitoneal. Survival Rate (SR), the Relative Percent Survival (RPS) and Mean Time to Death (MTD) test fish were observed on day 5<sup>th</sup> after challenge test. Descriptive analysis showed the treatment administration of 7.5% black cumin  $\text{kg}^{-1}$  feed an increasing the total leukocytes, monocytes and lymphocytes percentage until day 21<sup>st</sup> and after VNN infection with RPS values is 100%. From the observations it can be concluded that black cumin act as an immunostimulant that can protect humpback grouper against infection VNN.

**Keywords:** black cumin, humpback grouper, VNN, immunostimulatory and parameters hematologic