Effect of pH and temperature on the hydrolytic activities of some commercial endo-proteinases

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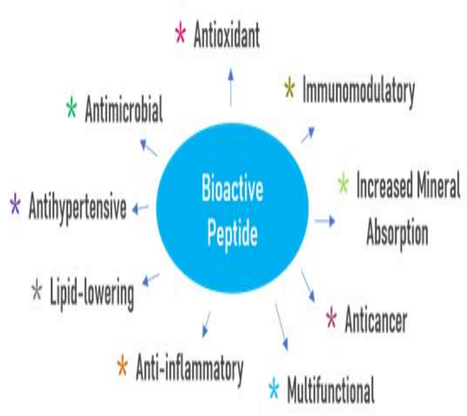
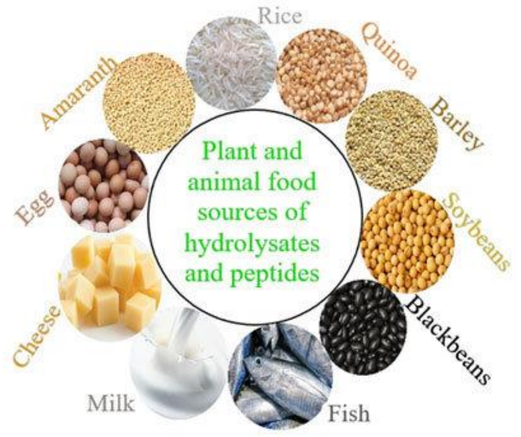
Introduction



Physiological Functions of Bioactive Peptides



Sources of Bioactive Peptides

- Endo-proteinases are enzymes that break down proteins into smaller peptide fragments and are commonly used for the production of bioactive peptides (BP) from protein sources.
- In this study, the effect of various parameters on the proteolytic activity of commercial proteases from Streptomyces griseus (PSG) type XIV, Bacillus licheniformis (PBL) type VIII, and Bacillus licheniformis (PB) type XXIV was investigated.

Objectives

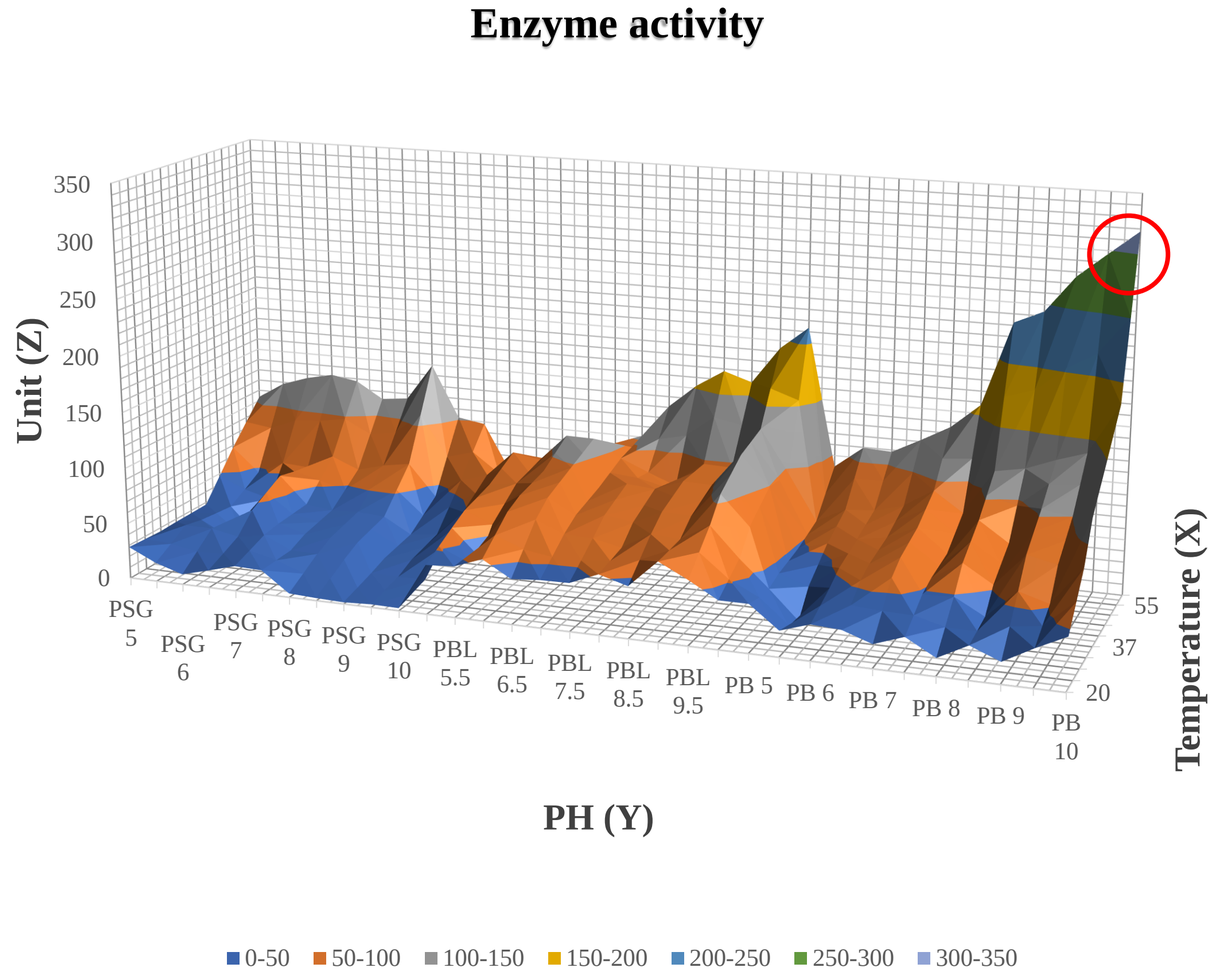
1. Endo-proteinase activity assay.
2. Commercial preparation characteristics:
   a) The influence of pH on enzyme activity.
   b) The influence of temperature on enzyme activity.
   c) The effect of the enzyme-substrate ratio.
   d) Product pattern determination.

Methods

1. The final assay mixture (2ml) contained:
   a) 1 ml of 0.2 M Tris-HCl buffer The influence of temperature on enzyme activity.
   b) . 0.5 ml of enzyme solution..
   c) 0.5 ml of the substrate in the tris-HCl buffer..
2. This mixture had incubated at temperatures ranging from 20 °C to 60 °C.
3. The reaction stopped with 3 ml of 5% trichloroacetic acid.
4. After 10 min, the mixture was centrifuged at 7000 g for 10 min.
5. The absorbance of the supernatant had determined at 280 nm using a Spectrophotometer.

Results

The results showed that the optimum pH and temperature were determined to be pH 8.5 for PSG, pH 9.5 for PBL, and pH 10 for PB at 60°C with an incubation time of 10 minutes.



Conclusion

- PB gave the highest activity compared to PBL and PSG.
- Our preliminary results can serve as a good base for designing and realizing bioprocesses for protein hydrolysate production.

Acknowledgments

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