

INTISARI

SAPTARINI, D., 2019 PENAPISAN BAKTERI PENGHASIL SUPEROKSIDA DISMUTASE (SOD) DARI AIR HUTAN MANGROVE MARON EDUPARK SEMARANG, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI

Superoksida dismutase (SOD) merupakan salah satu enzim antioksidan yang dihasilkan tubuh. Berperan menghambat reaktivitas radikal bebas yang merusak struktur dan fungsi sel. Enzim SOD dapat diperoleh dari mikroba berasal dari air hutan mangrove. Ekosistem mangrove merupakan sumber berbagai mikroba yang mampu menghasilkan enzim dan molekul yang bermanfaat. Penelitian ini bertujuan mengetahui bakteri yang menghasilkan enzim SOD dan mengetahui jenis spesies penghasil SOD tertinggi.

Pemilihan 5 isolat bakteri dengan karakteristik berbeda secara makroskopis dilakukan sebelum uji aktivitas SOD. Pengukuran aktivitas menggunakan *assay kit* WST-1. Prinsip mengetahui kemampuan SOD mengkatalisis dismutase dari anion superoksida menjadi molekul hidrogen peroksida dan oksigen. Aktivitas SOD diketahui dari nilai persentase SOD. Isolat bakteri yang memiliki aktivitas SOD tertinggi dilakukan pewarnaan Gram dan PCR 16S rDNA.

Hasil uji aktivitas SOD yaitu isolat AHM5 (45,10%), AHM2 (49,02%), AHM1 (56,86%), AHM3 (66,67%), dan AHM4 (80,39%). Isolat bakteri AHM4 dilakukan identifikasi pewarnaan Gram dan PCR 16S rDNA. Hasil identifikasi dengan pewarnaan Gram isolat AHM4 merupakan bakteri Gram positif. Hasil penentuan urutan nukleotida isolat bakteri AHM4 didapatkan identitas yakni *Bacillus cereus* dengan homologi 99%. Berdasarkan pencarian laman Uniprot *Bacillus cereus* diketahui terdaftar sebagai penghasil protein SOD.

Kata Kunci : Aktivitas SOD, *Bacillus cereus*, Hutan Mangrove, Superoksida Dismutase

ABSTRACT

SAPTARINI, D., 2019 SCREENING OF SUPEROXIDE DISMUTASE (SOD) PRODUCING BACTERIA FROM FOREST WATER MANGROVE MARON EDUPARK SEMARANG, ESSAY, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA

Superoxide dismutase (SOD) is one of the body's produced antioxidant enzymes. The role of inhibiting free radical reactivity that damages the structure and function of cells. SOD enzymes can be obtained from microbes derived from mangrove forest water. The mangrove ecosystem is a source of various microbes capable of producing useful enzymes and molecules. This research aims to find out which bacteria produce SOD enzymes and know the highest type of SOD producing species.

The selection of 5 isolates of bacteria with different characteristics macroscopic performed before the test of SOD activity. Measuring activity using an assay kit WST-1. The principle of knowing SOD's ability catalyzes the dismutase of the superoxide anions into hydrogen peroxide and oxygen molecules. SOD's activity is known from the percentage value SOD. The isolates of bacteria that have the highest SOD activity performed Gram and PCR 16S rDNA coloration.

The results of SOD activity test are isolates AHM5 (45.10%), AHM2 (49.02%), AHM1 (56.86%), AHM3 (66.67%), and AHM4 (80.39%). Bacterial isolates AHM4 carried out identification of Gram staining and PCR 16S rDNA. The result of identification by coloration of Gram isolates AHM4 is Gram-positive bacteria. The result of determining the order of nucleotide isolates of bacteria AHM4 obtained the identity of *Bacillus Cereus* with a homology of 99%. Based on the search for the Uniprot site *Bacillus Cereus* is known to be registered as a protein producer SOD.

Keywords: SOD activity, *Bacillus Cereus*, Mangrove Forest, superoxide Dismutase