

ABSTRAK

MITHA OKTAVIA. M, 2022. UJI AKTIVITAS ENZIM SUPEROKSIDA DISMUTASE (SOD) EKSTRAK DAUN JAMBU BIJI (*Psidium guajava* L.) DENGAN METODE *WATER SOLUBLE TETRAZOLIUM SALT-1* (WST-1), SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.

Antioksidan adalah senyawa yang mampu menghambat kerusakan sel yang diakibatkan oleh radikal bebas. Enzim antioksidan meliputi superoksida dismutase, glutathion, dan katalase. SOD dapat memberikan perlindungan pada sel atas radikal bebas yang memunculkan timbulnya beberapa penyakit. Tanaman jambu biji merupakan salah satu tanaman yang mempunyai kegiatan SOD. Penelitian ini memiliki tujuan guna mengetahui aktivitas enzim Superoksida Dismutase (SOD) ekstrak daun jambu biji dengan konsentrasi amonium sulfat 25%, 50%, dan 75% menggunakan metode *Water Soluble Tetrazolium Salt-1*.

Penelitian ini menggunakan daun jambu biji yang di ekstraksi melalui cara penambahan buffer fosfat dan disentrifugasi. Pemurnian enzim SOD menggunakan amonium sulfat dengan konsentrasi 25%, 50%, dan 75%. Tahap selanjutnya penetapan kadar protein dengan metode *Lowry* dan uji aktivitas SOD melalui penggunaan metode WST-1 untuk menghitung persen inhibisi dan dianalisis menggunakan *one way ANOVA*.

Hasil penelitian memperlihatkan jika ekstrak daun jambu biji mempunyai aktivitas enzim SOD. Kadar protein total ekstrak kasar daun jambu biji dan pemurnian amonium sulfat konsentrasi 25%, 50% dan 75% secara berturut-turut nilainya sebesar 9,683 mg/mL; 6,958 mg/mL; 8,842 mg/mL; dan 11,269 mg/mL. Nilai persen inhibisi secara berturut-turut adalah 69,652%; 35,323%; 61,691% dan 79,104 dengan konsentrasi yang paling optimum adalah pada konsentrasi 75%.

Kata kunci : *Psidium guajava* L., radikal bebas, antioksidan, SOD, WST-1

ABSTRACT

MITHA OKTAVIA. M, 2022. ACTIVITY TEST OF SUPEROXIDE DISMUTASE (SOD) ENZYME LEAF EXTRACTS OF GUAVA (*Psidium guajava*L.) USING WATER SOLUBLE TETRAZOLIUM SALT-1 (WST-1) METHOD, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.

Antioxidants are substances that can prevent cell damage caused by free radicals. Antioxidant enzymes include superoxide dismutase, glutathione, and catalase. SOD can protect cells against free radicals that cause several diseases. One of the plants with SOD activity is the guava plant. The purpose of this research is to ascertain the superoxide dismutase enzyme activity in guava leaf extract with ammonium sulfate concentrations of 25%, 50%, dan 75% using the *Water Soluble Tetrazolium Salt-1* method.

This study used guava leaves which were extracted by adding phosphate buffer and centrifuging. Ammonium sulfate is used to purify the SOD enzyme at concentrations of 25, 50, and 75%. The Lowry method was used to assess protein content next, and the WST-1 method was used to measure SOD activity and determine the percent inhibition and analyzed using *one way* ANOVA.

The results showed that guava leaf extract had SOD enzyme activity. Total protein content of the crude extract guava leaves and purified ammonium sulfate concentrations of 25, 50 and 75% were 9.683 mg/mL; 6,958 mg/mL; 8,842mg/mL; and 11.269 mg/mL. The percent inhibition values were respectively 69.652%; 35,323%; 61.69% and 79.104% with the most optimum concentration is at a concentration of 75%.

Keywords: *Psidium guajava* L., free radicals, antioxidants, SOD, WST-1