

Intisari

PENGARUH SUHU PENDINGERAN OVEN TERHADAP AKTIVITAS ANTIOKSIDAN HIDROLISAT PROTEIN INSANG LELE (*Clarias sp.*) YANG DIHIDROLISIS DENGAN ENZIM PAPAIN

Penelitian sebelumnya telah memanfaatkan insang lele sebagai bahan baku pembuatan hidrolisat protein ikan dan menyebutkan bahwa Hidrolisat Protein Insang Lele (HPIL) memiliki nilai antioksidan DPPH sebesar 85% dan antioksidan ABTS mencapai 9,57 μM TEAC (Athallah, 2023). Penelitian ini merupakan penelitian lanjutan yang bertujuan untuk mengetahui pengaruh suhu *oven drying* terhadap aktivitas antioksidan pada HPIL serta mengetahui ketahanan sifat fungsional antioksidannya terhadap panas. HPIL dihidrolisis dengan konsentrasi enzim papain “PAYA” 3% selama 48 jam, pH 7, dan suhu 55°C. Supernatan hasil *sentrifuge* dikeringkan dengan metode *oven drying* (suhu 60°C, 70°C, dan 80°C). Besar rendemen HPIL berkisar antara 5,95 \pm 0,06% hingga 6,55 \pm 0,20%. Selain itu, HPIL mengandung kadar lemak sebesar 7,15 \pm 0,34% hingga 10,1 \pm 0,59%, kadar air sebesar 1,59 \pm 0,61% hingga 3,1 \pm 0,08%, dan kadar abu sebesar 23,6 \pm 0,29% hingga 27,86 \pm 0,26%. Derajat hidrolisis ketiga perlakuan tidak signifikan berkisar antara 91,35% hingga 92,76%. Hasil penelitian menunjukkan bahwa suhu *oven drying* tidak mempengaruhi aktivitas antioksidan HPIL dengan persentase penghambatan DPPH sebesar 68,68% dan nilai antioksidan FRAP berkisar antara 6,93 \pm 0,04 μM Tr/mg hingga 6,95 \pm 0,01 μM Tr/mg. Nilai antioksidan IC₅₀ metode DPPH berkisar antara 1799,85 mg/L – 1749,50 mg/L (sangat rendah) sedangkan nilai IC₅₀ asam askorbat vitamin C sebesar 2,61 mg/L (sangat kuat). Meskipun HPIL memiliki aktivitas antioksidan yang rendah, namun antioksidan pada HPIL stabil akan suhu pengeringan. Selain itu, HPIL memiliki kandungan protein sebesar 55,87 \pm 0,69% hingga 59 \pm 0,17% yang dapat berpotensi menjadi bahan tambahan pangan tinggi protein.

Kata kunci: antioksidan, hidrolisat protein, suhu pengeringan

Abstract

EFFECT OF OVEN DRYING TEMPERATURE ON THE ANTIOXIDANT ACTIVITY OF CATFISH (*Clarias sp.*) GILL PROTEIN HYDROLYSATE HYDROLYZED WITH PAPAIN ENZYME

Previous research has utilized catfish gills as raw material for making fish protein hydrolysate and mentioned that Catfish Gill Protein Hydrolysate (CGPH) has a DPPH antioxidant value of 85% and ABTS antioxidant reaches 9,57 μM TEAC (Athallah, 2023). This study is continuous research that aims to determine the effect of oven drying temperature on antioxidant activity in CGPH and to determine the resistance of its antioxidant functional properties to heat. CGPH was hydrolyzed with a 3% concentration of papain enzyme "PAYA" for 48 hours at pH 7 and temperature at 55°C. The centrifuge supernatant was dried by oven drying method (temperatures of 60 °C, 70 °C, and 80 °C). The yield of CGPH ranged from 5,95 \pm 0,06% to 6,55 \pm 0,20%. In addition, CGPH had a fat content of 7,15 \pm 0,34% to 10,1 \pm 0,59%, a moisture content ranging from 1,59 \pm 0,61% to 3,1 \pm 0,08%, and an ash content ranging from 23,6 \pm 0,29% to 27,86 \pm 0,26%. The degree of hydrolysis of the three treatments was not significant, which ranges from 91,35% to 92,76%. The results showed that oven drying temperature did not affect the antioxidant activity of CGPH, with a DPPH inhibition percentage of 68.68% and FRAP antioxidant values ranging from 6,93 \pm 0,04 μM Tr/mg to 6.95 \pm 0.01 μM Tr/mg. The IC50 antioxidant value of DPPH method ranged from 1799,85 mg/L - 1749,50 mg/L (very low). Meanwhile, the IC50 value of vitamin C ascorbic acid was 2,61 mg/L (very strong). Although CGPH has low antioxidant activity, the antioxidants in CGPH are stable at high drying temperatures. In addition, CGPH has a protein content range from 55,87 \pm 0,69% to 59 \pm 0,17%, which could potentially be a high-protein for food additive.

Keywords: antioxidant, protein hydrolysate, drying temperature