

## Intisari

Probiotik ikan merupakan suplemen berupa mikroba hidup untuk meningkatkan efisiensi pakan dan pertumbuhan ikan. Penelitian ini bertujuan untuk mengisolasi, mengkarakterisasi bakteri-bakteri selulolitik untuk digunakan sebagai kandidat probiotik dan mengidentifikasinya. Bakteri diisolasi dari saluran pencernaan ikan dan ditumbuhkan pada medium selulosa. Skrining bakteri dilakukan berdasarkan aktivitas selulolitik, ketahanan pH asam, kemampuan antagonisitas terhadap bakteri patogen ikan, ketahanan terhadap antibiotik, dan kemampuan hidup pada saluran pencernaan ikan. Bakteri terpilih diidentifikasi secara molekuler berdasarkan sekuen gen 16S rRNA. Total sebanyak 68 isolat bakteri berhasil diisolasi. Lima isolat yang memiliki aktivitas selulolitik tertinggi telah diskriminasi berdasarkan beberapa kriteria seleksi dalam penelitian ini sehingga diperoleh 2 strain terpilih yaitu isolat JC20 dan isolat PCP1. Kedua bakteri terpilih tersebut tidak menunjukkan kemampuan antagonis melawan bakteri patogen pada budidaya ikan (*Vibrio harveyi* dan *Photobacterium damsela* subspecies *piscisida*). Namun demikian, kedua bakteri selulolitik tersebut tidak bersifat patogen, sensitif terhadap antibiotik, memiliki ketahanan yang bagus terhadap pH asam dan mampu hidup pada saluran pencernaan ikan, sehingga potensial untuk digunakan sebagai probiotik. Identifikasi secara molekuler menunjukkan bahwa isolat JC20 dan isolat PCP1 secara berturut-turut memiliki kedekatan dengan *Staphylococcus* sp. (*Staphylococcus cohnii* FDAARGOS 334 CP027422.1) dan *Bacillus* sp. (*Bacillus toyonensis* strain Cu48 KY085984.1 dan *Bacillus tropicus* strain MCCC\_1A01406 KY085984.1) dengan kemiripan 99% dan 99%.

Kata kunci: bakteri selulolitik, probiotik, skrining, identifikasi

### *Abstract*

Fish Probiotics are a live microbial supplement to increase the fish feed efficiency and growth. Aim of this study was to isolate, characterize, and identify cellulolytic bacteria that had a potential for fish probiotics. The bacteria were isolated from the digestive tract of fish and grown on cellulose medium. The bacteria were screened based on the cellulolytic activity, acidic resistance, antagonist activity against fish pathogens, antibiotics sensitivity, and ability to live in fish digestive tract. Furthermore, the bacteria were identified molecularly based on its 16S rRNA gene sequences. A total of 68 bacteria were isolated. Five isolates which had the highest cellulolytic activity were screened, resulted two selected strains, JC20 and PCP1 isolates. The selected bacteria did not have antagonistic activity against fish pathogenic bacteria (*Vibrio harveyi* and *Photobacterium damsela* subspecies *piscisida*). However, the bacteria were not pathogenic and they were sensitive to antibiotics. Moreover, the bacteria had a good resistance to acidic environment as well as able to live in the fish digestive tract. Thus, the bacteria were potential to use as fish probiotics. Molecular identification revealed that JC20 and PCP1 isolates had genetic relationship with *Staphylococcus* sp. (*Staphylococcus cohnii* FDAARGOS 334 CP027422.1) and *Bacillus* sp. (*Bacillus toyonensis* strain Cu48 KY085984.1 and *Bacillus tropicus* strain MCCC\_1A01406 KY085984.1) with an identity of 99% and 99% consecutively.

**Keywords:** cellulolytic bacteria, probiotics, screening, identification