

## INTISARI

Penelitian ini bertujuan untuk mengetahui karakter bakteri kandidat probiotik serta mengetahui pengaruh dosis probiotik pada pakan terhadap histologi dan mikro flora usus sidat (*Anguilla bicolor bicolor*). Kandidat probiotik dipilih berdasarkan aktivitas enzimatis, sifat non-patogen, serta kemampuan adhesi pada sel epitel usus sidat, kemudian diaplikasikan secara *in vivo* pada sidat melalui pakan dengan dosis K (0 CFU g<sup>-1</sup> pakan), A (3 × 10<sup>3</sup> CFU g<sup>-1</sup> pakan), B (3 × 10<sup>5</sup> CFU g<sup>-1</sup> pakan), dan C (3 × 10<sup>7</sup> CFU g<sup>-1</sup> pakan). Histologi dan mikro flora usus diamati setelah dua bulan pemeliharaan. Isolat *Enterobacter* sp. JC05 memiliki nilai indeks aktivitas selulolitik tertinggi, γ-hemolisis, Gram negatif, katalase positif, dan fermentatif, *Lactococcus* sp. JAL37 memiliki nilai indeks aktivitas proteolitik tertinggi, γ-hemolisis, Gram positif, katalase negatif, dan fermentatif, adapun *Bacillus* sp. PCP1 memiliki nilai indeks aktivitas lipolitik tertinggi, α-hemolisis, Gram positif, katalase positif, dan fermentatif. Ketiga isolat tersebut mampu melekat pada sel epitel usus sidat secara *in vitro* dan tidak menimbulkan gejala penyakit maupun kematian setelah diinjeksi pada intraperitoneal *A. bicolor bicolor*. Aplikasi probiotik pada sidat tidak berpengaruh terhadap histologi usus sidat, namun aplikasi probiotik dosis 3 × 10<sup>7</sup> CFU g<sup>-1</sup> pakan meningkatkan keberagaman mikro flora bakteri pada usus *A. bicolor bicolor*.

Kata kunci: adhesi, bakteri, bioteknologi, metagenom, *next generation sequencing* (NGS)

## ABSTRACT

This study aimed to characterize prospective probiotic bacteria and to evaluate the effect of probiotic doses in feed on histology and microflora of the intestine of eels (*Anguilla bicolor bicolor*). Probiotic candidates were selected based on their enzymatic activity, non-pathogenic characteristics, and ability to adhere to intestinal epithelial cells, then applied *in vivo* to eels through feed with a dose of K (0 CFU g<sup>-1</sup> feed), A (3 × 10<sup>3</sup> CFU g<sup>-1</sup> feed), B (3 × 10<sup>5</sup> CFU g<sup>-1</sup> feed), and C (3 × 10<sup>7</sup> CFU g<sup>-1</sup> feed). Intestinal histology and microflora were observed after two months of rearing. *Enterobacter* sp. JC05 has the highest cellulolytic activity index value, γ-hemolysis, Gram negative, catalase positive, and fermentative, *Lactococcus* sp. JAL37 has the highest proteolytic activity index value, γ-hemolysis, Gram positive, catalase negative, and fermentative, while *Bacillus* sp. PCP1 has the highest index value of lipolytic activity, α-hemolysis, Gram positive, catalase positive, and fermentative. The three isolates were able to adhere to the intestinal epithelial cells of the eels *in vitro* and did not cause symptoms of disease or death after being injected into the intraperitoneal *A. bicolor bicolor*. Probiotics in varied doses had no effect on the intestinal histology of *A. bicolor bicolor*, but at a dose of 3 × 10<sup>7</sup> g<sup>-1</sup> feed, probiotics enhanced the diversity of the bacterial microflora in the intestine of *A. bicolor bicolor*.

Keywords: adhesion, bacteria, biotechnology, metagenome, next generation sequencing (NGS)