

عنوان مقاله:

Study of antioxidant activity of sheep visceral protein hydrolysate: Optimization using response surface methodology

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خلاصه مقاله:

**BACKGROUND:** The main objective of this experiment was optimal use of none edible protein source to increase nutritional value of production with high biological function, including antioxidant activity. **METHODS:** Sheep visceral (stomach and intestine) was used as substrate. Response surface methodology (RSM) was used to optimize hydrolysis conditions for preparing protein hydrolysate from the sheep visceral, using alcalase ۲.۴۱ enzyme. The investigated factors were temperature ( $43-52^{\circ}\text{C}$ ), time ( $90-180$  min), and enzyme/substrate ratio ( $60-90$  Anson-unit [AU]/kg protein) to achieve maximum antioxidant activity. Experiments were designed according to the central composite design. **RESULTS:** Each of the studied variables had a significant effect on responses ( $P < 0.05$ ). Optimal conditions to achieve antioxidant activity were, temperature ( $48.27^{\circ}\text{C}$ ), time ( $158.78$ ), min and enzyme/substrate ratio ( $83.35$ ) Anson-unit/kg protein. Under these conditions, antioxidant activity was  $68.21\%$ ,  $R^2$  for model was  $0.983$ . The values indicated the high accuracy of the model to predict the reaction conditions considering different variables. The chemical analysis of protein hydrolysate showed high protein content ( $83.78\%$ ) and low fat content ( $0.33\%$ ). **CONCLUSION:** Our results showed that protein hydrolysate of sheep visceral, can be used as a natural antioxidant with high nutritional value. **Keywords:** Antioxidant Peptides, Protein Hydrolysate, Enzyme Hydrolysis, Optimization

کلمات کلیدی:

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