

Intisari

PENGARUH LAMA HIDROLISIS MENGGUNAKAN BROMELIN TERHADAP AKTIVITAS ANTIOKSIDAN HIDROLISAT PROTEIN JEROAN GURITA

Jeroan gurita merupakan hasil samping yang memiliki kandungan protein yang berpotensi untuk ditingkatkan nilai ekonomisnya. Pengolahan menjadi hidrolisat dengan hidrolisis enzimatis dapat menghasilkan antioksidan yang bermanfaat pada bidang industri. Penelitian ini bertujuan untuk mengetahui pengaruh lama waktu hidrolisis dengan enzim bromelin terhadap rendemen, kadar air, kadar protein, derajat hidrolisis, dan aktivitas antioksidan hidrolisat protein jeroan gurita serta mengetahui lama waktu hidrolisis yang optimal terhadap aktivitas antioksidan hidrolisat jeroan gurita (HJG). Jeroan gurita yang telah dihaluskan kemudian dihidrolisis selama 2, 4, 6, 8 jam dengan 0 jam sebagai kontrol pada suhu 55°C dan pH 7 menggunakan enzim bromelin konsentrasi 1%. Sampel HJG diuji rendemen, kadar air, kadar protein total, derajat hidrolisis, serta uji aktivitas antioksidan menggunakan metode DPPH (1,1-difenil-2-pikrilhidrazil) dan ABTS (2,2-azinobis-3-Ethylbenzothiazoline-6-Sulfonic Acid). Hasil penelitian menunjukkan bahwa lama waktu hidrolisis tidak berbeda nyata terhadap rendemen dan kadar air, sedangkan kadar protein total menunjukkan nilai yang berbeda nyata pada setiap perlakuannya sekitar $42,98 \pm 0,12\%$ hingga $58,61 \pm 0,36\%$. Derajat hidrolisis tertinggi didapat pada perlakuan HJG8 sebesar $84,85 \pm 0,32\%$. Namun, berdasarkan uji aktivitas antioksidan dengan metode DPPH dan ABTS, perlakuan hidrolisis selama 6 dan 8 jam tidak memberikan nilai aktivitas antioksidan yang berbeda nyata, yaitu $71,95 \pm 1,74\%$ inhibisi dan $3,55 \pm 0,16 \mu\text{M TE}$ (HJG6) serta $88,77 \pm 0,55\%$ inhibisi dan $3,76 \pm 0,21 \mu\text{M TE}$ (HJG8).

Kata kunci: aktivitas antioksidan, enzim bromelin, hidrolisat protein jeroan gurita, hidrolisis enzimatis

Abstract

EFFECT OF HYDROLYSIS DURATION USING BROMELAIN ON ANTIOXIDANT ACTIVITY OF OCTOPUS VISCERA PROTEIN HYDROLYSATE

Octopus viscera is a by-product that has protein content that has the potential to increase its economic value. Processing into hydrolysates with enzymatic hydrolysis can produce antioxidants that are useful in the industrial field. This study aims to determine the effect of hydrolysis time with bromelain enzyme on yield, moisture content, protein content, degree of hydrolysis, and antioxidant activity of octopus viscera protein hydrolysate and to determine the optimal length of hydrolysis time on antioxidant activity of octopus viscera hydrolysate (OVH). The pulverized octopus viscera was then hydrolyzed for 2, 4, 6, 8 hours with 0 hours as control at 55°C and pH 7 using 1% concentration of bromelain enzyme. OVH samples were tested for yield, water content, total protein content, degree of hydrolysis, and antioxidant activity using DPPH (1,1-diphenyl-2-picrylhydrazyl) and ABTS (2,2-azinobis-3-Ethylbenzothiazoline-6-Sulfonic Acid) methods. The results showed that the length of hydrolysis time was not significantly different from the yield and water content, while the total protein content showed significantly different values in each treatment ranging from $42.98 \pm 0.12\%$ to $58.61 \pm 0.36\%$. The highest degree of hydrolysis was obtained in treatment HJG8 at $84.85 \pm 0.32\%$. However, based on the antioxidant activity test with DPPH and ABTS methods, the hydrolysis treatment for 6 and 8 hours did not give significantly different antioxidant activity values, namely $71.95 \pm 1.74\%$ inhibition and $3.55 \pm 0.16 \mu\text{M TE}$ (OVH6) and $88.77 \pm 0.55\%$ inhibition and $3.76 \pm 0.21 \mu\text{M TE}$ (OVH8).

Keywords: antioxidant activity, bromelain enzyme, octopus viscera protein hydrolysate, enzymatic hydrolysis