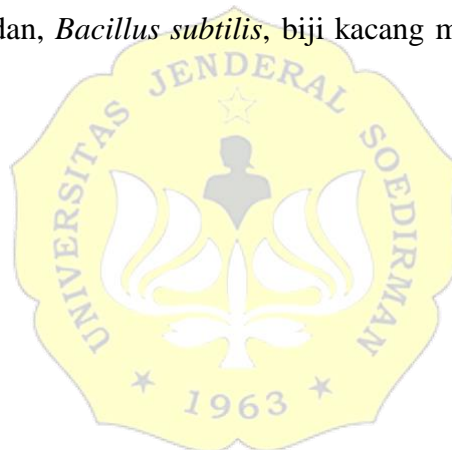


ABSTRAK

Peptida bioaktif merupakan salah satu senyawa dieksplorasi secara luas untuk diaplikasikan sebagai alternatif asupan antioksidan. Peptida bioaktif dapat diperoleh dengan metode hidrolisis enzimatis menggunakan enzim protease dari *Bacillus subtilis* B298. Biji kacang merah berpotensi digunakan sebagai sumber peptida bioaktif. Hidrolisis protein biji kacang merah dilakukan dengan variasi waktu hidrolisis 0, 10, 20, 30, 40, 50 dan 60 menit. Hidrolisat protein ditentukan aktivitas antioksidannya dengan metode *difenil- β -pikrilhidrazil* (DPPH) dan diuji hemolisis terhadap sel darah merah. Hasil penelitian menunjukkan bahwa aktivitas spesifik enzim 0,006 U/mg. Nilai derajat hidrolisis tertinggi diperoleh pada waktu hidrolisis 60 menit dengan nilai 44,7%. Hidrolisat protein dengan waktu hidrolisis 10 menit memiliki persentase inhibisi tertinggi dengan nilai AAI 0,097 dan termasuk kategori aktivitas antioksidan lemah. Persentase hemolisis hidrolisat protein yang didapatkan yaitu 1,9% dengan kategori tidak terjadi hemolisis.

Kata Kunci: antioksidan, *Bacillus subtilis*, biji kacang merah, hidrolisat protein, protease



ABSTRACT

Bioactive peptides are one of the widely explored compounds to be applied as an alternative antioxidant. Bioactive peptides can be obtained by enzymatic hydrolysis method using protease enzyme from *Bacillus subtilis* B298. Red kidney bean has potential as a source of bioactive peptides. Hydrolysis of red kidney bean protein was carried out with variations in hydrolysis time of 0, 10, 20, 30, 40, 50 and 60 minutes. Protein hydrolysates were determined for antioxidant activity using diphenyl- β -picrylhydrazyl (DPPH) method and tested for hemolysis assay of red blood cells. The results showed that the specific activity of the enzyme was 0,006 U/mg. The highest degree of hydrolysis was obtained at 60 min hydrolysis time, value of 44,7%. Protein hydrolysate with 10 minutes hydrolysis time had the highest percentage of inhibition with an Antioxidant Activity Index (AAI) 0,097 and was categorized as weak antioxidant activity. The percentage of protein hydrolysate hemolysis obtained was 1,9% and categorized as not occurred hemolysis compound.

Kata Kunci: antioxidant, *Bacillus subtilis*, protein hydrolysate, protease, red kidney bean

