

Intisari

Penelitian ini bertujuan untuk mengetahui pengaruh Na-alginat, multivitamin dan asam amino sebagai imunostimulan yang diberikan secara oral terhadap parameter pertahanan nonspesifik seluler lele (*Clarias sp.*) serta dosis Na-alginat, multivitamin dan asam amino yang efektif untuk meningkatkan kekebalan tubuh nonspesifik seluler lele. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) dengan 6 perlakuan dan 4 ulangan. Kontrol negatif (tanpa penambahan) (P1), Na-alginat 4 g/kg pakan (P2), multivitamin 2 g/kg pakan (P3), asam amino (P4), Na-alginat 2 g/kg, multivitamin 1,25 g/kg dan asam amino 0,5 dosis pada perlakuan P4 (P5), Na-alginat 2 g/kg, multivitamin 1,25 g/kg dan asam amino seperti dosis pada perlakuan P4 (P6). Dosis asam amino yaitu Triptofan 1,2 g/kg pakan, Treonin 5,3 g/kg pakan, Metionin 5,6 g/kg pakan, Arginin 27,4 g/kg pakan, dan Lisin 19,1 g/kg pakan. Ikan dipelihara selama 12 hari dan pengujian dilakukan pada hari ke-0, 4, 8, dan 12. Pemberian pakan dilakukan dua kali sehari sebanyak 3% biomassa. Parameter yang diamati meliputi aktivitas fagositosis, indeks fagositosis, *superoxyde dismutase* (SOD), ledakan respirasi ekstraseluler, diferensiasi leukosit, hematokrit dan leukokrit, dan kualitas air. Hasil penelitian menunjukkan pemberian Na-alginat, multivitamin dan asam amino secara oral dapat meningkatkan parameter aktivitas fagositosis dan jumlah limfosit. Pemberian Na-alginat, multivitamin dan asam amino yang dapat meningkatkan parameter pertahanan seluler nonspesifik ikan lele secara efektif terdapat pada kombinasi dosis Na-alginat 2 g/kg, multivitamin 1,25 g/kg dan asam amino 0,5 dosis (P5). Penelitian ini menunjukkan bahwa kombinasi alginat, multivitamin dan asam amino sangat prospektif untuk meningkatkan kekebalan tubuh lele.

Kata kunci: alginat, imunostimulan, multivitamin, asam amino, pertahanan nonspesifik seluler

Abstract

The purpose of this study were to determine the effect of addition of Na-alginate, multivitamin and amino acid as an oral immunostimulant on the non-specific cellular immune of catfish as well as the dose of Na-alginate, multivitamin and amino acid that were effective to enhance the non-specific immunity of catfish. This study used Completely Randomized Design (CRD) with 6 treatments and 4 replications. The treatment were negative controls (without addition) (P1), Na-alginate 4 g/kg of feed (P2), multivitamin 2 g/kg of feed (P3), amino acid (P4), Na-alginate 2 g/kg, multivitamin 1.25 g/kg and 0.5 dose of amino acid on treatment P4 (P5) , Na-alginate 2 g/kg, multivitamin 1.25 g/kg and amino acid such as doses of P4 treatment (P6). Dose of the amino acid is Tryptophan 1.2 g/kg of feed, Treonin 5.3 g/kg of feed, Methionine 5.6 g/kg of feed, Arginine 27.4 g/kg feed, and Lysine 19.1 g/kg of feed. The fish were reared for 12 days and the tests were performed on days 0, 4, 8, and 12. Feeding was done twice daily with a feeding rate of 3% biomass. The observed parameters included phagocytosis activity, phagocytosis index, superoxyde dismutase (SOD), extracellular respiratory burst, leukocyte differentiation, hematocrit and leukocrit, and water quality. The results showed that oral administration of Na-alginate, multivitamin and amino acid increased the parameters of phagocytosis activity and lymphocyte percentage. The administration of Na-alginate, multivitamin and amino acid which improved the non-specific cellular defense parameters of the catfish were found in a combination of 2 g/kg Na-alginate, multivitamin 1.25 g/kg and 0.5 dose of amino acid (P5). This study showed that the combination of alginate, multivitamins and amino acids was highly prospective for boosting the immune system of catfish.

Keywords: alginate, immunostimulant, multivitamin, amino acid, nonspecific cellular defense