Intisari

AKTIVITAS ENZIM PENCERNAAN DAN HISTOLOGI USUS SIDAT (*Anguilla bicolor,* McClelland 1844) YANG DIBERI PROBIOTIK DAN SINBIOTIK

Penelitian ini bertujuan untuk mengetahui pengaruh pemberian probiotik dan sinbiotik terhadap aktivitas enzim pencernaan dan kondisi histologi usus sidat (*Anguilla bicolor*). Penelitian dilakukan menggunakan rancangan acak lengkap dengan tiga perlakuan dan tiga ulangan, yaitu P0 (Kontrol), P1 (Probiotik *Lactococcus* sp. JAL 37 dosis 5 x 105 sel/g pakan), P2 (Sinbiotik : probiotik *Lactococcus* sp. JAL 37 dan prebiotik nanopartikel tepung jamur tiram 5 gram/kg pakan) pada sidat (*Anguilla bicolor*, rerata berat 20 g/ekor). Probiotik dan sinbiotik diberikan setiap tujuh hari selama 60 hari pemeliharaan ikan. Parameter yang diamati yaitu aktivitas protease dan selulase, serta kondisi histologi usus ikan, berupa panjang vili, ketebalan lapisan otot dinding usus, dan jumlah sel goblet. Hasil penelitian menunjukkan adanya peningkatan panjang vili dan jumlah sel goblet pada usus sidat yang diberi perlakuan sinbiotik pada hari ke-30 pemeliharaan. Peningkatan aktivitas protease, panjang vili, jumlah sel goblet, dan ketebalan lapisan otot dinding usus sidat tercapai pada perlakuan sinbiotik pada hari ke-60. Hal ini menunjukkan bahwa aplikasi sinbiotik dapat meningkatkan aktivitas protease, panjang vili, jumlah sel goblet, dan ketebalan lapisan otot dinding usus sidat jika dilakukan selama minimal 60 hari.

Kata kunci : enzim, histologi usus, probiotik, sidat, sinbiotik

Abstract

DIGESTIVE ENZYMES ACTIVITIES AND HISTOLOGY OF THE SHORTFIN EEL (*Anguilla bicolor*, McClelland 1844) INTESTINE ADMINISTERED WITH PROBIOTICS AND SYNBIOTICS

This study aimed to determine the effect of probiotics and synbiotics on the activity of digestive enzymes and the histological condition of the shortfin eel (*Anguilla bicolor*) intestine. The research was carried out using a completely randomized design with three treatments and three replications, namely P0 (Control), P1 (Probiotics *Lactococcus* sp. JAL 37 doses 5 x 10^5 cells/g feed), P2 (Synbiotics: probiotics *Lactococcus* sp. JAL 37 and prebiotics oyster mushroom nanoparticles 5 g/kg feed) on shortfin eel (*Anguilla bicolor*, average weight of 20 g/fish). Probiotics and synbiotics were given in seven day intervals for 60th days of fish rearing. The parameters observed were protease and cellulase activity, as well as the histological condition of the fish intestine, such as the villi length, thickness of intestinal wall muscle, and number of goblet cells. The results showed that there was an increase in the length of the villi, and the number of goblet cells in the intestines of shortfin eel treated with synbiotics on the 30^{th} days of rearing. An increase in protease activity, villi length, number of goblet cells, and thickness of the muscle layer of the shortfin eel intestinal wall was achieved in the synbiotics treatment on 60^{th} days. This shows that the application of synbiotics can increase protease activity, villi length, number of goblet cells, and thickness of the muscle layer of the shortfin eel intestinal wall if done for a minimum of 60^{th} days of treatment.

Key words : enzyme, intestinal histology, probiotics, shortfin eel, synbiotics