INTISARI

Enzim fibrinolitik merupakan enzim yang bekerja dengan cara mendegradasi fibrin dalam bekuan darah. Enzim fibrinolitik dapat diperoleh dari air hutan mangrove. Ekosistem mangrove menjadi sumber dari berbagai mikroba yang mampu menghasilkan enzim dan molekul yang bermanfaat. Enzim fibrinolitik diproduksi salah satunya dari bakteri *B.cereus.* Penelitian ini bertujuan untuk mengetahui aktivitas ekstrak kasar enzim fibrinolitik *B.cereus* dalam melisisikan bekuan darah secara *in vitro*.

Penelitian diawali dengan identifikasi terhadap gen menggunakan software NCBI dan morfologi bakteri pada media BAP, pewarnaan Gram, pewarnaan endospora dan pengujian katalase maupun koagulase. Isolasi ekstrak kasar enzim fibrinolitik *B.cereus* dilakukan dengan ekstraksi enzim. Kadar protein ekstrak kasar enzim ditetapkan menggunakan metode Bradford dan uji aktivitas fibrinolitik secara *in vitro* dilakukan dengan plat fibrin. Data zona bening yang diperoleh di analisis menggunakan aplikasi SPSS.

Hasil identifikasi gen bakteri *B.cereus* pada *software* NCBI terdaftar sebagai gen *AprE*. Hasil identifikasi pewarnaan Gram dan endospora *B.cereus* merupakan bakteri Gram positif dan mempunyai endospora. Identifikasi makroskopis *B.cereus* menunjukkan hasil positif kategori β-hemolisis. Hasil uji katalase dan koagulase menunjukkan hasil positif. Kadar protein ekstrak kasar enzim fibrinolitik *B.cereus* yang didapat sebesar 19,63 mg/mL. Hasil penelitian menunjukkan ekstrak kasar enzim fibrinolitik bakteri *B.cereus* mampu mendegradasi fibrin. Konsentrasi paling efektif dari variasi konsentrasi 20, 40, dan 80% ekstrak kasar enzim fibrinolitik *B.cereus* sebagai agen fibrinolitik secara *in vitro* yaitu konsentrasi 80%.

Kata kunci: *Bacillus cereus*; Bradford; Fibrinolitik; Nattokinase; plat fibrin

ABSTRACT

Fibrinolytic enzymes are enzymes that work by degrading fibrin in blood clots. Fibrinoytic enzymes can be obtained from mangrove forest water. Mangrove ecosystems are source of various microbes that are able to produce useful enzymes and molecules. Fibrinolytic enzymes are produced by one of them by the bacterium *B.cereus*. This study aims to determine the activity of the fibrinolytic enzyme *B.cereus* in lysing blood clots in vitro.

The study began with identification of genes using NCBI software and bacterial morphology on BAP media, Gram staining, endospore staining and testing of catalase and coagulase. Isolation of *B.cereus* fibrinolytic enzyme was carried out by enzyme extraction. The protein content of the enzyme extract was determined using the Bradford method and the in vitro fibrinolytic activity test was carried out with fibrin media. The clear zone data obtained were analyzed using the SPSS application.

The results of the identification of the *B.cereus* bacterial gene in the NCBI software were registered as the AprE gene. The results of the identification of Gram staining and endospores of *B.cereus* are Gram positive bacteria and have endospores. Macroscopic identification of *B.cereus* showed positive results in the -hemolysis category. The results of the catalase and coagulase tests showed positive results. The protein content of the *B.cereus* fibrinolytic enzyme extract obtained was 19.63 mg/mL. The results showed that the crude extract of the bacterial fibrinolytic enzyme *B.cereus* was able to degrade fibrin. The most effective concentration of various concentrations of 20, 40, and 80% crude extract of *B.cereus* fibrinolytic enzyme as a fibrinolytic agent in vitro is 80% concentration.

Keywords: *Bacillus cereus*; Bradford; Fibrinolytic; Fibrin Plate; Nattokinase