

# ADMINISTRATED GROUPER (*Epinephelus coioides*) RECOMBINANT INTERLEUKIN-6 AS A FISH IMMUNESTIMULANT VIA VARIOUS ADMINISTRATED ROUTES

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## ABSTRACT

Interleukin 6 (IL-6) is a protein secreted by T cells and macrophages and plays an important role in immune responses. Include regulated inflammatory reactions, proliferation and differentiation lymphocyte, regulation in both innate and adaptive immune responses; these responses will help to eliminate the invaded pathogens in mammal. In our previous research, the grouper (*Epinephelus coioides*) IL-6 is proven to enhance the production of immunoglobulin, antimicrobial peptide, acute phase protein, increasing phagocyte phagocytosis and lysozyme activity; that was also increase the survival rate of recombinant IL-6 injected fish under bacterial or viral pathogen challenge. These results may represent the IL-6 might be a good immune immunestimulant candidate for fish to prevent or treatment disease. However, an optimal administrated route of the recombinant IL-6 is important for its efficacy and used friendly. In this study, we try to evaluated minimal effective dose in the various administration routes include injection, oral, immersion and jet injection by detect immune gene expression and survival rate in the challenge test. The results shown injection administration with the lowest dose can achieve the protection; even with the higher dose, the oral administration can also achieve the same protection level; but it is not achieve the protection level in immersion or jet injection administration method. These tentative results shown the injection administration route was still the most efficient method, however oral application was the potential to be the most convenience method if we can overcome the protein digestion problem in the GI tract.

## KEYWORDS

Grouper, *Epinephelus coioides*, IL-6, Administration route, Oral, immersion

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