ABSTRAK

VAKSINASI *Aeromonas hydrophila* PADA LELE SANGKURIANG (*Clarias gariepinus*) : KAJIAN RESPON IMUN SPESIFIK DAN NON-SPESIFIK SERTA EFIKASINYA

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Ikan lele sangkuriang (*Clarias gariepinus*) merupakan komoditas budidaya air tawar yang rentan terhadap infeksi bakteri *Aeromonas hydrophila* penyebab *Motile Aeromonas Septicemia* (MAS) yang dapat menimbulkan kematian tinggi dan kerugian ekonomi. Penggunaan antibiotik yang tidak terkendali berpotensi menyebabkan resistensi bakteri serta pencemaran lingkungan, sehingga diperlukan metode pencegahan yang lebih aman melalui vaksinasi. Penelitian ini bertujuan mengkaji respon imun spesifik dan non-spesifik serta efikasi vaksin *A. hydrophila* pada lele sangkuriang. Penelitian menggunakan tiga perlakuan, yaitu kontrol negatif (injeksi larutan fisiologis), kontrol positif (injeksi larutan fisiologis dan uji tantang *Aeromonas hydrophila*), serta perlakuan vaksin (injeksi vaksin dan uji tantang *Aeromonas hydrophila*). Parameter yang diamati meliputi titer antibodi, *Relative Percent Survival* (RPS), total eritrosit, total hematokrit, kadar hemoglobin, total leukosit, aktivitas fagositosis, dan indeks fagositosis. Ikan divaksin kemudian diuji tantang menggunakan bakteri *A. hydrophila* untuk mengevaluasi tingkat perlindungan vaksin. Hasil penelitian menunjukkan bahwa vaksinasi mampu meningkatkan respon imun spesifik melalui peningkatan titer antibodi serta respon imun non-spesifik melalui peningkatan parameter hematologi dan aktivitas fagositosis dibandingkan kontrol. Nilai RPS pada perlakuan vaksin menunjukkan adanya perlindungan terhadap infeksi bakteri. Dengan demikian, vaksinasi *Aeromonas hydrophila* efektif meningkatkan sistem kekebalan tubuh dan ketahanan lele sangkuriang terhadap infeksi.

Kata kunci: *Aeromonas hydrophila*, Efikasi Vaksin, Lele Sangkuriang, Respon Imun, Vaksinasi

ABSTRACT

Aeromonas hydrophila VACCINATION IN SANGKURIANG CATFISH (*Clarias gariepinus*): A STUDY OF SPECIFIC AND NON-SPECIFIC IMMUNE RESPONSES AND THEIR EFFICACY

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Sangkuriang catfish (*Clarias gariepinus*) is a freshwater aquaculture commodity that is susceptible to infection by the bacterium *Aeromonas hydrophila*, the causative agent of *Motile Aeromonas Septicemia* (MAS), which can result in high mortality and economic losses. The uncontrolled use of antibiotics may lead to bacterial resistance and environmental pollution; therefore, safer preventive methods through vaccination are needed. This study aimed to evaluate the specific and non-specific immune responses as well as the efficacy of the *A. hydrophila* vaccine in Sangkuriang catfish. The study used three treatments, namely negative control (injection of physiological saline), positive control (injection of physiological saline and challenge test with *Aeromonas hydrophila*), and vaccine treatment (vaccine injection and challenge test with *Aeromonas hydrophila*). The observed parameters included antibody titer, *Relative Percent Survival* (RPS), total erythrocytes, hematocrit, hemoglobin, total leukocytes, phagocytic activity, and phagocytic index. The fish were vaccinated and subsequently challenged with *A. hydrophila* bacteria to evaluate the level of vaccine protection. The results showed that vaccination was able to enhance the specific immune response through increased antibody titers and the non-specific immune response through improved hematological parameters and phagocytic activity compared to the control groups. The RPS value in the vaccinated treatment indicated protection against bacterial infection. Therefore, *Aeromonas hydrophila* vaccination was effective in improving the immune system and resistance of Sangkuriang catfish against infection.

Keywords: *Aeromonas hydrophila*, Immune Response, Sangkuriang, Vaccination, Vaccine Efficacy