ABSTRAK

Dian Manda Sari, NIM 4172220007 (2022), Identifikasi Bakteri Simbion Spons Penghasil Enzim Ekstraseluler dengan Penanda Gen 16S rRNA

Penelitian ini bertujuan untuk mengidentifikasi isolat bakteri simbion spons yang memiliki aktivitas enzimatik dari kelompok enzim fosfatase, gelatinase dan katalase melalui teknik molekuler dengan penanda gen 16S rRNA. Penelitian ini menggunakan metode eksperimental yaitu dengan menguji kemampuan isolat bakteri simbion spons untuk menghasilkan enzim fosfatase, gelatinase dan katalase. Pengujian aktivitas enzim dilakukan menggunakan beberapa media uji seperti pikovskaya, nutrien gelatin dan reagen hidrogen peroksida. Hasil uji aktivitas enzim menunjukkan bahwa isolat P1, P5 dan P7 memiliki potensi untuk menghasilkan enzim gelatinase dan katalase. Ketiga isolat tersebut diidentifikasi secara molekuler diawali dengan isolasi DNA isolat bakteri, elektroforesis kemudian sekuensing gen 16S rRNA. Hasil sekuensing gen 16S rRNA ketiga isolat disesuaikan dengan data yang ada pada Genbank NCBI melalui program BLAST. Isolat P1 memiliki homologi 99,86% dengan *Bacillus cereus* strain CCM 2010, isolat P5 memilki homologi 99,67% dengan *Bacillus cereus* strain LPDB5 dan isolat P7 memiliki homologi 99,93% dengan *Bacillus cereus* strain F23.

Kata kunci: Bakteri simbions spons, enzim ekstraseluler, gen 16S rRNA

ABSTRACT

Dian Manda Sari, NIM 4172220007 (2022), Identification of Extracellular Enzyme-Producing by Bacteria Symbiont Sponge with 16S rRNA Gene Markers

This study aims to identify isolates of bacteria symbiont sponge that have the enzymatic activity of the phosphatase, gelatinase and catalase enzyme groups through molecular techniques with the gene marker 16S rRNA. This study used an experimental method, namely by testing the ability of isolates of bacteria symbiont sponge to produce phosphatase, gelatinase and catalase enzymes. Enzyme activity testing was carried out using several test media such as pikovskaya, nutrient gelatin and hydrogen peroxide reagent. The results of the enzyme activity test showed that isolates P1, P5 and P7 had the potential to produce gelatinase and catalase enzymes. The three isolates were identified molecularly, starting with the isolation of bacterial isolate DNA, electrophoresis and then 16S rRNA gene sequencing. The results of the 16S rRNA gene sequencing of the three isolates were adjusted to the data available on the NCBI Genbank through the BLAST program. Isolate P1 had 99.86% homology with *Bacillus cereus* CCM strain 2010, isolate P5 had 99.67% homology with *Bacillus cereus* strain LPDB5 and isolate P7 had 99.93% homology with *Bacillus cereus* strain F23.

Keywords: Bacteria symbiont sponge, extracellular enzymes, 16S rRNA gene