

## Intisari

### RESPON IMUN NON-SPEKIFIK HUMORAL LELE (*Clarias* sp.) YANG DIBERI PROBIOTIK (*Bacillus* spp., *Lactococcus raffinolactis*, *Saccharomyces cerevisiae*) DAN IMUNOSTIMULAN (GAMA ALGIN F)

Probiotik dan imunostimulan merupakan bahan tambahan pakan yang berperan penting bagi kesehatan ikan dan lingkungan. Tujuan penelitian ini adalah untuk mengetahui pengaruh pemberian probiotik (*Bacillus* spp., *Lactococcus raffinolactis*, *Saccharomyces cerevisiae*) dan imunostimulan (Gama Algin F) yang dicampurkan pada pakan terhadap respon imun non-spesifik humoral lele (*Clarias* sp.) dan untuk mengetahui perlakuan yang paling baik untuk meningkatkan kekebalan tubuh non-spesifik humoral lele (*Clarias* sp.). Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) Faktorial dengan dua faktor yaitu probiotik (A) dan imunostimulan (B) dengan perlakuan kontrol (A0B0), pemberian probiotik (A1B0), pemberian imunostimulan (A0B1), serta kombinasi probiotik dan imunostimulan (A1B1). Parameter yang diuji meliputi hematokrit, leukokrit, total protein plasma, superoksida dismutase (SOD), lisozim, aglutinasi alami, dan aktivitas antibakterial serum. Kepadatan bakteri probiotik awal pada medium TSA sebanyak  $7,1 \times 10^7$  CFU/ml dan pada medium MRSA sebanyak  $6,9 \times 10^7$  CFU/ml. Pengaruh utama interaksi antara probiotik dan imunostimulan hanya terdapat pada hasil dari parameter pengujian nilai total protein plasma, SOD, dan aktivitas antibakterial serum. Pengaruh utama pemberian probiotik *Bacillus* spp., *Lactococcus raffinolactis*, dan *Saccharomyces cerevisiae* terdapat pada parameter lisozim, pemberian imunostimulan tidak berpengaruh nyata terhadap parameter kekebalan tubuh non-spesifik humoral lele. Berdasarkan hasil yang didapatkan, pemberian perlakuan probiotik (A1B0) dan imunostimulan (A0B1) menunjukkan hasil dominasi yang paling baik untuk meningkatkan kekebalan tubuh non-spesifik humoral lele (*Clarias* sp.) dibandingkan perlakuan kombinasi probiotik dan imunostimulan (A1B1).

Kata kunci: respon imun non-spesifik humoral, *Clarias* sp., probiotik, imunostimulan

### *Abstract*

#### NON-SPECIFIC HUMORAL IMMUNE RESPONSE OF CATFISH (*Clarias* sp.) ADMINISTRATED WITH PROBIOTIC (*Bacillus* spp., *Lactococcus raffinolactis*, *Saccharomyces cerevisiae*) AND IMMUNOSTIMULANT (GAMA ALGIN F)

Probiotic and immunostimulant are feed additives that take an important role on fish health and the environment. The aims of this research were to determine the effect of added probiotic (*Bacillus* spp., *Lactococcus raffinolactis*, *Saccharomyces cerevisiae*) and immunostimulant (Gama Algin F) to the feed on catfish (*Clarias* sp.) non-specific humoral immune response as well as to find out the best treatment to increase the non-specific humoral immunity of catfish (*Clarias* sp.). This research used a Completely Randomized Factorial Design (CRD) with two factors namely probiotic (A) and immunostimulant (B). The treatments in this research were control (A0B0), probiotic (A1B0), immunostimulant (A0B1), and the combination of probiotic and immunostimulant (A1B1). The parameters tested were hematocrite, leukocrit, total plasma protein, superoxide dismutase (SOD), lysozyme, natural agglutination, and serum antibacterial activity. The initial density of probiotic bacteria in TSA medium was  $7,1 \times 10^7$  CFU/ml and in MRSA medium was  $6,9 \times 10^7$  CFU/ml. The main effect of interaction between probiotics and immunostimulants was only found in the results of parameters total plasma protein (TPP), SOD, and serum antibacterial activity. The main effect of probiotics *Bacillus* spp., *Lactococcus raffinolactis*, and *Saccharomyces cerevisiae* was on lysozyme parameters, administration of immunostimulants had no significant effect on non-specific humoral immune parameters of catfish. Based on the results, it can be concluded that the treatment of probiotics (A1B0) and immunostimulants (A0B1) showed the best dominance result in increasing the non-specific humoral immunity of catfish (*Clarias* sp.) compared to the combination treatment of probiotics and immunostimulants (A1B1).

**Keywords:** non-specific humoral immunity response, *Clarias* sp., probiotic, immunostimulant