

1 ***In vitro* and *in vivo* evaluation fish gelatin and gelatin hydrolysate in**
2 **opti-mal condition extraction of Hyp-containing peptide**
3 **concentration**

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6 **Outline**

7 **I. Introduction**

8 **II. Optimization of gelatin production from Barred mackerel by-products:**

9 **Characterization and hydrolysis using native and commercial proteases**

10 **III. Comparison of gelatin and low-molecular weight gelatin hydrolysate**

11 **ingestion on hydroxyproline (Hyp), Pro-Hyp and Hyp-Gly concentrations in**
12 **human blood**

13 **IV. Conclusion**

14 **Abstract**

15 In the process of aquatic product processing, a large amount of waste will be
16 generated, and most of these wastes are fish heads, fish bones, fish scales, fish skins,
17 etc. After extraction, gelatin can be obtained, and after hydrolysis of gelatin, it can be
18 found that it has antioxidant and anticancer activity. This study will find the optimal
19 extraction conditions of gelatin, the bioactivity of its hydrolyzate, and further evaluate
20 the concentration of free Hyp, Pro-Hyp and Hyp-Gly in blood after digestion and
21 absorption of gelatin hydrolyzate with different molecular weights. The results showed
22 that the antioxidant activity of gelatin hydrolyzate was $67.75 \pm 0.48\%$ and the
23 anticancer activity was $96.93 \pm 2.08\%$. The identified peptide sequence with higher
24 bioactivity was DAGLVGPREGKAGSGPGPYGPEGVFLPMGPR. The concentration
25 of free Hyp, Pro-Hyp and Hyp-Gly in human blood will increase. The results show that
26 the gelatin hydrolyzate contains active peptides that can be digested and absorbed by
27 the human body, and has the potential to develop functional food raw materials.

1 **Reference**

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9 commercial proteases. *Food hydrocolloids*, 108, 105970.